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BEST BEST & KRIEGER LLP

A CALIFORNIA LIMITED LIABILITY PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

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*A PROFESSIONAL CORPORATION

March 27, 2002

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John F. Hennigar
General Manager
Rancho California Water District
P.O. Box 9017
Temecula, CA 92589-9017

Dennis Williams, Ph.D.
Geoscience
P.O. Box 220
Claremont, CA 91711

RE: Cooperative Water Resource Management Agreement

Dear John and Dennis:

I am pleased to enclose for your records a conformed copy of the water management agreement executed on March 26, 2002.

Very truly yours,

Arthur L. Littleworth
of BEST BEST & KRIEGER LLP

ALL/ss
Enc.
cc: C. Michael Cowett, Esq. (w/enc.)

RVPUB\ALL\629746

John

w/agreement

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AUG 26 2002
RANCHO CALIFORNIA WATER DISTRICT

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA, Plaintiff, v. FALLBROOK PUBLIC UTILITY DISTRICT, a public service corporation of the State of California, et al., Defendants.	Case No. 1247-SD-T PROOF OF SERVICE BY MAIL

I am a resident of the State of California, over the age of eighteen years, and not a party to this within action. My business address is Best Best & Krieger LLP, 402 West Broadway, 13th Floor, San Diego, California 92101-3542. On August 22, 2002, I served the within document(s):

NOTICE OF ERRATA RE: STIPULATION AND ORDER APPROVING COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

☐ by transmitting via facsimile the document(s) listed above to the fax number(s) set forth below on this date before 5:00 p.m.

☒ by placing the document(s) listed above in a sealed envelope with postage thereon fully prepaid, in the United States mail at San Diego, California addressed as set forth below.

☐ by causing personal delivery by _____ of the document(s) listed above to the person(s) at the address(es) set forth below.

☐ by personally delivering the document(s) listed above to the person(s) at the address(es) set forth below.

Water Litigation Officer
Western Area Counsel Office
Box 555231
Camp Pendleton, CA 92055-5231

Patrick Barry, Esq.
Justice Dept. Land & Natural Resources
Indian Resources Section
P.O. Box 44378
Washington, DC 20026-4378

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John F. Hennigar, General Manager
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I am readily familiar with the firm's practice of collection and processing correspondence for mailing. Under that practice it would be deposited with the U.S. Postal Service on that same day with postage thereon fully prepaid in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

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UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA, Plaintiff, v. FALLBROOK PUBLIC UTILITY DISTRICT, a public service corporation of the State of California, et al., Defendants.	Case No. 1247-SD-T **NOTICE OF ERRATA RE:** STIPULATION AND ORDER APPROVING COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

Attached hereto is Exhibit "A" (Cooperative Water Resource Management Agreement) which was inadvertently omitted from the original Stipulation and Order Approving Cooperative Water Resource Management Agreement filed in the above-captioned action on August 19, 2002.

Dated: August 22, 2002

BEST BEST & KRIEGER LLP

By: _____
ARTHUR L. LITTLEWORTH
C. MICHAEL COWETT
REAGAN L. BRENNEMAN
Attorney for Defendant
RANCHO CALIFORNIA WATER DISTRICT

Original copy

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

between

CAMP PENDLETON

and

RANCHO CALIFORNIA WATER DISTRICT

March, 2002

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

1. Purpose. This Cooperative Water Resources Management Agreement ("Agreement") is between the United States, on behalf of Camp Pendleton (sometimes "Camp Pendleton"), and the Rancho California Water District, ("District"), and is effective upon approval of the Court. Certain terms used in this Agreement are defined in Exhibit "A" hereto, including a map of the Santa Margarita River watershed. At the present time, two Judgments affect the rights of the parties with respect to water supplies from the Santa Margarita River watershed. The first is a Stipulated Judgment in the case of Rancho Santa Margarita v. Vail, San Diego Superior Court Action No. 42850 ("1940 Judgment"). The second is the Judgment in the case of United States v. Fallbrook Public Utility District, Civ. No. 1247, S.D. Cal. ("Fallbrook Case"). However, these Judgments do not fully meet the needs of the parties for effective water management under present conditions. The meanings of certain provisions of the 1940 Judgment are also in dispute. The parties, therefore, propose to manage these water resources in a practical way that will meet their needs, consistent with the essential rights and obligations of the two Judgments, while avoiding potential conflicts over disputed provisions.

2. Term. Unless sooner terminated because of an uncured default as set forth in Section 15 below, this Agreement shall remain in effect for a minimum of 10 years

from its effective date, and until either party exercises its right to terminate as set forth in Section 16 below.

3. Incorporation in Fallbrook Case and Continuing Jurisdiction. The Agreement will be submitted to the Court for approval and incorporated by stipulation into the Fallbrook Case, pursuant to the Court's continuing jurisdiction therein, and will be administered by the Watermaster appointed by the Federal District Court, Southern District of California, by order dated March 13, 1989, or subsequent order. The Court shall retain continuing jurisdiction to make such further orders as may be necessary to interpret or enforce this Agreement, provided that the Court shall not have the power to modify the terms of this Agreement or the 1940 Judgment. If either party believes there is a substantial change of circumstances, the parties shall attempt to reach agreement as may be appropriate in light of the changed circumstances, or shall engage in mediation if agreement is not reached.

4. 1940 Judgment. The United States is the successor in interest to the plaintiff Rancho Santa Margarita in the 1940 Judgment. The Rancho California Water District is a successor in interest to the defendants in the 1940 Judgment, and has certain rights and obligations under a 1978 Agreement between KACOR Realty and Rancho California Water District relative to Vail Lake. Both parties have certain rights and entitlements under the 1940 Judgment and are obligated to comply therewith. Without waiving their rights and entitlements under the 1940 Judgment, the parties

intend to forbear enforcing them for so long as this Agreement is in effect and being complied with. The parties realize that certain provisions of this Agreement differ from the 1940 Judgment. For example, the measurement of the flows required to be maintained under this Agreement will be accomplished at USGS Gage ID No. 11044000 on the Santa Margarita River near Temecula ("the Gorge"), and those guaranteed flows to Camp Pendleton are in terms of usable flows, including habitat maintenance flows, instead of total flows. Without waiving any of their rights and entitlements under the 1940 Judgment, the parties agree that, to the extent provisions of this Agreement are inconsistent with the 1940 Judgment, the provisions of this Agreement shall control for so long as this Agreement is in effect and being complied with. The parties agree further that, so long as this Agreement is in effect and is being complied with, neither party will undertake any proceeding with respect to the 1940 Judgment against the other, either judicially or administratively. Should either party fail to comply with this Agreement, or should it expire or be terminated, the parties preserve their respective rights to enforce the 1940 Judgment against each other, as each interprets it, and the provisions of this Agreement shall not be used to supply meaning to the 1940 Judgment.

5. Guaranteed Flows at the Gorge.

(a) The parties have developed a Groundwater Model, which indicates that the simulated total natural streamflow at the Gorge over the period 1935-1998 would have averaged 30.35 cfs, without diversions or pumping. For the purpose of establishing flow requirements, the daily natural streamflow at the Gorge was simulated using the Hydrologic Simulation Program Fortran (HSPF) model developed by Camp Pendleton and reviewed by both parties. Both models are more fully described in Exhibit "B" hereto. Flows at the Gorge, as set forth in the table on page 5, are based on two-thirds of the median natural flow during very wet, above normal, below normal, and critically dry conditions. Daily flow values for very wet and critically dry conditions are based on the daily median flows for the periods 1937 to 1946 and 1957 to 1966, respectively. Above normal flows are based on the mean of the median of very wet flows and the median of all flows for the period 1931-1996. Similarly, below normal flows are based on the mean of the median of critically dry flows and the median of all flows for the period 1931-1996. This methodology eliminates the large storm flows from the calculation of required flows for Camp Pendleton (two-thirds of natural flow), and results in average annual flows ranging from 3.6 cfs to 15.6 cfs, with a median flow of 8.8 cfs for the period 1931-1996. The results of the modeling efforts and the above calculations are shown on the following table:

	Critically Dry Flow	Below Normal Flow	Above Normal Flow	Very Wet Flow
Month	cfs	cfs	cfs	cfs
Jan - April	4.5	8.0	17.8	24.1
May	3.8	5.7	11.7	15.7
June	3.3	4.9	9.4	12.2
July	3.0	4.3	7.8	9.7
August	3.0	4.4	7.6	9.2
September	3.0	4.1	7.4	9.4
October	3.0	3.9	7.7	10.1
November	3.0	4.5	8.8	11.5
December	3.3	5.3	10.4	13.5

The hydrologic conditions described in the table above are derived from a hydrologic index combining the October through April natural streamflow at the Murrieta Creek gage, and the October through April natural streamflow at Vail Lake. Natural flow at Murrieta Creek is calculated using the rainfall/run-off relationship between rainfall at Wildomar and the HSPF natural flow at Murrieta Creek. Natural flow at Vail Lake is calculated using the run-off correlation between Aguanga streamflow and inflow to Vail Lake during the period water years 1958 to 1996.

On May 1st of each year the October through April rainfall at Wildomar is used to estimate natural flow at Murrieta, and the October through April measured

streamflow at Aguanga is used to estimate natural flow at Vail Lake. A simple computer spreadsheet, maintained and operated by the Technical Advisory Committee ("TAC"), adjusts for antecedent conditions and calculates the hydrologic index based on these input parameters. The computer spreadsheet is more fully described in Exhibit "C" hereto. Once the hydrologic condition is determined, the above table is then used to prescribe the flows at the Gorge.

Recognizing the seasonal variations in such flows that naturally occur under different hydrologic conditions, it is agreed that the District hereby guarantees winter and monthly minimum average flows at the Gorge as hereinafter provided. Full implementation of such guarantee requires the construction of certain facilities, which the District agrees to construct as expeditiously as possible. Any make-up obligations in excess of 3.0 cfs shall commence upon completion of such facilities, but in no event later than June 1, 2002, unless precluded by law.

(b) The winter period includes the months of January through April. For the winter period, minimum daily flow requirements are: 11.5 cfs for very wet and above normal conditions; 8.0 cfs for below normal conditions; and 4.5 cfs for critically dry conditions. Notwithstanding the foregoing, in the first winter period following the effective date of this Agreement, the minimum daily flow requirement is 11.5 cfs, calculated on a 10 day running average. The District shall provide whatever make-up water is needed to meet this requirement. On May 1st immediately following the first

winter period, and on each May 1st thereafter, the hydrologic condition for the immediately preceding October-April period shall be determined. Such condition, and the daily flow requirements set forth in this Section 5(b), shall be used to determine the actual flow requirement for the prior winter period, and whether this requirement was exceeded. In providing minimum daily flows of 11.5 cfs during the first winter period, if the District has provided make-up water in excess of its actual requirement, the District shall be entitled to a credit for such excess. The quantity of the excess flow shall be converted to a cfs equivalent, and applied during the following winter periods to reduce the 11.5 cfs requirement. In all years following the first winter period, the same procedure shall be followed, provided that the minimum daily flow requirement for each winter period shall be 11.5 cfs, less any credit unused in a previous year, and less any credit established by the May 1st accounting of the prior year.

(c) The non-winter period includes the remaining months of May through December. Minimum daily flow requirements, calculated on a 10 day running average, for the non-winter months are provided by the above table, based upon the particular hydrologic condition established on May 1st for the prior October-April period; provided that the 10 day average shall begin on the 11th day of each month. The District shall provide whatever make-up water is required to meet these monthly requirements.

(d) Notwithstanding any provision to the contrary, the District shall not be required to provide more than the equivalent of 11.5 cfs make-up water for any month.

(e) When the District is required under this Section to provide make-up water in any calendar year in excess of 4000 acre feet, measured at the Gorge, it shall be entitled to a credit for the excess, taking into account transmission losses, to be applied during the following two winter periods. Any deliveries pursuant to Section 17 are outside of, and in addition to, this subsection. The United States shall have the option of eliminating the District's credit in this subsection by the United States, or its designee, paying the District a cash amount equal to The Metropolitan Water District of Southern California's then current price for untreated water.

(f) Notwithstanding any provision to the contrary, the District guarantees that flows, based upon a 10 day running average, shall at no time be less than 3.0 cfs, and this obligation is independent of the construction of any facilities.

(g) Camp Pendleton, with the cooperation of the District, shall institute a monitoring program to assess the impacts of the parties' operations under this Agreement on the water supply, water quality and riparian habitat within Camp Pendleton. If adverse impacts are observed or if notice of such impacts is provided to Camp Pendleton by the Environmental Protection Agency, Fish and Wildlife Service, or other monitoring agencies, the District will cooperate with Camp Pendleton to assess operations under this Agreement to determine whether and what changes may be

needed to remedy such impacts. The District agrees to participate in good faith in appropriate watershed protection or watershed planning activities aimed at preserving water quality, enhancing watershed recharge, and encouraging watershed conservation within the Santa Margarita River watershed.

6. Makeup Water. Compliance with the requirements of Section 5 shall be based upon actual flow measurements as recorded by the USGS gage at the Gorge. Any losses of makeup water incurred between the point of discharge by the District and the Gorge shall be borne by the District, and shall not diminish the United States' entitlement, as measured at the Gorge. Makeup water which the District may be required to release at the Gorge in order to comply with the requirements of Section 5 may be supplied at its option from: (1) its wells upstream of the Gorge; (2) flows from its Live Stream Discharge Project subject to the provisions of the NPDES Permit and Section 9 below; (3) deliveries from its domestic water system; (4) deliveries of imported water from The Metropolitan Water District of Southern California; (5) or Vail Reservoir. With the consent of Camp Pendleton, the District may substitute treated water by exchange or direct delivery to Camp Pendleton for flow at the Gorge. Makeup water that the District releases to the stream shall meet all requirements of the California Water Quality Control Board, San Diego Region, and shall not cause a violation of any rule, regulation, standard or objective established by federal, state, or

local enforcement agencies, including but not limited to the federal and state Safe Drinking Water Acts.

7. Safe Yield Operation.

(a) The District agrees to manage its pumping of the "natural supply of groundwater" in the area upstream of the Gorge on a "safe yield" basis. The term "natural supply of groundwater" as it is used herein includes all return flows that recharge the groundwater supply, including return flows from imported and reclaimed water. "Safe yield" recognizes that groundwater levels will fluctuate during hydrologic cycles, and that amounts of pumping may also vary from year to year, but that the District's pumping over time will not cause damage to the aquifers. The District's demands in excess of safe yield will be met from imported or reclaimed water supplies.

(b) In addition to its pumping of the natural supply, the District shall be entitled to pump such amounts of direct import water recharge and direct reclaimed water recharge as may have been percolated and stored underground by way of the VDC operations or other direct recharge facilities.

(c) So long as the quantity of groundwater extracted by the District, including makeup and emergency water provided hereunder, does not exceed safe yield as set forth above, and subject to Section 19 of this Agreement, there are no restrictions on the number of wells which the District may operate, where they may be located, the

aquifers from which they may draw water, or the amounts of groundwater which may be pumped from each well.

(d) The District, with the cooperation of Camp Pendleton, shall install and maintain a multi-level monitoring network to obtain additional data which, when reviewed with the data from the surface monitoring system, may be used to assess safe-yield operations. The District, in consultation with Camp Pendleton, shall update the Groundwater Model from time to time but in no event less frequently than every five years. The Groundwater Model will be updated with current data and such other improvements as may be appropriate, and shall be utilized to monitor conditions, and to indicate whether adjustments to the District's pumping are required to operate within the safe yield of the basin.

8. Vail Dam and Reservoir.

(a) The District holds Permit 7032 from the State Water Resources Control Board for the construction and operation of Vail Dam and Reservoir. The Reservoir will be operated in accordance with such permit, as amended by the District's current application on file with the Board. The District's operations of the Reservoir are also constrained by its agreement with KACOR Realty, Inc., dated April 28, 1978, with respect to recreation levels in the Reservoir. The United States is not a party to this KACOR agreement and disputes the applicability of the Vail Lake recreational pool limit to the United States. The District agrees, in accord with the Mahlon Vail

letter dated October 6, 1947, that its yield from the Reservoir and all losses including net evaporation are chargeable against its one-third share under the 1940 Judgment. Moreover, the District agrees that the pumping of water that has been released from the Reservoir and has percolated underground downstream shall be a part of, and not an addition to, the natural supply and safe yield of the basin.

(b) The United States on behalf of Camp Pendleton only will withdraw without prejudice the protest filed with the State Water Resources Control Board to the District's Permit 7032 change petition, provided that if this Agreement should be terminated, the United States shall have the right to reinstitute its protest, and any Permit amendments shall be conditioned upon such right. The United States will also seek dismissal of the case entitled United States of America v. Rancho California Water District, Riverside County Superior Court, Case No. EO 14837, Court of Appeal, Fourth Judicial District, Case No. 229096, each side to bear its own costs and attorneys fees. Except as allowed under Permit 7032, or any license confirming such rights, the District agrees that it will not seek rights from the State Water Resources Control Board, or otherwise, to store natural surface water flows of the Santa Margarita River or its tributaries.

(c) On December 2, 1999 Vail Lake USA, LLC, as a claimed successor to KACOR Realty, Inc. under the April 28, 1978 Agreement with the District, gave notice to the District alleging that the District had failed to perform its obligations under

the Agreement; that Vail Lake USA, LLC was exercising its claimed right of reversion; and that it intended to retake possession of Vail Dam and Reservoir, among other properties. The District disputes this claim, and believes that it is without merit. However, the District's rights and obligations under this Agreement stem in part from the acquisition of Vail Dam and Reservoir pursuant to the April 28, 1978 Agreement, and should Vail Lake USA, LLC be successful in its claim, it may be necessary to modify this Agreement section accordingly. The District agrees to oppose, and the United States shall take such action as it deems appropriate, any effort by Vail Lake USA, LLC, or its successor, through amendment of Permit 7032 or otherwise, to export any waters subject to such permit for use outside of the Santa Margarita River watershed, or otherwise to interfere with the historic use of such stored waters.

9. Live Stream Discharge Project. Subject to the provisions of the Four Party Agreement, or any amendments thereto, flows discharged to the stream by the District from its Santa Rosa Water Reclamation Facility pursuant to and in compliance with Order No. 96-54, NPDES Permit No. CA0108821, or any amendments thereto or extension thereof, shall be considered part of the flows at the Gorge to which the United States is entitled, and may be used to provide any makeup water required to meet such entitlements.

10. Monitoring. In addition to the monitoring programs required under Section 5(g) hereunder, the Watermaster appointed in the Fallbrook Case shall measure

and monitor both water flows and water quality at the Gorge, and shall incorporate into his reports the results of all monitoring programs provided for in this Agreement.

11. Use of Flows. The flows at the Gorge guaranteed herein, and any make up obligation by the District, shall be subject to the reasonable and beneficial use requirements of federal and California law. It is expressly recognized that the minimum flows set forth in Section 5 may be used to meet the ecological habitat maintenance requirements for the riparian corridor below the Gorge, and that such use constitutes a reasonable and beneficial use.

12. Upstream Pumping by Others. To the extent that it is legally capable, the District shall be responsible for controlling, if necessary, any pumping or diversions by non-federal entities within its boundaries. Except for any actions undertaken by any Indian tribe, band or community or any federal agency, and further excepting any actions affecting federal lands or the trust resources of any Indian tribe, band or community located within the Santa Margarita River watershed, the parties agree to act jointly, by judicial means or otherwise, to prevent any pumping or diversion upstream of the Gorge by others located outside of the boundaries of the District from adversely affecting flows at the Gorge. In any event, none of the pumping upstream of the Gorge shall affect the District's obligations set forth in Sections 5 and 6.

13. Annual Report. By March 31 of each year, the Watermaster shall prepare an annual report for filing in the Fallbrook case on the performance of this Agreement

during the prior water year. He shall consult with the TAC on the contents of such report.

14. Technical Advisory Committee. The TAC, which shall continue to include the Watermaster, will serve as a forum for discussion and cooperation between the parties as to the performance of this Agreement. The TAC will conduct the reviews described in Sections 5 and 7, and may also, with the approval of the parties, undertake such studies as may be useful in implementing the Agreement. Such studies may include, but are not limited to, updating and reviewing the performance of the Groundwater Model and the HSPF Model; evaluating safe yield; calculating transmission losses; groundwater conditions and any changes in groundwater storage; comparing actual data with the assumptions used in negotiating this Agreement; identifying any substantially changed hydrologic conditions within the watershed; and determining losses of any groundwater stored for the account of Camp Pendleton.

15. Default. Should either party fail to perform any portion of this Agreement, or otherwise breach any of its respective obligations under this Agreement, and upon notice of such breach or failure to perform, the party which is alleged to be in default shall cure its default within thirty days of receipt of notice, or within a reasonable time in the event more time is required. In the event of a dispute over the default, either party may apply to the Federal Court in the Fallbrook case, under its continuing jurisdiction, to obtain appropriate judicial relief. During the pendency of the court

proceedings, the party alleged to be in default shall continue to cure the default, unless otherwise directed by the court. If the alleged default has been totally or partially cured, but an actual default is not finally established by the court, the curing party shall be entitled to appropriate relief to compensate it for the expense of its total or partial cure. If the default is not cured or excused by the court, the other party shall be entitled to terminate the Agreement without further notice, notwithstanding any provision in Section 16. Once terminated, the covenant to forbear from enforcing rights under the 1940 Judgment as set forth in Section 4 above will no longer apply and either party may then undertake judicial or administrative proceedings with respect to the 1940 Judgment.

16. Termination. In addition to the right to terminate upon an uncured default as set forth in the preceding Section, either party shall have the right to terminate this Agreement with or without cause upon two years written notice; provided, however, that in no event shall the right to terminate under this Section be exercised prior to ten years after the effective date of this Agreement, including the two years notice. Once terminated, the covenant to forbear from enforcing rights under the 1940 Judgment as set forth in Section 4 above will no longer apply, and either party may then undertake judicial or administrative proceedings with respect to the 1940 Judgment.

17. Emergency Supplies. In the event that the Commanding General of Camp Pendleton declares a water supply emergency based upon a drought affecting the water

supply to Camp Pendleton and its riparian habitat corridor, or upon mobilization demands requiring additional potable water supplies for Camp Pendleton, and upon agreement of the parties or approval of the Court, the District will: (1) work with Camp Pendleton to acquire untreated water from the San Diego Aqueduct of The Metropolitan Water District of Southern California, and discharging such water into the Santa Margarita River or its tributaries; (2) deliver water in the amount of any groundwater held by Camp Pendleton in the basin upstream of the Gorge into the Santa Margarita River at the Gorge; or (3) assist in supplying treated water directly or by exchange to Camp Pendleton. Camp Pendleton may acquire rights to such groundwater above the Gorge by foregoing its right to makeup water from the District; or to the extent that the District's actual flow maintenance requirements are less than the flows in the table in Section 5; provided: (1) that Camp Pendleton's rights to such groundwater in storage shall not exceed 5000 acre-feet at any one time; and provided further: (2) that the District's obligation to deliver stored groundwater shall not exceed 2200 acre-feet per year over any required makeup obligation which the District may have, and in no event at a rate in excess of 11.5 cfs. Any such groundwater held in the basin for the account of Camp Pendleton shall be subject to a proportionate share of losses. All governmental approvals required to discharge either Metropolitan Water District water or stored groundwater into the river, pursuant to this Section, shall be the responsibility of Camp Pendleton.

18. Use of River Channel. With respect to the flow requirements under Section 5 and the emergency surplus delivered to the Gorge under Section 17, it is the Parties' express intent that the natural channel of the Santa Margarita River serve as a conduit for delivery of those flows to Camp Pendleton.

19. Federal and Indian Water Rights. This Agreement is entered into by the United States solely on behalf of Camp Pendleton and not on behalf of any other federal agency or in any other capacity, including, but not limited to, its capacity as trustee for any Indian tribe, band or community. Nothing in this Agreement may affect the water quality, water rights or the water rights claims of any Indian tribe, band or community or federal agency located within the Santa Margarita River watershed, or of the United States acting on their behalf.

20. Representations and Warranties. The parties to this Agreement represent and warrant as follows:

(a) The parties affirm that the representatives executing the Agreement are empowered to do so and thereby bind the respective parties, and that there is no other condition to be satisfied or approval to be secured from any governmental or quasi-governmental agency or body in order to execute this Agreement;

(b) Each party affirms its present competence to enter into the settlement provided for in this Agreement, with respect to the advisability of executing this Agreement, and with respect to its meaning;

(c) Each party affirms that, as of the effective date of this Agreement, each has not previously assigned or transferred in any manner, or purported to have assigned or transferred in any manner, any of the claims set forth in this Agreement;

(d) No party is relying upon any statement, representation or promise of any other party or any officer, director, agent, partner, employee, consultant, representative or attorney of or for any other party in executing this Agreement or in making the settlement provided for, except as expressly stated in this Agreement and admissible to interpret the Agreement.

21. Successors-in-Interest and Assigns. Subject to any restriction on transferability contained in this Agreement, this Agreement shall be binding upon and shall inure to the benefit of the successors-in-interest and assigns of each party to this Agreement. Nothing in this Section shall create any rights enforceable by any person not a party to this Agreement, except for the rights of the successors-in-interest and assigns of each party to this Agreement, unless such rights are expressly granted in this Agreement to other specifically identified persons.

22. Integration. This Agreement is an integrated agreement and constitutes the entire Agreement between the parties and supersedes all prior and contemporaneous oral and written agreements and discussions.

23. Modification in Writing. This Agreement may be modified only by a writing executed by the parties to this Agreement against whom enforcement of such modification is sought.

24. Drafting Ambiguities. Each party to this Agreement and its counsel have reviewed and revised this Agreement. The rule of construction that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement or of any amendments or exhibits to this Agreement.

25. Partial Invalidity. Each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law. If any provision of this Agreement or the application of such provision to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Agreement or the application of such provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected by such invalidity or unenforceability, unless such provision or such application of such provision is essential to this Agreement.

26. Waiver. Any waiver of a default under this Agreement must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this Agreement. No delay or omission in he exercise of any right or remedy shall impair such right or remedy or be construed as a waiver. A consent to or approval of any act shall not be deemed to waive or render unnecessary consent to or approval of any other or subsequent act.

27. Further Assurances. Each party to this Agreement shall execute all instruments and documents and take all actions as may be reasonably required to effectuate this Agreement.

28. Time of Essence. Time and strict punctual performance are of the essence with respect to each provision of this Agreement.

29. Headings. The headings of the Sections of this Agreement have been included only for convenience, and shall not be deemed in any manner to modify or limit any of the provisions of this Agreement, or be used in any manner in the interpretation of this Agreement.

30. Effectiveness. This Agreement shall become effective when it has been executed by all of the parties, and approved by the Court as provided in Section 3.

31. Anti-Deficiency Act. The parties to this Agreement recognize and acknowledge that any payment obligations of the United States on behalf of Camp Pendleton in satisfaction of this Agreement can only be paid from appropriated funds legally available for such purpose. Nothing in this agreement shall be interpreted as a commitment or requirement that the United States obligate funds or pay costs in contravention of Anti-Deficiency Act, 31 USC §§ 1301, 1341, or any other applicable provision of law.

32. Notice. All notices or other communications required or permitted to be given to a party to this Agreement shall be in writing and shall be personally delivered,

sent by registered or certified mail, postage pre-paid, return receipt requested, or sent by an overnight express courier service that provides written confirmation of delivery to such party at the following respective addresses:

UNITED STATES:	Assistant Attorney General United States Department of Justice Environmental and Natural Resources Division Washington, DC
WITH A COPY TO:	Director, Office of Water Resources Box 555013, MCB Camp Pendleton, CA 92055-5013
DISTRICT:	General Manager Rancho California Water District P.O. Box 9017 Temecula, CA 92589-90017
WITH A COPY TO:	General Counsel Rancho California Water District P.O. Box 9017 Temecula, CA 92589-9017

UNITED STATES OF AMERICA

Date: 3/26/02

By: _____
Andrew F. Walch, Senior Counsel
United States Department of Justice
Environment and Natural
Resources Division
General Litigation Section
999 18th Street, Suite 945
Denver, CO 80202

Date: 3/26/02

By: _____

_____

_____

United States Marine Corps
Camp Pendleton, California

RANCHO CALIFORNIA WATER DISTRICT

Date: 3-26-02

By: Lisa D. Herman
President

ATTEST:

Linda M. Fugro
Secretary

APPROVED AS TO FORM

BEST BEST & KRIEGER LLP

Arthur L. Littleworth
Arthur L. Littleworth

C. Michael Cowett
C. Michael Cowett

EXHIBIT A

DEFINITIONS AND MAP

EXHIBIT A

DEFINITIONS

Basin	The groundwater basin consists of the Temecula, Pauba, and Younger Alluvial aquifers. The younger alluvial aquifer is located along the river bottoms and is generally considered the most permeable. The Pauba and Temecula aquifers underlie the Younger Alluvium and are generally less permeable.
Direct Recharge Facilities	Direct recharge facilities presently include the Valle De Caballos located in the upper part of the Pauba Valley. Natural run-off from Temecula Creek is released from Vail Lake and imported waters are diverted to the VDC to recharge the aquifers used for groundwater production from the groundwater system.
Gorge	The Gorge is located at the head of the Santa Margarita River at the confluence of Murrieta and Temecula Creeks. The USGS presently operates streamflow gage 11044000 at the Gorge with a period of record beginning in 1923.
Groundwater Model	The groundwater model simulates surface and groundwater movement in the Younger Alluvium, Pauba, and Temecula aquifers. The groundwater model uses the USGS's finite difference code MODFLOW and consists of 102 rows, 127 columns, and three layers. The transient calibration period extends from 1935 to 1999 using quarterly stress periods. The groundwater model was developed from 1995 to 1999 by the District with continuous involvement by all members of the TAC.
Groundwater Supply	Groundwater supply includes the natural supply and that portion of imported water, reclaimed water, and other waters that directly or indirectly recharge the three aquifers.
Groundwater System	The Groundwater system is described by the groundwater model and consists of all aquifers located above the Gorge. Furthermore, recharge from direct precipitation, recharge from surface water, discharge to surface water, subsurface recharge, and movement of water between aquifers also pertain to the groundwater system.

HSPF Surface Water Model	The Hydrologic Simulation Program Fortran (HSPF) surface water model was developed to simulate natural flow at the Gorge. The model was calibrated using the period water year 1931 through 1936 as natural flow conditions in the upper basin. The model was developed in 1999 by Camp Pendleton and reviewed by the TAC.
Imported Water	Water the source of which is outside the Santa Margarita River watershed.
Natural Supply	The natural supply of water in the upper basin is defined by the amount of water that is recharged to the groundwater system from direct precipitation, surface flow, releases from Vail Lake, subsurface inflow, and return flow from imported or reclaimed water.
TAC	The Technical Advisory Committee (TAC) consists of representatives from the Rancho California Water District, Camp Pendleton, the United States Geological Survey, and the Watermaster.
VDC	The Valle De Caballos (VDC) is a direct recharge facility located in the upper portion of Pauba Valley. Both natural run-off and imported water are applied at these facilities in order to recharge the groundwater system.
Year	Unless otherwise indicated, year refers to the water year running from October 1st through September 30th of the following year.

SANTA MARGARITA RIVER WATERSHED

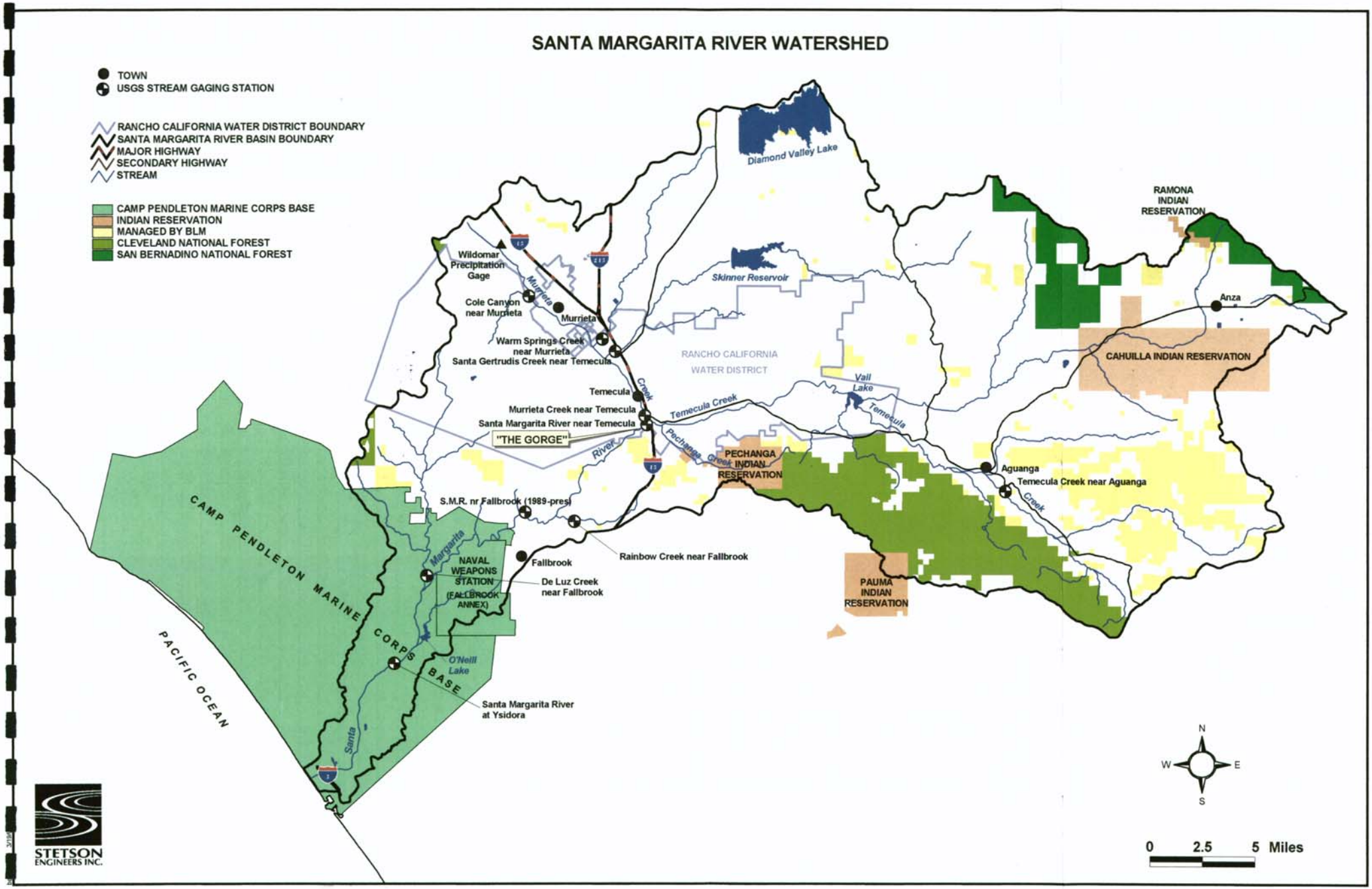


EXHIBIT B

DESCRIPTION OF THE GROUNDWATER MODEL AND HSPF SURFACE WATER MODEL, AND APPLICATION TO FLOW REQUIREMENTS

DESCRIPTION OF THE GROUNDWATER MODEL AND HSPF SURFACE WATER MODEL, AND APPLICATION TO FLOW REQUIREMENTS

The purpose of this Exhibit is to memorialize and explain the method used to develop the flows guaranteed in the Agreement. To the extent there may be any inconsistencies, the language of the Agreement, and not this Exhibit, establishes the District's flow guarantees.

MODFLOW GROUNDWATER MODEL

The RCWD/CAMP PENDLETON surface and groundwater model (Groundwater Model) was developed to investigate the effects of groundwater pumping on streamflow within the Murrieta-Temecula area of Riverside County in southern California. The Groundwater Model was developed by GEOSCIENCE Support Services, Inc. (GEOSCIENCE) in cooperation with the United States Geologic Survey (USGS). Rancho California Water District (RCWD), the United States Marine Corps - Camp Pendleton Base (Camp Pendleton), Stetson Engineers, Inc. (Stetson), and the Santa Margarita River Watershed Watermaster (SMR Watermaster).

The Groundwater Model was developed for streams and the unconsolidated and poorly consolidated sediments of the Murrieta-Temecula Basin. The Groundwater Model consists of three distinct model layers: Layer 1 - Younger Alluvium; Layer 2 - Pauba Formation; and Layer 3 - Temecula Arkose. The streams crossing the model area in the aquifers (i.e., Younger Alluvium, Pauba Formation and Temecula Arkose) can be both influent (losing water to the aquifer) and effluent (gaining water from the aquifer). The streamflow inflow components are the surface runoff generated from rain events and water gained from aquifers. The streamflow outflow components are leakage into the aquifers and flow out of the model area through the Gorge. The primary sources of recharge to the aquifers include subsurface recharge, underflow recharge, areal recharge, artificial recharge, return flow and streamflow leakage. The primary discharge terms are groundwater pumping, evapotranspiration, underflow discharge and leakage out of the aquifer.

MODFLOW was the computer code used in the Murrieta-Temecula Basin model. MODFLOW is a block-centered, three-dimensional, finite-difference groundwater flow model developed by the USGS (McDonald and Harbaugh, 1988) for the purpose of modeling groundwater flow model to account for the interaction between surface streams and groundwater.

The model covers approximately 288 square miles with a three layer variable-grid network consisting of 102 nodes in the north-to-south direction (i-direction), 127 nodes in the west-to-east direction (j-direction), for a total of 38,862 nodes. Most nodes represent an area 600 ft (north-south) by 600 ft (east-west). Nodes near the edges of the model are of variable size, ranging up to 5,000 ft on a side.

The period selected for the model calibration was 1935 to 1994. This period covers various wet and dry hydrologic cycles, and pre-development and development conditions. A quarterly stress period was used for model calibration. After the model was calibrated, a verification run (Run 89) was simulated by adding the period 1995-1998 to the final model calibration run (Run 88B).

Model simulation (Run 93) of the condition of actual precipitation without any pumping or any effect of Vail Dam was conducted to calculate the natural streamflow at the Gorge. This was done using the same model input data from Model Run 89 (final calibration and verification) except for the Streamflow-Routing Package and Well Package. Quarterly flux for Vail Releases and Vail Spill of the Streamflow Routing Package was based on the net Vail Dam inflow. The net Vail Dam inflow calculation involve estimating the calculated Vail inflow by balancing the Vail Dam releases, Vail Dam spill, evaporation, precipitation and change in storage on a monthly basis. The net Vail Dam inflow then can be calculated by subtracting the evapotranspiration of the phreatophytes under no Vail Dam conditions, from the calculated Vail Dam inflow. The well package was recompiled to include only subsurface recharge, underflow recharge, and underflow discharge. RCWD pumping, private pumping, artificial recharge, and return flow were excluded. The results of this model run are presented in the report Surface and Groundwater Model of the Murrieta-Temecula Basin, California (GEOSCIENCE, 2000).

HSPF SURFACE WATER MODEL

Monthly base flows at the Gorge are defined by hydrologic conditions based on rainfall at the Wildomar precipitation station and streamflow at the Aguanga streamflow gage (see Exhibit C). The current hydrologic condition and the monthly base flows are used in Section 5 of the Agreement to provide a basis for supplementing streamflow at the Gorge to meet the flow guarantees of the Agreement.

Natural streamflow at the Gorge was simulated using daily precipitation input values to the HSPF model. The calibration period chosen was from October 1930 to September 1936 and the transient period extended from 1936 to 1996. HSPF is able to account for antecedent conditions in the watershed using daily rainfall data from the Wildomar rain gage. Figure B-1 shows a comparison of simulated versus actual streamflow during the calibration period. Frequency distribution tables and plots were constructed to show the distribution of daily natural flow on a monthly basis. The results of this analysis is presented in Technical Memorandum 3.0 (Stetson Engineers, March 1, 2000)

COMPARISON OF HSPF AND RCWD/CAMP PENDLETON GROUNDWATER MODELS

The Environmental Protection Agency's Hydrologic Simulation Program Fortran (HSPF) was used to simulate daily streamflow based on daily precipitation data from the Wildomar station. The correlation between rainfall and runoff provides the ability to determine the conditions of the basin based on daily rainfall data. The RCWD/Camp Pendleton Groundwater Model simulates streamflow at the Gorge based on quarterly values of tributary inflow, subsurface inflow, aerial recharge and other recharge mechanisms.

TABLE B-1

COMPARISON OF HSPF AND GROUNDWATER MODEL NATURAL FLOW QUARTERLY STREAMFLOW VALUES AT THE GORGE (1935 TO 1996)

QUARTERLY PERIOD	MEDIAN HSPF (CFS)	MEDIAN G-W MODEL (CFS)	DIFFERENCE (%)
October – December	8.8	10.0	14
January – March	19.0	17.1	-10
April – June	11.7	10.1	-13
July – September	7.9	7.7	-2
Annual Mean	11.8	11.2	-5

Comparison of quarterly values of both the HSPF and Groundwater Model indicates a high degree of correlation. Statistically, the annual mean of quarterly median streamflow of both the HSPF and Groundwater Models is 11.82 cfs and 11.24 cfs, respectively. Quarterly medians are also similar between the two models, differing by no more than 1.9 cfs (10%) during the winter quarter (Table B-1). The natural flow analysis presented in this exhibit is based on the HSPF model since it compares well with the Groundwater Model, is based on daily precipitation, and can be calculated on either a daily, monthly, or annual basis.

NATURAL FLOW OF THE SANTA MARGARITA RIVER NEAR TEMECULA

The frequency distribution table and graphs allow the hydrologist to estimate the statistical occurrence and probabilities of specific flows. This method is extremely useful in southern California streams with flows that vary order of magnitudes during any given year. The 50% probability on the frequency distribution graph represents the median daily flow for the stream system. In general, flows calculated based on means will be greater than flows based on the median. For example, the mean daily natural flow during the month of October is calculated to be 10.6 cfs, while the median flow is simulated to be only 7.9. During high flow months such as February, mean daily natural flow is estimated to be 211 cfs, while median daily flow during the same month is 17.4 cfs. Frequency distribution allows hydrologists to estimate the variability and distribution of flows based on seasonal and hydrological changes.

Streamflow values during dry, normal, and wet hydrologic conditions may be estimated using the variability of the historical natural flow during dry, normal, and wet hydrologic conditions. In order to estimate median flows during dry and wet cycles, two separate period of records were chosen to represent these different hydrologic conditions. Water years 1957 to 1966 were selected to represent dry natural flow conditions, while water years 1937 to 1946 were chosen to represent a wet hydrologic cycle. In order to estimate median flows during these periods, frequency distribution analysis and plots were developed for each cycle.

The mean median annual natural flow during dry hydrologic conditions is 5.3 cfs, less than half of the annual natural flow for the entire period of record of 12.0 cfs. The mean median annual natural flow during wet hydrologic conditions is 23.4 cfs, almost twice the annual natural flow. The median daily flow during the wet period ranged from 13.8 cfs in August to 49.4 cfs in March.

DETERMINING FLOW REQUIREMENTS AT THE GORGE

Flow requirements at the Gorge are based on two-thirds the median natural flow during wet, normal, and dry conditions. Flow requirements for critically dry and very wet conditions are based on the 50% median flows for the period 1957 to 1966 and 1937 to 1946, respectively. Above normal flows are based on the mean of the 50% median wet flows and the 50% median all years. Similarly, below normal flows are based on the mean of the 50% median dry flows and the 50% median all years. Table B-2 shows the results of this determination and is the basis for the flow guarantees established in Section 5 of the Agreement.

TABLE B-2

DAILY FLOWS AT THE GORGE BASED ON TWO-THIRDS OF THE MEDIAN NATURAL FLOW AS DETERMINED BY THE HSPF MODEL

MONTH	CRITICALLY DRY FLOW (CFS)	BELOW NORMAL FLOW (CFS)	ABOVE NORMAL FLOW (CFS)	VERY WET FLOW (CFS)
October	3.0	3.9	7.7	10.1
November	3.0	4.5	8.8	11.5
December	3.3	5.3	10.4	13.5
January	3.3	6.9	13.6	16.8
February	4.6	8.1	17.5	23.4
March	4.9	8.7	22.7	32.9
April	5.0	8.2	17.2	23.1
May	3.8	5.7	11.7	15.7
June	3.3	4.9	9.4	12.2
July	3.0	4.3	7.8	9.7
August	3.0	4.4	7.6	9.2
September	3.0	4.1	7.4	9.4
Total	3.6	5.8	11.8	15.6

Note: Flow is based on 2/3 natural flow or 3 cfs, whichever is greater.

DETERMINATION OF HYDROLOGIC CONDITIONS

The methodology used to estimate the required monthly base flows at the Gorge is based on flows occurring during different hydrologic conditions. The median flow during the wet hydrologic cycle defines the break between above normal and very wet conditions when compared to the entire period of record. Similarly, the median flow during the dry hydrologic cycle defines the break between critically dry and below normal conditions. In order to determine the frequency at which these different hydrologic cycles occur, the median from the dry and wet cycles are compared to the monthly flow values for the entire period of record. Table B-3 below shows the results for each month when the dry and wet cycle median natural flow is plotted on the entire period of record for each month. For example, the December median dry cycle (WY 1957-1966) natural flow value of 4.9 cfs was plotted on the frequency distribution graph for the entire period of record (WY 1931-1996). The result indicated that the 4.9 cfs flow would be met or exceeded 87.4% of the time (Table B-3). The table shows the variation between the months for both dry and wet cycles. In order to remain consistent while determining different hydrologic cycles, the median values for the twelve months were used.

TABLE B-3

WET AND DRY TIME EXCEEDANCE VALUES FOR EACH MONTH USING THE ENTIRE PERIOD OF RECORD

MONTH	DRY FLOW (%)	WET FLOW (%)
October	84.5	22.1
November	84.7	22.8
December	87.4	24.2
January	90.1	28.1
February	87.1	26.8
March	86.9	26.5
April	83.3	24.6
May	84.7	25.1
June	85.0	21.4
July	83.8	24.2
August	82.7	27.8
September	80.4	19.8
Median	84.7	24.4

Exhibit C describes the development of a hydrologic index for the Santa Margarita River Basin which is based on the median values of the monthly wet and dry time exceedance. The hydrologic break between extremely dry and below normal occurs at the 84.7% exceedance value while the break between above normal and very wet hydrologic conditions occurs at 24.4%. The hydrologic break between above normal and below normal occurs at the 50% exceedance interval.

Simulated versus Historical Streamflow at the Gorge (WY 1931-1936)

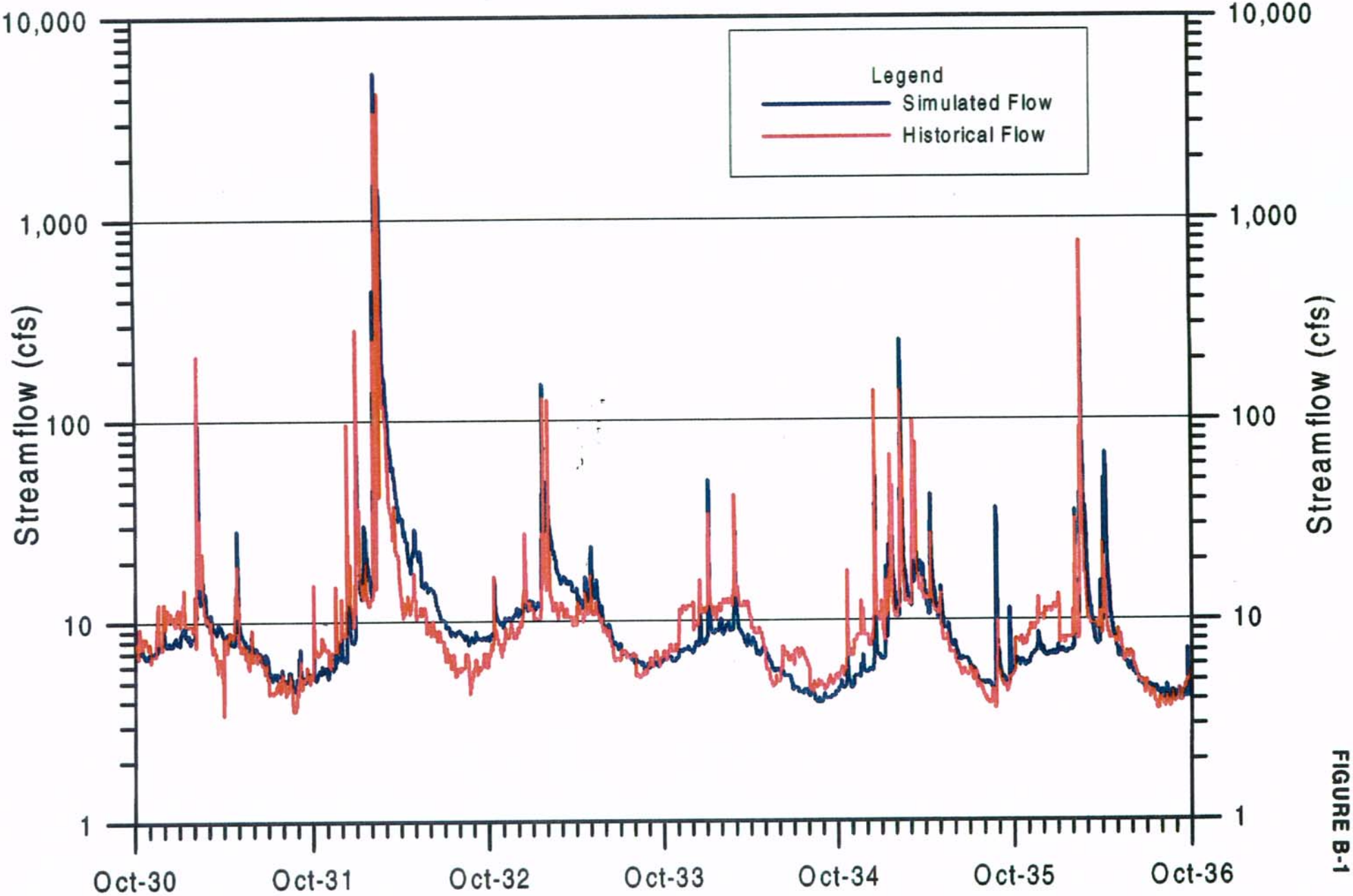


FIGURE B-1

Frequency Distribution of Natural Flow at the Gorge During The Month of October (WY 1931-1996)

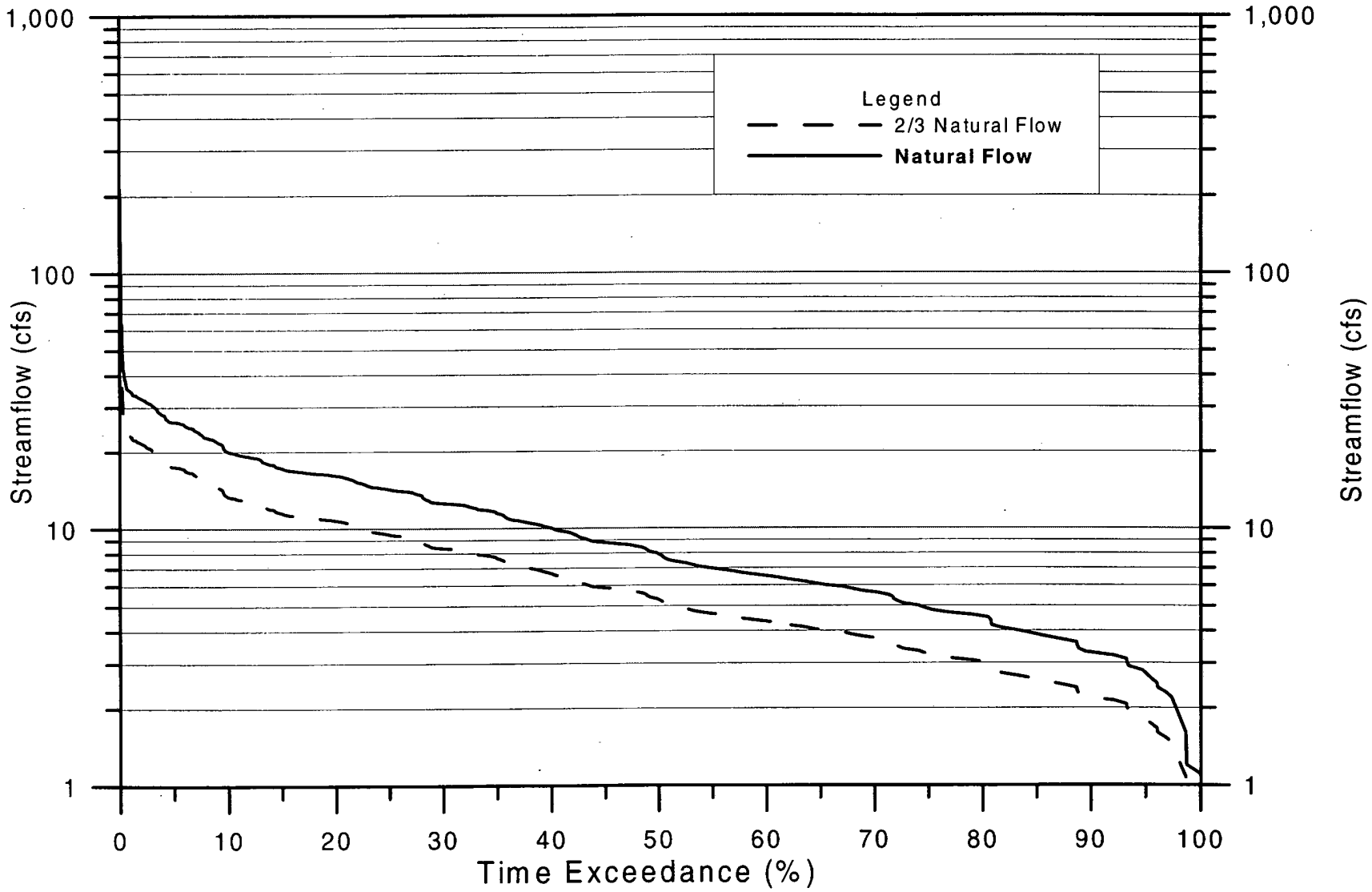


FIGURE B-2

EXHIBIT C

DETERMINATION OF HYDROLOGIC CONDITIONS IN THE SANTA MARGARITA RIVER BASIN

EXHIBIT C

DETERMINATION OF HYDROLOGIC CONDITIONS IN THE SANTA MARGARITA RIVER BASIN

The purpose of this Exhibit is to memorialize and explain the method used to develop the flows guaranteed in the Agreement. To the extent there may be any inconsistencies, the language of the Agreement, and not this Exhibit, establishes the District's flow guarantees.

This Exhibit describes the streamflow and precipitation data available in the upper basin and the hydrologic index used to describe the hydrologic condition of the Santa Margarita River Basin above the Gorge. The hydrologic index is calculated using the historical precipitation record at the Wildomar precipitation gage, streamflow at the Aguanga streamflow gage, and calculated natural streamflow at the Gorge and Murrieta gages. The methodology accounts for antecedent conditions that existed prior to the year being determined, allowing for a previous wet year or dry year to influence the current year's hydrologic condition. The methodology provides a means to determine the flow requirements at the Gorge for twelve months, in conjunction with other provisions of the Agreement.

Based on the October through April's natural streamflow totals at Murrieta and Vail Lake, the May through December monthly streamflow requirement at the Gorge is categorized as either Critically Dry, Below Normal, Above Normal, or Very Wet hydrologic conditions. The January through April streamflow requirement is predetermined to be 11.5 cubic feet per second (cfs), calculated from the average of January through April's median natural flow requirement at the Gorge. The median natural flow requirement is two-thirds the simulated natural flow at the Gorge based on the period of record 1931 through 1996.

ESTABLISHMENT OF A HYDROLOGIC INDEX

The hydrologic index combines October through April natural streamflow at Murrieta, natural streamflow at Vail Lake, and natural streamflow from Pauba and Wolf Valleys. Natural flow at Murrieta is calculated using the rainfall/run-off relationship between rainfall at Wildomar and the HSPF natural flow at Murrieta, developed in Technical Memorandum 1.0 (January 20, 2000). Natural flow at Vail Lake is calculated using the run-off correlation between Aguanga streamflow and Inflow to Vail Lake during the period water years 1958 to 1996, also developed in Technical Memorandum 1.0 (January 20, 2000). The natural flow contribution from Pauba and Wolf Valleys is calculated to be 50% of the natural run-off into Vail Lake.

Natural streamflow at Murrieta is calculated by the rainfall/runoff relationship developed between monthly rainfall at Wildomar and monthly natural streamflow determined from the HSPF model. Equation 1 provides the polynomial equation that describes this relationship, where X is the monthly rainfall in inches and Y is the monthly natural streamflow at Murrieta in cubic feet per second (cfs):

$$Y = 9.068 - 34.798 * X + 11.339 * X^2. \qquad (X \geq 2.79) \qquad (1)$$
$$Y = 0 \qquad (X < 2.79)$$

Runoff at Vail Lake is calculated by the runoff/runoff relationship developed between runoff at Aguanga and inflow to Vail Lake. Equation 2 provides the linear equation that describes this relationship, where X is October through April natural streamflow at Aguanga (Acre-Feet) and Y is October through April natural streamflow at Vail Lake (Acre-Feet):

$$Y = 1.380 * X \quad \text{(Acre-Feet).} \qquad (2)$$

Contribution from the Pauba and Wolf valleys was estimated to be 50% of the natural inflow to Vail Lake. Run-off relationships between Aguanga, Murrieta, Pechanga Creek, and the Gorge, as well as sensitivity analysis during development of the Hydrologic Index, were used to determine the proportion of contribution from these two valleys..

Figure C-1 provides the frequency distribution curves of the combined total October through April natural streamflow at Murrieta, natural streamflow at Vail Lake, and natural streamflow contribution from Pauba and Wolf Valleys. The frequency distribution curve was divided into four parts established by the 24th, 50th, and 85th percentile breaks (Exhibit B and Technical Memorandum 3.0, February 25, 2000). Using these breakpoints, the division between Critically Dry, Below Normal, Above Normal, and Very Wet hydrologic conditions was established. The corresponding breaks between hydrologic conditions are 3,230 acre-feet, 14,510 acre-feet, and 47,810 acre-feet, respectively. Review of 66 years of historical data indicates that ten years would have been classified as Critically Dry, 23 years as Below Normal, 17 years as Above Normal, and 16 years as Very Wet.

The hydrologic index was compared to actual water years for the 66 year period from 1931 to 1996. Of the 66 years that were compared, the hydrologic index mismatched nineteen years; overestimating nine years while underestimating the hydrologic conditions during the other ten years (Table C-1, Attached). The antecedent conditions prior to the Below Normal and Above Normal "misses" were reviewed in order to correct errors. If the hydrologic condition was determined to be Below Normal and the prior year was determined to be Above Normal or Very Wet, 2,200 AF was added to the hydrologic condition. Similarly, if the hydrologic condition was determined to be Above Normal and the previous year was classified as Critically Dry, 10,000 AF was subtracted from the hydrologic condition. These adjustment values were developed from an iterative process of refining the Hydrologic Index by minimizing the number of mismatches. The algorithm used to adjust for antecedent conditions prior to Above Normal

and Below Normal years was applied to all values in column (7). Hydrologic conditions that were incorrectly classified as Very Wet or Critically dry were not adjusted.

The results of adjusting for antecedent conditions during Above Normal and Below Normal years decreases the number of misses to thirteen. Of these thirteen years, seven years are overestimated while six years are underestimated. Closer inspection of the data shows that the hydrologic index tends to overestimate hydrologic conditions during the first half of the data set and underestimate hydrologic conditions during the later half of the record. For example, five of the seven years that are overestimated occur when calculated inflow to Vail Lake or streamflow at Butterfield Canyon were used to estimate natural flow at Vail Lake. The data set used in the regression analysis used to convert streamflow at Aguanga to natural flow at Vail Lake began in 1958.

IMPLEMENTATION OF THE HYDROLOGIC INDEX

The hydrologic index used to estimate the required streamflow at the gorge is based on natural streamflow at Murrieta and Vail Lake. On May 1st of each year the rainfall at Wildomar is used to estimate natural flow at Murrieta and the streamflow at Aguanga is used to estimate natural flow at Vail Lake. A simple spreadsheet, that would adjust for antecedent conditions, may be used to calculate the hydrologic index based on these input parameters. Once the hydrologic condition is determined, the table in Section 5 of the Agreement is used to determine the required flows at the Gorge.

Figure C-2 provides a schematic diagram of the steps to be followed to determine the hydrologic condition that would prescribe the current year's summer time flows and the following year's winter flow requirement. The following outline provides the steps necessary to implement the Agreement. **[Both Figure C-2 and the following outline do not address credits for groundwater banking to Camp Pendleton]**

First Year of Agreement:

F-1. Provide 11.5 cfs at the Gorge from January 1 to April 30
F-2. Determine Hydrologic Condition on May 1
   a. Convert monthly precipitation at Wildomar to monthly natural flow at Murrieta using equation (1) above.
   b. Sum October through April natural flow at Murrieta.
   c. Sum October through April streamflow at Aguanga.
   d. Convert streamflow at Aguanga to natural flow at Vail lake using equation (2) above.
   e. Add 50% of Natural Flow at Vail Lake for Pauba and Wolf Valleys' contribution.
   f. Add (b) + (d) + (e) and calculate hydrologic condition Using Figure C-1.

g. Correct for antecedent condition:
   i. If hydrologic condition is classified as Above Normal and previous year was Critically Dry, subtract 10,000 from (f).
   ii. If hydrologic condition is classified as Below Normal and previous year was Above Normal or Very Wet, add 2,200 to (f).

h. Redetermine Hydrologic Condition Using corrected value and Figure C-1.

F-3. Determine Flow Requirements

a. Based on the Hydrologic Condition determined in F-2(h), specify May through December required flows at the Gorge using the table in Section 5 of the Agreement.

b. If Hydrologic Condition is "Below Normal" or "Critically Dry", determine the District's Carry-Over Credit to be applied the during the following winter.

c. If Hydrologic Condition is "Above Normal" or "Very Wet", no Carry-Over Credit is to be applied during the following winter.

Subsequent Years of the Agreement:

S-1. Provide 11.5 cfs less Carry-Over Credit, if available, from January 1 to April 30

S-2. Determine Hydrologic Condition on May 1

a. Follow F-2(a) through (h).

S-3. Determine Flow Requirements

a. Based on the Hydrologic Condition determined in S-2(a), specify May through December required flows at the Gorge using the table in Section 5 of the Agreement.

b. If Hydrologic Condition is "Below Normal" or "Critically Dry", determine the District's Carry-Over Credit to be applied during the following winter. Add to existing Carry-Over Credit that has not been applied.

c. If Hydrologic Condition is "Above Normal" or "Very Wet", apply any unused Carry-Over Credit to the following Winter.

In order to illustrate the procedure for determining and meeting flow requirements at the Gorge, actual rainfall and streamflow data from 1992 and 1993 were chosen. The example below would represent the implementation of the hydrologic determination and flow requirements during the first and second years of the Agreement. Although not shown below, if the Agreement were in place in 1991, the Carry-Over Credit to 1992 would have been 227 AF, reducing the winter flow requirement from 11.5 cfs to 10.5 cfs.

F-1. Provide 11.5 cfs at the Gorge from January 1, 1992 to April 30, 1992

F-2. Determine Hydrologic Condition on May 1

a. October 1991 through April 1992 rainfall at Wildomar:

10/91 precip = 0.18 inches	≡	0 AF streamflow
11/91 precip = 0.04 inches	≡	0 AF streamflow
12/91 precip = 1.79 inches	≡	0 AF streamflow
01/92 precip = 2.71 inches	≡	0 AF streamflow
02/92 precip = 7.06 inches	≡	20,204 AF streamflow
03/92 precip = 4.34 inches	≡	4,404 AF streamflow
04/92 precip = 0.26 inches	≡	0 AF streamflow

b. October 1991 through April 1992 natural streamflow at Murrieta = 24,608 AF.

c. October 1991 through April 1992 streamflow at Aguanga = 2,886 AF.

d. Natural flow at Vail Lake = 3,982 AF.

e. Add an additional 1,991 AF for contribution from Pauba and Wolf Valleys.

f. Hydrologic Condition is "Above Normal" based on 30,580 AF of Natural Flow (Figure C-1) at approximately 30% Exceedance.

g. Previous year classified as "Very Wet" so,

i. No correction necessary

h. Hydrologic Condition remains "Above Normal".

F-3. Determine Flow Requirements

a. Non-Winter Flow Requirements:

May =	11.5 cfs
June =	9.4 cfs
July =	7.8 cfs
August =	7.6 cfs
September =	7.4 cfs
October =	7.7 cfs
November =	8.8 cfs
December =	10.4 cfs

b./c. 0 AF Carry-Over Credit since Hydrologic Condition was "Above Normal".

S-1. Provide 11.5 cfs - 0 Carry-Over Credit from January 1, 1993 to April 30, 1993.

S-2. Determine Hydrologic Condition on May 1

a. October 1992 through April 1993 rainfall at Wildomar:

10/92 precip = 0.66 inches ≡ 0 AF streamflow
11/92 precip = 0.00 inches ≡ 0 AF streamflow
12/92 precip = 4.46 inches ≡ 4,884 AF streamflow
01/93 precip = 15.39 inches ≡ 132,767 AF streamflow
02/93 precip = 9.41 inches ≡ 42,161 AF streamflow
03/93 precip = 1.20 inches ≡ 0 AF streamflow
04/93 precip = 0.00 inches ≡ 0 AF streamflow

b. October 1992 through April 1993 natural streamflow at Murrieta = 179,812 AF.

c. October 1992 through April 1993 streamflow at Aguanga = 37,668 AF.

d. Natural flow at Vail Lake = 51,968 AF.

e. Add an additional 25,984 AF for contribution from Pauba and Wolf Valleys.

f. Hydrologic Condition is "Very Wet" based on 257,764 AF of Natural Flow (Figure C-1) at approximately 1% Exceedance.

g. Previous year classified as "Above Normal" and existing year classified as "Very Wet", so,

i. No correction necessary

h. Hydrologic Condition remains "Very Wet".

S-3. Determine Flow Requirements

a. Non-Winter Flow Requirements:

May = 11.5 cfs
June = 11.5 cfs
July = 9.7 cfs
August = 9.2 cfs
September = 9.4 cfs
October = 10.1 cfs
November = 11.5 cfs
December = 11.5 cfs.

b./c. 0 AF Carry-Over Credit since Hydrologic Condition was "Very Wet".

As mentioned above, if the Agreement had been in place in 1991 there would have been 227 AF of Carry-Over Credit from 1991 to 1992, reducing the flow requirement at the Gorge from 11.5 to 10.5. Since 1992 was an "Above Normal" year, only 161 AF of the 227 AF would have been applied as credit, leaving 66 AF to be applied in 1993. The 66 AF applied to 1993 would reduce the winter time flow requirement 0.3 cfs from 11.5 cfs to 11.2 cfs. **[The credit to Camp Pendleton for foregoing higher minimum flows during "Above Normal" and "Very Wet" years is not addressed in this example.]**

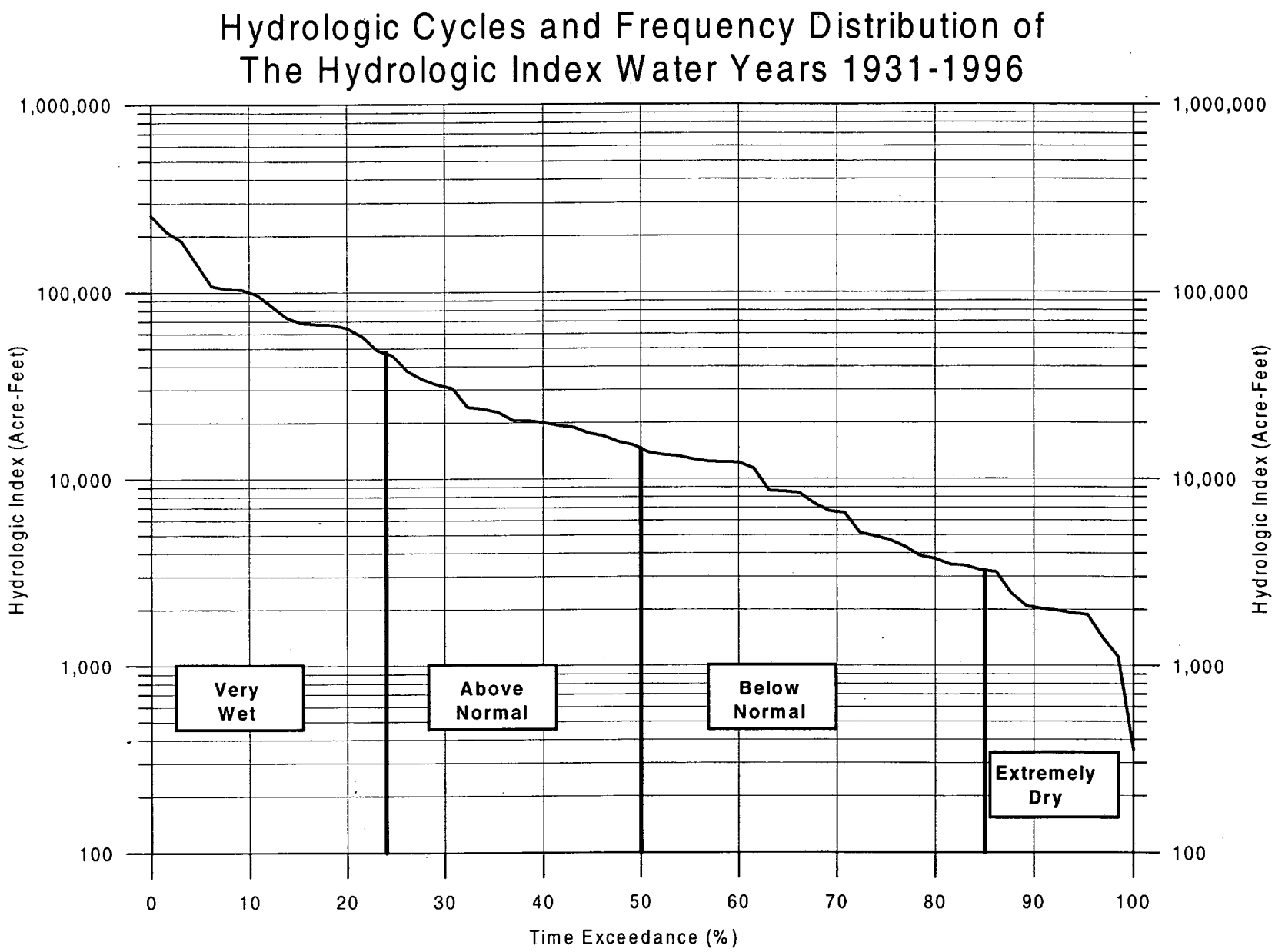
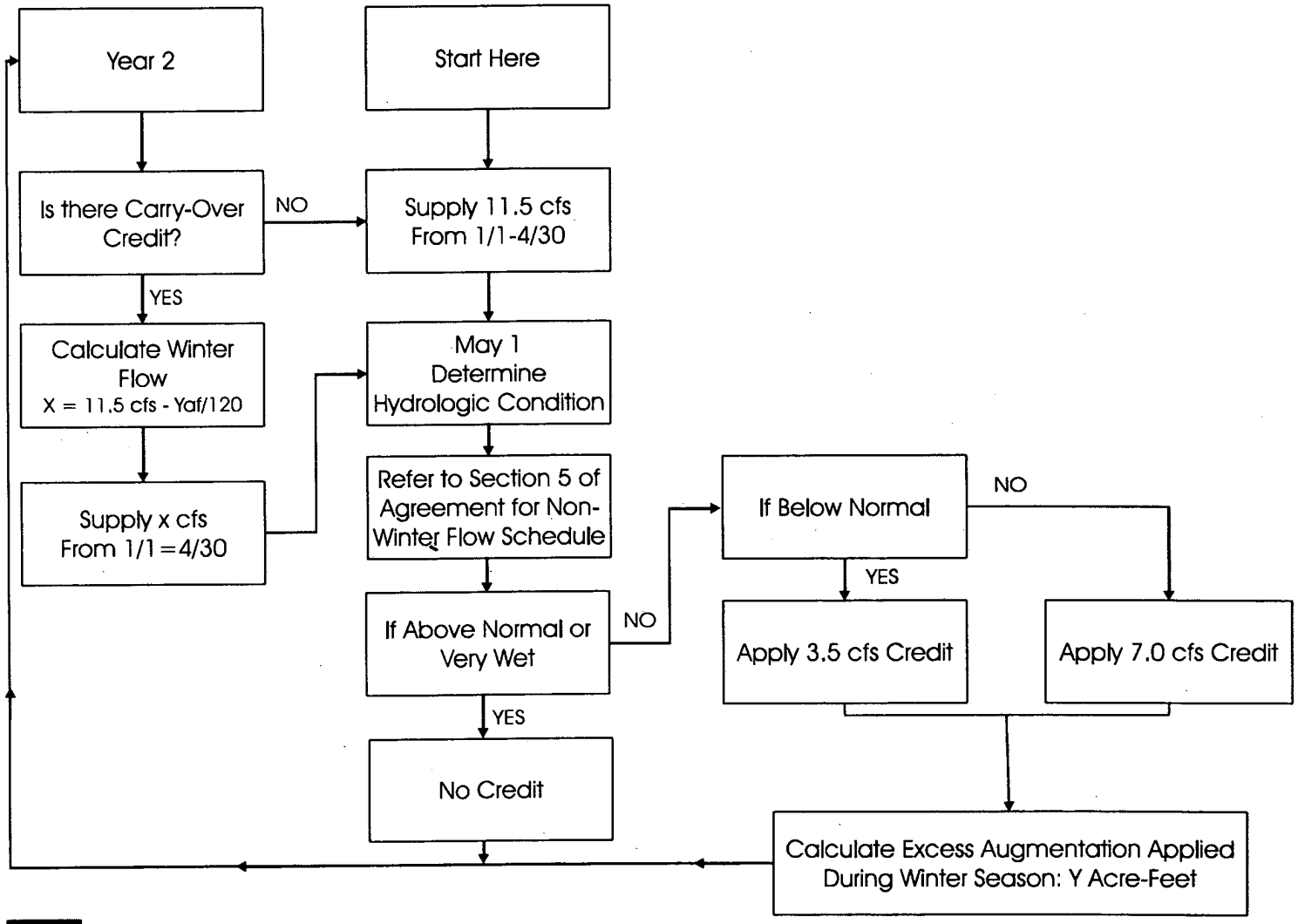

Hydrologic Cycles and Frequency Distribution of
The Hydrologic Index Water Years 1931-1996
1,000,000
100,000
10,000
1,000
100
Hydrologic Index (Acre-Feet)
Very Wet
Above Normal
Below Normal
Extremely Dry
0
10
20
30
40
50
60
70
80
90
100
Time Exceedance (%)

Figure C-1

Flow Diagram of Settlement Agreement Minimum Flows



STETSON ENGINEERS INC.

Figure C-2

TABLE C-1

CALCULATION OF THE HYDROLOGIC INDEX
SANTA MARGARITA RIVER BASIN

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(10)
	Classification	Aguanga	Calculated	Wildomar	Calculated			Water Year		
	based on	Streamflow	Vail Inflow	Precipitation	Murrieta Flow	Hydrologic	Water Year	Classification		Over/Under-
Water	Majority	Oct-Apr Sum	Oct-Apr Sum	Oct-Apr Sum	Oct-Apr Sum	Index	Classification	Corrected for		Estimate
Year	WY Class	(AF)	(AF)	(in)	(AF)	(AF)		Anteceedent	Flag	
1931	Below Normal		1,512	9.87	2,066	4,334	Below Normal	Below Normal	0	
1932	Above Normal		14,778	18.30	44,975	67,143	Very Wet	Very Wet	1	Overestimate
1933	Below Normal		3,311	9.43	7,290	12,256	Below Normal	Below Normal	0	
1934	Extremely Dry		1,391	7.52	1,395	3,482	Below Normal	Below Normal	1	Overestimate
1935	Below Normal		3,365	16.38	2,325	7,372	Below Normal	Below Normal	0	
1936	Below Normal		3,445	10.64	15,354	20,522	Above Normal	Above Normal	1	Overestimate
1937	Very Wet		34,392	25.21	52,065	103,653	Very Wet	Very Wet	0	
1938	Very Wet		29,210	20.19	60,418	104,233	Very Wet	Very Wet	0	
1939	Above Normal		6,713	14.53	35,925	45,994	Above Normal	Above Normal	0	
1940	Above Normal		5,577	11.28	5,495	13,860	Below Normal	Above Normal	0	
1941	Very Wet		20,888	27.07	66,156	97,489	Very Wet	Very Wet	0	
1942	Above Normal		8,485	9.86	0	12,728	Below Normal	Above Normal	0	
1943	Very Wet		12,412	19.26	66,013	84,632	Very Wet	Very Wet	0	
1944	Above Normal		6,588	13.52	24,425	34,308	Above Normal	Above Normal	0	
1945	Above Normal		5,882	12.91	14,864	23,687	Above Normal	Above Normal	0	
1946	Above Normal		4,004	9.92	6,377	12,382	Below Normal	Above Normal	0	
1947	Below Normal		2,432	8.13	8,594	12,242	Below Normal	Below Normal	0	
1948	Below Normal		1,721	7.71	850	3,432	Below Normal	Below Normal	0	
1949	Below Normal		2,443	8.02	1,475	5,138	Below Normal	Below Normal	0	
1950	Extremely Dry		1,256	6.34	0	1,884	Extremely Dry	Extremely Dry	0	
1951	Extremely Dry		942	4.27	0	1,414	Extremely Dry	Extremely Dry	0	
1952	Very Wet		11,007	19.52	32,419	48,929	Very Wet	Very Wet	0	
1953	Below Normal		1,407	8.84	1,772	3,882	Below Normal	Below Normal	0	
1954	Above Normal		4,580	12.12	13,196	20,065	Above Normal	Above Normal	0	
1955	Below Normal		1,064	9.22	3,328	4,924	Below Normal	Below Normal	0	
1956	Extremely Dry		1,074	6.79	2,126	3,738	Below Normal	Below Normal	1	Overestimate
1957	Extremely Dry		740	9.61	16,526	17,635	Above Normal	Above Normal	1	Overestimate

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(10)
	Classification based on Majority	Aguanga Streamflow Oct-Apr Sum	Calculated Vail Inflow Oct-Apr Sum	Wildomar Precipitation Oct-Apr Sum	Calculated Murrieta Flow Oct-Apr Sum	Hydrologic Index	Water Year Classification	Water Year Classification Corrected for		Over/Under-Estimate
Water Year	WY Class	(AF)	(AF)	(in)	(AF)	(AF)		Anteceedent	Flag	
1958	Very Wet	8,669	11,961	26.00	49,581	67,522	Very Wet	Very Wet	0	
1959	Below Normal	716	987	5.24	1,693	3,174	Extremely Dry	Extremely Dry	1	Underestimate
1960	Extremely Dry	809	1,116	9.84	414	2,087	Extremely Dry	Extremely Dry	0	
1961	Extremely Dry	171	235	5.09	0	353	Extremely Dry	Extremely Dry	0	
1962	Below Normal	1,438	1,983	15.59	19,873	22,848	Above Normal	Below Normal	0	
1963	Below Normal	181	249	8.37	4,326	4,700	Below Normal	Below Normal	0	
1964	Extremely Dry	541	746	8.13	0	1,119	Extremely Dry	Extremely Dry	0	
1965	Below Normal	1,058	1,460	12.35	22,013	24,203	Above Normal	Below Normal	0	
1966	Above Normal	4,673	6,447	19.19	63,527	73,197	Very Wet	Very Wet	1	Overestimate
1967	Above Normal	7,082	9,770	15.55	17,364	32,020	Above Normal	Above Normal	0	
1968	Below Normal	1,018	1,404	11.79	4,602	6,708	Below Normal	Below Normal	0	
1969	Very Wet	17,107	23,601	29.40	176,676	212,077	Very Wet	Very Wet	0	
1970	Above Normal	1,183	1,632	11.42	16,878	19,325	Above Normal	Above Normal	0	
1971	Below Normal	896	1,236	7.67	580	2,435	Extremely Dry	Extremely Dry	1	Underestimate
1972	Below Normal	853	1,177	6.19	4,802	6,568	Below Normal	Below Normal	0	
1973	Above Normal	3,107	4,287	15.37	9,426	15,856	Above Normal	Above Normal	0	
1974	Below Normal	1,234	1,702	11.21	18,028	20,582	Above Normal	Above Normal	1	Overestimate
1975	Below Normal	935	1,290	12.84	6,482	8,417	Below Normal	Below Normal	0	
1976	Below Normal	964	1,330	10.39	11,484	13,478	Below Normal	Below Normal	0	
1977	Extremely Dry	510	704	7.00	968	2,024	Extremely Dry	Extremely Dry	0	
1978	Very Wet	11,723	16,174	31.24	118,004	142,264	Very Wet	Very Wet	0	
1979	Very Wet	8,404	11,594	21.46	51,097	68,488	Very Wet	Very Wet	0	
1980	Very Wet	26,114	36,027	27.82	134,267	188,308	Very Wet	Very Wet	0	
1981	Above Normal	4,198	5,791	7.32	2,655	11,342	Below Normal	Below Normal	1	Underestimate
1982	Above Normal	6,313	8,709	14.83	24,945	38,009	Above Normal	Above Normal	0	
1983	Very Wet	11,271	15,549	24.20	34,932	58,256	Very Wet	Very Wet	0	
1984	Above Normal	4,173	5,757	8.17	0	8,636	Below Normal	Below Normal	1	Underestimate

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(10)
	Classification based on Majority	Aguanga Streamflow Oct-Apr Sum	Calculated Vail Inflow Oct-Apr Sum	Wildomar Precipitation Oct-Apr Sum	Calculated Murrieta Flow Oct-Apr Sum	Hydrologic Index	Water Year Classification	Water Year Classification Corrected for		Over/Under-Estimate
Water Year	WY Class	(AF)	(AF)	(in)	(AF)	(AF)		Anteceedent	Flag	
1985	Above Normal	3,590	4,953	9.54	11,543	18,972	Above Normal	Above Normal	0	
1986	Above Normal	5,174	7,139	11.64	2,547	13,255	Below Normal	Above Normal	0	
1987	Below Normal	1,567	2,162	7.75	0	3,243	Below Normal	Below Normal	0	
1988	Below Normal	1,831	2,526	17.33	4,756	8,545	Below Normal	Below Normal	0	
1989	Below Normal	934	1,289	6.65	51	1,984	Extremely Dry	Extremely Dry	1	Underestimate
1990	Below Normal	927	1,279	5.45	0	1,918	Extremely Dry	Extremely Dry	1	Underestimate
1991	Very Wet	8,775	12,106	14.39	46,117	64,277	Very Wet	Very Wet	0	
1992	Above Normal	2,886	3,982	16.38	24,608	30,580	Above Normal	Above Normal	0	
1993	Very Wet	37,668	51,968	31.12	179,812	257,763	Very Wet	Very Wet	0	
1994	Above Normal	4,574	6,310	10.97	7,533	16,999	Above Normal	Above Normal	0	
1995	Very Wet	14,874	20,521	22.55	77,346	108,127	Very Wet	Very Wet	0	
1996	Above Normal	3,424	4,724	8.73	8,081	15,167	Above Normal	Above Normal	0	
									13	

1) Water year based on October 1 to September 30.
2) Water Year classification based on majority of HSPF, Run 93, and natural flow at Vail Lake.
3) Total October through April streamflow at Aguanga
4) Calculated Vail Inflow based on streamflow at Aguanga
5) Total October through April Precipiation at Wildomar
6) Calculated Streamflow at Murrieta based on Wildomar Precipitation
7) Hydrologic Index - 150% Total Calculated Vail Inflow and Calculated Murrieta Flow (4) + (6) +.5*(4)
8) Water Year Classification based on 85%, 50% and 24% of column (7)
9) Water Year Classification corrected for Antecedent Conditions
10) Overestimate/Underestimate of required streamflow at the Gorge

Overestimate	7
Underestimate	6

902

December 21, 2006

Groundwater Management Agreement

Rancho California Water District

and

Pechanga Band of Luiseño Mission Indians

Original

GROUNDWATER MANAGEMENT AGREEMENT

THIS GROUNDWATER MANAGEMENT AGREEMENT ("***Agreement***") is made and entered into as of December 21, 2006 (the "***Effective Date***"), by and between the PECHANGA BAND OF LUISEÑO MISSION INDIANS, a federally recognized Indian Tribe ("***Pechanga***", which term shall include all individuals and governmental bodies having authority over the assumption or performance of obligations, or the exercise of rights, by the Pechanga Band of Luiseño Mission Indians hereunder) and RANCHO CALIFORNIA WATER DISTRICT, a public water district organized pursuant to California law ("***RCWD***").

RECITALS

A. Pechanga and RCWD are the primary water pumpers and users of water from within the Wolf Valley Groundwater Basin, as that term is defined below.

B The Parties have entered into a binding term sheet on September 12, 2006, pursuant to which the Parties have agreed, among other things, to negotiate a definitive agreement, being this Agreement, that will govern the terms and conditions pursuant to which they will manage jointly groundwater pumping from the Wolf Valley Groundwater Basin in a manner that does not exceed safe yield and that protects groundwater resources in the Wolf Valley Groundwater Basin for present and future uses.

C. Both Parties acknowledge that this Agreement relates solely to the management of groundwater pumping from the Wolf Valley Groundwater Basin.

AGREEMENT

In consideration of the respective representations, warranties, covenants and agreements contained in this Agreement, and other good and valuable consideration the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound, the Parties agree as follows:

1. Definitions

"***AAA***" has the meaning set forth in Section 6.5.

"***AAA Rules and Procedures***" has the meaning set forth in Section 6.5.

"***AFY***" means acre feet per Year.

"***Agency Agreement***" means a recorded document which assigns the water management of a property groundwater resource to RCWD for the benefit of all RCWD customers.

"***Agreement***" means this Groundwater Management Agreement.

"Annual Energy Index" means the percentage determined by dividing: (a) the electrical energy costs, expressed in cost per kilowatt hour, incurred by RCWD for electric energy it purchases for groundwater pumping in the Contract Year just prior to the Contract Year for which the Annual Energy Index is being calculated, by (b) the electrical energy costs, expressed in cost per kilowatt hour, incurred by RCWD for electric energy it purchases for groundwater pumping in the Contract Year that is two Contract Years prior to the Contract Year for which the Annual Energy Index is being calculated.

"***Annual Entitlement***" has the meaning set forth in Section 2.1.

"***Contract Year***" means a calendar year; provided that the first Contract Year after execution of this Agreement shall be for the period from the date of execution through the end of the next calendar year and the last Contract Year shall expire upon expiration of the Term.

"***Decision***" has the meaning set forth in Section 3.4.

"***Delivered Groundwater***" has the meaning set forth in Section 2.3.

"***Delivered Groundwater Charge***" has the meaning set forth in Section 2.3.4.

"***Delivered Groundwater Facilities***" means those facilities required for RCWD to transport and deliver Delivered Groundwater to Pechanga, as specified in Exhibit A.

"***Delivered Groundwater Facilities Site***" means any area on which the Delivered Groundwater Facilities will be located, including reasonable lay down areas, as delineated in Exhibit B.

"***Delivery Point***" means any point or points at which Delivered Groundwater is delivered to Pechanga under this Agreement. The initial Delivery Point shall be as specified in Exhibit A.

"***Dispute***" has the meaning set forth in Section 6.1.

"***Effective Date***" has the meaning set forth in the first paragraph of this Agreement.

"***Excess Pumping***", with respect to any Year, means the amount of groundwater by which the sum of the RCWD Annual Usage and the Pechanga Annual Usage inadvertently exceeds either the Provisional Safe Yield or the Safe Yield in effect for the relevant Year, as the case may be.

"***Exhibit***" means an exhibit to this Agreement, each of which is hereby incorporated herein by this reference.

"***Groundwater Records***" has the meaning set forth in Section 4.3.

"***Groundwater Reports***" has the meaning set forth in Section 4.1.

"***Mediation Procedures***" has the meaning set forth in Section 6.2.

"***Month***" means a calendar Month.

"***MWD***" has the meaning set forth in Section 2.3.9.

"***Party***" means, individually, Pechanga and RCWD, and "***Parties***" means both of them.

"***Pechanga***" has the meaning set forth in the first paragraph of this Agreement.

"***Pechanga Annual Usage***", with respect to any Year, means the sum of (a) the amount of groundwater pumped by Pechanga from the Basin during such Year, plus (b) the amount of Delivered Groundwater delivered to Pechanga by RCWD pursuant to this Agreement during such Year.

"***Pechanga Excess Pumping***", with respect to any Year, means the amount of water by which the Pechanga Annual Usage during such Year exceeds Pechanga's Annual Entitlement for such Year.

"***Provisional Safe Yield***" means three thousand (3,000) AFY, an amount of groundwater pumping deemed by the Parties on the Effective Date to be a conservative estimate of the Safe Yield.

"***RCWD***" has the meaning set forth in the first paragraph of this Agreement.

"***RCWD Annual Usage***", with respect to any Year, means the remainder of (a) the total amount of groundwater pumped by RCWD from the Basin during such Year, *minus* (b) the amount of Delivered Groundwater delivered to Pechanga by RCWD pursuant to this Agreement during such Year.

"***RCWD Excess Pumping***", with respect to any Year, means the amount of water by which the RCWD Annual Usage during such Year exceeds RCWD's Annual Entitlement for such Year.

"***RCWD Facility Requirements***" means the document entitled "Rancho California Water District Water System Facility Requirements", dated August 1, 1991, a copy of which is attached as Exhibit E.

"***Representative***" has the meaning set forth in Section 3.1.

"***Reservation***" means the reservation of the Pechanga Band of Luiseño Mission Indians, as delineated in Exhibit C.

"***Right of Way***" means RCWD's easements and rights of way on which the Delivered Groundwater Facilities Site will be located, as delineated in Exhibit B.

"***Safe Yield***" means the best professional estimate, following a comprehensive review and analysis of the best available groundwater, hydrologic and climatic data for the Basin, of the amount of groundwater available for pumping from the Basin in any given Year without causing an undesirable result.

"***Section***" means a section or subsection of this Agreement.

"***Technical Committee***" means the committee of technical experts appointed by the Parties pursuant to Section 3.1.

"***Term***" has the meaning set forth in Section 9.1.

"***Watermaster***" means the Santa Margarita Watermaster, appointed in the case of *United States v. Fallbrook Public Utility District, et al.*, CIV No. 1247-SD-T.

"***Wolf Valley Groundwater Basin***" or "***Basin***" means that groundwater located beneath Wolf Valley as more definitely depicted in Exhibit D.

"***Year***" means a calendar year, unless otherwise provided.

2. Annual Entitlements from the Basin

2.1 Annual Entitlement. The combined amount of groundwater pumped from the Basin by the Parties in any Year shall not exceed the Safe Yield. Subject to Section 2.2, each Party shall be entitled to pump no more than fifty percent (50%) of the Safe Yield in any given Year (for each Party, its "***Annual Entitlement***"). For purposes of calculating each Party's respective Annual Entitlement, the Safe Yield shall be calculated as follows:

2.1.1 For any Year prior to the Year in which the Safe Yield initially is determined by Decision of the Technical Committee, the Safe Yield shall be the Provisional Safe Yield.

2.1.2 For the Year during which the Safe Yield is initially determined by the Technical Committee, and for any Year thereafter, the Safe Yield shall be the Safe Yield as last determined by Decision of the Technical Committee in accordance with their responsibilities specified in Sections 3.5.1 and 3.5.2 and notified to the Parties.

2.2 Temporary RCWD Right to Pump Unused Pechanga Annual Entitlement. RCWD initially shall have the right, in addition to RCWD's Annual Entitlement for the relevant Year, to pump groundwater from the Basin in an amount equal to the positive remainder of (a) three thousand (3,000) AFY *minus* (b) the sum of the Pechanga Annual Usage as reported for the prior Year plus any RCWD Excess Pumping for the prior Year; provided, however, that such right shall exist only until the Year following the first Year during which reported Pechanga Annual Usage equals or exceeds one thousand five hundred (1,500) AFY. For any Year during which the additional pumping amounts are available to RCWD pursuant to this Section 2.2, any

reference to RCWD's Annual Entitlement herein shall be deemed to include such additional amounts with respect to such Year.

2.3 **Delivered Groundwater.** In lieu of actually pumping groundwater itself from the Basin, Pechanga may request RCWD to pump its Annual Entitlement, or any portion thereof, and deliver such water directly to Pechanga, pursuant to Water Code sections 1810 et seq. ("***Delivered Groundwater***"). Any amount of Delivered Groundwater shall not exceed and shall be subtracted from Pechanga's Annual Entitlement, and shall not be charged against RCWD's Annual Entitlement. With respect to Delivered Groundwater, the following shall apply:

2.3.1 Delivered Groundwater initially shall be delivered by RCWD to Pechanga at the Delivery Point specified in Exhibit A. Pechanga shall have the right at any time to designate other Delivery Points on the Reservation for purposes of delivery and receipt of Delivered Groundwater, subject to the following –

(a) Any new facilities constructed for purposes of any new Delivery Point shall be Delivered Groundwater Facilities for purposes of this Agreement, all other defined terms herein which relate to Delivered Groundwater Facilities shall be construed as referring to such new facilities, and Exhibit A and Exhibit B shall be modified or supplemented as required to reflect the scope and siting of, and any known additional approvals required for, the new Delivered Groundwater Facilities.

(b) This Agreement shall govern Pechanga's and RCWD's rights and obligations with respect to construction and use of such new Delivered Groundwater Facilities. Without limitation of the foregoing, Pechanga shall be responsible for all Delivered Groundwater Facilities Costs incurred with respect to any new Delivered Groundwater Facilities required to be constructed for purposes of establishing any new Delivery Point. Any new Delivered Groundwater Facilities shall be constructed and installed in compliance with the RCWD Facility Requirements, as they may have been amended at the time of such construction and installation.

(c) Pechanga, with RCWD's cooperation and assistance, shall obtain any approvals required for construction, ownership and operation of new Delivered Groundwater Facilities required for establishment of a new Delivery Point.

2.3.2 RCWD's obligation to deliver Delivered Groundwater to Pechanga pursuant to this Section 2.3 shall not commence until the Delivered Groundwater Facilities have been completed and accepted by RCWD in accordance with Section 5.1.

2.3.3 All Delivered Groundwater shall meet the same water quality standards applicable to any delivery of water by RCWD to any customer similarly situated to Pechanga.

2.3.4 For each acre foot of Delivered Groundwater actually delivered to Pechanga, Pechanga shall pay to RCWD an amount (the "***Delivered Groundwater Charge***"), being the sum of a fixed component and a variable component, determined as follows:

(a) During the first Contract Year, the fixed component amount shall be $56.00. Commencing in the second Contract Year, and in each Contract Year thereafter, the fixed component shall be adjusted by a percentage amount equal to the percentage change in the U.S. Department of Labor, Bureau of Labor Statistics Consumer Price Index for the previous calendar year.

(b) During the first Contract Year, the variable component amount shall be $129.00. Commencing in the second Contract Year, and in each Contract Year thereafter, the variable component shall equal the well production costs set by RCWD for customers in Pressure Zone 1305.

2.3.5 RCWD shall deliver a statement to Pechanga with respect to Delivered Groundwater by the tenth (10th) business day of each Month. With respect to Delivered Groundwater delivered during the preceding Month, the statement shall set forth (i) the amount of Delivered Groundwater, and (ii) the aggregate Delivered Groundwater Charge. Each statement shall be accompanied by such information as is necessary to enable Pechanga reasonably to determine the accuracy of the statement.

2.3.6 Payments by Pechanga of amounts rightfully payable to RCWD as set forth in a statement rendered pursuant to Section 2.3.5 will be made to RCWD no later than fifteen (15) business days after delivery of the relevant statement. Payment shall be made by wire transfer to such bank account as may be designated in writing from time to time by RCWD, or by such other means as is mutually acceptable to the Parties.

2.3.7 In the event either Party discovers a discrepancy with respect to any statement, such Party shall promptly advise the other Party of such discrepancy. Adjustments for such discrepancies will be reflected on the next statement issued following verification of such discrepancy, but in no event, except in cases of fraud, will an adjustment be made for discrepancies discovered more than thirty-six (36) Months following the date of issuance of the relevant invoice.

2.3.8 Subject to the provisions of Section 2.3.9:

(a) Following commencement of deliveries of Delivered Groundwater and until termination of this Agreement as provided in Section 9.1, RCWD shall not have the right unilaterally to interrupt, suspend or terminate deliveries of Delivered Groundwater to Pechanga in the absence of a final arbitral award issued in accordance with Article 6 permitting such interruption, suspension or termination.

(b) Notwithstanding the provisions of Section 2.3.8(a), RCWD shall have the right to interrupt deliveries of Delivered Groundwater to the extent required to address emergencies involving, or to undertake repairs or maintenance to, the Delivered Groundwater Facilities or other facilities on RCWD's system. RCWD shall notify Pechanga (i) in advance, promptly following the scheduling of any repairs or maintenance that will cause an interruption of deliveries, and (ii) as soon as reasonably possible following an emergency that has caused an interruption of deliveries.

2.3.9 In the event that RCWD receives written notice from Metropolitan Water District of Southern California ("***MWD***") objecting to RCWD's delivery of Delivered Groundwater to Pechanga as being in violation of MWD's statutory authority and its rules and regulations, the following provisions shall apply:

(a) RCWD shall provide a copy of such written notice to Pechanga and shall cooperate with Pechanga in an effort to resolve the issue with MWD, including taking any procedural steps permitted under MWD's rules and regulations to appeal, protest or otherwise address the objection of MWD.

(b) Pechanga reserves the right at all times to litigate the right of RCWD to continue delivering Delivered Groundwater under the terms of this Agreement. RCWD (i) will not take any action that may prejudice any right of Pechanga to challenge a determination of MWD that RCWD's delivery of Delivered Groundwater under this Agreement is in violation of MWD's statutory obligations or rules and regulations, and (ii) will comply with any final judgment affirming RCWD's right to deliver Delivered Groundwater to Pechanga under this Agreement.

(c) RCWD shall continue deliveries of Delivered Groundwater hereunder unless and until the earlier of (i) its having received Pechanga's written notification that Pechanga will not challenge (or will not continue to challenge) MWD's determination, or (ii) in the event Pechanga does challenge such determination, issuance of a final judicial determination (following completion of all appeals or expiration of the time for filing appeals) that RCWD does not have the right to continue deliveries of Delivered Groundwater in accordance with this Agreement.

(d) In the event deliveries of Delivered Groundwater are discontinued pursuant to Section 2.3.9(c):

(i) Pechanga shall have the right to take Groundwater directly from an RCWD well, upon payment of the costs of connecting thereto; and

(ii) provisions of this Agreement will be amended as required to accommodate implementation of such Groundwater source.

2.4 Pechanga Annual Estimate of Pumping.

2.4.1 During the Term, Pechanga shall cause to be prepared and delivered to RCWD by January 31 of each Year, a good-faith estimate of:

(a) the amount of groundwater that Pechanga anticipates it will pump during the then current Year; and,

(b) the amount of Delivered Groundwater that Pechanga anticipates it will need delivered by RCWD during the then current Year.

2.4.2 Pechanga shall have no liability to RCWD related to the development by Pechanga or the use by RCWD of such estimates. RCWD shall be entitled to rely on such estimates of Pechanga for purposes of estimating the amount of groundwater from the Basin that is available for RCWD Annual Usage during such Year. Any RCWD Excess Pumping or Pechanga Excess Pumping resulting from reliance on such estimates shall be subject only to reconciliation pursuant to Section 2.5 and without reference to Pechanga's estimates provided pursuant to Section 2.4.1 with respect to the relevant Year.

2.5 Excess Use of Groundwater.

2.5.1 In the event of Excess Pumping during any Year, a determination shall be made of amounts of such Excess Pumping caused respectively by RCWD Excess Pumping and Pechanga Excess Pumping.

2.5.2 In the event of Pechanga Excess Pumping in any Year, the amount of Pechanga's Annual Entitlement for the next Year shall be reduced by the amount of such Pechanga Excess Pumping.

2.5.3 In the event of RCWD Excess Pumping in any Year, the amount of RCWD's Annual Entitlement for the next Year shall be reduced by the amount of such RCWD Excess Pumping.

2.5.4 Section 2.5 is meant to cover unintentional overruns that may occur because of the difficulty in precisely matching pumping to Annual Entitlement. This Section does not allow additional pumping intended to supplement Annual Entitlement in any given year.

3. Technical Committee

3.1 Composition. A committee of technical experts shall be appointed by the Parties to carry out the responsibilities set forth in this Section 3 (the "***Technical Committee***"). The Technical Committee shall be composed of (a) two (2) persons, one (1) each to be appointed by Pechanga and RCWD, each respectively to serve as the appointing Party's voting representative (each a "***Representative***"), and (b) any other persons appointed by either Party to participate in the Technical Committee meetings on such Party's behalf; provided, however, that only the Representative for each Party shall be authorized to present that Party's position or vote on that Party's behalf with respect to any matter on which the Technical Committee may have to decide. Each Representative shall have one (1) vote. In the event that the position of a Technical Committee member shall fall vacant due to the removal or resignation of such member, such vacancy shall be filled promptly by the appointing Party. If a Representative is unable to perform or is prevented from performing his or her duties, the Party having appointed such Representative shall temporarily designate an alternate Representative.

3.2 Cooperation. The Parties and their Representatives shall cooperate in good faith in Technical Committee deliberations and shall supply any information necessary, or requested by the Technical Committee, to facilitate the reaching of agreement and making of Decisions regarding the matters within the responsibility of the Technical Committee as specified in

Section 3.5. The Technical Committee shall use all reasonable efforts to reach agreement on the matters within its responsibility under Section 3.5.

3.3 Meetings. The Technical Committee shall hold a minimum of one (1) regular meeting every three (3) Months during the Term, at such time and place as shall be agreed by the Representatives, and at which meeting matters subject to Decision under this Agreement, or matters otherwise referred to the Technical Committee for Decision, shall be considered. Either Party may request that an extraordinary meeting of the Technical Committee be held at any other time, upon notice given to the other Party given at least ten (10) business days prior to such meeting and specifying the matter or matters to be considered. The Parties shall cooperate in good faith to schedule meetings of the Technical Committee at which, at a minimum, both Representatives will be present. Meetings of the Technical Committee shall be chaired alternately by the respective Representatives.

3.4 Decisions. Any approval, recommendation, decision or other action of the Technical Committee (a "***Decision***") shall be by unanimous vote of the voting Representatives. A Decision shall be final if the voting Representatives of both Parties accept such Decision in a written statement signed by such Representatives and delivered to each Party. Such written statement shall include all policies adopted by the Technical Committee and other documentation relevant to the Technical Committee's Decision. In the event that the voting Representatives are unable to reach agreement on any issue on which the Representatives are required to make a Decision, either Party may seek binding arbitration of such issue pursuant to the provisions set forth in Section 6.

3.5 Areas of Responsibility. The Technical Committee shall make Decisions regarding and be responsible for the following:

3.5.1 within twenty-four (24) Months following the Effective Date, making an initial determination of the Safe Yield;

3.5.2 considering and verifying or re-determining the Safe Yield on a periodic basis, at such times as may be deemed appropriate by the Technical Committee and notifying the Parties in writing of any changes made to the Safe Yield; and

3.5.3 any other actions or studies assigned to it upon the joint request of the Parties in writing from time to time.

3.6 Costs. Each Party shall bear the costs and expenses (a) associated with the participation of its respective Representative and other designees attending meetings of or otherwise assisting the Technical Committee, and (b) representing one-half of the costs and expenses incurred by the Technical Committee resulting from the conduct of its affairs and the fulfillment of its obligations under Section 3.5.

4. Reporting; Record-Keeping.

4.1 Monthly Groundwater Reports. During the Term and in accordance with the current reporting policies established by the Technical Committee from time to time, each Party shall cause to be prepared and delivered to the other Party reasonably detailed Monthly reports, based on information available to such Party, regarding quantities of Basin groundwater pumped, delivered, received or used by such Party during the preceding Month and the water levels in wells pumped during the preceding Month ("***Groundwater Reports***"). Each Party shall deliver its Groundwater Report to the other Party on or before the fifteenth (15th) day of the Month following the Month (or partial Month) to which such Groundwater Report relates. Each Party shall provide a copy of each of its reports to the Watermaster for his information. All statements of groundwater amounts pumped from the Basin shall be stated both in the aggregate and separately for each pumping site.

4.2 Annual Groundwater Reports. During the Term each Party shall cause to be prepared and delivered to the other Party and to the Watermaster, by the thirtieth (30th) day of April of each Year, an annual report providing a summary of the information provided in the Groundwater Reports pursuant to Section 4.1 herein for the preceding Year.

4. 3 Groundwater Records. During the Term each Party shall maintain accurate books of account and records of its groundwater testing, delivery (including invoicing), pumping or receipt (including records of payment) ("***Groundwater Records***"). Copies of any compilations and of all such Groundwater Records shall be retained for at least three (3) years. All the Groundwater Records shall be the property of the Party that keeps such Groundwater Records. All Groundwater Records of each Party shall be made available to the other Party upon two (2) business days notice, at the place of business of the Party keeping such Groundwater Records, during the Term and for at least three (3) years subsequent to the expiration or termination of this Agreement, for examination, audit, inspection and copying (at no expense to the Party keeping such Groundwater Records) solely for purposes of confirming the due performance of this Agreement and for no commercial purpose.

5. Construction of Water Delivery Infrastructure.

5.1 Requirements and Procedures. Design, engineering, construction, installation and transfer of the Delivered Groundwater Facilities shall be undertaken in accordance with, and be governed by, the RCWD Facility Requirements and such agreements as are entered by the Parties in compliance therewith. Notwithstanding application of the RCWD Facility Requirements, however, the Parties intend that the following provisions shall apply:

(a) RCWD undertakes to issue a "Notice to Proceed" in accordance with the construction agreement entered pursuant to the RCWD Facility Requirements without undue delay once applicable conditions precedent are met.

(b) Pechanga may select vendors, suppliers and contractors for procurement, design, engineering, construction and installation of the Delivered Groundwater Facilities in its discretion; provided, however, that the terms of agreements with such contractors are consistent

with the RCWD Facility Requirements and, provided, further, that Pechanga shall be primarily responsible to RCWD for the conduct of such contractors while on the Delivered Groundwater Facilities Site or elsewhere on the Right of Way.

(c) RCWD shall provide, or cause to be provided to, Pechanga and its contractors access to the Right of Way and to the Delivered Groundwater Facilities Site for purposes of completion of the Delivered Groundwater Facilities.

(d) Each of Pechanga and RCWD shall appoint a representative who has primary responsibility for communications and approvals concerning all matters relating to completion of the Delivered Groundwater Facilities.

(e) Inspections by RCWD of completed Delivered Groundwater Facilities that must be undertaken to verify compliance with the RCWD Facility Requirements shall be undertaken without undue delay.

(f) Upon successful completion of inspections verifying compliance of the Delivered Groundwater Facilities with the RCWD Facility Requirements, RCWD shall issue the "Notice of Completion" in accordance with the construction agreement entered pursuant to the RCWD Facility Requirements, and transfer of the Delivered Groundwater Facilities to RCWD shall be completed, without undue delay; provided, however, that subparagraph 5D of the form of Water System Construction Agreement included as "Appendix L" to the RCWD Facility Requirements shall not apply, and Pechanga shall not be required to enter an Agency Agreement with RCWD as a condition to issuance of the "Notice of Completion" or for any other purpose.

(g) Subject only to the provisions of Section 2.3.1, on and after transfer of the Delivered Groundwater Facilities to RCWD, Pechanga will have no further obligation to RCWD to construct and pay for additional facilities for the delivery of Delivered Groundwater, or to repair, maintain or replace the Delivered Groundwater Facilities.

5.2 Interpretation of Documents. It is intended that the provisions of Section 5.1 be construed in harmony with the RCWD Facility Requirements. In the event of a conflict between the terms of the RCWD Facility Requirements and the provisions of Section 5.1, the provisions of Section 5.1 shall prevail. In any event, the provisions of Article 6 of this Agreement shall apply to any disputes arising between the Parties under or in connection with the RCWD Facility Requirements.

6. Dispute Resolution

6.1 Amicable Resolution. The Parties agree to attempt to resolve all claims, disputes, controversies or other matters in question between the Parties arising out of, or relating to, this Agreement, including the deliberation, action or activity of the Technical Committee ("***Dispute***"), promptly, equitably and in a good faith manner.

6.2 Mediation of Technical Committee Disputes. Notwithstanding any other provision of this Section 6, with respect to any Dispute concerning the determination of Safe

Yield by the Technical Committee or any other matter assigned to the Technical Committee by or pursuant to this Agreement, before submitting such Dispute to arbitration, the Parties agree first to try in good faith to settle the dispute by requesting that the Watermaster serve as a mediator to resolve the Dispute by applying the process and rules of the Commercial Mediation Procedures of the American Arbitration Association ("***Mediation Procedures***"). If the Watermaster refuses or is unable to serve as a mediator, the Parties agree that either Party may submit the matter for mediation by the American Arbitration Association pursuant to the Mediation Procedures. If, under the Mediation Procedures, the mediator or either Party terminates the mediation of such Dispute, either Party may submit the Dispute to arbitration pursuant to this Section 6.

6.3 Submission to Arbitration. Either Party may submit any Dispute that cannot be resolved between the Parties to arbitration by written notice to the other Party irrespective of the magnitude thereof, the amount in dispute or whether such Dispute would otherwise be considered justiciable or ripe for resolution by any court or arbitral tribunal. This Agreement and the rights and obligations of the Parties shall remain in full force and effect pending the award in such arbitration proceeding, which award shall determine whether and when termination shall become effective (if applicable).

6.4 Notice of Arbitration. The notice for arbitration shall be given in accordance with Section 9.9 and shall specify with particularity the nature of the Dispute, the particular provisions of this Agreement that are at issue, and the proposed relief sought by the Party seeking arbitration.

6.5 Appointment of Arbitrators. The arbitration shall be conducted before a panel composed of three (3) arbitrators, each of whom shall be a person familiar, by profession or experience, with the issues in controversy. Within fourteen (14) business days after delivery of a notice of arbitration, each Party shall appoint an arbitrator, obtain its appointee's acceptance of such appointment and deliver written notification of such appointment and acceptance to the other Party. If a Party fails or refuses to select an arbitrator after fourteen (14) calendar days, an arbitrator may be chosen on behalf of such Party by the American Arbitration Association ("***AAA***") and in the manner provided in the American Arbitration Association Commercial Arbitration Rules and Procedures ("***AAA Rules and Procedures***"). Within fourteen (14) days of being appointed, the two (2) Party-appointed arbitrators shall jointly appoint the third (who shall be the chairperson), and shall obtain the acceptance of such appointment and deliver written notification of such appointment to the Parties. If a Party fails to appoint its arbitrator within the specified period, or if the two (2) arbitrators appointed fail to appoint the third arbitrator within a period of fourteen (14) business days after appointment of the second arbitrator, then such arbitrator shall be appointed by the AAA pursuant to the AAA Rules and Procedures.

6.6 Disqualification of Arbitrator. No person may serve as an arbitrator if, because of employment or other relationship with the Parties, the nature of the matter to be arbitrated, or otherwise, such person could not serve as a judge in such matter if such person were a judge.

6.7 Rules of Arbitration. Arbitration shall be conducted pursuant to the AAA Rules and Procedures in effect on the Effective Date; provided, however, that any waiver of sovereign immunity shall be governed solely and exclusively by Section 6.16.

6.8 Time. Time is of the essence in the resolution of Disputes pursuant to this Section 6. All deadlines shall be strictly enforced against the Parties.

6.9 Submission of Evidence. Each Party may submit evidence in writing to the arbitrators for their consideration within forty-five (45) calendar days after written notice of the arbitration request has been received.

6.10 Arbitral Hearing. The arbitrators may, in their sole discretion, determine whether a hearing would assist them in rendering a fair and equitable decision. In any event, such hearing, if held, must be held within sixty (60) calendar days after written notice of the arbitration request has been received.

6.11 Conduct of Arbitration. The arbitrators shall comply with and follow to the extent possible the AAA Rules and Procedures with respect to impartiality and independence, and shall render an independent, impartial review of the claim(s) presented, and each arbitrator shall act independently and shall not be either Party's representative. The arbitrators' deliberations are confidential and shall not be disclosed to third parties. Each arbitrator shall be disqualified as a witness, consultant or expert for either Party in any Dispute. No written communication shall be made between the arbitrators and a Party without the other Party receiving a copy, and no oral communications shall take place without the other Party being present.

6.12 Arbitral Award. The arbitrators shall render a reasoned decision and award, by majority vote, no later than ninety (90) calendar days after written notice of the arbitration request has been received.

6.13 Arbitral Remedies. The arbitrators may fashion any legal and equitable remedies that they deem necessary to provide appropriate relief to an aggrieved Party, including damages, injunctive relief and termination of this Agreement; provided, however, that in no event shall either Party be liable for indirect or consequential damages in connection with any breach hereof.

6.14 Enforcement of Arbitral Award. The arbitrators' decision will be final and binding on the Parties, will not be subject to appeal and may be entered as an order in any court of competent jurisdiction in the United States. Each Party agrees to submit to the jurisdiction of any such court for purposes of the enforcement of any such order and for no other purpose. No Party will sue the other except for enforcement of the arbitrators' decision if the other Party is not performing in accordance with the arbitrators' decision. The provisions of this Agreement will be binding on the arbitrators and nothing in this Agreement shall be construed so as to permit the arbitrators to modify this Agreement.

6.15 Costs of Arbitration. The costs of the arbitration shall be shared equally by the Parties, but the Parties shall bear their own costs and attorneys' fees associated with their participation in the arbitration.

6.16 Limited Waiver of Sovereign Immunity. Pechanga hereby provides a strictly limited waiver of its sovereign immunity in any court of competent jurisdiction for the sole and exclusive purpose of enforcement of an arbitration award rendered pursuant to this Section 6. Pechanga does not waive any immunity or other rights it may have under law with respect to claims or causes of action by parties other than RCWD.

7. Future Cooperation

The Parties shall cooperate in good faith to develop additional potable and non-potable water supplies to satisfy any future needs that Pechanga may have.

8. Representations and Warranties

8.1 Representations and Warranties of Pechanga. Pechanga represents and warrants to RCWD as follows:

8.1.1 Its execution, delivery and performance of this Agreement have been duly authorized by all necessary action of the Pechanga Band of Luiseño Mission Indians.

8.1.2 It is not a party to any agreement, covenant or other agreement or instrument, or subject to any charter or corporate restriction which could have a material adverse effect on its ability to fulfill any of its responsibilities under this Agreement.

8.1.3 This Agreement constitutes a legal, valid, and binding obligation of Pechanga enforceable against it in accordance with its terms.

8.1.4 There is no pending or threatened action or proceeding against or affecting Pechanga before any tribunal or governmental authority which may, in any one case or in the aggregate, materially adversely affect the operations, properties, or business of Pechanga or the ability of Pechanga to perform its obligation under this Agreement.

8.1.5 Except as set forth in Exhibit F, to the best of Pechanga's knowledge, the validity of this Agreement, the execution and delivery by it of this Agreement and the performance by it of its obligations hereunder will not require any permit, license, certificate, waiver, notice, approval, consent or similar authorization from any federal, state or local judiciary, regulatory or administrative body.

8.2 Representations and Warranties of RCWD. RCWD represents and warrants to Pechanga as follows:

8.2.1 Its execution, delivery and performance of this Agreement have been duly authorized by all necessary action of RCWD.

8.2.2 With the exception of wells owned and operated by Pechanga, all entities pumping groundwater from the Wolf Valley Groundwater Basin have entered into an Agency Agreement with RCWD and, with the exception of groundwater pumped by Pechanga, no

groundwater from the Wolf Valley Groundwater Basin is pumped by any person, partnership, government or private entity other than RCWD.

8.2.3 It is not a party to any agreement, covenant or other agreement or instrument, or subject to any charter or corporate restriction which could have a material adverse effect on its ability to fulfill any of its responsibilities under this Agreement.

8.2.4 This Agreement constitutes a legal, valid, and binding obligation of RCWD enforceable against it in accordance with its terms.

8.2.5 There is no pending or threatened action or proceeding against or affecting the RCWD before any tribunal or governmental authority which may, in any one case or in the aggregate, materially adversely affect the operations, properties, or business of RCWD or the ability of the RCWD to perform its obligation under this Agreement.

8.2.6 Except as set forth in Exhibit F, to the best of RCWD's knowledge, the validity of this Agreement, the execution and delivery by it of this Agreement and the performance by it of its obligations hereunder will not require any permit, license, certificate, waiver, notice, approval, consent or similar authorization from any federal, state or local judiciary, regulatory or administrative body.

8.3 **Breach of Representation or Warranty.** Any representation or warranty made by a Party in this Section 8 that shall prove to have been incorrect in any material respect as of the Effective Date shall be deemed to constitute a material breach of this Agreement by the Party giving such representation or warranty.

9. Miscellaneous Provisions

9.1 **Term; Termination.** The term of this Agreement (the "***Term***") shall commence on the Effective Date and shall remain in effect for an initial period of twenty five (25) years after the Effective Date, and shall automatically extend for one additional period of twenty five (25) years, unless terminated by a Party as of the end of the initial twenty five (25) year period by notice given to the other Party no less than one (1) year prior to the expiration of the initial twenty five (25) year period. Prior to expiration of the Term, this Agreement may be terminated (i) by mutual agreement of the Parties in a writing signed by both Parties; or (ii) as a result of a material breach of either Party's obligations herein as determined by an arbitral award issued pursuant to Section 6; or (iii) by operation of contract pursuant to Section 9.2.

9.2 **Termination for Dissolution.** This Agreement shall automatically terminate and be of no further force or effect, without further action required by Pechanga, in the event that RCWD, or any regulator, takes any action to: (a) legally dissolve RCWD; (b) discontinue or otherwise cease the operations or functions of RCWD, whether in whole or in part, in the capacity that they are performed by RCWD on the Effective Date; or (c) cause RCWD to fail or be unable to perform its obligations under this Agreement.

9.3 Release of Information. All press releases relating to this Agreement or the implementation of the transactions hereunder, and the method of the release for publication thereof, will be subject to the prior approval of both Parties, which approval shall not be unreasonably withheld.

9.4 No Settlement. This Agreement does not constitute a settlement of any kind between the Parties. Neither Party shall be construed as having made or accepted any admission of any kind in connection with this Agreement.

9.5 No Effect on Decree. Nothing in this Agreement shall be construed to modify, alter or affect the decree in *United States v. Fallbrook Public Utility District, et al.*, CIV No. 1247-SD-T.

9.6 Assignment. Neither Party may assign either this Agreement or any of its rights, interests or obligations hereunder without the prior written approval of the other Party, provided, however, that Pechanga may assign this Agreement without the prior consent of RCWD to another tribal entity of the Pechanga Band of Luiseño Mission Indians if the assignee assumes all of Pechanga's obligations under this Agreement and otherwise agrees to be bound by and consents to each of the provisions of this Agreement.

9.7 Third Parties. This Agreement shall not be binding upon, inure to the benefit of or confer rights upon any third parties.

9.8 Entire Agreement. This Agreement, together with the Exhibits, constitutes the entire agreement and understanding of the Parties in respect of the subject matter hereof and supersedes all prior understandings, agreements, statements, contracts or representations by or among the Parties and their agents, written or oral, to the extent they relate in any way to the subject matter hereof.

9.9 Notice. All notices, requests, payments, reports and other communications provided for or permitted to be given or made under this Agreement must be in writing and must be given by personal delivery, or by certified or registered United States mail (postage prepaid, return receipt requested), addressed as follows or addressed to such other address as the Party to receive such notice shall have designated by written notice as required by this Section 9.9. Notice or payment shall be deemed to have been effective and properly delivered or made on the earlier of (a) if given by personal delivery, the date of actual delivery, (b) if sent by certified or registered mail, the first business day that is at least four (4) calendar days after the notice or payment has been deposited in the U.S. mails in accordance with this Section 9.9:

As to Pechanga:

Mark Macarro
Chairman
Pechanga Band of Luiseño Indians
P.O. Box 1477
Temecula, CA 92593

With a copy to:

John Macarro
General Counsel
Pechanga Band of Luiseño Indians
P.O. Box 1477
Temecula, CA 92593

and to:

Donald R. Pongrace
Akin Gump Strauss Hauer & Feld LLP
1333 New Hampshire Avenue, NW
Suite 400
Washington, DC 20036

As to RCWD:

Dr. Brian J. Brady
General Manager
Rancho California Water District
42135 Winchester Road
Temecula, CA 92590

With a copy to:

Arthur Littleworth
Best Best & Krieger LLP
3750 University Avenue
Riverside, CA 92501

9.10 Service of Process. Any Party may make service on any other Party by sending a copy of the process by certified U.S. mail, as provided under Federal Rules of Procedure 4(d), to the Party to be served at the address and in the manner provided for the giving of notices in Section 9.9.

9.11 Construction. This Agreement has been freely and fairly negotiated among the Parties. If an ambiguity or question of intent or interpretation arises, this Agreement will be construed as if drafted jointly by the Parties and no presumption or burden of proof will arise favoring or disfavoring any Party because of the authorship of any provision of this Agreement. The words "include," "includes," and "including" will be deemed to be followed by "without limitation." The word "person" includes individuals, entities, regulators and other governmental bodies. The words "this Agreement," "herein," "hereof," "hereby," "hereunder," and words of similar import refer to this Agreement as a whole and not to any particular subdivision unless expressly so limited.

9.12 Headings. The Section headings contained in this Agreement are inserted for convenience only and shall not affect in any way, and shall not be considered in, the meaning or interpretation of this Agreement.

9.13 Amendments; Waivers. No amendment, modification, waiver, replacement, termination or cancellation of any provision of this Agreement will be valid, unless the same is in writing and signed by Pechanga and RCWD. No waiver by a Party of any breach by the other Party of any of the terms or conditions of this Agreement, or of any right of such Party hereunder, shall be construed as a waiver of any subsequent breach by the other Party of the same or other terms or conditions, or of the future exercise by such Party of the same or any other right hereunder. Neither the failure nor any delay on the part of a Party to exercise any right or remedy under this Agreement will operate as a waiver thereof, nor does any single or partial exercise of any right or remedy preclude any other or subsequent exercise of the same or of any other right or remedy.

9.14 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of California, without regard to any choice of laws or conflicts of laws provisions which would direct the application of the laws of any other jurisdiction. The venue for arbitration proceedings shall be Riverside County, California.

9.15 Severability. The provisions of this Agreement will be deemed severable and the invalidity or unenforceability of any provision will not affect the validity or enforceability of the other provisions hereof; provided, however, that, if any provision of this Agreement, as applied to a Party or to any circumstance, is determined not to be enforceable in accordance with its terms, the Parties agree that the provision may be modified in a manner consistent with its objectives such that it is enforceable, and/or specific words or phrases may be deleted, and in its modified form, such provision will then be enforceable and will be enforced.

9.16 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be considered an original but all of which, taken together, shall constitute one and the same instrument. This Agreement shall become effective as of the Effective Date when one or more counterparts have been signed by both Parties and a copy of the fully executed version is delivered to each Party.

[SEPARATE SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF:

Rancho California Water District has caused this Groundwater Management Agreement to be executed by its duly authorized representative as of the Effective Date.

RANCHO CALIFORNIA WATER DISTRICT

By: _____

Name: Bennett R. Drake

Title: President of the Board of Directors

AND ***[Tribe Signature Follows]***

IN WITNESS WHEREOF:

The Pechanga Band of Luiseño Mission Indians has caused this Groundwater Management Agreement to be executed by its duly authorized representative as of the Effective Date.

PECHANGA BAND OF LUISEÑO MISSION INDIANS

By: _____

Name: Mark Macarro

Title: Tribal Chairman

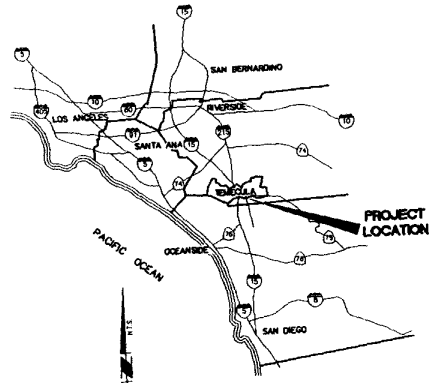
List of Exhibits

No.	Title
A	Delivered Groundwater Facilities
B	Delivered Groundwater Facilities Site; Right of Way
C	Reservation
D	Wolf Valley Groundwater Basin
E	RCWD Water System Facility Requirements
F	Required Approvals

Exhibit A

Delivered Groundwater Facilities

RANCHO CALIFORNIA WATER DISTRICT
CONSTRUCTION PLANS
FOR
PECHANGA RESORT AND CASINO
DOMESTIC WATER METER CONNECTION
(PROJECT NO. LXXXX)



VICINITY MAP
N.T.S.

LIST OF DRAWINGS

1. TITLE SHEET
2. GENERAL NOTES AND NOTIFICATIONS
3. PLAN AND PROFILE PECHANGA PARKWAY
4. MECHANICAL DETAILS
5. TRAFFIC CONTROL PLAN
6. TRAFFIC CONTROL PLAN
7. TRAFFIC CONTROL PLAN

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS AND THE SPECIFICATIONS AND STANDARD DRAWINGS OF THE COUNTY OF RIVERSIDE AND RANCHO CALIFORNIA WATER DISTRICT

	ITEM	QUANTITY
1	RESTRAINED 12" PVC C-900 PIPE CL-200 PER RW-25, R-22	111 LF
2	CONCENTRIC REDUCER FLANGED	2 EA
3	IP PIPE	5 LF
4	DI PIPE FLG. X FLG	7 LF
5	ELBOW F G	1 EA
6	ELBOW F	1 EA
7	ELBOW FLG.	1 EA
8	TEE LG.	1 EA
9	ELBOW FE X MJ (RESTRAINED)	1 EA
10	ECCENTRIC REDUCER FLANGED	1 EA
11	ECCENTRIC REDUCER FLANGED	1 EA
12	8" "DRESSER" SLEEVE COUPLING	1 EA
13	16" RESTRAINED FLANGE ADAPTER "EBAA IRON" SERIES 2100	2 EA
14	12" RESTRAINED FLANGE ADAPTER "EBAA IRON" SERIES 2100	1 EA
15	12" RESILENT WEDGE GATE VALVE FLG X FLG PER RW-30, RW-31	1 EA
16	8" RW GATE VALVE OS & Y WITH LOCK AND CHAIN	2 EA
17	10" RW GATE VALVE OS & Y WITH LOCK AND CHAIN	1 EA
18	10" DI 90° ELBOW FLG X MJ (RESTRAINED)	2 EA
19	12" DI 90° ELBOW FLG X FLG	1 EA
20	6" METER ASSEMBLY "BADGER" RECORD ALL COMBO METER W/BRONZE TAMPER RESISTANT REGISTERS (DISTRICT FURNISHED)	1 EA
21	10" BACKFLOW PREVENTION DEVICE "FEBCO" 806	7 LF
22	INSTALL 12" DI PIPE CL-55 FLG X FLG	1 EA
23	16" X 12" CONC. REDUCER FLANGED	2 EA
24	INSTALL PIPE SUPPORTS PER RW-19	2 EA
25	10" FLG. COUPLING ADAPTER (RESTRAINED)	1 EA
26	THRUST BLOCK PER RCWD RW-26	12 LF
27	2"x4" REDWOOD HEADER	

BENCHMARK:
RIVERSIDE COUNTY DESIGNATION: T-4-81
2 1/2" BRASS DISK IN CONCRETE CYLINDER STAMPED "T-4-81" 5.0 MI. SOUTHEAST ON HWY. 79 SOUTH FROM THE INTERSECTION OF MAIN & FRONT STREET IN TEMECULA, 41' N. OF HWY 79, 4' W. OF P.P. #1623426E ON EDGE OF CULTIVATED FIELD. SET FIBERGLASS WITNESS POST 1' N. OF MONUMENT.
DATE: 9-13-82 ELEV. 1120.588

BASIS OF BEARING

S FOR THIS PLA IN THE LINE BETWEEN INYON 1" AND "L" (POSITIONS PER NATIONAL RVEY, GRS80 EL. EPOCH 1995.5) AS SHOWN FILED IN BOOK THROUGH 65 OF RECORDS IN THE OFFICE RECORDER OF RIVERSIDE IFORNIA, BEING

ENGINEERS NOTE

CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, IDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

LEGEND

- PROPOSED WATER MAIN
- HIGH PRESSURE GAS
- EXISTING WATER MAIN
- EXISTING SEWER
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- EXISTING GAS
- EXISTING TELEPHONE
- CABLE TV
- SIGNAL INTERCONNECT CONDUIT
- EXISTING AIR/VAC & AIR RELEASE
- EXISTING SURFACE OVER ℄ PIPE
- ROAD CENTERLINE
- RIGHT OF WAY
- EDGE OF PAVEMENT
- EXISTING UTILITY LOCATION (PROFILE)
- EXISTING FIRE HYDRANT
- PROPOSED FENCE

Underground Service Alert
CALL TOLL FREE 1-800-422-4133
TWO WORKING DAYS BEFORE YOU DIG

TOP # LD06-256C0
PERMIT # LD06-257C0

1305 PRESSURE ZONE

GRAPHIC SCALE FOR REDUCED DRAWINGS (40 0 40 80 120)

DATE	BY	REVISIONS	APP'D	DATE

APPROVED BY: MICHAEL J. BOECK R.C.E. NO. 66417 EXP. 6-30-08
DATE:
DRAWN FMM | SCALE AS NOTED | RECOMMENDED FOR SIGNATURE
DESIGNED FMM | JOB NUMBER 15101569
CHECKED JRB | DATE 9/19/06 | DATE:

RBF CONSULTING — PLANNING • DESIGN • CONSTRUCTION

Rancho Water — Rancho California Water District

RANCHO CALIFORNIA WATER DISTRICT
APPROVED DIRECTOR OF ENGINEERING DATE
APPROVALS
ENGINEERING DATE | CONTRACTS DATE | OPERATIONS DATE | MAINTENANCE DATE

PECHANGA RESORT AND CASINO METER CONNECTION (PROJECT NO. LXXXX)
TITLE SHEET

SHEET 1 OF 7 SHEETS
FILE NO.

RANCHO CALIFORNIA WATER DISTRICT
GENERAL CONSTRUCTION NOTES

1. GENERAL
   A. CONTRACTOR SHALL FURNISH AND INSTALL ALL FACILITIES IN ACCORDANCE WITH THE DISTRICT'S STANDARD SPECIFICATIONS AND STANDARD DRAWINGS FOR WATER AND SANITARY SEWER FACILITIES (DATED JULY 1, 1999 OR LATEST REVISION). THE SPECIFICATIONS AND STANDARD DRAWINGS ARE AVAILABLE FROM THE DISTRICT. CONTRACTOR SHALL BE IN POSSESSION OF DISTRICT'S SPECIFICATIONS AND STANDARD DRAWINGS ON THE JOB SITE AT ALL TIMES.
   B. ALL PERMITS REQUIRED BY LAW SHALL BE ACQUIRED BY THE APPLICANT OR THEIR CONTRACTOR.
   C. ALL CONSTRUCTION SHALL CONFORM TO CURRENT CAL OSHA SAFETY REQUIREMENTS.
   D. APPROVAL BY RCWD IMPLIES NO PERMISSION OTHER THAN THAT WITHIN THE DISTRICT'S JURISDICTION. REQUIREMENTS OF RCWD SHALL TAKE PRECEDENCE OVER REQUIREMENTS OF OTHER AGENCIES ONLY WHEN RCWD REQUIREMENTS ARE GREATER.
   E. CONTRACTOR SHALL NOTIFY RCWD'S CONTRACTS MANAGER A MINIMUM OF ONE WEEK PRIOR TO STARTING CONSTRUCTION.
   F. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION REQUESTING A SYSTEM SHUTDOWN FOR CONNECTIONS TO EXISTING SYSTEM. SAID NOTIFICATION SHALL BE MADE A MINIMUM OF THREE WEEKS PRIOR TO SAID SHUTDOWN TO THE RCWD CONTRACTS MANAGER.
   G. CONTRACTOR SHALL DESIGNATE A QUALIFIED SUPERINTENDENT WITH FULL AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR. SAID SUPERINTENDENT SHALL BE ON THE JOB SITE AT ALL TIMES.
   H. CONTRACTOR SHALL PERFORM ALL WORK UNDER RIVERSIDE COUNTY ROAD DEPARTMENT JURISDICTION IN ACCORDANCE WITH ALL REQUIREMENTS OF SAID DEPARTMENT OR C.S.D. INCLUDING TRAFFIC CONTROL, PAVEMENT REMOVAL, TEMPORARY PAVEMENT PLACEMENT, PERMANENT PAVEMENT PLACEMENT (INCLUDING BASE MATERIAL) AND TEMPORARY AND PERMANENT TRAFFIC STRIPING.

2. PIPELINE AND APPURTENANCES
   A. ALL VALVES, PIPING, AND APPURTENANCES SHALL BE DESIGNED TO MEET OR EXCEED THE SPECIFIED MINIMUM DESIGN PRESSURE SHOWN ON THE PLAN/PROFILE SHEETS. IN ADDITION, ALL VALVES, PIPING, AND APPURTENANCES SHALL BE TESTED AT A PRESSURE OF 10% OVER SAID MINIMUM DESIGN PRESSURE. VALVES SHALL BE CAPABLE OF WITHSTANDING SAID TEST PRESSURE IN A CLOSED POSITION.
   B. ALL MATERIALS, TESTING, AND INSPECTION OF PIPE SHALL BE IN CONFORMITY WITH THE REQUIREMENTS OF RANCHO CALIFORNIA WATER DISTRICT, RIVERSIDE COUNTY, AND THE AMERICAN WATER WORKS ASSOCIATION STANDARDS. FAILURE TO MEET ANY REQUIREMENTS OF THE ABOVE REFERENCED AGENCIES WILL BE CAUSE FOR REJECTION.
   C. WATERLINE CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING NOS. RW-22, RW-25, RW-30, & RW-31.
   D. THRUST BLOCKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH RCWD STANDARD DRAWING NO. RW-26.

3. UTILITIES
   A. AT LEAST 48 HOURS BEFORE COMMENCING ANY EXCAVATION, CONTRACTOR SHALL REQUEST UNDERGROUND SERVICE ALERT (1-800-227-2600) AND NON-MEMBER COMPANIES, OR UTILITIES TO MARK OR OTHERWISE INDICATE THE LOCATION(S) OF THEIR SUBSURFACE FACILITIES INCLUDING, BUT NOT LIMITED TO, STRUCTURES INCLUDING VAULTS, MAIN CONDUCTORS OR CONDUITS, AND SERVICE CONNECTIONS.
   B. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL EXPOSE EXISTING WATERLINES AT PROPOSED CONNECTIONS AND CROSSINGS AND VERIFY ELEVATIONS, LOCATIONS, AND SIZE OF EXISTING FACILITIES.
   C. CONTRACTOR SHALL NOT INTERRUPT OR DISTURB ANY UTILITY FACILITY WITHOUT AUTHORITY FROM THE UTILITY. WHERE PROTECTION IS REQUIRED TO ENSURE INTEGRITY OF UTILITY FACILITIES (INCLUDING DISTRICT-OWNED UTILITIES) CONTRACTOR SHALL FURNISH AND PLACE ALL NECESSARY PROTECTION.
   D. WHENEVER A WATERLINE ENCOUNTERS A STORM DRAIN PIPE OR OTHER OBSTRUCTION AND CROSSING OVER THE OBSTRUCTION WILL RESULT IN LESS THAN 42" OF COVER OVER THE TOP OF THE WATER THE WATERLINE SHALL CROSS UNDER THE OBSTRUCTION WITH A MINIMUM CLEARANCE OF 12".

4. CONSTRUCTION DRAWINGS
   A. MINIMUM PIPE COVER SHALL BE 42" FROM FINISHED GROUND SURFACE.
   B. WATER SYSTEM PROFILE ELEVATIONS ARE TO FLOW LINE OF PIPE.
   C. STATIONING FOR PIPELINE AS SHOWN ON PLAN.
   D. SEPARATION BETWEEN SEWER AND WATER SHALL CONFORM TO RIVERSIDE COUNTY STANDARD NO. 817 AND RCWD STANDARD DRAWING S-23.

5. CONSTRUCTION TOLERANCES
   PIPELINES SHALL BE CONSTRUCTED SO THAT ACTUAL FLOW LINE ELEVATIONS ARE WITHIN 0.1 FOOT OF DESIGN FLOW LINE ELEVATIONS. PIPELINES, WHEN INSTALLED, SHALL HAVE CONTINUOUS UPGRADE OR DOWNGRADE, CORRESPONDING WITH DESIGN SLOPE, WITHOUT ANY HIGH SPOTS. PIPELINES SHALL BE CONSTRUCTED SO THAT ACTUAL PIPELINE CENTERLINES ARE WITHIN 0.1 FOOT OF DESIGN PIPELINE CENTERLINES.
   PIPELINE CONSTRUCTION SHALL CONFORM WITH CONSTRUCTION DRAWINGS IN ACCORDANCE WITH THE ABOVE SPECIFIED TOLERANCES. CONTRACTOR SHALL ASSIST DISTRICT AS REQUIRED TO CONFIRM COMPLIANCE WITH CONSTRUCTION TOLERANCES. CONTRACTOR SHALL MAKE OR ASSIST IN MAKING ALL NECESSARY MEASUREMENTS AS DETERMINED BY DISTRICT.

6. ENGINEERING FIRM
   PRIOR TO SIGNING OF WATER CONSTRUCTION DRAWINGS BY RCWD, ALL QUESTIONS CONCERNING THIS PROJECT SHALL BE DIRECTED TO:

   JOHN BARNES
   VICE PRESIDENT
   RBF CONSULTING
   PHONE : (951) 676-8042

NOTIFICATIONS

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES AT LEAST 48 HOURS IN ADVANCE OF STARTING CONSTRUCTION:

UNDERGROUND SERVICE ALERT	(800) 422-4133
RANCHO CALIFORNIA WATER DISTRICT	(951) 296-6900
EASTERN MUNICIPAL WATER DISTRICT	(951) 928-6107
SOUTHERN CALIFORNIA EDISON COMPANY	(626) 302-1212
SOUTHERN CALIFORNIA GAS COMPANY	(800) 227-2600
GENERAL TELEPHONE COMPANY	(800) 227-2600
CITY OF TEMECULA ENGINEERING DEPT.	(951) 694-6400
COUNTY OF RIVERSIDE	(951) 955-6790
VERIZON	(951) 715-4665
ADELPHIA TV	(951) 766-4270

40 0 40 80 120
GRAPHIC SCALE
FOR REDUCED DRAWINGS

1305 PRESSURE ZONE

DATE	BY	REVISIONS	APP'D	DATE

REGISTERED PROFESSIONAL ENGINEER MICHAEL J. BOECK No. 66417 Exp. 6/30/08 CIVIL STATE OF CALIFORNIA

APPROVED BY: MICHAEL J. BOECK R.C.E. NO.66417 EXP. 6-30-08
DATE:
DRAWN RMM | SCALE AS NOTED | RECOMMENDED FOR SIGNATURE
DESIGNED RMM | JOB NUMBER 15101569
CHECKED JRB | DATE 9/19/06 | DATE:

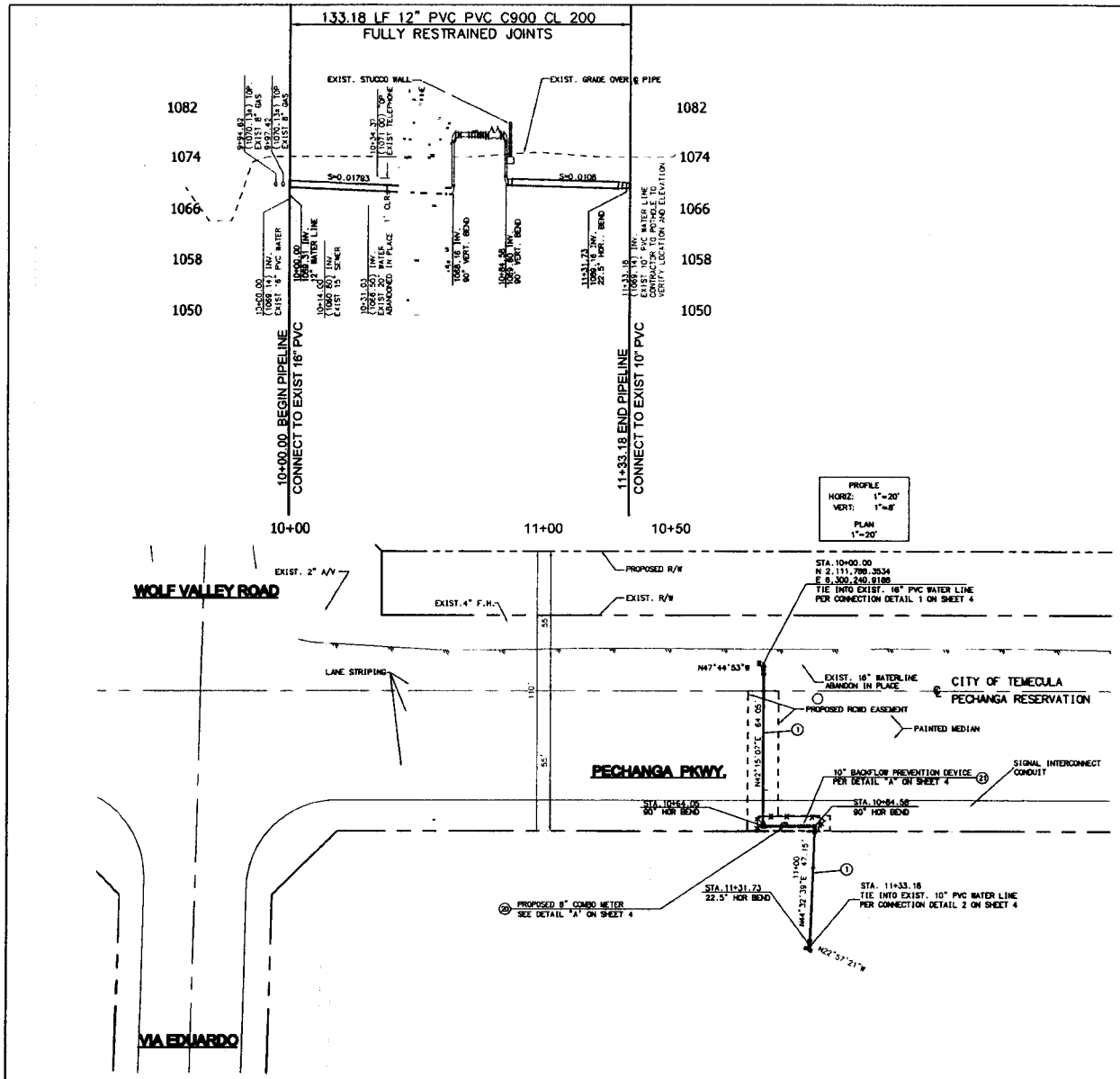
RBF CONSULTING — PLANNING • DESIGN • CONSTRUCTION

Rancho Water — Rancho California Water District

RANCHO CALIFORNIA WATER DISTRICT
APPROVED
ENGINEERING MANAGER DATE
APPROVALS
CONTRACTS DATE | OPERATIONS DATE | MAINTENANCE DATE | W.O. | FOR: | F.B.

PECHANGA RESORT AND CASINO METER CONNECTION (PROJECT NO. LXXXX)
GENERAL NOTES AND NOTIFICATIONS

SHEET 2 OF 7 SHEETS
FILE NO.



CONSTRUCTION NOTES

1. INSTALL FULLY RESTRAINED 12" PVC C-900 PIPE CL-200 PER RM-23, R-22
20. 8" METER ASSEMBLY "BADGER" RECORD ALL COMBO METER W/BRONZE TAMPER RESISTANT REGISTERS (DISTRICT FURNISHED) CONTRACTOR TO PICK-UP METER AT ROMD AND INSTALL
21. 10" BACKFLOW PREVENTION DEVICE "FEBCO" 806

1305 PRESSURE ZONE

DATE	BY	REVISIONS	APP'D	DATE

REGISTERED PROFESSIONAL ENGINEER MICHAEL J. BOSCK No. 66417 Exp. 6/30/08 CIVIL STATE OF CALIFORNIA

APPROVED BY: MICHAEL J. BOSCK R.C.E. NO.66417 EXP. 6-30-08
DATE:

DRAWN	SCALE	RECOMMENDED FOR SIGNATURE
FMM	AS NOTED	
DESIGNED FMM	JOB NUMBER 151015G9	
CHECKED JRB	DATE 8/19/06	DATE:

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Rancho Water — Rancho California Water District

RANCHO CALIFORNIA WATER DISTRICT

APPROVED — ENGINEERING MANAGER — DATE

APPROVALS: CONTRACTS DATE | OPERATIONS DATE | MAINTENANCE DATE

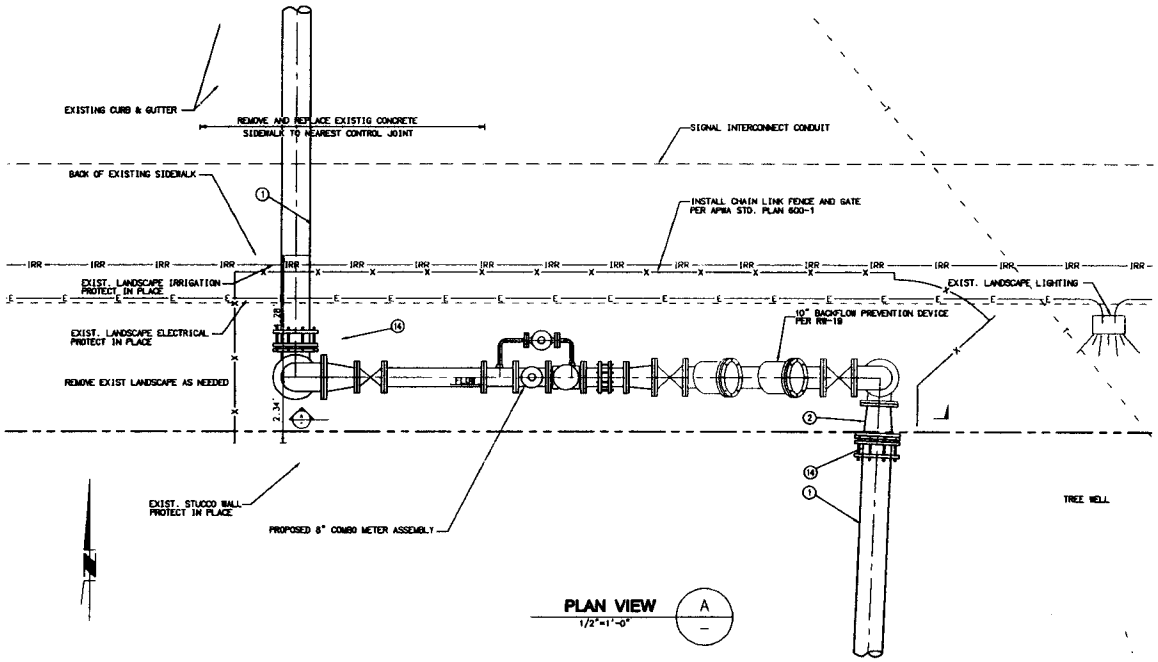
PECHANGA RESORT AND CASINO METER CONNECTION (PROJECT NO. LXXXX)

PLAN AND PROFILE PECHANGA PARKWAY

W.O. FOR: F.B.

SHEET 3 OF 7 SHEETS

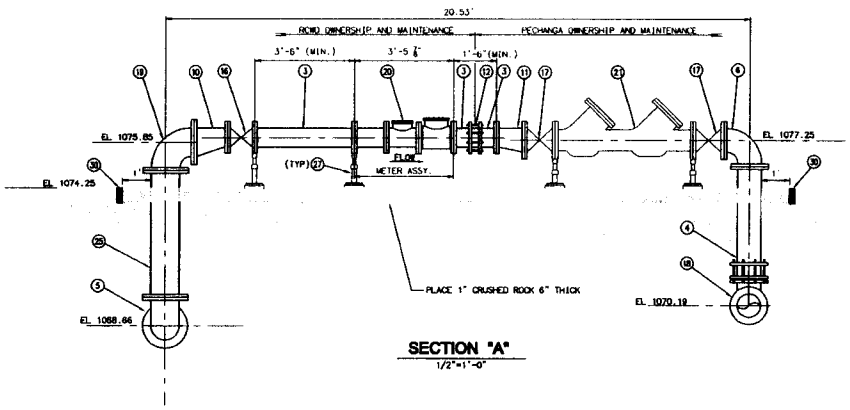
FILE NO.



PLAN VIEW

1/2"=1'-0"

A

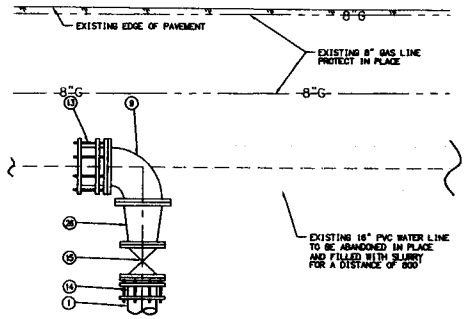


SECTION "A"

1/2"=1'-0"

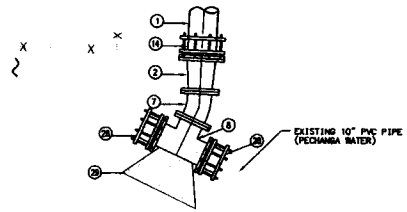
CONSTRUCTION NOTES

1. INSTALL FULLY RESTRAINED 12" PVC C-900 PIPE CL-200 PER RW-25, R-22
2. 12" X 10" DI CONCENTRIC REDUCER FLANGED
3. INSTALL 8" DIP PIPE
4. INSTALL 10" DI PIPE CL-55 FLG. X FLG
5. 12" DI 90° ELBOW FLG X FLG
6. 10" DI 90° ELBOW FLANGED
7. 10" DI 22.5° ELBOW FLG. X FLG.
8. 10" X 10" DI TEE FLG X FLG.
9. 16" 90° DI ELBOW FE X MJ (RESTRAINED)
10. 12" X 8" DI ECCENTRIC REDUCER FLANGED
11. 10" X 8" DI ECCENTRIC REDUCER FLANGED
12. 8" "DRESSER" SLEEVE COUPLING
13. 16" RESTRAINED FLANGE ADAPTER "EBAA IRON" SERIES 2100
14. 12" RESTRAINED FLANGE ADAPTER "EBAA IRON" SERIES 2100
15. 12" RESILENT WEDGE GATE VALVE FLG X FLG PER RW-30, RW-31
16. 8" RW GATE VALVE OS & Y WITH LOCK AND CHAIN
17. 10" RW GATE VALVE OS & Y WITH LOCK AND CHAIN
18. 10" DI 90° ELBOW FLG X MJ (RESTRAINED)
19. 12" DI 90° ELBOW FLG X FLG
20. 8" METER ASSEMBLY "BADGER" RECORD ALL COMBO METER W/BRONZE TAMPER RESISTANT REGISTERS (DISTRICT FURNISHED)
21. 10" BACKFLOW PREVENTION DEVICE "FEBCO" 806
22. INSTALL 12" DI PIPE CL-55 FLG X FLG
23. 16" X 12" CONC. REDUCER FLANGED
24. INSTALL PIPE SUPPORTS PER RW-19
25. 10" FLG. COUPLING ADAPTER (RESTRAINED)
26. THRUST BLOCK PER ROWD RW-26
27. 2"X4" REDWOOD HEADER



CONNECTION DETAIL 1

1/2"=1'-0"



CONNECTION DETAIL 2

1/2"=1'-0"

1305 PRESSURE ZONE

20 0 20 40 60

SCALE: 1"=20'

FOR REDUCED DRAWINGS

DATE	BY	REVISIONS	APP'D	DATE

REGISTERED PROFESSIONAL ENGINEER MICHAEL J. BOECK No. 66417 Exp. 6/30/08 CIVIL STATE OF CALIFORNIA

APPROVED BY: R.C.E. NO.66417 MICHAEL J. BOECK EXP. 6-30-08

DATE:

DRAWN FMM	SCALE AS NOTED	RECOMMENDED FOR SIGNATURE
DESIGNED FMM	JOB NUMBER 15101569	
CHECKED JRB	DATE 8/19/06	DATE:

RBF CONSULTING — PLANNING • DESIGN • CONSTRUCTION

Rancho Water — Rancho California Water District

RANCHO CALIFORNIA WATER DISTRICT

APPROVED

ENGINEERING MANAGER DATE

APPROVALS

CONTRACTS DATE | OPERATIONS DATE | MAINTENANCE DATE

W.O. | FOR: | F.B.

PECHANGA RESORT AND CASINO METER CONNECTION (PROJECT NO. LXXXX)

MECHANICAL DETAILS

SHEET 4 OF 7 SHEETS

FILE NO.

Exhibit B

Delivered Groundwater Facilities Site; Right of Way

EXHIBIT "A"

RCWD
WATER EASEMENT

That portion of Lot "E" of Little Temecula Rancho (Pechanga Indian Reservation) in Unincorporated Territory of the County of Riverside, State of California, as set apart in the Decree of Partition Recorded June 28, 1892 in Book 199, Page 454 of Deeds, Records of San Diego County, California, included within a strip of land 12.00 feet in width the centerline of said strip being described as follows:

COMMENCING at the centerline intersection of Via Eduardo with Pechanga Parkway (Pala Road) as shown on the map filed in Book 112, Pages 55 and 56 of Records of Survey in the office of the County Recorder of said Riverside County;

thence along the centerline of said Pechanga Parkway (Pala Road) South 47°44'32" East 216.90 feet to the **TRUE POINT OF BEGINNING;**

thence South 42°15'18" West 49.00 feet;

thence South 47°44'32" East 26.45 feet to the **POINT OF TERMINATION.**

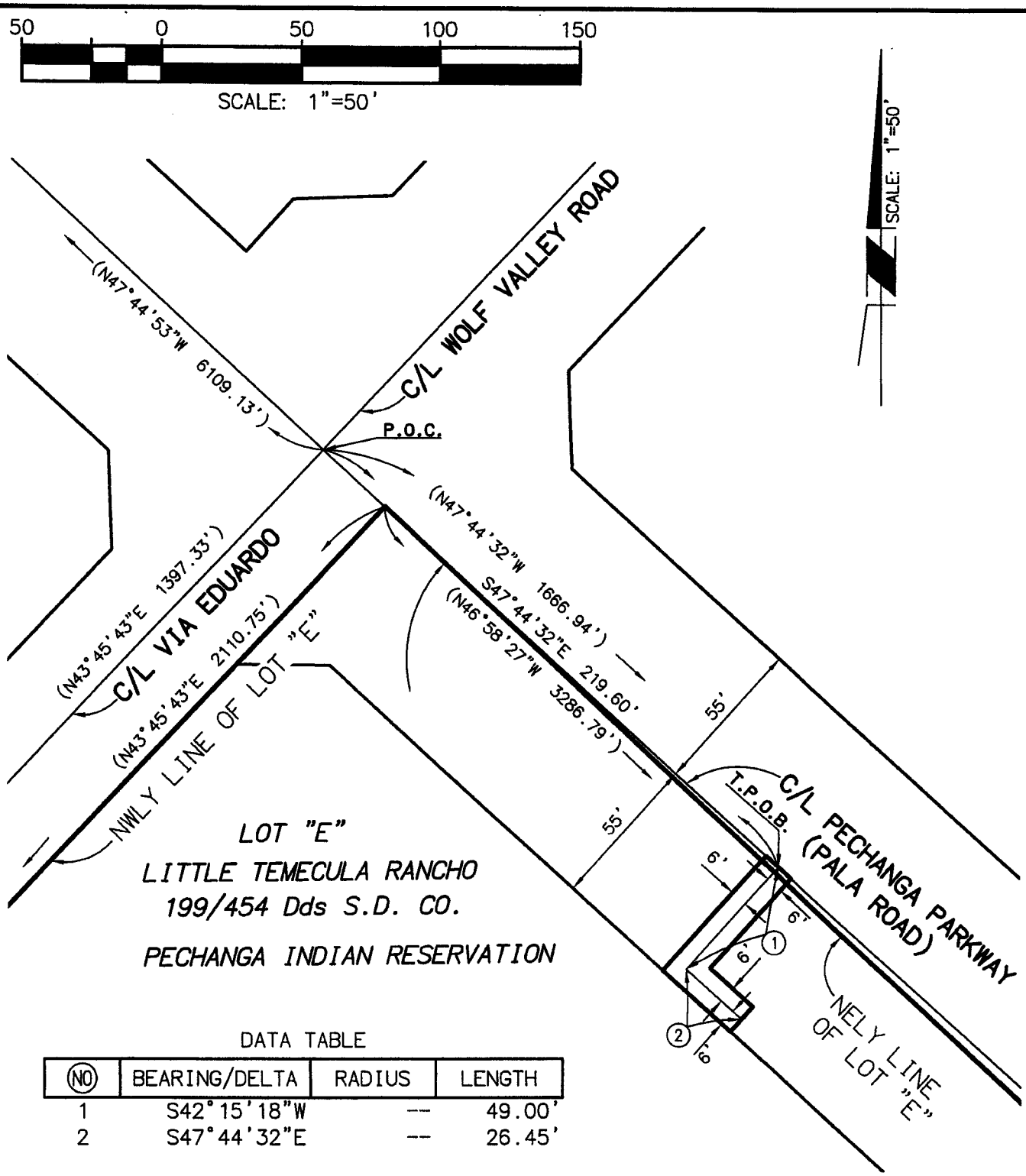
CONTAINING: 905 square feet, more or less.

EXHIBIT "B" attached hereto and by this reference made a part hereof.

This description was prepared by me or under my direction.

Thomas E. Verloop, RLS 5348, Date: 12/8/2006
My license expires 12/31/07

LICENSED LAND SURVEYOR
THOMAS E. VERLOOP
NO. LS 5348
Exp.12/31/07
STATE OF CALIFORNIA



DATA TABLE

NO	BEARING/DELTA	RADIUS	LENGTH
1	S42°15'18"W	--	49.00'
2	S47°44'32"E	--	26.45'

( ) = INDICATES RECORD DATA PER RECORD OF SURVEY 112/55-56.

EXHIBIT "B"
RCWD
WATER EASEMENT

RBF CONSULTING

PLANNING ■ DESIGN ■ CONSTRUCTION

40810 COUNTY CENTER DRIVE, SUITE 100
TEMECULA, CALIFORNIA 92591-6022
951.676.8042 • FAX 951.676.7240 • www.RBF.com

DECEMBER 08, 2006	SCALE 1"=50'	JOB NO. 15101569-M1

H:\PDATA\15101569\CADD\MAPPING\1569EX001.DWG TVERLOOP 12/8/06 11:31 am

RBF CONSULTING

JOB ID : 15101569 DATE 12/08/2006 AT 11:51:23
FILE NAME : H:\PDATA\15101569\CADD\MAPPING\1569EX001.TRV

TRAVERSE OF : water easement CL - open -- TRAV # 1

BEARING	DISTANCE		NORTHING	EASTING		
	STARTING	AT	2111927.8720	6300070.9850	PT #	2019
S 47-44-32.00 E	219.6000	TO	2111780.1982	6300233.5169	PT #	2020
S 42-15-28.00 W	49.0000	TO	2111743.9320	6300200.5660	PT #	2021
S 47-44-32.00 E	26.4500	TO	2111726.1452	6300220.1423	PT #	2022

ERROR OF CLOSURE NORTH = 0.0038192 EAST = -0.0042732
BEARING N 48-12-40.00 W DISTANCE = 0.0057
(OPEN TRAVERSE) AREA = 0.0 SF 0.0000 ACRES

RBF CONSULTING

JOB ID : 15101569 DATE 12/08/2006 AT 11:51:23
FILE NAME : H:\PDATA\15101569\CADD\MAPPING\1569EX001.TRV

TRAVERSE OF : Water Easement area -- TRAV # 2

BEARING	DISTANCE		NORTHING	EASTING		
	STARTING	AT	2111784.2361	6300229.0726	PT #	2025
S 47-44-32.00 E	12.0000	TO	2111776.1665	6300237.9542	PT #	2026
S 42-15-28.00 W	43.0000	TO	2111744.3410	6300209.0381	PT #	2027
S 47-44-32.00 E	20.4500	TO	2111730.5890	6300224.1737	PT #	2028
S 42-15-28.00 W	12.0000	TO	2111721.7075	6300216.1041	PT #	2023
N 47-44-32.00 W	32.4500	TO	2111743.5291	6300192.0869	PT #	2024
N 42-15-28.00 E	55.0000	TO	2111784.2361	6300229.0726	PT #	2025

ERROR OF CLOSURE NORTH = 0.0000000 EAST = 0.0000000
BEARING N 90-00-00.00 E DISTANCE = 0.0000
AREA = 905.4 SF 0.0208 ACRES
PERIMETER = 174.9000

Exhibit C

Reservation

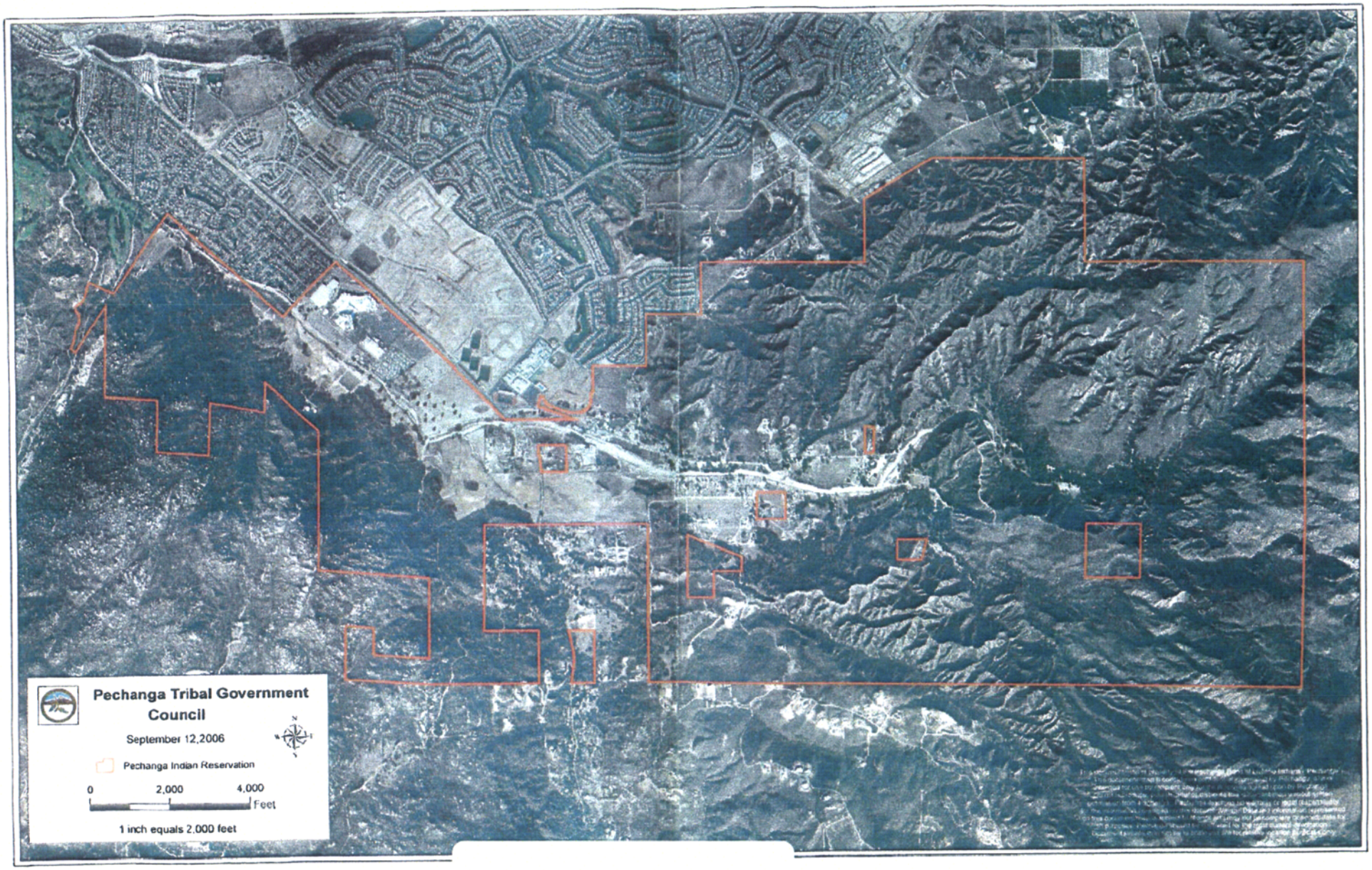

Pechanga Tribal Government Council
September 12,2006
Pechanga Indian Reservation
0
2,000
4,000
Feet
1 inch equals 2,000 feet

Exhibit C

Exhibit D

Wolf Valley Groundwater Basin

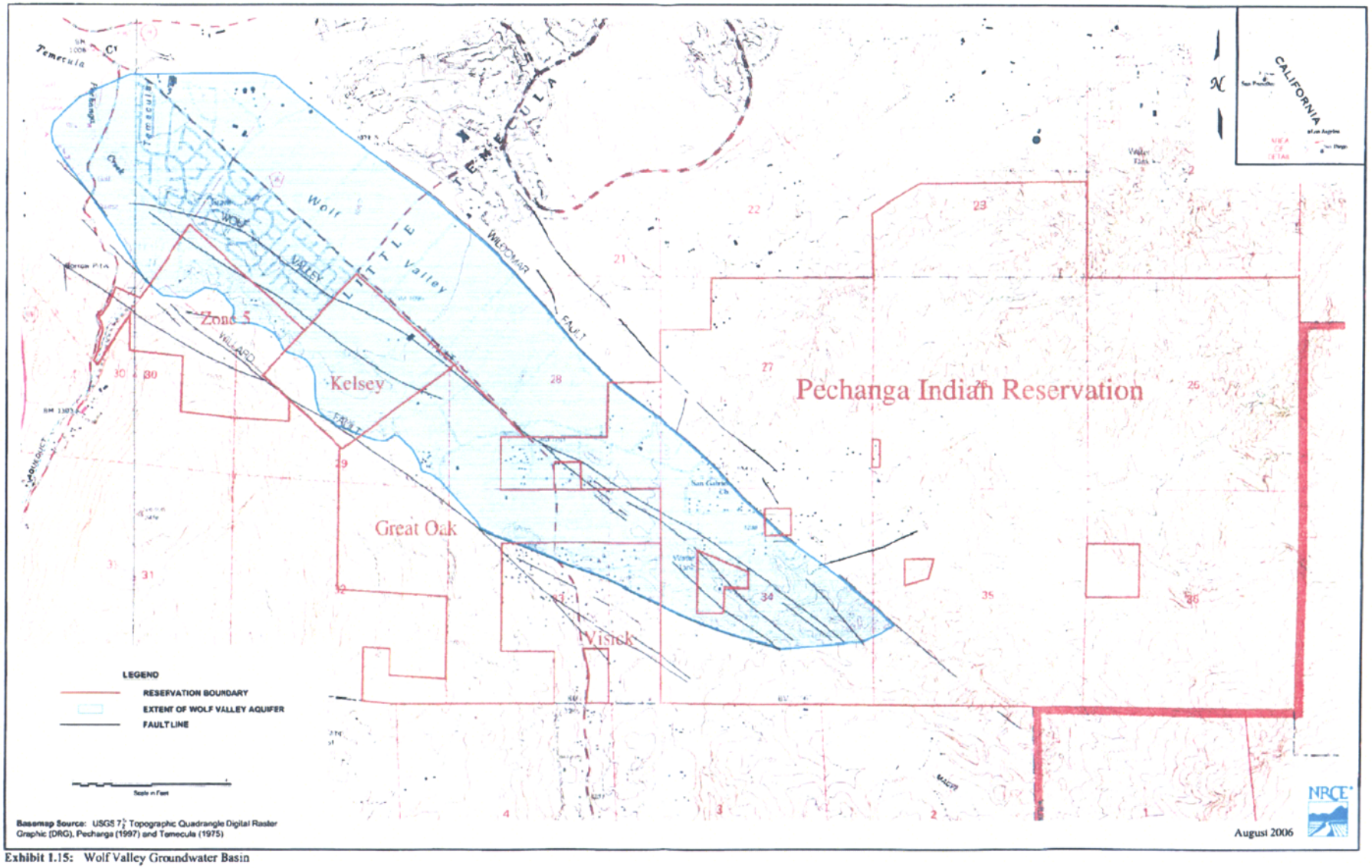


Exhibit 1.15: Wolf Valley Groundwater Basin

Exhibit D

Exhibit E

Rancho California Water District
Water System Facility Requirements

RANCHO CALIFORNIA WATER DISTRICT

WATER SYSTEM FACILITY REQUIREMENTS

AUGUST 1, 1991

RANCHO CALIFORNIA WATER DISTRICT
28061 DIAZ ROAD
TEMECULA, CALIFORNIA 92390
AREA CODE 714 676-4101

RANCHO CALIFORNIA WATER DISTRICT
WATER SYSTEM FACILITY REQUIREMENTS

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SECTION I	INTRODUCTION
SECTION II	PROCEDURES - CONSTRUCTION DRAWING APPROVAL
SECTION III	DESIGN CRITERIA
SECTION IV	CONSTRUCTION DRAWING PREPARATION
SECTION V	PROCEDURES - WATER SYSTEM FACILITY CONSTRUCTION

APPENDICES

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APPENDIX B	PLAN CHECK STATUS SHEET
APPENDIX C	ENGINEERING SERVICE APPLICATION
APPENDIX D	GENERAL CONSTRUCTION NOTES
APPENDIX E	LEGEND AND ESTIMATE OF QUANTITIES
APPENDIX F	CONSTRUCTION APPROVAL BOX/WATER SYSTEM CERTIFICATION
APPENDIX G	WATER CONSTRUCTION DRAWINGS CHECKLIST
APPENDIX H	GRANT OF EASEMENT
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APPENDIX J	CONSTRUCTION STATUS SHEET
APPENDIX K	CONTRACTOR INFORMATION SHEET
APPENDIX L	WATER SYSTEM CONSTRUCTION AGREEMENT
APPENDIX M	CERTIFICATION OF STREETS TO FINAL GRADE
APPENDIX N	CERTIFICATE OF INSURANCE
APPENDIX O	FAITHFUL PERFORMANCE BOND
APPENDIX P	UNMETERED CONSTRUCTION WATER APPLICATION
APPENDIX Q	MATERIAL AND LABOR RELEASE
APPENDIX R	WATER SYSTEM GRANT DEED
APPENDIX S	AGENCY AGREEMENT

SECTION I

INTRODUCTION

SECTION I
INTRODUCTION

A. GENERAL

To assure a reliable supply of water for the Rancho California area, the Rancho California Water District was formed in 1965 for the properties generally east of I-15. A companion Santa Rosa Ranches Water District was formed in 1968 for the properties generally west of I-15. The two Districts were consolidated under its present name in 1977.

The Rancho California Water District is a public agency governed by an elected seven-member Board of Directors to serve four-year staggered terms. The District is directed by its General Manager and three Division Directors; Finance, Operations and Maintenance, and Engineering.

Rancho California Water District supplies its customers water for potable and non-potable uses.

Potable water users are supplied from Rancho California Water District's potable production wells and Metropolitan Water District potable water aqueducts.

Non-potable water users are supplied from Vail Lake, Metropolitan Water District's non-potable aqueducts, and Rancho California Water District's non-potable production wells.

B. POLICY

Rancho California Water District's basic policy is that the user benefitting from the service must pay for the cost of the necessary facilities. The District normally designs and constructs all primary facilities and the Developer normally designs and constructs all secondary facilities.

Primary facilities are those facilities required to produce and deliver water to each pressure zone from water sources, whether domestic or imported. Storage facilities, pumping stations, treatment facilities, water production wells, Metropolitan Water District aqueduct connections, and major supply pipelines are considered to be primary facilities.

Secondary facilities are designated as those facilities necessary to distribute the required waters throughout a pressure zone. Distribution mains, pressure reducing stations, and pipeline appurtenances are considered to be secondary facilities.

In some situations, minor pumping stations, reservoirs and transmission mains may be considered secondary facilities when their function can be entirely locally defined.

The District may elect, at its discretion, to oversize secondary facilities to meet anticipated future demands. In such cases, the District may fund the oversizing as a primary facility.

The District's General Manager, at his discretion, may allow deviations from these requirements. All requests for variances to these requirements must be in writing, stating the reasons for the request.

C. REQUIREMENTS

1. Developer shall design, construct, and dedicate to Rancho California Water District the secondary water facilities in accordance with the requirements of Rancho California Water District.

2. Developer shall provide all financial arrangements necessary to plan, design, and construct the project.

3. Developer shall obtain and dedicate water utility right-of-way to Rancho California Water District. Water facilities must be in either dedicated road right-of-way or in easements granted to Rancho California Water District.

4. Developer shall pay current applicable fees (refer to District's Customer Guide Rates and Charges)in addition to completing those requirements listed above. Fees may include: Plan Checking Fees, Connection Charges, Inspection Fees, Added Facilities Charges, Zone of Benefit Fees, Front Footage Charges, Main Participation Charges or Primary Facilities Fees, Service Connection Fees, and Meter Charges. District staff should be consulted for current and applicable fees.

5. Rancho California Water District will review all drawings, and may revise, modify, or require redesign of any concepts, drawings, or details submitted. All concepts and drawings must be approved by the District's Engineering Manager and Director of Engineering.

6. The Developer shall provide the District with a corrosion site survey for all CML/CMC steel pipelines. If required, the Developer shall have a cathodic protection design performed by a qualified engineer.

7. Procedures for development of water systems are similar for Tract Map developments, Parcel Map developments, and single lot main extension developments. Most procedures and design requirements herein have been prepared for Tract Map developments, but certain portions apply to all water system development work within Rancho California Water District's service area.

8. When applicable, the Developer shall also submit for review all improvement drawings within existing or future public rights-of-way for approval by the City of Temecula, City or Murrieta, or County of Riverside Engineering Department. All plan check, inspection and permit fees required by the City/County shall be paid, and all other requirements of the City/County shall be fulfilled prior to any construction within the public rights-of-way.

SECTION II

PROCEDURES
CONSTRUCTION DRAWING APPROVAL

SECTION II
PROCEDURES
CONSTRUCTION DRAWING APPROVAL

A. CONSTRUCTION DRAWINGS APPROVAL

District staff will review all water construction drawings and may revise, modify, or require redesign of any concepts, drawings, or details submitted. All concepts and drawings must be approved by District staff. Construction must begin within one year of approval of Water Construction Drawings. If more than one year has elapsed, the project must go through plan check procedure again before starting construction. The steps required to obtain Water Facilities Construction Drawing approval are as follows:

1. Submit Engineering Service Application and Plan Check Deposit.

2. Submit Tract Water System and Hydraulic Network Analysis.

3. Submit first plan check.

4. Submit subsequent plan checks.

5. Submit original Construction Drawings for approval.

6. Provide District with drawings.

A flowchart for Construction Drawing Approval is shown in Appendix "A". A plan check status sheet to be used by District staff is shown in Appendix "B". Each required step is discussed in detail below:

1. <u>Submit Engineering Service Application and Plan Check Deposit</u>

   The Engineering Service Application (available from the District) shall be completed and filed with the Engineering Services staff. The plan check deposit shall be submitted with the completed application. A copy of the Engineering Service Application is shown in Appendix "C".

2. <u>Submit Tract Water System and Hydraulic Network Analysis</u>

   Approximately one week after receiving the completed engineering services application and the plan check deposit, District staff will provide hydraulic grade elevation at connections to the District system. District staff may, in addition, provide design recommendations for the water system.

   Based on hydraulic grade elevations and design recommendations provided by the District, Developer shall submit to the District the following:

   a. One copy of the County of Riverside, City of Temecula, or City of Murrieta Conditions of Approval.

   b. Two copies of a master plan of the Tract with the proposed water facilities superimposed on same. Said plan shall show the node network, pipeline diameters, length, elevation at nodes, valve locations, and fire hydrant locations.

c. Two copies of the hydraulic network analysis of the proposed water system.

d. Fire flow letter from the appropriate fire protection agency, Riverside County Fire Department, Murrieta Fire Protection District, or California Division of Forestry.

Details regarding hydraulic network analysis are included in Section III, Design Criteria.

District staff will review the Tract Water System and the hydraulic network analysis and return one set with comments to the Developer. Minor revisions may be incorporated in the first plan check submittal. If major revisions are required, the Tract Water System and hydraulic network analysis shall be resubmitted until approved by District staff.

3. Submit First Plan Check

After review and approval of Tract Water System and hydraulic network analysis, Developer shall submit the following:

a. Three copies of the water construction drawings.

b. One copy of the sewer construction drawings.

c. One copy of the street improvement drawings.

d. One copy of the grading plan.

e. One copy of the approved Tract Water System and hydraulic network analysis.

f. Two copies of easement documents.

g. One copy of Tract/Parcel Map.

h. Corrosion Site Survey (for Steel Pipe Only)

i. Copy of receipt showing submittal to appropriate City/County for plan check of facilities within public rights-of-way.

Submittals must be complete or they will be rejected. Each submittal shall include a transmittal listing all items submitted and referencing the District project number and account number.

Details regarding waterline design criteria are included in Section III, Design Criteria. Details regarding preparation of construction drawings and easement documents are included in Section IV, Construction Drawing Preparation.

Water and sewer drawings should be combined and shown on the same drawing whenever possible.

The District will provide comments on one set of the water construction drawings and return same to Engineer for revisions. The goal of the District staff is to complete the first plan check within three weeks of receipt of submittal. Plan review time varies depending on the number of plans in the review process, size of project, complexity of plans, and completeness of drawings.

4. Submit Subsequent Plan Checks

For each subsequent plan check, Developer shall submit the following:

a. Previous District plan check set and copy of previous District transmittal.

b. Three copies of revised water construction drawings.

c. Two copies of easement documents.

d. Any additional material requested.

e. One copy of revised submittal showing City/County comments for facilities to be installed in public rights-of-way.

Submittals must be complete or they will be rejected. If drawings and easement documents are not yet satisfactory, District will make comments on one set of the drawings and easement documents and return same to Engineer for revisions. This procedure will be repeated as necessary until drawings and easement documents are complete. If Engineer does not return previous District plan sets, then plan check procedure will start from the beginning including payment of plan check deposit.

Each cycle of the subsequent plan check would normally be completed in approximately three weeks.

5. Submit Original Construction Drawings for Approval

After all plan checks are completed and the water construction drawings are acceptable to the District, the original drawings shall be submitted to the District for signature. Prior to District approval of the water construction drawings, Developer shall pay all remaining plan checking fees and submit:

a. Previous District plan check set and one copy of revised water construction drawings.

b. Copy of tentative tract/parcel map showing dedications of streets for road purposes and public utilities purposes,

or

c. Executed Grant of Easement, minimum width of 30 feet.

6. Provide District with Drawings

When drawings have been fully approved by all agencies, the Developer shall provide the District with a clean set of photo mylars and three sets of bluelines for District's use.

SECTION III

DESIGN CRITERIA

SECTION III
DESIGN CRITERIA

Water systems for inclusion into the District's service area shall be designed in accordance with the District's Standard Specifications and Standard Drawings for Water and Sanitary Sewer Facilities, dated March 1, 1990 or latest revision, and the following criteria:

A. HYDRAULIC NETWORK ANALYSIS CRITERIA

The District reserves the right to determine the criteria for each water system or sub-system based upon conditions that may exist for that particular location, anticipated level of development, planned use, or other criteria. In general, however, the water system shall be sized to handle the highest demand within the general area of the tract and shall conform to the following minimum standards:

1. Pipeline Diameters

The minimum pipeline diameter is 6"*. The District accepts only the following diameters: 6*, 8, 12, 16, 20, 24, 30, 36, 42, and 48 inches.

* Must meet criteria specified in Item 6, below, System Analysis.

2. Pipeline Friction Factors

Pipeline friction factors shall be as follows:

Pipe Material	Hazen-Williams Coefficient
Cement Mortar Lined Steel Pipe and Asbestos Cement Pipe	C=120
Polyvinyl Chloride Pipe	C=130

3. Water System Unit Demands

Average Day unit demands shall be as follows:

	Land Use	Average Day unit Demand Factors	
1.	Specific Plan		
a.	Residential	600	GPD/DU
b.	Commercial	2,000	GPD/AC
c.	Business Park/Industrial	2,500	GPD/AC
d.	Park/Golf Course/Resort Commercial	4	AF/AC/YR
e.	School	To be determined on an individual basis	
f.	Open Space	1.5	AF/AC/YR

2. Southwest Area Plan

	a.	Very Low Density/Low Density (1 DU/AC)	1,500	GPD/DU
	b.	Medium Low Density (2-4 DU/AC)	1,000	GPD/DU
	c.	Medium Density/Medium High Density/ High Density (5-16 DU/AC)	600	GPD/DU
*	d.	Future Specific Plan	1,000	GPD/DU
	e.	Commercial	2,000	GPD/AC
	f.	Business Park/Industrial	2,500	GPD/AC
	g.	Vineyard	1.2	AF/AC/YR
	h.	Park/Golf Course	4	AF/AC/YR
	i.	Wildlife/Reserve	0	
	j.	Resort Commercial	4	AF/AC/YR
	k.	Open Space	1.5	AF/AC/YR
	l.	Agricultural (Avocado, Citrus, Horse Ranch)	2	AF/AC/YR

* Only used when no detail available. Otherwise use items 1, a-f.

4. Peaking Factors

The peaking factors to be used, are as follows:

a. Maximum Day Demand

For the Santa Rosa Division, Maximum Day Demand shall equal 3.0 times the Average Day Demand for Zones 1440, 1670, and 1990. For all other zones, the Maximum Day Demand shall equal 2.5 times the Average Day Demand.

For the Rancho Division, Maximum Day Demand shall equal 3.0 times Average Day Demand for Zones 1610 and 1790. For all other zones, the Maximum Day Demand shall equal 2.5 times the Average Day Demand.

b. Peak Demand

For all zones, the Peak Demand shall equal two times the Maximum Day Demand.

5. Fire Flow

The fire flow requirements shall be in accordance with the applicable standards of the Insurance Services Office (ISO) and shall be those required by the Riverside County Fire Department, Murrieta Fire Protection District, or California Division of Forestry for the type of development under consideration.

6. System Analysis

The proposed water system shall be analyzed for the following two conditions:

a. Peak Demand Flow

b. Maximum Day Demand plus Fire Flow

For the Peak Demand flow condition, the pressure at each node shall be designed for 60 psi minimum. A minimum pressure of 40 psi may be allowed if static pressure is less than 60 psi. The maximum pressure at each node shall be 120 psi. The maximum velocity in the pipeline shall be 5 feet per second.

For the Maximum Day Demand plus fire flow, the pressure at each node shall be a minimum of 20 psi and a maximum of 120 psi. The maximum velocity in the pipeline shall be 10 feet per second. Fire flow should be taken from the hydrant furthest from the connection(s) to the District's distribution system, at the highest system elevation, and as directed by District.

B. WATER CONSTRUCTION DRAWING DESIGN CRITERIA

1. Pipeline Location

Unless otherwise approved by the District, all waterlines shall be located on the south or west side of the street, 7 feet off of curb face or berm per the Riverside County Road Department standards. Location is not to interfere with other existing utilities.

Pipe joint deflection shall not be more than manufacturer's recommended offset in a curved alignment. Joint deflection angle shall be indicated on all horizontal and vertical curves.

Waterline installation near sewer lines shall be in accordance with State Department of Health Services, Criteria for the Separation of Watermains and Sanitary Sewers. In general, waterlines should cross perpendicular to sewer lines a minimum of 1 foot above the sewer. If waterline crosses beneath the sewer then it should have a minimum separation of one foot, have no joints within 10 feet of each side of the sewer and shall be constructed of materials per aforementioned criteria. Waterlines parallel to sewer lines shall be located a minimum of ten feet from the sewer line.

When crossing other utilities, provide a minimum of one foot vertical clearance.

2. Minimum Pipe Cover

The minimum cover over the top of pipe shall be 42 inches from finished road grade, and shall provide adequate depth so that gate valve stems and operating nuts have 12 inch clearance to finished road grade. When 42 inches of cover cannot be provided, concrete encasement or protective slab construction over the pipeline may be considered. Consult with District staff.

3. Pipe Materials

Unless otherwise authorized by District, all waterlines larger than 16 inches diameter shall be cement mortar lined and cement mortar coated welded steel pipe or cement mortar lined and wrapped steel pipe in accordance with District standards. All

waterlines 16 inches and smaller shall be Polyvinyl Chloride Pipe (PVC) in accordance with District standards unless conditions dictate the use of CML/CMC steel pipe. In some cases, District may allow the use of Asbestos Cement Pipe (ACP). Minimum allowable pipe shall be as follows:

PVC Pipe - Class 150
CML & C Steel Pipe, diameter 24" and smaller - 12 ga
CML & C Steel Pipe, diameter larger than 24" - 10 ga
AC Pipe (where acceptable to District) - Class 200

4. Pipe Slope

Minimum slope of waterlines shall be 0.5% unless otherwise authorized by District.

5. Valves

Valves 12" and smaller shall be resilient seated gate valves per District standards. Valves 16" and larger shall be butterfly valves per District standards. Valves 24" and larger shall have a bypass valve installed around the mainline valve. Valves shall be the same size as nominal pipeline diameter.

Three valves shall be installed on each tee and four valves shall be installed on each cross. Valves shall be spaced at 1,320 foot maximum intervals or as directed by District staff.

6. Fire Hydrants

Fire hydrants shall be in accordance with District standards, constructed at right angles to the waterline.

Fire hydrants shall be located per the requirements of the Riverside County Fire Department as stated in the Tract Conditions of Approval but no greater than 1000 foot intervals.

7. Air Valves

Air valves shall be combination air vacuum and air release valves in accordance with the District standards, constructed at right angles to the waterline.

Air valves shall be located at all high points of pipeline and downstream of valves. Minimum size of air valves shall be 1" and shall be sized as follows:

Air Valve Size	Pipeline Diameter
1"	8" & 12"
2"	16", 20", & 24"
4"	30"
Consult with District staff	> 30"

8. Blowoffs

Blowoffs shall be in accordance with District Standards, located at right angles to the waterline. Where possible, fire hydrants shall be used in place of blowoffs.

Blowoffs shall be located at all low points of the pipeline at all dead-ends or terminal points, and upstream of valves. Minimum size of blowoffs shall be 4". Consult with District staff regarding required size.

9. Water Services

Water services shall be in accordance with District standards, constructed at right angles to the watermain and shall be sized per the following table:

Lateral Size	Meter Size	Maximum Capacity
1"	3/4" Disc	30 GPM
1"	1" Disc	50 GPM
1-1/2"	1-1/2" Multi Jet	100 GPM
2"	2" Multi Jet	125 GPM
2"	2" Turbine	160 GPM
4"	3" Turbine	300 GPM
4"	4" Turbine	750 GPM
6"	6" Turbine	1,550 GPM
8"	8" Turbine	2,500 GPM

No service laterals shall be installed between fire hydrants, blow offs, or air valves and pipeline dead ends.

All non-residential water services shall have a District approved backflow prevention device installed adjacent to meter unless otherwise approved by District.

10. Minimum Design Pressure

Minimum design pressure shall be the static pressure plus 25% with the total rounded up to the nearest 25 psi.

11. Control Valves, Pressure Relief Valves, and Other Special Valves

Control valves, pressure relief valves, and other special valves shall be designed and located as directed by District staff.

12. Easement Criteria

Pipelines not located within public right-of-way must be located in easements granted to the District on the District's Grant of Easement form. Easements shall be a minimum of 30 feet in width unless otherwise approved by the District. Easements for other utilities may overlap District easement only if proper separations are maintained. Details for grant of easement documents are included in Section IV, Construction Drawing Preparation.

SECTION IV

CONSTRUCTION DRAWING PREPARATION

SECTION IV
CONSTRUCTION DRAWING PREPARATION

A. GENERAL

Engineer shall prepare water system improvement drawings that are clear, concise, and meet District standards.

Drawings shall be drawn in ink on D size mylar sheets (24" x 36") with Rancho California Water District approval block.

The drawings shall be professional quality drawings especially prepared as WATER DRAWINGS or WATER AND SEWER DRAWINGS. Work shall be of standard engineering practice and shall be legible and present the proposed construction without confusion.

Water and sewer design may be shown on the same drawings if the drawings are clear and concise. The District shall be the sole judge as to when separate drawings are necessary.

B. COVER SHEET

The cover sheet shall show as a minimum:

1. General notes (Appendix "D")
2. Legend (Appendix "E")
3. Estimate of quantities (Appendix "E")
4. Approval for Construction Box (Appendix "F")
5. Water System Certification (Appendix "F")
6. Index of Drawings
7. Vicinity Map
   - a. Scale
   - b. North Arrow
   - c. Street Names
   - d. Title and Location of Project
8. Index Map
   - a. Scale
   - b. North Arrow
   - c. Tract Layout with Street Names and Lot Numbers

d. Proposed Waterlines Identified by Size and Type

e. Symbols for all Appurtenances

1. Fire Hydrants

2. Air Valves

3. Blowoffs

4. Tees, Crosses

5. Valves

6. Water Services

f. Sheet Numbers Corresponding to Plan and Profile Sheets

The use of a second sheet to include all information is permissible.

C. PLAN AND PROFILE SHEETS

The plan/profile sheets shall be drawn at a horizontal scale of 1"=40' and a vertical scale of 1"=4', and as a minimum the drawings shall show the following:

PLAN PORTION

1. Title Block

Title block shall show Tract No., pressure zone, and scale of drawings. District approval blocks shall be incorporated into the title block.

2. North Arrow

North Arrow shall point up or to the left if possible to conform with Item 11.

3. Right-of-Way

Existing and proposed right-of-way shall be identified with dimensions for same shown.

4. Curb Separation

Existing and/or proposed curb separation shall be identified with dimensions for same shown.

5. Easements

Existing or proposed easements shall be identified with dimensions for same shown.

6. Street Names

All street names shall be shown.

7. Lot Lines

All lot lines and parcel lines shall be shown. All lots shall be numbered or labeled. All adjacent tracts shall be identified.

8. Utilities

All existing and proposed Utilities shall be shown. Utilities to be shown shall include, but not be limited to, water (existing water lines shall be identified by District Plan No.), sewer, gas, power, telephone, storm drain, irrigation, traffic, and cable television. Each utility shall be identified with a symbol and the size of the utility shall be shown.

9. Existing and Proposed Improvements

All existing surface improvements shall be shown including, but not limited to, curb and gutter, edge of pavement, power poles, driveways, sidewalks, and fences.

10. Match Lines

Match lines for each end of the street shall be shown as follows:

Sta 15+00.00 Match Line
See Sheet 5

11. Stationing

Stationing along the centerline of the improvement shall be shown. Unless otherwise specified, station shall increase from left to right. Stationing shall be identified with tick marks at 100' intervals.

12. Proposed Pipeline

Proposed pipeline shall be indicated with a heavy line. Dimensions from street centerline to centerline of pipeline shall be shown. Pipeline shall be identified as:

℄ ____" CML&C (__ Gauge Minimum) Pipeline

OR

℄ ____" C900 (use C905 for 16" PVC) Class ___ PVC Pipeline

13. Appurtenances

All appurtenances including tees, crosses, elbows, and blind flanges or plugs shall be identified by station and size as follows:

Sta 12+25.00 ℄ 12" x 12" x 8" Tee

All pipeline appurtenances including air valves, blowoffs, fire hydrants, and valves shall be identified by station, size, and Rancho California Water District Standard Number as follows:

Sta 12+25.00 ℄ 2" Air Valve per RCWD Std. Dwg. No. ____

All meter services shall be indicated on the drawings. The stationing of services is not required on the drawings, however, after construction of proposed facilities, the engineer shall provide the District with an "as-built" stationing table of the meter services on the record drawings.

All connections to existing water system shall be identified by station and size. A station equation and District plan number shall be used to reference existing waterlines. Detail for connection shall be used where required.

PROFILE PORTION

Only profiles for water and sewer shall be shown. All other utility profiles shall not be shown unless conflicting or where crossing over or under (i.e. storm drain).

1. Stationing

Stations shall be shown along bottom of profile at 100 foot intervals. Profile stationing shall line up with plan stationing.

2. Elevations

Elevations shall be shown on both ends of the profile sheet.

3. Existing and Proposed Ground Surface

Existing ground surface or pavement over the proposed pipeline shall be identified as follows:

Existing "Top of Pavement (or ground surface) over Centerline of Pipeline"

Proposed ground surface or pavement over the proposed pipeline shall be identified as follows:

"Proposed Top of Pavement (or ground surface) over Centerline of Pipeline"

4. Match Lines

Match lines for each end of sheet shall be shown as follows:

Sta 15+00.00 Match Line
See Sheet 5

5. Flow line of proposed pipeline shall be identified as follows:

FL ____" CML&C (___ ga minimum) Pipeline

OR

FL ___" C900 (use C905 for 16" PVC) Class ___ PVC Pipeline.

6. Stationing and Flow Line Elevation

Pipeline stationing and flow line elevations shall be shown for each grade break as follows:

Sta 14+00.00 GB
1192.35 FL

Pipeline stationing and flow line elevations shall be shown for each tee, cross, elbow, BC, EC, hot tap, and end of pipeline as follows:

Sta 12+25.00, 12"x12"x8" Tee
1190.00 FL

Pipeline stationing and flow line elevations shall be shown for all air valves, blowoffs, and fire hydrants as follows:

Sta 12+25.00, 4" Blowoff
1190.00 FL

Pipeline station and flow line elevation shall be show for each utility crossing.

7. Pipeline Lengths and Pipeline Slopes

Pipeline lengths and pipeline slopes shall be shown between all grade breaks as follows:

S = 0.005 135.00 LF ___" PVC
___" CML & C

8. Minimum Design Pressure

Minimum design pressure shall be shown at top of each sheet as follows:

Minimum Design Pressure = 175 psi

9. Welded Joint Limits

Length of welded joints for welded steel pipe shall be identified as "Fully Welded Joints" with station limits shown.

10. Minimum Cover

42" minimum cover shall be shown between top of pipe and existing or proposed ground surface.

11. Maximum Cover

The maximum cover shall be 8' between the top of pipe and existing or proposed ground surface.

A checklist for the preparation of water construction drawings is shown in Appendix "G".

D. GRANT OF EASEMENTS

The Grant of Easement shall be on District form and shall consist of three parts, Grant of Easement form, legal description, and plat.

The legal description shall be designated as Exhibit "A" and if appropriate shall have the assessor's parcel number indicated on the upper right corner of the exhibits. The legal description shall be prepared by a California Registered Civil Engineer or Land Surveyor and signed and stamped by said engineer or surveyor.

The plat shall be designated as Exhibit "B" and shall be prepared on District plat map and signed and stamped.

Copies of Grant of Easement form and plat are shown in Appendix "H". Items to be included on the plat map are shown in said appendix.

SECTION V

PROCEDURES
WATER SYSTEM FACILITY CONSTRUCTION

SECTION V
PROCEDURES
WATER SYSTEM FACILITY CONSTRUCTION

All water facility projects will be constructed by Developer and inspected by District inspectors. Work performed without the knowledge or the observation of a District inspector will not be accepted. The steps required to obtain approval of construction of water facilities are as follows:

1. Submit Engineering Service Application and Inspection Deposit.
2. Provide Submittals, Water System Construction Agreement, Bonds, and Certificate of Insurance.
3. Attend Preconstruction Meeting.
4. Notify District Regarding Construction Start.
5. Construct Water System Facilities.
6. Pressure Test and Disinfect Water System Facilities.
7. Provide Continuity Test (Steel Pipe Only)
8. Pay any Remaining Inspection Fees.
9. Connect to Existing Water System.
10. Submit Application for Unmetered Construction Water.
11. Remove Unmetered Connections.
12. Submit Drop-in Meter Application and Pay Fees.
13. Provide Unconditional Lien Waiver and Release, Water System Grant Deed, and Record Drawings.
14. Notice of Completion Filed by District and Drop-in Meters Installed by District.

A flowchart for water system facility construction is shown as Exhibit "I". A construction status sheet to be used by District is shown in Appendix "J". Each required step is discussed in detail below:

1. Submit Engineering Service Application and Inspection Deposit

   The engineering service application (available from the District) shall be completed and filed with the District staff. A copy of the engineering services application is shown in Appendix "C". The inspection deposit and three copies of approved water construction drawings shall be submitted with the completed application.

2. Provide Submittals, Water System Construction Agreement, Bonds, and Certificate of Insurance

Developer shall submit to District staff the following:

a. Contractor information sheet (Appendix "K").

b. Materials list (see District's Standard Specifications and Standard Drawings for Water and Sanitary Sewer Facilities, Special Provisions, Section 5)

c. Two copies of Encroachment Permits.

d. One copy of recorded tract/parcel map showing dedication of streets for road and public utility purposes (not required if executed Grant of Easement provided earlier).

e. Water System Construction Agreement (Appendix "L").

After District executes Water System Construction Agreement, approves Contractor, and approves materials list, Developer shall submit the following:

a. Copy of the Contract between Developer and Contractor verifying cost of water system facility construction.

b. Certification of streets to final grade (Appendix "M").

c. Certificates of Insurance for Contractor (Appendix "N").

d. Faithful Performance Bond (Appendix "O"). Performance bonds provided to the City/County are satisfactory if the facilities to be turned over to RCWD are included.

After District reviews and approves all submittals, District staff will issue a Notice to Proceed.

Thereafter, Developer shall schedule a preconstruction meeting with District staff. A one week notice is required prior to said preconstruction meeting.

3. Attend Construction Meeting

Preconstruction meeting shall be held at the District office and shall be attended by Developer's representative, Developer's contractor, and construction superintendent as well as by District staff.

4. Notify District Regarding Construction Start

Contractor shall notify District, in writing, a minimum of one week prior to construction start. Prior to construction, Contractor shall submit three copies of the construction cut sheets for Districts use during construction. Waterline shall be staked at 50 foot intervals and at all water services, fire hydrants, tees, crosses, elbows, valves, air valves, blowoffs, and grade breaks.

5. Construct Water System Facilities

The water system facilities shall be constructed by Developer's contractor and inspected by District inspectors. After completion of construction, Developer's contractor shall complete all items on District's inspection list prior to testing and disinfecting water facilities.

6. Pressure Test and Disinfect Water System Facility

After water facilities are completed to satisfaction of District inspector including all items on inspector's construction deficiencies list, and after Contractor furnishes evidence that compaction of trenches has been completed to the satisfaction of the County of Riverside Road Department, City of Temecula, or City of Murrieta, Contractor shall test and disinfect the water facility in accordance with District Standards.

After system has been tested and disinfected, District will take samples for bacteriological tests. Acceptable bacteriological test results must be obtained before District will allow connections to existing water system.

7. Provide Continuity Test (Welded Steel Pipe Only)

After water facilities are tested and disinfected, Contractor shall perform continuity test on all corrosion control equipment. Contractor shall provide written results of said test to District. District shall approve said tests before District will allow connections to existing water system.

8. Pay Any Remaining Inspection Fees

Before District will allow connections to existing water system, any remaining inspection fees must be paid in full.

9. Connect to Existing Water System

After all fees have been paid and system is disinfected, Contractor may connect water facilities to existing water facility system. Contractor shall provide the District with three weeks written notification requesting a system shutdown to make tie-in's to the existing District facilities. Thereafter, District will release new water system facilities for fire protection and construction water.

10. Submit Application for Unmetered Construction Water

Developer shall submit application for unmetered construction water with the appropriate fee to District staff (Appendix "P").

After approval of same, Developer shall install unmetered connections in accordance with District Standards.

11. Remove Unmetered Connections

After Contractor is completed with construction, he shall remove unmetered connections and prepare for drop-in meters as follows:

a. Construction water shall be discontinued completely and jumpers removed.
b. Angle meter stops shall be set to proper elevation and location, meter boxes shall be set to proper elevations and locations.

c. Sidewalks and driveways shall be placed and forms stripped on areas in vicinity of meter boxes.

d. Lots shall be fine graded.

12. Submit Drop-in Meter Application and Pay Fees

a. The Drop-in Meter Application shall be completed and filed with District staff. All related meter installation and connection fees shall be submitted with the completed application. Approximately 30 days are required after receipt of the application and fees before meter will be set.

b. District inspector will inspect those lots requiring meters. Any deficient items will be listed on a punch list and copies will be given to Developer to correct. When all items have been resolved and accepted by inspector, said lots will be released to customer service for meter installations. There is a 2 week lead time from when lots are released for drop-in meters and when actual drop-in meters are installed.

13. Provide Unconditional Lien Waiver and Release, Water System Grant Deed, and Record Drawings

Before District will install drop-in meters, Contractor shall:

a. Provide Unconditional Lien Waiver and Release for waterline construction (Appendix "Q").

b. Provide Grant Deed dedicating water system to District. Said Grant Deed is effective only after final Notice of Completion for water system facilities is filed by District staff. Grant Deed must be filed on form provided by District (Appendix "R").

In the event an Agency Agreement is required by the District, Developer shall grant said Agency Agreement to the District on form provided by District (Appendix "S").

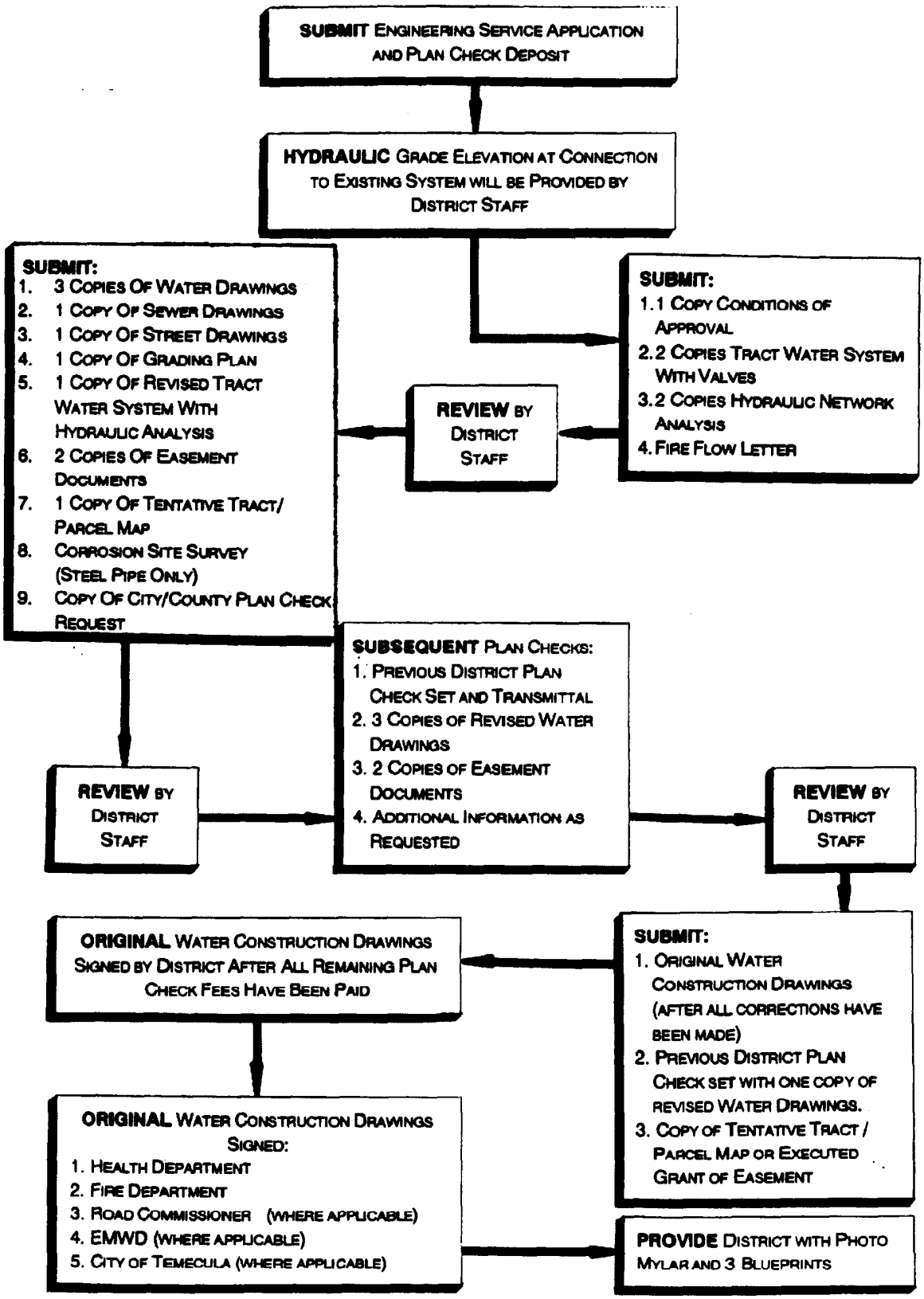
c. Water system record ("As-Builts") drawings.

14. Notice of Completion Filed by District and Drop-in Meters Installed by District

After receipt, and approval of items in Section 13, District will file Notice of Completion and install drop-in meters.

APPENDICES

FLOWCHART FOR CONSTRUCTION DRAWING APPROVAL



APPENDIX "A"

8/1/91

RANCHO CALIFORNIA WATER DISTRICT
WATER SYSTEM FACILITY REQUIREMENTS

PLAN CHECK STATUS SHEET

RCWD JOB NO. _____ TRACT NO. _____

PARCEL MAP NO. _____

NAME OF PROJECT: _____

DEVELOPER: _____

LOCATION OF PROJECT: _____

ENGINEER: _____ PHONE: _____

ITEM	DATE	INITIAL
1. Received Engineering Service Application and Plan Check Deposit (Engineer)	_____	_____
2. Provide Hydraulic Grade Elevation at Connections to Existing System (District)	_____	_____
3. Received:		
-One Copy of Conditions of Approval (Engineer)	_____	_____
-Two Copies of Tract Map with Proposed Water System Including Valves (Engineer)	_____	_____
-Two Copies of Hydraulic Network Analysis of Proposed System (Engineer)	_____	_____
4. Review Item 3 and Provide Comments (District)	_____	_____
5. Received First Plan Check (Engineer):	_____	_____
-Three Copies of Water Construction Drawings	_____	_____

EXHIBIT "B"

8/1/91

ITEM	DATE	INITIAL
-One Copy of Sewer Construction Drawings (Unless Part of Water Drawings)	_____	_____
-One Copy of Street Construction Drawings	_____	_____
-One Copy of Grading Plan	_____	_____
-One Copy of Revised Tract Map with Hydraulic Network Analysis	_____	_____
-Two Copies of Easement Documents	_____	_____
-One Copy of Tract/Parcel Map	_____	_____
-Corrosion Site Survey (Steel Pipe Only)	_____	_____
-Copy of City/County Plan Check Receipt	_____	_____
6. Review First Plan Check, Provide Comments (District)	_____	_____
7. Received Second Plan Check (Engineer)	_____	_____
-Previous District Plan Check Set and Transmittal	_____	_____
-Three Copies of Revised Water Construction Drawings	_____	_____
-Two Copies of Easement Documents	_____	_____
-Copies of Additional Information as Requested	_____	_____
_____		
_____		
_____		
8. Review Second Plan Check, Provide Comments (District)	_____	_____

EXHIBIT "B"

ITEM	DATE	INITIAL
9. Received Third Plan Check (Engineer)	_____	_____
-Previous District Plan Check Set and Transmittal	_____	_____
-Three Copies of Revised Water Construction Drawings	_____	_____
-Two Copies of Easement Documents	_____	_____
-Copies of Additional Information as Requested	_____	_____
_____		
_____		
_____		
10. Review Third Plan Check, Provide Comments (District)	_____	_____
11. Received Original Construction Drawings for Signature (Engineer)	_____	_____
-Previous District Plan Check Set and One Copy of Revised Water Construction Drawings	_____	_____
-All Remaining Plan Check Fees Paid	_____	_____
-Copy of Tentative Tract/Parcel Map	_____	_____
or		
-Executed Grant of Easement	_____	_____
12. Construction Drawings Signed (District)	_____	_____
13. Received One Set of Photo Mylars and Three Sets of Construction Drawings (Engineer)	_____	_____

EXHIBIT "B"

8/1/91

APPENDIX "C"

Rancho Water

Receipt # _____

ENGINEERING SERVICE APPLICATION

Type Of Meter	Size	No. Dials	Meter No.

RP Mfr.	RP No.	
		Install Date _____

DIVISION:

Rancho ☐ Santa Rosa ☐ Sewer ☐ Job # _____ Desc. _____

Date: _____ Job # _____ Desc. _____

Rep: _____ Job # _____ Desc. _____

Applicant's Name

_____

_____

Mailing Address

_____
Post Office Box/Street

_____
City State Zip Telephone

Owner/Responsible Party _____

Mailing Address

_____
Post Office Box/Street

_____
City State Zip Telephone

SERVICES REQUIRED: Description of Service Area _____

_____

_____

_____

_____

DEPOSIT BASIS:

Main Extension Est. $1260.00 ☐ _____

Assessment District Req. $4,778 ☐ _____

Detector Check Inspection Fee $2300.00 ☐ _____

PLAN CHECK:

1st 1,000 Feet $398.00 ☐ Total LF _____ _____

Additional Footage $40/100 Feet ☐ _____

Additional

LF_____ X RATE per LF _____

INSPECTION:

LF of Line _____ X RATE per LF $3.63= Deposit _____

OTHER: Description _____ = Deposit _____

_____

TOTAL DEPOSIT REQUIRED _____

FEE BASIS:

¾ Inch Detector Check Meter $79.00 ☐ _____

Will Serve Letters $91.00 ☐ _____

Topo Map Copy $108.00 ☐ Duplicate Topo/Mylar $324.00 ☐ _____

Temporary Remote Meter $242.00 ☐ Annex. Proc. $3675.00 ☐ _____

OTHER: Description _____ Amount _____

TOTAL FEES REQUESTED _____

CHECK ENCLOSED FOR TOTAL AMOUNT _____

The undersigned customer agrees that deposits for engineering services listed above are based on estimates. In the event that actual costs should exceed the original estimate, additional payments will be required.

_____ _____
Signature Signature

RANCHO CALIFORNIA WATER DISTRICT
GENERAL CONSTRUCTION NOTES

1. GENERAL

A. CONTRACTOR SHALL FURNISH AND INSTALL ALL FACILITIES IN ACCORDANCE WITH THE DISTRICT'S STANDARD SPECIFICATIONS AND STANDARD DRAWINGS FOR WATER AND SANITARY SEWER FACILITIES (DATED MARCH 1, 1990 OR LATEST REVISION). THE SPECIFICATIONS AND STANDARD DRAWINGS ARE AVAILABLE FROM THE DISTRICT. CONTRACTOR SHALL BE IN POSSESSION OF DISTRICT'S SPECIFICATIONS AND STANDARD DRAWINGS ON THE JOB SITE AT ALL TIMES.

B. ALL PERMITS REQUIRED BY LAW SHALL BE ACQUIRED BY THE APPLICANT OR THEIR CONTRACTOR.

C. ALL CONSTRUCTION SHALL CONFORM TO CURRENT CAL OSHA SAFETY REQUIREMENTS.

D. APPROVAL BY RCWD IMPLIES NO PERMISSION OTHER THAN THAT WITHIN THE DISTRICT'S JURISDICTION. REQUIREMENTS OF RCWD SHALL TAKE PRECEDENCE OVER REQUIREMENTS OF OTHER AGENCIES ONLY WHEN RCWD REQUIREMENTS ARE GREATER.

E. CONTRACTOR SHALL NOTIFY RCWD'S CONTRACTS MANAGER A MINIMUM OF ONE WEEK PRIOR TO STARTING CONSTRUCTION.

F. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION REQUESTING A SYSTEM SHUTDOWN FOR CONNECTIONS TO EXISTING SYSTEM. SAID NOTIFICATION SHALL BE MADE A MINIMUM OF THREE WEEKS PRIOR TO SAID SHUTDOWN TO THE RCWD CONTRACTS MANAGER.

G. CONTRACTOR SHALL DESIGNATE A QUALIFIED SUPERINTENDENT WITH FULL AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR. SAID SUPERINTENDENT SHALL BE ON THE JOB SITE AT ALL TIMES.

H. CONTRACTOR SHALL PERFORM ALL WORK UNDER RIVERSIDE COUNTY ROAD DEPARTMENT, CITY OF TEMECULA, OR CITY OF MURRIETA JURISDICTION IN ACCORDANCE WITH ALL REQUIREMENTS OF SAID DEPARTMENT OR CITY INCLUDING TRAFFIC CONTROL, PAVEMENT REMOVAL, TEMPORARY PAVEMENT PLACEMENT, PERMANENT PAVEMENT PLACEMENT (INCLUDING BASE MATERIAL) AND TEMPORARY AND PERMANENT TRAFFIC STRIPPING.

2. PIPELINE AND APPURTENANCES

A. ALL VALVES, PIPING, AND APPURTENANCES SHALL BE DESIGNED TO MEET OR EXCEED THE SPECIFIED MINIMUM DESIGN PRESSURE SHOWN ON THE PLAN/PROFILE SHEETS. IN ADDITION, ALL VALVES, PIPING, AND APPURTENANCES SHALL BE TESTED AT A PRESSURE OF 10% OVER SAID MINIMUM DESIGN PRESSURE. VALVES SHALL BE CAPABLE OF WITHSTANDING SAID TEST PRESSURE IN A CLOSED POSITION.

B. ALL MATERIALS, TESTING, AND INSPECTION OF PIPE SHALL BE IN CONFORMITY WITH THE REQUIREMENTS OF RANCHO CALIFORNIA WATER DISTRICT, RIVERSIDE COUNTY, CITY OF TEMECULA, AND THE AMERICAN WATER WORKS ASSOCIATION STANDARDS. FAILURE TO MEET ANY REQUIREMENTS OF THE ABOVE REFERENCED AGENCIES WILL BE CAUSE FOR REJECTION.

C. PIPE SHALL BE __" _____ IN ACCORDANCE WITH RCWD SPECIFICATIONS AND STANDARDS (PROVIDE PIPE DIAMETER FOR PVC PIPE, PROVIDE AWWA C900 OR AWWA C905 AND PIPE CLASS FOR CML & C STEEL PIPE, PROVIDE MINIMUM GA FOR STEEL CYLINDER).

D. VALVES 12" AND SMALLER SHALL BE RESILIENT SEATED GATE VALVES IN ACCORDANCE WITH RCWD STANDARD DRAWING NOS. RW-30 AND RW-31 UNLESS OTHERWISE SPECIFIED. VALVES 16" AND LARGER SHALL BE BUTTERFLY VALVES UNLESS OTHERWISE SPECIFIED.

E. AIR VACUUM AND AIR RELEASE ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH RCWD STANDARD DRAWING NO. _____ (RW-9, RW-10, OR RW-11).

F. ALL SERVICE CONNECTIONS SHALL BE ___" COPPER SERVICES BY ___" METERS AS NOTED ON THE DRAWINGS. ALL SERVICES SHALL BE LOCATED AS SHOWN ON THE DRAWINGS, ADJUSTED UNDER RCWD INSPECTION TO MISS DRIVEWAYS AND OTHER IMPROVEMENTS. SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH RCWD STANDARD DRAWING NO. ___ (RW-13, RW-14, RW-15, RW-16, RW-17, OR RW-17A).

ALL NON-RESIDENTIAL METERS SHALL BE INSTALLED WITH A DISTRICT APPROVED BACKFLOW DEVICE.

G. FIRE HYDRANTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING NO. ____ (RW-3, RW-5, RW-6, RW-7, OR RW-8).

H. WATERLINE CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING NOS. _____ (RW-22 AND RW-25 FOR PVC PIPE, AND RW-28, RW-29, AND RW-32 THROUGH RW-36 FOR WELDED STEEL PIPE).

I. THRUST BLOCKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH RCWD STANDARD DRAWING NO. RW-26.

3. UTILITIES

A. AT LEAST 48 HOURS BEFORE COMMENCING ANY EXCAVATION, CONTRACTOR SHALL REQUEST UNDERGROUND SERVICE ALERT (1-800-422-4133) AND NON-MEMBER COMPANIES, OR UTILITIES TO MARK OR OTHERWISE INDICATE THE LOCATION(S) OF THEIR SUBSURFACE FACILITIES INCLUDING, BUT NOT LIMITED TO, STRUCTURES INCLUDING VAULTS, MAIN CONDUCTORS OR CONDUITS, AND SERVICE CONNECTIONS.

B. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL EXPOSE EXISTING WATERLINES AT PROPOSED CONNECTIONS AND CROSSINGS AND VERIFY ELEVATIONS, LOCATIONS, AND SIZE OF EXISTING FACILITIES.

C. CONTRACTOR SHALL NOT INTERRUPT OR DISTURB ANY UTILITY FACILITY WITHOUT AUTHORITY FROM THE UTILITY. WHERE PROTECTION IS REQUIRED TO ENSURE INTEGRITY OF UTILITY FACILITIES (INCLUDING DISTRICT-OWNED UTILITIES). CONTRACTOR SHALL FURNISH AND PLACE ALL NECESSARY PROTECTION.

D. WHENEVER A WATERLINE ENCOUNTERS A STORM DRAIN PIPE OR OTHER OBSTRUCTION AND CROSSING OVER THE OBSTRUCTION WILL RESULT IN LESS THAN 42" OF COVER OVER THE TOP OF THE WATER, THE WATERLINE SHALL CROSS UNDER THE OBSTRUCTION WITH A MINIMUM CLEARANCE OF 12".

4. CONSTRUCTION DRAWINGS

A. MINIMUM PIPE COVER SHALL BE 42" FROM FINISHED GROUND SURFACE.

B. WATER SYSTEM PROFILE ELEVATIONS ARE TO FLOW LINE OF PIPE.

C. STATIONING FOR PIPELINE AS SHOWN ON PLAN PORTION OF DRAWINGS IS PERPENDICULAR TO CENTERLINE OF RIGHT-OF-WAY.

D. SEPARATION BETWEEN SEWER AND WATER SHALL CONFORM TO RIVERSIDE COUNTY STANDARD NO. 817 AND RCWD STANDARD DRAWING S-23.

5. CONSTRUCTION TOLERANCES

PIPELINES SHALL BE CONSTRUCTED SO THAT ACTUAL FLOW LINE ELEVATIONS ARE WITHIN 0.1 FOOT OF DESIGN FLOW LINE ELEVATIONS. PIPELINES, WHEN INSTALLED, SHALL HAVE CONTINUOUS UPGRADE OR DOWNGRADE, CORRESPONDING WITH DESIGN SLOPE, WITHOUT ANY HIGH SPOTS. PIPELINES SHALL BE CONSTRUCTED SO THAT ACTUAL PIPELINE CENTERLINES ARE WITHIN 0.1 FOOT OF DESIGN PIPELINE CENTERLINES.

PIPELINE CONSTRUCTION SHALL CONFORM WITH CONSTRUCTION DRAWINGS IN ACCORDANCE WITH THE ABOVE SPECIFIED TOLERANCES. CONTRACTOR SHALL ASSIST DISTRICT AS REQUIRED TO CONFIRM COMPLIANCE WITH CONSTRUCTION TOLERANCES. CONTRACTOR SHALL MAKE OR ASSIST IN MAKING ALL NECESSARY MEASUREMENTS AS DETERMINED BY DISTRICT.

6. INSPECTION FEE

THREE WEEKS PRIOR TO CONSTRUCTION, A DEPOSIT FOR INSPECTION FEE WILL BE MADE. THIS FEE IS ESTIMATED AT $_____. SHOULD ACTUAL COSTS BE GREATER, THE BALANCE SHALL BE PAID TO THE DISTRICT BY THE APPLICANT. SHOULD ACTUAL COSTS BE LESS, THE BALANCE SHALL BE REFUNDED TO THE APPLICANT. FEES SUBJECT TO CHANGE WITHOUT NOTICE.

7. ENGINEERING FIRM

PRIOR TO SIGNING OF WATER CONSTRUCTION DRAWINGS BY RCWD, ALL QUESTIONS CONCERNING THIS PROJECT SHALL BE DIRECTED TO:

_____
(NAME)

_____
(TITLE)

_____
(FIRM)

LEGEND AND ESTIMATE OF QUANTITIES

1. The Legend and Estimate of Quantities shall be included on the same sheet as the Index Map, in the following format:

QTY	UNIT	LEGEND	DESCRIPTION	STD. DWG.
	L.F.	1	**INSTALL** ____" C900 (or C905) class____ PVC pipeline	RW-22, RW-25
	L.F.	2	**INSTALL** ____" CML&C (__ Gauge Minimum) pipeline	RW-33, RW-34
	EA	3	**INSTALL** ____" Resilient Wedge Valve (F x GT, F x F)	RW-30, RW-31
	EA	5	**INSTALL** ____" Plug Valve (HIGH PRESSURE SYSTEMS ONLY)	
	EA	6	**INSTALL** ____" flanged Butterfly Valve (F x F)	RW-30, RW-31
	EA	7	**CONSTRUCT** 6" residential fire hydrant assembly	RW-7 OR RW-8
	EA	8	**CONSTRUCT** 6" "super" fire hydrant assembly	RW-5 OR RW-6
	EA	9	**CONSTRUCT** 4" Blow-Off assembly	RW-4
	EA	10	**CONSTRUCT** ____" Air and Vacuum Release Assembly	RW-9, RW-10,OR RW-11
	EA	11	**CONSTRUCT** ____" copper water service assembly	RW-13 OR RW-14
	EA	12	**INSTALL** ____" cast iron tee	
	EA	13	**CONSTRUCT** ____" CML & C steel tee	RW-29

APPENDIX "E"

	EA		INSTALL ____ wire test station	
	EA	14	**INSTALL** ____" cast iron cross	
	EA	15	**CONSTRUCT** ____" CML & C steel cross	RW-29
	EA	16	**INSTALL** cast iron end caps (size as noted on plans)	RW-24
	EA	17	**INSTALL** blind flange (size as noted on plans)	RW-24
	EA	18	**INSTALL** hot-tapping sleeve (size noted on plans)	
	EA	19	**CONSTRUCT** tapping flange outlet (size as noted on plans)	RW-29
	EA	20	**INSTALL** cast iron reducer (size as noted on plans)	
	EA	21	**CONSTRUCT** CML & C steel reducer (size as noted on plans)	
	EA	22	**CONSTRUCT** concrete thrust block	RW-26
	EA	23	**INSTALL** 4"/6" bypass valve assembly	RW-38
	EA	24	**INSTALL** ____° cast iron elbow	
	EA	25	**CONSTRUCT** ____° CML & C steel tee	

2. A separate entry is required for each size and type of all materials necessary for this project, including, but not limited to, size and type of pipe, valves, water services, tees, crosses, elbows, and end plugs.

TITLE SHEET SIGNATURE BLOCK

Rancho California Water District		
APPROVED FOR CONSTRUCTION:		
Director of Engineering		Date
Approvals:		
Design Date	Contracts Date	Operations Date

WATER SYSTEM CERTIFICATION

I certify that the design of the WATER SYSTEM in _____ is in accordance with the WATER SYSTEM MASTER PLAN of Rancho California Water District and that the water service, storage and distribution system will be adequate to supply water to said project.
This certification does not constitute a guarantee that it will supply water to said project at any specific quantities, flows, or pressures for fire protection or any other purpose.

Director of Engineering _____ Date _____

SIGNATURE BLOCK
(All sheets except first)

Rancho California Water District		
APPROVED FOR CONSTRUCTION:		
Design	Contracts	Operations

CONSTRUCTION APPROVAL BOX/WATER SYSTEM CERTIFICATION
APPENDIX "F"

RANCHO CALIFORNIA WATER DISTRICT
WATER CONSTRUCTION DRAWINGS CHECK LIST

TRACT NO. _____ RCWD W.O. _____

COVER SHEET

VICINITY MAP		
Scale ____		
North Arrow		
Street Names		
Title and Location of Project		
INDEX MAP		
Scale ____		
North Arrow		
Proposed Water/Sewer Line		
Layout of Project		
Appurtenances		
Manhole		
Fire Hydrants		
Detector Checks		
Air Valves		
Blow-Offs		
Pipeline		
Quantities		
Plan Layout/Sheet Reference		
NOTES		
Water System Certification		
Notifications		
General Water Notes		
RCWD Signature Block		

8/1/91

RANCHO CALIFORNIA WATER DISTRICT
WATER CONSTRUCTION DRAWINGS CHECK LIST

TRACT NO. _____ RCWD W.O. _____

PROFILE

SHEET NO.												
Type, Size, and Station: a. Tees, Crosses, Elbows, Blind Flanges, Plugs, Air Valves, Blowoffs, and Fire Hydrants												
b. Connections to Existing Facilities												
c. In-line Valves												
Stations at Bottom of Profile												
Elevations at Side of Profile												
Existing Ground Surface												
Proposed Finished Ground Surface or Pavement												
Match Lines (Station & Sheet Number)												
Flow Line of Waterline Identified												
Stationing and Flow Line Elevations for:												
a. Tees, Crosses, and Elbows												
b. Grade Breaks												
c. Hot Taps												
d. EC's and BC's												
e. Blow-Offs												
f. Air Valves												
g. End of Pipe												
h. Fire Hydrants												
Pipeline Slopes												
Pipeline Lengths												
Minimum Design Pressure												
Welded Joint Limits												
42" Minimum Cover												
Concrete Encasement Limits												
Separation from Sewer												

RANCHO CALIFORNIA WATER DISTRICT
WATER CONSTRUCTION DRAWINGS CHECK LIST

TRACT NO. _____ RCWD W.O. _____

PLAN

SHEET NO.												
RCWD Signature Block												
Title Block with Pressure Zone												
Scale (Hor. - 1"=40') (Vert. - 1"=4')												
North Arrow												
Location and Width of Right-of-Way												
Location and Width of Curb Separation												
Location and Width of Easements												
Street Names												
Lot (Parcel) Lines & Numbers, All Adjacent Tracts Identified												
Existing/Future Utilities												
Existing/Proposed Improvements												
Match Lines (Station & Sheet Number)												
Existing Water Dwg. Reference												
Pipeline Located per County Standard No. 817												
Separation from Sewer												
Stations and O.D. Elevations of Crossings (water, sewer, storm drain, and reclaimed water)												
Centerline Offset to Proposed Pipeline and Other Utilities												
Centerline Stationing (100' tick marks with Station)												
Centerline Curve Data												
a. Street												
b. Pipeline												
Type and Size of Proposed Water Pipeline												
Service Connection (Sizes, Approximate Locations)												

Recording Requested By
RANCHO CALIFORNIA WATER DISTRICT

After Recordation Return to:

Rancho California Water District
)61 Diaz Road
ıemecula, California 92390

Space Above This Line for Recorder's Use

GRANT OF EASEMENT

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

hereby GRANT (S) to the RANCHO CALIFORNIA WATER DISTRICT, a public corporation, a perpetual non-exclusive easement and right of way for pipeline or pipelines, together with incidental appurtenances, connections and structures in, over, under, upon, along, through and across the real property situated in the County of Riverside, State of California, hereinafter described.

Together with the right to grade and improve said right of way and to enter upon and to pass and repass over and along said strip of land for the construction, operation and maintenance of the facilities to be constructed in said easements by the RANCHO CALIFORNIA WATER DISTRICT.

It is understood and agreed that the easements and rights of way acquired herein are subject to the right of the owner, his successors and assigns, to use the surface of the land within the boundary lines of such easements and rights of way to the extent that such use is compatible with the full and free exercise of said easements and rights of way by the RANCHO CALIFORNIA WATER DISTRICT; provided however, that no fences, block walls, or other structures or other improvements shall be constructed upon, over, and along said easements and rights of way without first obtaining the written consent of the RANCHO CALIFORNIA WATER DISTRICT.

No fill or paving of any nature shall be placed or maintained over the surface of the ground, nor shall any earth be removed from the cover of said pipeline after construction, without first obtaining the written approval of the RANCHO CALIFORNIA WATER DISTRICT.

IN WITNESS WHEREOF, this instrument has been executed this____day of_____, 19____.

_____

_____

_____

_____

CERTIFICATE OF ACCEPTANCE

The undersigned, being the duly appointed agent of RANCHO CALIFORNIA WATER DISTRICT, a public corporation, Riverside County, California, pursuant to its Resolution No. 22, as amended by Resolution No. 196, does hereby accept on behalf of said District the grant of all interests in real estate for public purposes as described in the attached Grant of Easement dated , 19 , by and between the RANCHO CALIFORNIA WATER DISTRICT, and _____

_____

and does hereby certify that the grantee consents to the recordation of said grant.

DATED:_____, 19____.

RANCHO CALIFORNIA WATER DISTRICT

By_____

8/1/91

PLAT REQUIREMENTS:

1. North Arrow
2. Subdivision title with recording data.
3. Lot or Parcel #'s
4. Street Names
5. Right-of-Way widths
6. Township, Section and Range
7. All distances, bearings and references stated with legal description.
8. Point of Beginning
9. Bold and distinct line around proposed easement.
10. Scale
11. RCE / LS signature and stamp.

This Plat is Solely an Aid in Locating the Parcel(s) described in the Attached Document. It is not a Part of the Written Description Therein.

Rancho California Water District

EXHIBIT	PREPARED BY:	SUBJECT:				SHEET OF SHEET(S)
B		SCALE: 1"=	DRAWN BY:	DATE:	CHECKED BY:	W.O.#

PLAT REQUIREMENTS:

1. North Arrow
2. Subdivision title with recording data.
3. Lot or Parcel #'s
4. Street Names
5. Right-of-Way widths
6. Township, Section and Range
7. All distances, bearings and references stated with legal description.
8. Point of Beginning
9. Bold and distinct line around proposed easement.
10. Scale
11. RCE / LS signature and stamp.

RANCHO CALIFORNIA WATER DISTRICT

This Plat is Solely an Aid in Locating the Parcel(s) described in the Attached Document. It is not a Part of The Written Description Therein.

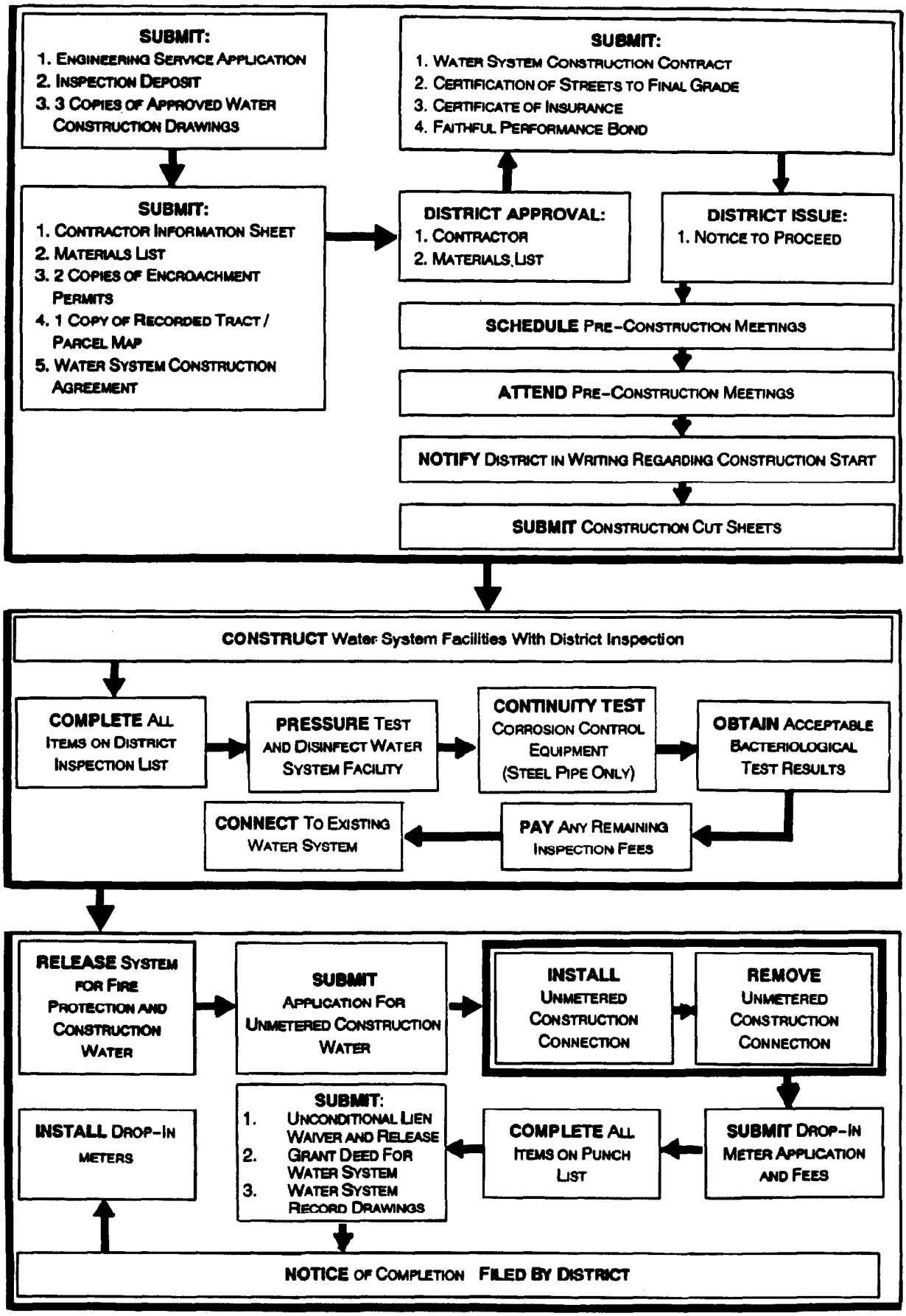
EXHIBIT	PREPARED BY:	SUBJECT:	SHEET
B			OF SHEET(S)

SCALE : 1"=_____ DRAWN BY:_____ DATE: _____ CHECKED BY:_____ W.O.#_____

8/1/91

APPENDIX "H"

FLOWCHART FOR CONSTRUCTION OF WATER FACILITIES



CONSTRUCTION STATUS SHEET

RCWD Job No. _____ Inspector_____

Location: _____

Developer: _____

Contractor:_____

RECEIVED	APPROVED	SUBMITTED
_____	_____	Engineering Service Application
_____	_____	Inspection Deposit
_____	_____	Approved Water Construction Drawings (3 Sets)
_____	_____	Contractor Information Sheet
_____	_____	Materials List
_____	_____	Encroachment Permit (2 Copies)
_____	_____	Recorded Tract/Parcel Map (1 Copy)
_____	_____	Water System Construction Agreement
_____	_____	Contract for Water System Construction
_____	_____	Certification of Streets to Final Grade
_____	_____	Certificates of Insurance
_____	_____	Faithful Performance Bond
_____	_____	Labor and Materials Bond

DATE	
_____	Notice to Proceed issued by District
_____	Preconstruction Meeting Conducted
_____	Received Cut Sheets
_____	Installed Waterlines and all Appurtenances
_____	Completed all Items on Inspectors Deficiency List

APPENDIX "J"

8/1/91

DATE

_____ Received City/County Compaction Tests Sign-off

_____ Pressure Tested System

_____ Disinfected System

_____ Samples Taken for Bacteriological Tests

_____ Acceptable Bacteriological Results Obtained

_____ All Remaining Fees and Charges Paid

_____ Connection(s) to Existing System Completed

_____ Water System Released for Fire Protection and Construction Water

_____ Unmetered Construction Water Applications Signed

_____ Unmetered Connections Removed

_____ Ready for Drop-in Meters

_____ Received Drop-in Meter Applications

_____ Received Drop-in Meter Fees

_____ Signed Drop-in Meter Applications

RECEIVED	APPROVED	SUBMITTED
_____	_____	Material and Labor Release
_____	_____	Water System Grant Deed
_____	_____	Record Drawings

DATE

_____ Filed Notice of Completion

_____ Installed Drop-in Meters

CONTRACTOR INFORMATION SHEET

Firm Name and Address: _____

_____

_____

Contractor's License No.: _____

License Class: _____

License Expiration Date: _____

Telephone No.: _____

Emergency Telephone No.:_____

Contractor's Project Manager:

Name: _____

Telephone No.: _____

Emergency Telephone No.: _____

Contractor's Superintendent:

Name: _____

Telephone No.: _____

Emergency Telephone No.: _____

Contractor's Signature: _____Date: _____

Received: Rancho California Water District:

By:_____Date: _____

APPENDIX "K"
Sheet 1

8/1/91

Contractor shall furnish three references for similar projects completed within the past three (3) years.

Contract Amount	Type of Work	Date Completed	Owner (Name & Address)	Person in Charge of Project	Phone Number of Person in Charge

RANCHO CALIFORNIA WATER DISTRICT
OF RIVERSIDE COUNTY

WATER SYSTEM CONSTRUCTION AGREEMENT
(DEVELOPER INITIATED/CONTRACTOR INSTALLED)

THIS AGREEMENT is made on this ___ day of _____, 19___, by and between RANCHO CALIFORNIA WATER DISTRICT OF RIVERSIDE COUNTY, a public agency of the State of California, hereinafter designated as the "District" and _____ located at _____, Ph. No. _____, represented by _____ hereinafter designated as the "Developer".

WHEREAS, Developer is planning a development of _____ lot(s) located within the development referenced within records of the County of Riverside, State of California, as: _____ and is further identified on the map attached to and made a part of this Agreement; and

WHEREAS, said subdivision will require a water distribution system to provide domestic water service to the lands referenced above; and

WHEREAS, Developer is desirous of having the District provide domestic water service to said lands and is willing to convey to the District the water distribution system after the construction thereof, contingent upon the District's acceptance of such conveyance on the terms and conditions set forth herein.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. District agrees to provide domestic water service to the aforesaid development in compliance with its applicable rules, regulations,

ordinances, orders when, as, and if Developer has complied with the terms and conditions contained herein.

2. Developer agrees to construct the water system facilities necessary for aforesaid development in accordance with the following terms and conditions:

A. Developer will cause water system facilities to be constructed as shown on the District approved water construction drawings at its expense by a qualified California licensed Contractor. Said Contractor shall be currently licensed by the State of California with either a specialty contractor, "C-34, pipeline license or a General Engineering Contractor, "A" license. Said contractor shall be experienced in the construction of domestic water systems and shall have been reviewed by the District and approved by the District as a qualified Contractor before a contract is signed and construction begins.

B. Said water system facilities will be constructed and installed in full compliance with all applicable rules, regulations and ordinances of District including, but not limited to, District's Standard Specifications and Standard Drawings for Water and Sanitary Sewer Facilities.

C. Water construction drawings for said water system facilities shall be approved by District prior to the presentation thereof to contractors for bidding purposes and said facilities shall be constructed and installed in full compliance with said approved water construction drawings and District specifications referenced in paragraph "B" above.

D. The entire cost of the construction of such domestic system shall be paid by the Developer. Such construction shall be

inspected by District personnel for conformance with the approved drawings and District specifications.

E. The District is not responsible and does not own the water system facilities until they are inspected and approved by the District, the Faithful Performance Bond is executed and accepted by the District, all fees and charges are paid in full, the Unconditional Lien Waiver and Release and the Water System Grant Deed are executed and accepted by the District. Until such time, Developer is responsible for the facilities and is liable for all damage to said facilities.

F. All existing District facilities shall be protected in place. Any damaged District facilities shall be replaced or repaired by Developer at the developer's expense to the satisfaction of District.

G. Developer will, on demand, pay all costs incurred by the District as may be necessary to complete construction including the applicable hourly rate for an inspector for such time as may be required as determined by District to inspect the construction of the water system facilities. Said rates shall be that which is applicable at the time of actual inspection. The inspector shall work under the supervision of District, and shall provide inspection until the water system facilities is accepted and approved as stated herein.

3. Construction shall not begin until District issues the "Notice to Proceed". Prior to District issuing "Notice to Proceed", Developer shall submit the following:

A. Copy of contract between Developer and Contractor verifying cost of water system facility construction.

B. Certification of streets to final grade.

C. Certificates of insurance for contractor and all subcontractors on District form (A rating of A in the latest issue of Best's Key Rating Guide, Property-Casualty, Written by A.M. Best Company).

D. A faithful performance bond with corporate surety or sureties satisfactory to the District (A rating of A in the latest issue of Best's Key Rating Guide, Property-Casualty, Written by A.M. Best Company) on District form*. Said performance bond being for not less than one hundred percent (100%) of the total contract price. Said bond guarantees the completion of the facilities (including submission of the Unconditional Lien Waiver and Release and the Water System Grant Deed) and guarantees the materials and workmanship of the installed domestic water system against failures of any type for one (1) year from the date of the filing of the "Notice of Completion". Said bond shall provide for the payment of all costs incurred by the District for the repair of such failures within the one (1) year guarantee period.

* If separate City/County bonding is required, Developer can submit approved copy of City/County bonding in lieu of District bond.

4. The District will provide construction water and fire protection to the development after the Contractor has completed all items on the District Inspector's Construction Deficiency List, evidence has been submitted indicating County acceptance of compaction, acceptable bacteriological test results have been obtained, and any remaining inspection fees are paid in full.

5. The District will provide drop-in meters to the development and file a Notice of Completion after the following has been submitted:

A. Drop-in Meter Application and all related meter installation and connection fees.

B. Unconditional Lien Waiver and Release for waterline construction.

C. A Grant Deed executed by Developer vesting title of said water system facilities to the District. Said Grant Deed must be on District form and vests title only after the District files the Notice of Completion. In the event water rights are appurtenant to the development, Developer shall also grant said water rights to the District on District form.

D. An Agency Agreement will be required for each parcel if there is not a current Agency Agreement recorded against the property. The Agency Agreement gives the District the right of management of the groundwater resource to the District, for the benefit of all District customers.

6. At District's option, the terms and conditions of this Agreement will become null and void and District will have no further obligations hereunder in the event the construction of the facilities covered herein has not begun within 12 months of the date of this Agreement. In the event construction has not been accepted by District within 24 months of the date of this Agreement, this Agreement and any other related water system facility requirements must then be revised to include any new conditions and to cover all increased costs, including any new fees and charges which may be in effect at that time. No further work will be permitted until all provisions of this paragraph have been fulfilled.

7. Developer agrees to hold the District free and harmless from any expense or liability resulting from the construction or installation of the water system facilities, and further agrees that Developer will indemnify the District and will hold it, its employees and agents free and harmless from and against any and all liabilities for death, injury, loss or damage to persons or property which may arise before, after or during construction of the water system facilities as a result of any work performed by Developer or on its behalf.

8. In the event that either party shall fail to perform its part of this Agreement, and suit shall be commenced, or an attorney employed to enforce the provisions thereof, the party who fails to perform his part of the Agreement agrees to pay any and all costs involved therein, and to pay a reasonable attorney's fee.

9. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the parties hereto, and each of them.

10. Whenever in this Agreement notice is required to be given, the same shall be given by certified mail, postage prepaid, addressed to the respective parties at the following addresses:

To Rancho California Water District:

Rancho California Water District
General Manager
P.O. Box 174
Temecula, California 92390-0174

To Developer:

_____

_____

_____

_____

11. This Agreement contains all of the terms and conditions agreed upon by the parties hereto, and no other agreements, oral or otherwise, shall be deemed to exist or to bind the parties hereto unless hereafter duly placed in writing and executed by the undersigned.

RANCHO CALIFORNIA WATER DISTRICT

By: _____
General Manager

Date: _____

DEVELOPER

Company: _____

By: _____

Name: _____

Title: _____

Date: _____

APPENDIX "L"

8/1/91

TO: Rancho California Water District

From: _____

(address) _____

_____

Subject: Certification of Streets to Final Grade

Tract Map No. _____, or

Parcel Map No. _____

1. There has been executed a "WATER SYSTEM CONSTRUCTION AGREEMENT" for the water mains described above; said Agreement being between:

   a. The Rancho California Water District, hereinafter designated as the "District";

   b. _____ hereinafter designated as the "Developer"

   All terms and conditions of said Agreement are hereby incorporated by reference.

2. Pursuant to Section 3 of said Agreement, the Developer certifies that all streets requiring water mains are to the required Final Grade and ready for installation of water mains; wherein the Final Grade shall be defined as the finished grade of the street base or sub-base required by the Riverside County Road Department, the City of Temecula, City of Murrieta, or the District.

3. Developer agrees that if there is a change required in the final grade of the street which occurs during or after the construction of the water mains, and requires the relocation of any water facilities, the Developer will make full payment for all costs necessary to relocate said water facilities.

   Developer: _____

   Address: _____

   City/State/Zip: _____

   Telephone: _____

   Authorized Agent (sign): _____

   Name (type): _____

   Title: _____

APPENDIX "M"

8/1/91

CERTIFICATE OF INSURANCE

This certifies to the RANCHO CALIFORNIA WATER DISTRICT, located at 28061 Diaz Road, Temecula, California 92390, that the following described policies have been issued to:

Insured: _____

_____

Address: _____

_____

Coverage is provided for the following operation(s)/locations(s):

_____

_____

_____

Type of Insurance	Insurer of Policy No.	Policy Expiration Date	Limits of Liability in thousands (000) Policy Covers: Each Occurrence	Aggregate
GENERAL LIABILITY-"Occurrence" Policies Only				
[ ] Comprehensive Form [ ] Premises-Operations [ ] Owners & Contractors Protective	BODILY INJURY		$	$
[ ] Blanket Contractual [ ] Products and/or Completed Operations	PROPERTY DAMAGE		$	$
	BODILY INJURY & PROPERTY DAMAGE COMBINED		$	$
[ ] Explosion & collapse Hazard [ ] Underground Hazard [ ] Broad Form Property Damage [ ] Policy to include severability of interest clause [ ] Personal Injury Exclusion "C" Removed				
	PERSONAL INJURY		$	

(Coverage shall be at least as broad as Insurance Service Office Form No. GL 0002 covering Comprehensive General Liability and Insurance Service Form No. GL 004 covering Broad Form Comprehensive General Liability; Broad Form Comprehensive General Liability; or Insurance Service Office Commercial General Liability coverage, Occurrence Form No. CG 0001. All insurance companies issuing policies covered in this appendix are required to have a rating of A in the most current issue of Best's Key Rating Guide, Property-Casualty, Written by A.M. Best Company.)

AUTOMOBILE LIABILITY - "Occurrence" Policies Only

[ ] Comprehensive Form	BODILY INJURY (EACH PERSON)	$
[ ] Owned	BODILY INJURY (EACH OCCURRENCE	$
[ ] Hired	PROPERTY DAMAGE	
[ ] Non-owned	BODILY INJURY PROPERTY DAMAGE COMBINED	$

(Coverage shall be at least as broad as Insurance Service Office form number CA 0001 covering automobile liability, Code 1 "any auto" and endorsement number CA 0025.)

EXCESS LIABILITY - "Occurrence" Policies Only

[ ] Umbrella form	BODILY INJURY & PROPERTY DAMAGE COMBINED	$
[ ] Other than umbrella form		
[ ] WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	STATUTORY	$ (EACH ACCIDENT)

(Coverage shall be as broad as required by the Labor Code of the State of California and Employer's liability coverage.)

BUILDERS RISK (FIRE "ALL RISK") - "Occurrence" Policies Only [ ] ON 100% OF COMPLETED VALUE BASIS - $

The following provisions apply:

1. The Rancho California Water District, its officers, agents, employees, and consultants are hereby declared to be additional insureds on all of the above-mentioned described liability insurance policies, as respects the operations of the named insured at or from the premises of the Rancho California Water District described above.

2. The above-described liability insurance policies are primary insurance and no insurance held or owned by the designated additional insureds shall be called upon or looked to in order to cover a loss under said policy; the Rancho California Water District shall not be liable for the payment of premiums or assessments under these policies.

3. None of the above-described policies will be cancelled, limited or non-renewed until thirty (30) days after receipt by the Rancho California Water District or a written notice of such cancellation or reduction of coverage as evidenced by receipt of a registered letter.

4. The insured(s) issuing the above described workers' compensation and/or builders risk insurance policies waives all rights of subrogation against the Rancho California Water District, its officers, agents, employees, and consultants, designated as additional insured.

5. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Rancho California Water District, the Owner's Representative, the Engineer/Architect and their officers, agents, employees, consultants, and volunteers.

6. The named insured(s) insurance coverage shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insured's liability.

_____

Insurance Agency: _____

Address: _____

_____

_____

Authorized Representative: _____

Phone:_____ Date:_____

BOND NO. _____

FAITHFUL PERFORMANCE BOND
FOR
WATER SYSTEM CONSTRUCTION AGREEMENT

KNOW ALL PERSONS BY THESE PRESENTS: That WHEREAS, the Rancho California Water District, has entered into a Water System Construction Agreement (All terms and conditions of said Agreement are hereby incorporated by reference) with _____, as Principal, (hereinafter designated as the "Developer"), for construction of:

_____

_____

_____; and

WHEREAS, said Principal is required under the terms of said Agreement to furnish a bond for the faithful performance of said contract.

NOW, THEREFORE, we, _____, as Developer, and _____, as Surety, are held and firmly bound unto the Rancho California Water District (hereinafter called the "District"), in the sum of _____ DOLLARS ($_____) (this amount being not less than on hundred percent (100%) of the total price of the work), lawful money of the United States of America, for payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the hereby bonded Developer, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by and well and truly keep and perform all the undertakings, terms, covenants, and conditions in said Agreement and any alteration thereof, made as therein provided, all within the time and in the manner therein designated in all respects according to their true intent and meaning, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect until Developer has completed construction of the facilities including repair of any damage of existing District facilities and provided District with an Unconditional Lien Waiver and Release and a Water System Grant Deed and has paid all fees and charges.

As a condition precedent to the satisfactory completion of the work (including submission of the Unconditional Lien Waiver and Release, submission of the Water System Grant Deed, payment of all fees and charges, and repair of any damage of existing District facilities), the above obligation shall hold good for a period of one (1) year after the completion of the Work and filing of the Notice of Completion by the District, during which time if Developer shall fail to make full, complete, and satisfactory repair and replacements and totally protect

the District from loss or damage made evident during the period of one (1) year from the date of filing of the Notice of Completion by the District, and resulting from or caused by defective materials or faulty workmanship, the above obligation in penal sum thereof shall remain in full force and effect. Notwithstanding anything in this paragraph to the contrary, the obligation of Surety hereunder shall continue so long as any obligation of Developer remains.

FURTHER, the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or modification of the Agreement, or of the work to be performed thereunder, shall in any way affect its obligations on this bond; and it does hereby waive notice of any change, extension of time, alteration or modification of the Agreement or of work to be performed thereunder.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Developer and Surety named therein, on the _____ day of _____, 19___, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

_____
Developer (seal)

Name: _____

Title: _____

Signature: _____

_____
Surety (seal)

Name: _____

Title: _____

Signature: _____

Address: _____

_____

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

APPROVED AS TO FORM:
McCormick, Kidman & Behrens
District Legal Counsel

By: _____

UNMETERED CONSTRUCTION WATER APPLICATION

Temporary connections for house construction are necessary during the drywall installation phase; therefore, the service category of unmetered construction water is available.

The service is available for construction only. This service is not to be used for landscaping or any domestic/commercial use. Unauthorized use is subject to the conditions, as established in Penal Code Section 498, attached, and immediate discontinuance of water service.

A $____ monthly charge covers unmetered water use, standby charge, and periodic inspection by the Meter and Contracts Department personnel.

Prior to connection by the builder, the Contracts Manager will verify the following:

(1) In-tract water system has been tested and disinfected;

(2) Service laterals have been installed with an extra length extending a minimum of two feet above ultimate grade and 2" x 4" stakes (4 feet in length) have been installed to mark the location of the service lateral. Said stakes shall provide for temporary mounting of the extended service lateral with double check valves for the protection of the existing system. All work shall be in accordance with District's Standard Drawing No. RW-12.

At such time as the developer has completed all utility installations and established final grade to the satisfaction of the District, the temporary connection shall be removed, the delivery of water discontinued completely, and the service shall be completed in accordance with the District standard specifications.

After services have been accepted and approved by the Contracts Manager, approximately two weeks is required before meters are installed.

In accordance with the Water System Construction Agreement (all terms and conditions of said Agreement are herein incorporated by reference), the District is not responsible and does not own the water system facilities until said system is transferred to the District. Until such time, Developer is responsible for the facilities and is liable for all damage to said facilities.

I/we hereby acknowledge my/our understanding of the aforementioned conditions and intention of unmetered construction water use.

_____ _____

Service Applicant Signature Date

UNCONDITIONAL LIEN WAIVER AND RELEASE

DATE: _____

TO WHOM IT MAY CONCERN:

The undersigned has been paid in full for all labor, services, equipment or materials furnished to _____ ("Contractor") on the job for the Rancho California Water District ("District") located at _____ in the County of Riverside, State of California ("Property").

The undersigned does hereby waive and release Contractor and District from any and all liability for liens for all materials delivered and labor performed by it, all Mechanic's Liens, including ones that have been recorded, Stop Notices, or any right against a Labor and Material Bond, to or for the Job and the Property on which is it located.

This Unconditional Lien Waiver and Release, Materials and Labor, is made in accordance with Civil Code s3262 and s5 of the Water System Construction Agreement between Rancho California Water District and Developer _____, dated _____.

NOTICE: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

_____ _____
Firms Name

_____ _____
Address

_____ _____
City, State

_____ By: _____
Authorized Representative

W.O. _____

WATER SYSTEM GRANT DEED

FOR VALUABLE CONSIDERATION paid and received,

_____ hereby grant(s) to Rancho California Water District all right, title and interest in the water system improvements for the entire domestic water distribution system facilities for the development referenced with records of the County of Riverside, State of California as _____ and agrees to indemnify the District for any and all claims, liens, causes of action or any type of liability arising from or in any way related to the construction of said facilities.

Said water system improvements are shown in detail on the construction drawings (Sheets ___ thru ___) for said development. This Grant Deed is in accordance with Section 5 of the Water System Agreement between Rancho California Water District and _____, dated _____ and is effective upon Developer providing the Unconditional Lien Waiver and Release and upon filing of the Notice of Completion by the District for the aforementioned water system improvements.

SELLERS for his heirs, executors and administrators, covenants and agrees to warrant and defend this sale of property, goods and chattels, against all and every persons claiming the same.

DATE: _____

_____

BY: _____

SEAL AND NOTARIAL ACKNOWLEDGEMENT

When recorded return to:
RANCHO CALIFORNIA WATER DISTRICT
P.O. Box 174
Temecula, CA 92390

AGENCY AGREEMENT NO._____

THIS AGREEMENT, made this_____ day of_____, 19____, by and between _____

(hereinafter referred to as "Landowner"), and RANCHO CALIFORNIA WATER DISTRICT, a public corporation organized and existing under Division 13 of the Water Code of the State of California (hereinafter referred to as the "District"); for the property described as follows: _____

_____ (legal description attached).

WITNESSETH:

WHEREAS, the District has power and authority to act as agent for the extraction, diversion, storage and distribution of water owned by other parties; and

WHEREAS, Landowner is the owner of certain land within the District described in Exhibit "A" attached hereto and made a part hereof; and

WHEREAS, said land owned by Landowner is a portion of land found by the United States District, et al., in the United States of America v. Fallbrook Public Utility District, et al., in the United States District Court, Southern District of California, Southern Division, Case No. 1247, affirmed in part by the United States Court of Appeals for the Ninth Circuit, Case No. 18931, to be land riparian to certain rivers and streams, including the Santa Margarita River and its tributaries, and also which may be land overlaying percolating waters under a court decree entered December 28, 1940 in the case Rancho Santa Margarita v. Vail, 11 Cal. 2d 401 (1939), and reinstated by the United States Court of Appeals for the Ninth Circuit in said Case No. 18931; and

WHEREAS, Landowner, without transferring any water right and privilege pertaining to said land, does desire to empower the District to act as its agent and the agent of its successors and assigns to extract, store and divert the water to which it is entitled (hereinafter referred to as "local water"), and to supply the same to its land and all other land having, under the laws of the State of California or pursuant to any judgement or contract, a legal right to have said water applied thereon.

NOW, THEREFORE, in consideration of the mutual promises and agreements herein contained, the parties hereto agree as follows:

Section 1. Landowner hereby designates the District its exclusive agent and the exclusive agent of its assigns and successors in interest for the extraction, diversion, storage, blending and distribution of all local water upon or under the lands of Landowner referred to in the recitals hereof for the purpose of putting said local water to beneficial use to the fullest extent of which it is capable for the lands and inhabitants of Landowner and all other lands within the watershed of the Santa Margarita River and its tributaries on which said local water now and hereafter may be legally applied. It is the intention of Landowner by this Agreement to maintain a binding and permanent arrangement whereby said local water shall be properly maintained and be perpetually delivered and distributed to all of said lands entitled thereto and the subdivisions thereof for the use of Landowner, its assigns and its successors in interest and other owners of such lands.

Section 2. Landowner hereby grants to the District the right to blend local water with imported supplemental water, to distribute imported water to Landowner in lieu of or in addition to the distribution of local water and to store imported water under the lands of Landowner.

Section 3. Landowner agrees that all local water to be used by Landowner within the District shall be obtained from the District or its assigns and successors in interest. Landowner shall not divert or extract within or outside the boundaries of the District local water for Landowner's own use within the District nor shall Landowner supply local water for use within the District by others. Landowner further agrees not to divert or extract within the District local water for use by Landowner or others outside the District. Landowner reserves to itself, its assigns, and its successors in interest all water rights and privileges presently owned and which may be hereinafter acquired pertaining to said land and nothing in this Agreement shall be construed as appropriating or dedicating said water rights or any water to public use

Section 4. This agency shall be effective and irrevocable in perpetuity and the same shall be deemed an agency coupled with an interest, provided, however, this Agreement shall terminate and be of no further force or effect upon a determination by any court of competent jurisdiction in an appropriate action that the method of extraction and distribution of said local water herein provided is not a proper method of exercising the riparian and other water rights of Landowner.

Section 5. The District agrees to divert, extract, store and distribute local water for the benefit of Landowner. The District agrees to acquire by lease, purchase, gift or otherwise all wells and water distribution facilities useful and necessary to extract, store and distribute said local water to the lands and inhabitants entitled thereto in accordance with this Agreement. Nothing contained herein shall prohibit the District from exercising any of its powers granted by the California Water District Law nor shall the District be prohibited from acquiring supplemental water for distribution to all lands within the District.

Section 6. This Agreement shall not be assignable by the District without the written consent of Landowner; provided, however, the District may contract with any municipal, public or private corporation for the management and operation of any water facilities owned by or leased by the District.

Section 7. The District shall have full control of the allocation of all costs of acquisition and construction of District facilities using any method or a combination of methods, as set forth in the California Water District Law, or raising funds to defray said costs. The District may adopt such rules and regulations for the distribution of local water as it deems necessary. The District may allocate the distribution of the available local water in any manner authorized in the California Water District Law or the rules and regulations of the District adopted pursuant to said law. Rates and charges for the distribution of local water may be made and shall be payable by Landowner, its assigns and its successors in interest as determined by the Board of Directors of the District from time to time; provided, however, said rates and charges shall not be so set to discriminate between water users in substantially the same classification.

Section 8. Neither the District nor the Landowner warrants the quantity or quality of the local water to be extracted and distributed by the District.

Section 9. This Agency Agreement shall inure to the benefit of and be binding on the assigns and successors in interest of the District and of the Landowner. In the event Landowner shall convey, transfer or in any manner alienate title to all or any portion of the real property of Landowner located within the District, the successors in interest in the fee simple estate or any lesser estate of said real property shall execute an Agency Agreement in the identical form hereof as a condition precedent to said transfer; provided, however, non-compliance with said condition shall in no wise be construed to annul or terminate the agency created hereby and all rights and duties hereunder shall be binding on the assigns and successors in interest of the real property of Landowner located within the District.

Section 10. If any one or more of the terms, provisions, covenants or conditions of this Agency Agreement shall to any extent be declared invalid, unenforceable, void or voidable for any reason whatsoever by a court of competent jurisdiction, the finding or order or decree of which becomes final, none of the remaining terms, provisions, covenants and conditions of this Agency Agreement shall be affected thereby, and each provision of this Agency Agreement shall be valid and enforceable to the fullest extent permitted by law.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

(CORPORATE SEAL)

_____

_____
"Landowner"

ATTEST:

Secretary _____

RANCHO CALIFORNIA WATER DISTRICT

By _____
President "District"

8/1/91

APPENDIX "S"

ORPORATE ACKNOWLEDGMENT:

State of _____ }
SS.
County of _____ }

On this the _____ day of _____ 19____, before me,

_____,

the undersigned Notary Public, personally appeared

_____,

☐ personally known to me
☐ proved to me on the basis of satisfactory evidence to be the person(s) who executed the within instrument as _____ or on behalf of the corporation therein named, and acknowledged to me that the corporation executed it.
WITNESS my hand and official seal.

_____
Notary's Signature

ENERAL ACKNOWLEDGMENT:

ate of _____ }
SS.
ounty of _____ }

On this the _____ day of _____ 19____, before me,

_____,

the undersigned Notary Public, personally appeared

_____,

☐ personally known to me
☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) _____ subscribed to the within instrument, and acknowledged that _____ executed it.
WITNESS my hand and official seal.

_____
Notary's Signature

OR COUNTY USE ONLY:

Exhibit F

Required Approvals

NONE

State Water Resources Control Board

Division of Water Rights
1001 I Street, 14th Floor ♦ Sacramento, California 95814 ♦ 916.341.5300
P.O. Box 2000 ♦ Sacramento, California 95812-2000
Fax: 916.341.5400 ♦ www.waterrights.ca.gov

Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

RCWD
Distribution Stamp
With
Attach
Andy ☒
Matt ☒
Craig E. ☒
☐
☐
Central Files ☒
Copied and
distributed by:

In Reply Refer
to:KDM:11518

APR 2 2 2009

APR 27 2009

Enclosed Mailing List

Dear Sir or Madam:

CHANGE AND TIME EXTENSION PETITIONS FOR PERMIT 7032 (APPLICATION 11518) OF RANCHO CALIFORNIA WATER DISTRICT

On November 25, 2008, the Division of Water Rights (Division) circulated a draft order resolving protests on the change and time extension petitions for Permit 7032 of Rancho California Water District (District). All parties were advised that any comments on the draft order should be submitted by December 26, 2008 to be considered. At the conclusion of the review period, a final order and amended permit would be issued. An amended permit and order are enclosed. For your reference, terms 6, 7, and 8 of the order are found in the standard terms at the end of the amended permit.

The review period has ended and the Division only received two comment letters. On December 24, 2008, Camp Pendleton advised the Division that the draft order addressed its concerns and fully supports issuance of the order.

On December 22, 2008, the District advised the Division that condition 4(g)(a) should be revised because NPDES Permit No. CA0108821 was terminated when the California Regional Water Quality Control Board, San Diego Region rescinded the permit on March 12, 2003. The District requested that item (2) of this condition either be deleted entirely or replaced with "flows discharged to the stream from the Santa Rosa Water Reclamation Facility subject to the provisions of a future NPDES Permit". The suggested replacement language will be used.

The District requested that condition 5 be deleted and replaced with "Compliance and monitoring for the petition of change shall be accomplished by the submittal of the CWRMA[1] Annual Report, prior to March 31 of each year for the prior water year, by the Watermaster to the Chief of the Division of Water Rights and to the U.S. Fish & Wildlife Service." The District stated that Condition 5 is a request by the U.S. Fish and Wildlife Service (USFWS) to implement a monitoring program for the Santa Margarita River because of its concerns that the flows outlined in the CWRMA may be inadequate to maintain riparian habitat and listed species in the Santa Margarita River system.

The District indicates that the flows in the CWRMA were jointly developed using stream and groundwater models that analyzed the total natural streamflow at the Santa Margarita River Gorge over the period from 1935-1998. Thus, the flows outlined in the CWRMA are based on the best available scientific information. In addition, the models continue to be updated and refined.

[1] Cooperative Water Resources Management Agreement or CWRMA

Furthermore, two separate monitoring programs already exist and are identified in Section 5(g) and Section 10 of the CWRMA. Section 5(g) provides water supply, water quality, and riparian habitat monitoring within the boundaries of the United States Marine Corps Base – Camp Pendleton. Section 10 provides water quantity and water quality monitoring at the Santa Margarita River Gorge. Both of these monitoring programs are documented in the CWRMA Annual Report.

The Division's authority to require compliance submittals only extends to water right permittees and licensees. Thus, we cannot agree to the suggested language requiring that the Watermaster provide the CWRMA Annual Report to the Division. The Division anticipates, however, that after the initial documentation required by items 5(a) through (e) is submitted and found acceptable, the annual operations data from the Watermaster Reports will be utilized to document ongoing compliance. If specific additional information not found in the Watermaster Reports is required, the Division will advise the District after its initial review of the Watermaster Report and require a separate submittal of the additional information. Thus, the initial report should contain: (a) the documentation required by items 5(a) through (e), (b) an example Watermaster Report with a letter documenting whether the report provides all information required by condition 5, and (c) a statement identifying what, if any, additional information will be separately reported to document compliance with condition 5.

Condition 5 provides an opportunity for the U.S. Fish and Wildlife Service to comment on the monitoring plan. It appears that you are concerned whether the opportunity to comment will result in development of a third monitoring program. The Division anticipates that the ongoing monitoring efforts will be utilized to the greatest extent feasible to document compliance with the permit condition. Division staff discussed the proposed resolution of the District's request to modify condition 5 with Andrew Webster of the District on December 31, 2008. The District was amendable to the Division's proposal, with the clarification stated herein.

Katherine Mrowka is the senior staff person presently assigned to this matter. If you require further assistance, Ms. Mrowka can be contacted at (916) 341-5363.

Sincerely,

James W. Kassel
for Victoria A. Whitney
Division Chief

Enclosures: Mailing List
Order
Amended Permit

Permit 7032 (Application 11518)
Mailing List

Pechanga Band of Luiseno Mission Indians
c/o Donald R. Pongrace
Akin, Gump, Strauss, Hauer & Geld
Robert S. Strauss Building
1333 New Hampshire Avenue, N.W.
Washington, D.C. 20036-1564

Andrew Webster
Rancho California Water District
P.O. Box 9017
Temecula, CA 92589

John Kalish
U.S. Bureau of Land Management
P.O. Box 581260
North Palm Springs, CA 92258-1260

U.S. Fish and Wildlife Service
c/o Erica Niebauer
Office of the Regional Solicitor
2800 Cottage Way, Room E-1712
Sacramento, CA 95825

U.S. Department of the Interior
Bureau of Land Management
J. Anthony Danna
2800 Cottage Way, Suite W1834
Sacramento, CA 95825

Craig Collins
Berger & Notorn
12121 Wilsher Boulevard, Suite 1300
Los Angeles, CA 90025

Captain Chad Seber
Western Area Counsel Office
Box 555231
Marine Corps Base
Camp Pendleton, CA 92055

U.S. Fish and Wildlife Service
c/o Pamela Williams
U. S. Department of the Interior
1849 C Street, N.W., Mailstop 6456
Washington, DC 20240

California Sportfishing Protection Alliance
c/o Jim Crenshaw
1248 E. Oak Avenue, Suite D
Woodland, CA 95776-4104

Rancho California Water District
c/o Reagan L. Brenneman
Best, Best and Krieger
402 West Broadway, 13th Floor
San Diego, CA 92101-3542

Jill Terp
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92011

Notice of Determination

Form C

To: ☑ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 222
Sacramento, CA 95812-3044

☐ County Clerk
County of Riverside

From: State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95812-2000

Subject:
Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code

Rancho California Water District's Petition for Change to Appropriation Permit No. 7032
Project Title

1992103134	Andrew Webster	951-296-6900
State Clearinghouse Number (if submitted to Clearinghouse)	Lead Agency Contact Person	Area Code/Telephone/Extension

Project Location (include county): Vail Reservoir on Temecula Creek and the Pauma Groundwater Basin downstream of Vail Reservoir in Riverside County. The place of use is the Rancho California Water District (District).

Project Description: The District proposes to modify Permit 7032 by adding municipal and industrial purposes of use and including additional wells within the Pauma Groundwater Basin as points of rediversion of water stored in Vail Reservoir and released downstream to the groundwater basin. The District also proposes to expand the place of use to correspond to the 1992 District boundaries.

This is to advise that the State Water Resources Control Board, Division of Water Rights has approved the above described project on
☐ Lead Agency ☑ Responsible Agency

APR 22 2009 and has made the following determinations regarding the above described project:
(Date)

1. The project [☐ will ☑ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☑ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☐ were ☑ were not] made a condition of the approval of the project.
4. A statement of Overriding Considerations [☐ was ☑ was not] adopted for this project.
5. Findings [☐were ☑ were not] made pursuant to the provisions of CEQA.

This is to certify that the [☐final EIR ☑ final Negative Declaration] with comments and responses and record of project approval is available to the General Public at:

Rancho California Water District, 42135 Winchester Road, Temecula, CA 92589-9017

James W. Kassel	4/21/09	Assistant Dep. Director for Water Rights
Signature (Public Agency)	Date	Title

Date received for filing at OPR:

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

AMENDED PERMIT 7032

Application **11518** of **Rancho California Water District**
42135 Winchester Road
Temecula, CA 92589-9017

filed on **August 16, 1946**, has been approved by the State Water Resources Control Board (State Water Board) SUBJECT TO PRIOR RIGHTS and to the limitations and conditions of this permit.

Permittee is hereby authorized to divert and use water as follows:

1. Source of water

Source:	Tributary to:
Temecula Creek	**Santa Margarita River**

within the County of **Riverside.**

2. Location of point of diversion (POD)

By California Coordinate System of 1983 in Zone **6**	40-acre subdivision of public land survey or projection thereof	Section (Projected)*	Township	Range	Base and Meridian
Point of Diversion: Vail Dam North 2,124,844 feet and East 6,340,009 feet	**NW ¼ of NW ¼**	**10**	**8S**	**1W**	**SB**
Points of Rediversion from Underground Storage: Well 109: North 2,119,301 feet and East 6,302,006 feet	**NW ¼ of NE ¼**	**17**	**8S**	**2W**	**SB**
Well 110: North 2,127,229 feet and East 6,327,062 feet	**SE ¼ of SW ¼**	**6**	**8S**	**1W**	**SB**
Well 123: North 2,126,263 feet and East 6,327,098 feet	**NW ¼ of NE ¼**	**7**	**8S**	**1W**	**SB**

Well 132: North 2,125,460 feet and East 6,324,873 feet	**NW ¼ of NW ¼**	**7**	**8S**	**1W**	**SB**
Well 152: North 2,127,958 feet and East 6,330,419 feet	**SE ¼ of SW ¼**	**5**	**8S**	**1W**	**SB**
Well 153: North 2,127,045 feet and East 6,328,733 feet	**NW ¼ of NW ¼**	**8**	**8S**	**1W**	**SB**
Well 157: North 2,127,584 feet and East 6,330,387 feet	**SE ¼ of SW ¼**	**5**	**8S**	**1W**	**SB**
Well 158: North 2,127,243 feet and East 6,331,792 feet	**SW ¼ of SE ¼**	**5**	**8S**	**1W**	**SB**
Well 210: North 2,124,427 feet and East 6,323,044 feet	**NE ¼ of SE ¼**	**12**	**8S**	**2W**	**SB**
Well 232: North 2,124,851 feet and East 6,317,628 feet	**SW ¼ of NE ¼**	**11**	**8S**	**2W**	**SB**
Well 233: North 2,124,243 feet and East 6,321,874 feet	**NW ¼ of SE ¼**	**12**	**8S**	**2W**	**SB**
Well 234: North 2,123,464 feet and East 6,314,906 feet	**SW ¼ of SE ¼**	**11**	**8S**	**2W**	**SB**

3. Purpose of use	4. Place of use	Section	Township	Range	Base and Meridian	Acres
Recreational	**Vail Reservoir**	**10**	**8S**	**1W**	**SB**	
Municipal, Domestic, Industrial, Irrigation	**Within the service area of the Rancho California Water District as shown on map dated October 28, 2008.**		**7S** **8S**	**1W through 5W** **1W through 5W**	**SB** **SB**	**96,000**

The place of use is shown on map filed with the State Water Board.

5. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed **40,000** acre-feet per annum in Vail Reservoir to be collected from **November 1** of each year to **April 30** of the succeeding year. Water released from Vail Reservoir is re-stored in the Pauba Valley groundwater basin.

(0000005C)

This permit does not authorize collection of water to storage outside of the specified season to offset evaporation and seepage losses or for any other purpose.

(0000005I)

6. Construction work shall be completed on or before December 1, 1988.

(0000008)

7. Complete application of the water to the authorized use shall be prosecuted with reasonable diligence and completed by December 31, 1989.

(0000009)

8. Permittee shall consult with the Division of Water Rights and, within one year from the date of this permit, shall submit to the State Water Resources Control Board its Urban Water Management Plan as prepared and adopted in conformance with section 10610, et seq. of the California Water Code, supplemented by any additional information that may be required by the Board.

All cost-effective measures identified in the Urban Water Management Plan and any supplements thereto shall be implemented in accordance with the schedule for implementation found therein.

(0000029A)

9. For the protection of fish and wildlife, Permittee shall maintain the following flows at USGS Gage No. 11044000 on the Santa Margarita River near Temecula, aka "the Gorge":

Table 1

Month	Critically Dry Flow cfs	Below Normal Flow cfs	Above Normal Flow cfs	Very Wet Flow cfs
January to April	4.5	8.0	17.8	24.1
May	3.8	5.7	11.7	15.7
June	3.3	4.9	9.4	12.2
July	3.0	4.3	7.8	9.7
August	3.0	4.4	7.6	9.2
September	3.0	4.1	7.4	9.4
October	3.0	3.9	7.7	10.1
November	3.0	4.5	8.8	11.5
December	3.3	5.3	10.4	13.5

(a) The hydrologic conditions described in Table 1 are derived from a hydrologic index combining the October through April natural streamflow at Murrieta Creek gage, and the October through April natural streamflow at Vail Lake. Natural flow at Murrieta Creek is calculated using the rainfall/runoff relationship between rainfall at Wildomar and the HSPF natural flow at Murrieta Creek. Natural flow at Vail Lake is calculated using the runoff correlation between Aguanga streamflow and inflow to Vail Lake during the period water years 1958 to 1996.

(b) On May 1st of each year the October through April rainfall at Wildomar is used to estimate natural flow at Murrieta, and the October through April measured streamflow at Aguanga is used to estimate natural flow at Vail Lake. The Technical Advisory Committee, which includes the Watermaster, adjusts for antecedent conditions and calculates the hydrologic index based on these input parameters. Once the hydrologic condition is

Table 1 is used to prescribe the flows at the Gorge.

(c) The winter period includes the months of January through April. During the period January 1 through April 30, minimum daily flow requirements at the Gorge are: 11.5 cfs for very wet and above normal conditions; 8.0 cfs for below normal conditions; and 4.5 cfs for critically dry conditions. The District shall provide whatever make-up water is needed to meet this requirement. On May 1st, the hydrologic condition for the immediately preceding October – April period shall be determined. Such condition, and the minimum daily flow requirements set forth for the January 1 through April 30 period shall be used to determine the actual flow requirement for the prior winter period and whether this requirement was exceeded. The minimum daily flow requirement for each period shall be 11.5 cfs (or applicable value based on water year type), less any credit unused in a previous year, and less any credit established by the May 1st accounting of the prior year.

(d) The non-winter period includes the remaining months of May through December. Minimum daily flow requirements at the Gorge, calculated on a 10-day running average, for the non-winter months are provided by Table 1, based upon the particular hydrologic condition established on May 1st for the prior October – April period; provided that the 10-day average shall begin on the 11th day of each month. The District shall provide whatever make-up water is required to meet these monthly requirements.

(e) Notwithstanding any provision to the contrary, the District shall not be required to provide more than the equivalent of 11.5 cfs make-up water for any month.

(f) When the District is required to provide make-up water in any calendar year in excess of 4,000 acre-feet, measured at the Gorge, it shall be entitled to a credit for the excess, taking into account transmission losses, to be applied during the following two winter periods. The United States shall have the option of eliminating the District's credit by the United States, or its designee, paying the District a cash amount equal to the Metropolitan Water District of Southern California's then current price for untreated water.

(g) Notwithstanding any provision to the contrary, the District guarantees that flows, based upon a 10 day running average, shall at no time be less than 3.0 cfs.

Compliance with the requirements of (c) through (g) shall be based upon actual flow measurements as recorded by the USGS gage at the Gorge. Any losses of makeup water incurred between the point of discharge by the Permittee and the Gorge shall be borne by the Permittee. Makeup water which the Permittee may be required to release at the Gorge in order to comply with the requirements of (c) through (g) may be supplied at the Permittee's option from: (1) its wells upstream of the Gorge; (2) flows discharged to the stream from the Santa Rosa Water Reclamation Facility subject to the provisions of a future NPDES permit; (3) deliveries from its domestic water system; (4) deliveries of imported water from the Metropolitan Water District of Southern California; (5) or Vail Reservoir. With the consent of Camp Pendleton, the Permittee may substitute treated water by exchange or direct delivery to Camp Pendleton for flow at the Gorge.

Makeup water that the Permittee releases to the stream shall meet all requirements of the California Water Quality Control Board, San Diego Region, and shall not cause a violation of any rule, regulation, standard or objective established by federal, state, or local enforcement agencies, including but not limited to the federal and state Safe Drinking Water Acts.

Upon petition for change, this permit condition may be amended provided that the U.S. Marine Corps Base at Camp Pendleton and U.S. Bureau of Land Management have opportunity to review the petition for change and comment or protest thereon. Any petition for change must document that the Permittee has provided measures equally or

more protective than the existing condition of: (a) any valid water rights of the Unites States and (b) public trust resource needs.

10. Within six months of the issuance of this amended Permit, Permittee shall submit a Compliance and Monitoring Plan for approval by the Chief of the Division of Water Rights that will demonstrate compliance with the flow requirements at the Gorge specified in this permit. The U.S. Fish and Wildlife Service shall be timely provided with a copy of the plan and shall have opportunity to comment on the plan prior to approval of the plan by the Division. The Compliance and Monitoring Plan shall include the following:

a) A description of the physical facilities (i.e., outlet pipes, siphons, pipelines, bypass ditches, splitter boxes etc.) that will be constructed or have been constructed at the project site and will be used to bypass flow.

b) A description of the gages and monitoring devices that will be installed or have been installed to measure stream flow at Vail Reservoir and at the Gorge, reservoir storage capacity, releases to underground storage and diversions from underground storage. The plan shall also describe the data collection locations and frequency of data collection and analysis for purposes of determining that project operation does not adversely impact water quality, prior rights, listed threatened or endangered species and riparian habitat from Vail Reservoir to the Gorge. Data reported by Camp Pendleton for areas downstream of the Gorge may substitute for data from Vail Reservoir to the Gorge, provided that appropriate data correlation is made.

c) A time schedule for the installation of these facilities.

d) A description of the frequency of data collection and the methods for recording bypass flows and storage levels.

e) An operation and maintenance plan that will be used to maintain all facilities in good condition.

f) Permittee may substitute data collection and/or data analysis by the Watermaster or Camp Pendleton for self-reported data and/or data analysis, provided that the Permittee provides information obtained from the Watermaster and Camp Pendleton to the Division as specified below.

The Permittee shall be responsible for all costs associated with developing the Compliance and Monitoring Plan, and installing and maintaining all flow bypass and monitoring facilities described in the Compliance and Monitoring Plan.

The monitoring data shall be maintained by the permittee for ten years from the date of collection and made available to the Chief of the Division of Water Rights, upon request.

Any non-compliance with the terms of the permit shall be reported by the permittee promptly to the Chief of the Division of Water Rights.

Six months from the date of issuance of this Order, diversion and use of water without prior approval of the Compliance and Monitoring Plan and the installation of facilities specified in the Compliance and Monitoring Plan is not authorized.

(0000070)

11. Permittee shall maintain records of the amount of water diverted and used to enable the State Water Board to determine the amount of water that has been applied to beneficial use pursuant to Water Code section 1605.

(0000015)

12. If it is determined after permit issuance that the as-built conditions of the project are not correctly represented by the map(s) prepared to accompany the application, permittee shall, at his expense have the subject map(s) updated or replaced with equivalent as-built map(s). Said revision(s) or new map(s) shall be prepared by a civil engineer or land surveyor registered or licensed in the State of California and shall meet the requirements prescribed in section 715 and sections 717 through 723 of the California Code of Regulations, Title 23. Said revision(s) or map(s) shall be furnished upon request of the Chief, Division of Water Rights.

(0000030)

13. For the protection of fish and wildlife and instream uses, Permittee shall bypass the streamflows noted in the flow bypass condition of this permit at USGS Gage No. 11044000 on the Santa Margarita River near Temecula. In the event that said gage is no longer available for streamflow measurements, Permittee (or successors-in-interest) is responsible for installing and maintaining an equivalent gage, satisfactory to the Chief, Division of Water Rights, as near as practicable to the present location of USGS Gage No. 11044000 on the Santa Margarita River near Temecula. In the absence of such an equivalent gage, all diversions must cease. These requirements shall remain in force as long as water is being diverted by Permittee (or successors-in-interest) under any permit or license issued pursuant to Application 11518.

(0000204)

14. Diversion of water under this permit shall be subject to regulation by the watermaster appointed to enforce the terms of the Stipulated Judgment in the case of *Rancho Santa Margarita v. Vail*, San Diego Superior Court Action No. 42850 and the Judgment in the case of *United States v. Fallbrook Public Utility District*, Civ. No. 1247, S.D. Cal.

(000000N)

ALL PERMITS ISSUED BY THE STATE WATER RESOURCES CONTROL BOARD ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

A. The amount authorized for appropriation may be reduced in the license if investigation warrants.

(0000006)

B. Progress reports shall be submitted promptly by permittee when requested by the State Water Resources Control Board (State Water Board) until a license is issued.

(0000010)

C. Permittee shall allow representatives of the State Water Board and other parties, as may be authorized from time to time by said State Water Board, reasonable access to project works to determine compliance with the terms of this permit.

(0000011)

D. Pursuant to California Water Code sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of

which may include but not necessarily be limited to (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by the permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest; and is necessary to preserve or restore the uses protected by the public trust.

(0000012)

E. The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Board if, after notice to the permittee and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the State Water Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(0000013)

F. This permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & G. Code, §§ 2050 - 2097) or the federal Endangered Species Act (16 U.S.C.A. §§ 1531 - 1544). If a "take" will result from any act authorized under this water right, the permittee shall obtain authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

(0000014)

G. Permittee shall maintain records of the amount of water diverted and used to enable the State Water Board to determine the amount of water that has been applied to beneficial use pursuant to Water Code Section 1605.

(0000015)

H. No work shall commence and no water shall be diverted, stored or used under this permit until a copy of a stream or lake alteration agreement between the State Department of Fish and Game and the permittee is filed with the Division of Water Rights. Compliance with the terms and conditions of the agreement is the responsibility of the permittee. If a stream or lake agreement is not necessary for this permitted project, the permittee shall provide the Division of Water Rights a copy of a waiver signed by the State Department of Fish and Game.

(0000063)

This permit is issued and permittee takes it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

STATE WATER RESOURCES CONTROL BOARD

James W. Kassel
for *Victoria A. Whitney, Chief*
Division of Water Rights

Dated: APR 2 2 2009

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

In the Matter of Permit 7032 (Application 11518)
Rancho California Water District

ORDER APPROVING CHANGES IN PURPOSE OF USE, PLACE OF USE, POINTS OF REDIVERSION AND DENYING EXTENSION OF TIME AND AMENDING THE PERMIT

SOURCE: Temecula Creek

COUNTY: Riverside

WHEREAS:

1. Permit 7032 was issued to Vail Company on February 18, 1948, pursuant to Application 11518 and subsequently assigned to Rancho California Water District (District) on June 1, 1965.

2. A petition to change the purpose of use by adding municipal and industrial uses and to change the place of use to the District's total service area of 96,000 acres and add 13 additional points of rediversion for water discharged from Vail Dam, placed in underground storage and subsequently rediverted from underground storage was filed with the State Water Resources Control Board (State Water Board) on January 19, 1993. Public notice of the change was issued on February 9, 1993 and the petition was re-noticed on March 11, 1993. Protest issues have been resolved. Protest resolution is contingent on an Agreement between Camp Pendleton and the District, which resulted in additional permit conditions. Resolution of the U.S. Fish and Wildlife Service protest resulted in a mitigation monitoring program.

3. On October 30, 2008, the District submitted an engineered map showing the locations of 12 points of rediversion located within the alluvium of Temecula Creek. This Order is based on the 12 mapped points of rediversion, and does not include any facilities requested in the petition, but not shown on the map.

4. The State Water Board has determined that good cause for such change has been shown.

5. The State Water Board has determined that the petition for change does not constitute the initiation of a new right nor operate to the injury of any other lawful user of water.

6. On March 2, 1990, the District filed a petition for a two-year extension of time. Public notice of the extension request was issued on April 10, 1990 and no protests were filed. The District did not prepare a California Environmental Quality Act (CEQA) document for the time extension. Consequently, no further action will be taken on this petition.

7. The permit conditions relating to the continuing authority and water quality objectives of the State Water Board should be updated to conform to section 780(a & b), title 23 of the California Code of Regulations.

8. Environmental review began on January 19, 1993. The District issued an Initial Study and Negative Declaration titled "Rancho California Water District's Petition for Change to Appropriation Permit No. 7032", dated November 9, 1992. The Negative Declaration did not identify any mitigation measures. The District filed a Notice of Determination (NOD) with the Office of Planning & Research on December 17, 1992 and also filed the NOD with the County Clerk on December 16, 1992.

   The Division reviewed the Negative Declaration and will issue an NOD within five days of approval of the petition.

9. On April 13, 1994, the Superior Court, County of Riverside, found the Negative Declaration to be in compliance with CEQA. (*United States of America v. Rancho California Water District, et al.*, Statement of Decision, Super. Ct. Riverside County, No. 229096.)

10. Fish, wildlife, and plant species have been or may be listed under the federal Endangered Species Act and/or the California Endangered Species Act. A condition should be placed in the permit making the permittee aware of possible obligations resulting from these acts.

11. A term has been added to require measurement of water diverted under the permit to comply with Water Code section 1605.

NOW, THEREFORE, IT IS ORDERED THAT PERMIT 7032 IS AMENDED TO READ:

1. The authorized purposes of use are amended to include municipal and industrial uses.

2. The place of use is revised to the following:

   Within the service area of the Rancho California Water District as shown on map dated October 28, 2008, being within Township 7 South, Ranges 1 through 5 West and Township 8 South, Ranges 1 through 5 West, SBB&M.

3. The points of rediversion are amended to the following. All locations are by California Coordinate System of 1983, Zone 6:

   Well 109: North 2,119,301 feet and East 6,302,006 feet, being within the NW ¼ of NE ¼ of Section 17, T8S, R2W, SBB&M

   Well 110: North 2,127,229 feet and East 6,327,062 feet, being within the SE ¼ of SW ¼ of Section 6, T8S, R1W, SBB&M

   Well 123: North 2,126,263 feet and East 6,327,098 feet, being within the NW ¼ of NE ¼ of Section 7, T8S, R1W, SBB&M

   Well 132 - North 2,125,460 feet and East 6,324,873 feet, being within the NW ¼ of NW ¼ of Section 7, T8S, R1W, SBB&M

   Well 152: North 2,127,958 feet and East 6,330,419 feet, being within the SE ¼ of SW ¼ of Section 5, T8S, R1W, SBB&M

Well 153: North 2,127,045 feet and East 6,328,733 feet, being within the NW ¼ of NW ¼ of Section 8, T8S, R1W, SBB&M

Well 157: North 2,127,584 feet and East 6,330,387 feet, being within the SE ¼ of SW ¼ of Section 5, T8S, R1W, SBB&M

Well 158: North 2,127,243 feet and East 6,331,792 feet, being within the SW ¼ of SE ¼ of Section 5, T8S, R1W, SBB&M

Well 210: North 2,124,427 feet and East 6,323,044 feet, being within the NE ¼ of SE ¼ of Section 12, T8S, R2W, SBB&M

Well 232: North 2,124,851 feet and East 6,317,628 feet, being within the SW ¼ of NE ¼ of Section 11, T8S, R2W, SBB&M

Well 233: North 2,124,243 feet and East 6,321,874 feet, being within the NW ¼ of SE ¼ of Section 12, T8S, R2W, SBB&M

Well 234: North 2,123,464 feet and East 6,314,906 feet, being within the SW ¼ of SE ¼ of Section 11, T8S, R2W, SBB&M.

4. The permit is amended to require the following flows at USGS Gage No. 11044000 on the Santa Margarita River near Temecula, aka "the Gorge":

Table 1

Month	Critically Dry Flow cfs	Below Normal Flow cfs	Above Normal Flow cfs	Very Wet Flow cfs
January to April	4.5	8.0	17.8	24.1
May	3.8	5.7	11.7	15.7
June	3.3	4.9	9.4	12.2
July	3.0	4.3	7.8	9.7
August	3.0	4.4	7.6	9.2
September	3.0	4.1	7.4	9.4
October	3.0	3.9	7.7	10.1
November	3.0	4.5	8.8	11.5
December	3.3	5.3	10.4	13.5

(a) The hydrologic conditions described in Table 1 are derived from a hydrologic index combining the October through April natural streamflow at Murrieta Creek gage, and the October through April natural streamflow at Vail Lake. Natural flow at Murrieta Creek is calculated using the rainfall/runoff relationship between rainfall at Wildomar and the HSPF natural flow at Murrieta Creek. Natural flow at Vail Lake is calculated using the runoff correlation between Aguanga streamflow and inflow to Vail Lake during the period water years 1958 to 1996.

(b) On May 1st of each year the October through April rainfall at Wildomar is used to estimate natural flow at Murrieta, and the October through April measured streamflow at Aguanga is used to estimate natural flow at Vail Lake. The Technical Advisory Committee, which

includes the Watermaster, adjusts for antecedent conditions and calculates the hydrologic index based on these input parameters. Once the hydrologic condition is determined, Table 1 is used to prescribe the flows at the Gorge.

(c) The winter period includes the months of January through April. During the period January 1 through April 30, minimum daily flow requirements at the Gorge are: 11.5 cfs for very wet and above normal conditions; 8.0 cfs for below normal conditions; and 4.5 cfs for critically dry conditions. The District shall provide whatever make-up water is needed to meet this requirement. On May 1st, the hydrologic condition for the immediately preceding October – April period shall be determined. Such condition, and the minimum daily flow requirements set forth for the January 1 through April 30 period shall be used to determine the actual flow requirement for the prior winter period and whether this requirement was exceeded. The minimum daily flow requirement for each period shall be 11.5 cfs (or applicable value based on water year type), less any credit unused in a previous year, and less any credit established by the May 1st accounting of the prior year.

(d) The non-winter period includes the remaining months of May through December. Minimum daily flow requirements at the Gorge, calculated on a 10-day running average, for the non-winter months are provided by Table 1, based upon the particular hydrologic condition established on May 1st for the prior October – April period; provided that the 10-day average shall begin on the 11th day of each month. The District shall provide whatever make-up water is required to meet these monthly requirements.

(e) Notwithstanding any provision to the contrary, the District shall not be required to provide more than the equivalent of 11.5 cfs make-up water for any month.

(f) When the District is required to provide make-up water in any calendar year in excess of 4,000 acre-feet, measured at the Gorge, it shall be entitled to a credit for the excess, taking into account transmission losses, to be applied during the following two winter periods. The United States shall have the option of eliminating the District's credit by the United States, or its designee, paying the District a cash amount equal to the Metropolitan Water District of Southern California's then current price for untreated water.

(g) Notwithstanding any provision to the contrary, the District guarantees that flows, based upon a 10 day running average, shall at no time be less than 3.0 cfs.

Compliance with the requirements of (c) through (g) shall be based upon actual flow measurements as recorded by the USGS gage at the Gorge. Any losses of makeup water incurred between the point of discharge by the Permittee and the Gorge shall be borne by the Permittee. Makeup water which the Permittee may be required to release at the Gorge in order to comply with the requirements of (c) through (g) may be supplied at the Permittee's option from: (1) its wells upstream of the Gorge; (2) flows discharged to the stream from the Santa Rosa Water Reclamation Facility subject to the provisions of a future NPDES permit; (3) deliveries from its domestic water system; (4) deliveries of imported water from the Metropolitan Water District of Southern California; (5) or Vail Reservoir. With the consent of Camp Pendleton, the Permittee may substitute treated water by exchange or direct delivery to Camp Pendleton for flow at the Gorge.

Makeup water that the Permittee releases to the stream shall meet all requirements of the California Water Quality Control Board, San Diego Region, and shall not cause a violation of any rule, regulation, standard or objective established by federal, state, or local enforcement agencies, including but not limited to the federal and state Safe Drinking Water Acts.

Upon petition for change, this permit condition may be amended provided that the U.S. Marine

Corps Base at Camp Pendleton and U.S. Bureau of Land Management have opportunity to review the petition for change and comment or protest thereon. Any petition for change must document that the Permittee has provided measures equally or more protective than the existing condition of: (a) any valid water rights of the Unites States and (b) public trust resource needs.

5. Within six months of the issuance of this Order, the Permittee shall submit a Compliance and Monitoring Plan for approval by the Chief of the Division of Water Rights that will demonstrate compliance with the flow requirements at the Gorge specified in this permit. The U.S. Fish and Wildlife Service shall be timely provided with a copy of the plan and shall have opportunity to comment on the plan prior to approval of the plan by the Division. The Compliance and Monitoring Plan shall include the following:

   a) A description of the physical facilities (i.e., outlet pipes, siphons, pipelines, bypass ditches, splitter boxes etc.) that will be constructed or have been constructed at the project site and will be used to bypass flow.

   b) A description of the gages and monitoring devices that will be installed or have been installed to measure stream flow at Vail Reservoir and at the Gorge, reservoir storage capacity, releases to underground storage and diversions from underground storage. The plan shall also describe the data collection locations and frequency of data collection and analysis for purposes of determining that project operation does not adversely impact water quality, prior rights, listed threatened or endangered species and riparian habitat from Vail Reservoir to the Gorge. Data reported by Camp Pendleton for areas downstream of the Gorge may substitute for data from Vail Reservoir to the Gorge, provided that appropriate data correlation is made.

   c) A time schedule for the installation of these facilities.

   d) A description of the frequency of data collection and the methods for recording bypass flows and storage levels.

   e) An operation and maintenance plan that will be used to maintain all facilities in good condition.

   f) Permittee may substitute data collection and/or data analysis by the Watermaster or Camp Pendleton for self-reported data and/or data analysis, provided that the Permittee provides information obtained from the Watermaster and Camp Pendleton to the Division as specified below.

   The Permittee shall be responsible for all costs associated with developing the Compliance and Monitoring Plan, and installing and maintaining all flow bypass and monitoring facilities described in the Compliance and Monitoring Plan.

   The monitoring data shall be maintained by the permittee for ten years from the date of collection and made available to the Chief of the Division of Water Rights, upon request.

   Any non-compliance with the terms of the permit shall be reported by the permittee promptly to the Chief of the Division of Water Rights.

   Six months from the date of issuance of this Order, diversion and use of water without prior approval of the Compliance and Monitoring Plan and the installation of facilities specified in the Compliance and Monitoring Plan is not authorized.

(0000070)

6. The continuing authority condition shall be updated to read as follows:

Pursuant to California Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of which may include but not necessarily be limited to: (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirement for the authorized project. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by the permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution article X, section 2; is consistent with the public interest and is necessary to preserve or restore the uses protected by the public trust.

(0000012)

7. The water quality objectives condition shall be updated to read as follows:

The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Board if, after notice to the permittee and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the State Water Board finds that: (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(0000013)

8. Permit 7032 is amended to include the following Endangered Species condition:

This permit does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this water right, the permittee shall obtain authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

(0000014)

9. Permittee shall maintain records of the amount of water diverted and used to enable the State Water Board to determine the amount of water that has been applied to beneficial use pursuant to Water Code section 1605.

(0000015)

10. If it is determined after permit issuance that the as-built conditions of the project are not correctly represented by the map(s) prepared to accompany the application, permittee shall, at his expense have the subject map(s) updated or replaced with equivalent as-built map(s). Said revision(s) or new map(s) shall be prepared by a civil engineer or land surveyor registered or licensed in the State of California and shall meet the requirements prescribed in section 715 and sections 717 through 723 of the California Code of Regulations, Title 23. Said revision(s) or map(s) shall be furnished upon request of the Chief, Division of Water Rights.

(0000030)

11. For the protection of fish and wildlife and instream uses, Permittee shall bypass the streamflows noted in the flow bypass condition of this permit at USGS Gage No. 11044000 on the Santa Margarita River near Temecula. In the event that said gage is no longer available for streamflow measurements, Permittee (or successors-in-interest) is responsible for installing and maintaining an equivalent gage, satisfactory to the Chief, Division of Water Rights, as near as practicable to the present location of USGS Gage No. 11044000 on the Santa Margarita River near Temecula. In the absence of such an equivalent gage, all diversions must cease. These requirements shall remain in force as long as water is being diverted by Permittee (or successors-in-interest) under any permit or license issued pursuant to Application 11518.

(0000204)

12. Diversion of water under this permit shall be subject to regulation by the watermaster appointed to enforce the terms of the Stipulated Judgment in the case of *Rancho Santa Margarita v. Vail*, San Diego Superior Court Action No. 42850 and the Judgment in the case of *United States v. Fallbrook Public Utility District*, Civ. No. 1247, S.D. Cal.

(000000N)

13. All other conditions of Permit 7032 are still applicable.

14. An amended Permit 7032 shall be issued.

STATE WATER RESOURCES CONTROL BOARD

James W. Kassel
for *Victoria A. Whitney, Chief*
Division of Water Rights

Dated: APR 2 2 2009

FILE IN DUPLICATE

[For full information concerning the filing out of this form refer to Regulation 4 of Rules and Regulations Governing the Appropriation of Water]

STATE OF CALIFORNIA—DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES
STATE ENGINEER

Amended & completed
Application No. 11518 Filed August 16, 1946 at 8:37 A.M.
(Applicant must not fill in the above blanks)
June 17, 1947 Amended Application Received

APPLICATION TO APPROPRIATE UNAPPROPRIATED WATER

This application involves in no way the right to construct a dam

I, VAIL COMPANY (See Supplement No. 1)
Name of applicant

of Los Angeles County of Los Angeles
Post office

State of California, do hereby make application for a permit to appropriate the following described unappropriated waters of the State of California, *SUBJECT TO EXISTING RIGHTS:*

Source, Amount, Use and Location of Diversion Works

1. **The source** of the proposed appropriation is Temecula Creek
Give name of stream, lake, etc., if named; if unnamed state nature of source and that it is unnamed

located in Riverside County, tributary to Santa Margarita River

2. **The amount of water** which applicant desires to appropriate under this application is as follows:

(*a*) For diversion to be directly applied to beneficial use without storage _____ cubic feet per second, to be diverted from _____ to _____ of each season.
1 cubic foot per second equals 40 statute miner's inches or 646,317 gallons per day
Beginning date each season — Closing date each season

(*b*) For diversion to be stored temporarily and later applied to beneficial use 40,000 acre-feet per annum, to be collected between November 1st and April 30th of each season.
1 acre-foot equals 325,851 gallons
Beginning date each season — Closing date each season

NOTE.—Answer (*a*) or (*b*) or both (*a*) and (*b*) as may be necessary. The amounts stated must be in definite terms of some established unit of measurement. Neither these amounts nor the season may be increased after application is filed.

3. **The use** to which the water is to be applied is Irrigation and Domestic
Domestic, irrigation, power, municipal, mining, industrial, recreational
purposes.

4. **The point of diversion** is to be located At Vail dam site, head of Nigger Canyon in the Pauba Ranch, a Mexican Grant,
State bearing and distance or coordinate distances to section or quarter section corner
bearing N. 46° 41' W. 14,025 feet from a granite monument marked "P.R.5" of Pauba Survey. (See Supplement No. 2)
being within the NW¼ of NW¼ of
State 40-acre subdivision of U. S. Government survey or projection thereof
of Section 10, Tp. 8 S, R. 1 W, S.B.B.& M., in the County of Riverside

5. **The main conduit** terminates in SW¼ of SW¼ & SW¼ of NE¼ of Sec. 20, of Sec. 17, Tp. 8 S, R. 2 W, SBB& M.
State 40-acre subdivision of U. S. Government survey or projection thereof

Description of Diversion Works

NOTE.—An application can not be approved for an amount grossly in excess of the estimated capacity of the diversion works.

6. **Intake or Headworks** (fill only those blanks which apply)

(*a*) Re-Diversion will be made by pumping: Capacity of 4 plant 8100 gallons per minute. (See Supp. #3)

(*b*) Diversion from stream will be by gravity, the diverting dam being 110 feet in height (stream bed to level of overflow); 440 feet long on top; and constructed of concrete
Concrete, earth, brush, etc.

(*c*) The storage dam will be 110 feet in height (stream bed to overflow level); 440 feet long on top; have a freeboard of 5 feet, and be constructed of concrete
Concrete, earth, etc.

7. **Storage Reservoir** Vail Reservoir
Name

The storage reservoir will flood lands in Pauba Rancho-per map. / Sections 10, 11, 14 & 15, Tp. 8 S, R 1 W (Projected)
Indicate section or sections, also 40-acre subdivisions unless shown upon map

It will have a surface area of 958 acres, and a capacity of 41,140 acre-feet.

☞ In case of insufficient space for answers in form, attach extra sheets at top of page 3 and cross reference.

FORM 1

Pauba Valley Underground Reservoir. (See Supplement No. 4)

8. **Conduit System** (describe main conduits only)

(*a*) Canal, ditch, flume: Width on top (at water line) _____ feet; width at bottom _____
Cross out two not used

feet; depth of water _____ feet; length _____ feet; grade _____ feet per 1,000 feet; materials

of construction _____
Earth, rock, timber, etc.

See Supplement No. 3

(*b*) Pipe line: Diameter _____ inches; length _____ feet; grade _____ feet per

1,000 feet; total fall from intake to outlet _____ feet; kind _____
Riveted steel, cement, wood-stave, etc.

NOTE.—If a combination of different sizes or kinds of conduit is to be used, attach extra sheets with complete description, also show location of each clearly on map.

9. **The estimated capacity** of the diversion works proposed is 20 Cubic feet per second
State cubic feet per second or gallons per minute

The estimated cost of the diversion works proposed is $1,013,000
Give only cost of intake, or headworks, pumps, storage reservoirs and main conduits described herein

Completion Schedule

10. **Construction work** will begin on or before October 1, 1947

Construction work will be completed on or before October 1, 1948

The water will be completely applied to the proposed use on or before May 1, 1949

Description of Proposed Use

11. **Place of Use.** 3797 acres in Pauba Ranch in Sections 5, 6, 7 & 18,
State 40-acre subdivisions of the public land survey. If area is unsurveyed indicate the location as if lines of the public land

Tp. 8 S, R 1 W; in Sections 1,10,11,12,13,14,15,16,17,18,19,20,21,28,
survey were projected. In the case of irrigation use state the number of acres to be irrigated in each 40-acre tract, if space permits. If space does not permit listing of all

and 29 Tp. 8 S. R2W; in Sections 13 and 24 Tp. 8S, R3W as shown on map filed with
40-acre tracts, describe area in a general way and show detail upon map. These blanks need not be filled in when municipal use is proposed.

State Engineer.

Does applicant own the land whereon use of water will be made? Yes
Yes or No

If applicant does not own land whereon use of water will be made, state what arrangements have been made with owner.

12. **Domestic Use.** Domestic use is proposed as follows: Incidental to farming operations
Describe nature of use which may include stock water and the irrigation of domestic

gardens not exceeding one-half acre with each place of residence. State number and kind of stock to be watered, number of houses and people to be served.

The amount for which application is made was determined by _____
Describe basis of quantity needed

13. **Irrigation Use.** The area to be irrigated is 3797 acres acres.
State net acreage to be irrigated

The segregation of acreage as to crops is as follows: Rice _____ acres; alfalfa _____ acres;

orchard _____ acres; general crops _____ acres; pasture _____ acres.

NOTE.—Care should be taken that the various statements as to acreage are consistent with each other, with the statement in Paragraph 11, and with the map.

The irrigation season will begin about May 1st and end about October 31st
Beginning date each season — Closing date each season

The land to be irrigated has another / no other water right or source of water supply other than that herein applied for. The nature

and amount of the additional supply referred to is _____

14. **Power Use.** The total fall to be utilized is _____ feet.
Difference between nozzle or draft tube water level and first free water surface above

The maximum amount of water to be used through the penstock is _____ cubic feet per second.

The maximum theoretical horsepower capable of being generated by the works is _____ horsepower.
Second feet × fall ÷ 8.8

The use to which the power is to be applied is _____
For distribution and sale or private use, etc.

The nature of the works by means of which power is to be developed is _____
Turbine, Pelton wheel, etc.

The size of the nozzle to be used is _____ inches.

The water will / will not be returned to _____ in _____ of
Name stream — State 40-acre subdivision

Sec. _____, Tp. _____ R. _____, _____ M.

DO NOT WRITE IN THIS SPACE

ATTACH EXTRA SHEETS HERE

15. **Municipal Use.** This application is made for the purpose of serving _____
Name city or cities, town or towns. Urban areas only
_____ having a present population of _____

The estimated average daily consumption during the month of maximum use at the end of each five-year period until the full amount applied for is put to beneficial use is as follows:

_____

_____

_____

16. **Mining Use.** The name of the mining property to be served is _____
Name of claim
_____ and the nature of the mines is _____
Gold placer, quartz, etc.

The method of utilizing the water is _____

It is estimated that the ultimate water requirement for this project will be _____
Cubic feet per second, gallons per minute. State basis of estimate

The water will / will not be polluted by chemicals or otherwise _____
Explain nature of pollution, if any

and it will / will not be returned to _____ in _____ of
Name stream State 40-acre subdivision

Sec. _____, Tp. _____, R. _____, _____ M.

17. **Industrial Use.** The nature of the use proposed is _____
Describe nature and method of use

_____

The amount for which application is made was determined by _____
Describe basis of estimate of quantity needed

_____

18. **Recreational Use.** Water will be used for _____
Describe nature and method of use

The amount for which application is made was determined by _____
Describe basis of estimate of quantity needed

_____

General

19. Are the maps as required by the Rules and Regulations filed with Application? Yes (Yes or No). If not, state specifically the time required for filing same _____

20. Does the applicant own the land at the proposed point of diversion? Yes (Yes or No). If not, state what steps have been taken to secure right of access thereto _____

21. What is the name of the post office most used by those living near the proposed point of diversion?

Temecula, Riverside County, California

22. What are the names and addresses of claimants of water from the source of supply below the proposed point of diversion? United States Marine Base, Camp Pendleton, Oceanside, Calif.

Philip Playtor, c/o Walter G. Lincoln, Atty., 742 S. Hill St., Los Angeles, Calif.

Estate of Murray Schloss " " " " " " " "

[SIGNATURE OF APPLICANT] Vail Company
By /s/ Mahlon Vail
Managing Trustee & Attorney-In-Fact
for all other Trustees.

PERMIT No. 7032

This is to certify that the application of which the foregoing is a true and correct copy has been considered and is hereby approved SUBJECT TO VESTED RIGHTS and the following limitations and conditions:

1. The amount of water appropriated shall be limited to the amount which can be beneficially used, and shall not exceed forty thousand (40,000) acre-feet per annum by storage to be collected from about November 1 of each year to about April 30 of the succeeding year.

2. The maximum amount herein stated may be reduced in the license if investigation so warrants.

3. Actual construction work shall begin on or before June 1, 1948 and shall thereafter be prosecuted with reasonable diligence, and if not so commenced and prosecuted this permit may be revoked.

4. Said construction work shall be completed on or before December 1, 1950

5. Complete application of the water to the proposed use shall be made on or before December 1, 1952.

6. Progress reports shall be filed promptly by permittee on forms appropriate to the purpose which will be provided annually by the State Engineer until license is issued.

7. All rights and privileges under this permit including method of diversion, method of use and quantity of water diverted are subject to the continuing authority of the Department acting through the State Engineer in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water, and to prevent unreasonable interference with vested rights.

This permit is issued and permittee takes it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (or the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

Witness my hand and the seal of the Department of Public Works of the State of California this 18th *day of* February 1948

EDWARD HYATT, *State Engineer*

T8566 7-47 5M SPO

Supplement No. 1

Wherever the name Vail Company appears in this application it is used to designate: Mary Vail Wilkinson, Mahlon Vail, Edward N. Vail, Margaret Vail Wise (Formerly Margaret Vail Bell) and Anita M. Vail, trustees doing business as Vail Company under that Indenture of Trust dated December 31, 1912, recorded in Book 371, page 279 of Deeds, Riverside County records, and in Book 5436, page 82, of Deeds, Los Angeles County Records, and as from time to time thereafter amended.

Supplement No. 2

The point of reference is a granite monument marked "P.5", being corner No. 5 on the plat of the Pauba Rancho finally confirmed to Luis Vignes, surveyed in December 1856 and January 1859, approved by J. W. Manderville, U. S. Surveyor General, San Francisco, California. Recorded Patent Book 1, page 45, San Diego County Records, April 21, 1869.

Supplement No. 3

A portion of the water stored in Vail Reservoir will be released into the streambed of Temecula Creek and spread over the wash just below the mouth of Nigger Canyon. This water will be recovered by four pumps marked on maps: "J.K."; "Well 30"; "Cantarini"; and "Lower".

Main conduits are as follows:

21"	diam.	length	15,800	ft.	fall	5.7	ft.	per	1000 ft.
18"	"	"	32,100	"	"	7.5	"	"	1000 ft.
12"	"	"	6,500	"	"	10.	"	"	1000 "
12"	"	"	12,500	"	"	6.4	"	"	1000 "

Total fall from inlet to outlet 330 feet; kind - concrete.

The spreading area for diversions from Vail Reservoir is in S½ of NW¼, and in S½ of Section 5, T8S, R 1 W, S.B.B.& M.

Cantarini Well and Pumping Plant are in SW¼ of SE¼ of Section 17, T8S, R2W, S.B.B.& M. bearing N. 58° 45' E. 10,575 ft. from closing corner S 25 and 30, T8S, R2 and 3W, S.B.B.& M.

Lower Well and Pumping Plant are in SW¼ of SE¼ of Section 18, T8S, R2W, S.B.B.& M. bearing N. 32° 30' E. 6780 ft. from closing corner S 25 and 30, T8S, R2 and 3W, S.B.B.& M.

Well 30 and Pumping Plant are in NE¼ of SE¼ of Section 11, T 8 S, R 2 W, S.B.B.& M. bearing N. 21° E. 11,900 ft. from Pauba Ranch corner No. 2, see Supplement No. 2.

J. K. Well and Pumping Plant are in NE¼ of SE¼ of Section 12, T 8S, R2W, S.B.B.& M. bearing N. 3° 30' E. 5500 ft. from Pauba Ranch corner No. 3, see Supplement No. 2.

Supplement No. 4

Underground storage in Pauba Valley will be located in Sections 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 20, 18, 19, T8S, R2W, and Sections 13 and 24 T8S, R3W, S.B.B.& M. The approximate area is about 3200 acres, and the capacity about 70,000 acre feet.

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

UNITED STATES OF AMERICA
V.
FALLBROOK PUBLIC UTILITY DISTRICT, ET AL

CIVIL NO. 1247-SD-GT-RBB

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September 2010

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WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SECTION 1 - SUMMARY

Section 1 - A summary of the Santa Margarita River Watershed Annual Watermaster Report for the 2008-09 Water Year.

Section 2 - This Annual Watermaster Report is prepared pursuant to Section II of the U. S. District Court Order dated March 13, 1989. The Court has retained jurisdiction over all surface flows of the Santa Margarita River Watershed and all underground waters determined by the Court to be subsurface flow of streams or creeks or which is determined by the Court to add to, support or contribute to the Santa Margarita River stream system. Local vagrant groundwaters that do not support the Santa Margarita River stream system are outside Court jurisdiction.

Section 3 - Surface water flows varied in Water Year 2008-09. Flows for long-term stations on Murrieta Creek at Temecula, the Santa Margarita River near Temecula, and the Santa Margarita River at Ysidora were 91%, 99% and 63% of their long-term averages, respectively. Flows at Temecula Creek near Aguanga were 41% of the long term average. Direct surface diversions to use totaled 986 acre feet compared with 987 acre feet in 2007-08. The total quantity of water in storage in the Watershed on September 30, 2009, was 414,065 acre feet, of which 22,709 acre feet were Santa Margarita River water and 391,356 acre feet were imported water.

Section 4 - Groundwater extractions were 42,258 acre feet compared to 40,608 acre feet in 2007-08 as shown on Table 4.1. Water purveyors pumped 36,697 acre feet and 5,561 acre feet were pumped by other substantial users. Total annual local production including surface diversions for use for the period 2000-2009 is shown on Figure 1.1.

Section 5 - During 2008-09, 86,612 acre feet of net imports were distributed for use within the Santa Margarita River Watershed, as shown Table 5.2. This compares with 89,119 acre feet in 2007-08 and represents a decrease of 2.8 percent. Annual imports for the period 2000-2009 are shown on Figure 1.2 and Table 5.4. Exports of wastewater and native water for use outside the watershed in 2008-09 were 19,069 acre feet. This compares with 19,975 acre feet in 2007-08 and represents a decrease of 4.5 percent.

Section 6 - Water rights during the 1950's and 1960's consisted primarily of riparian and overlying rights. Other rights included appropriative rights and federal reserved rights. More recently, water purveyors in the Watershed have begun exercising groundwater appropriative rights. Except for surface water appropriative rights, water rights generally have not been quantified in the watershed. Perfected appropriative surface water rights on file with the State Water Resources Control Board (SWRCB) amount to 906,892 gallons per day which corresponds to 1.4 cfs or 2.78 acre feet per day of direct diversion rights and 44,313.5 acre feet of active storage rights.

Figure 1.1

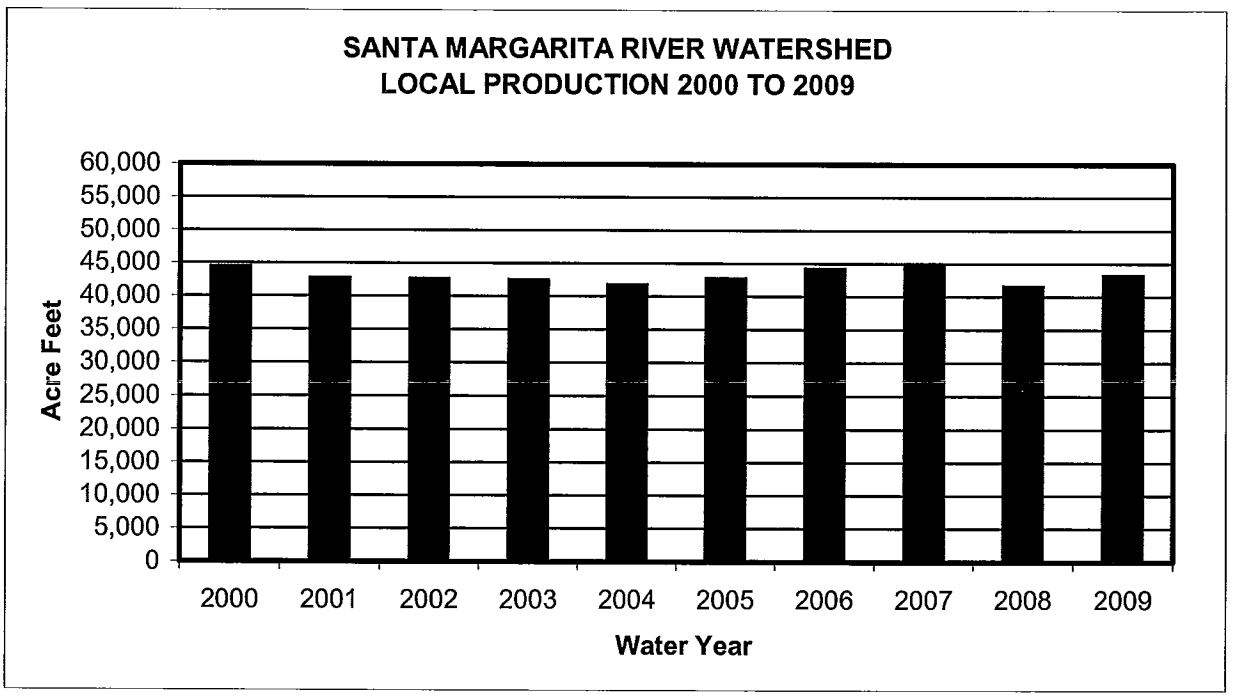
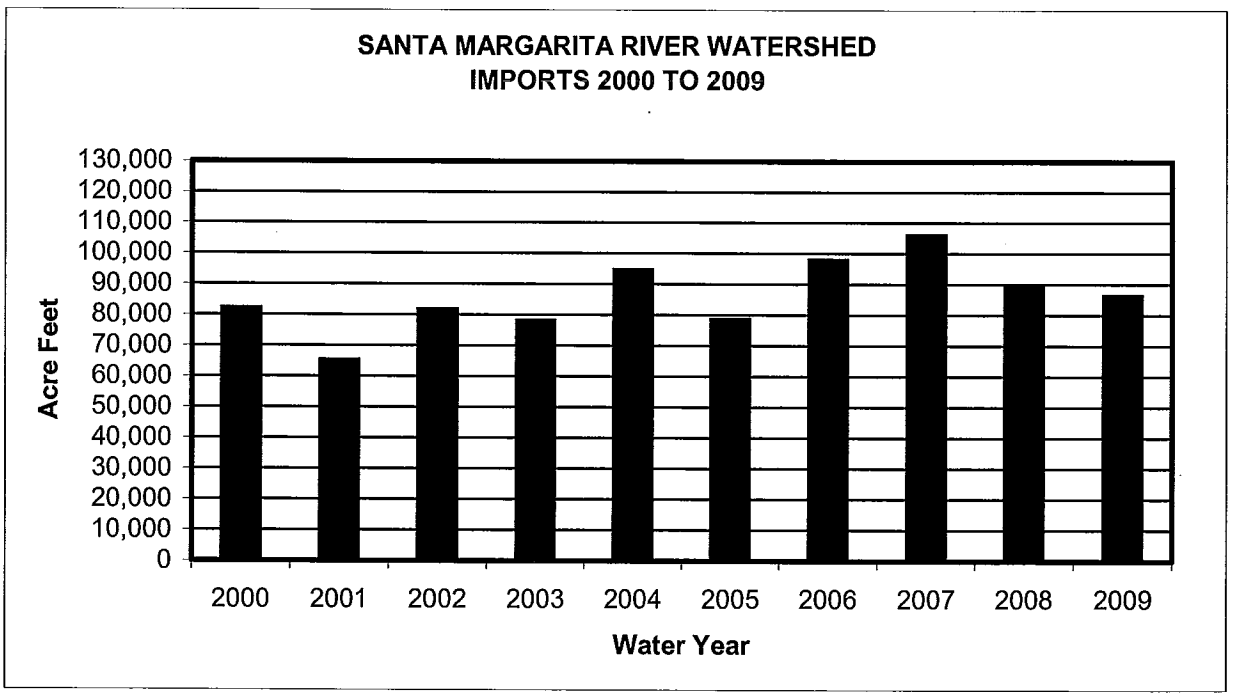


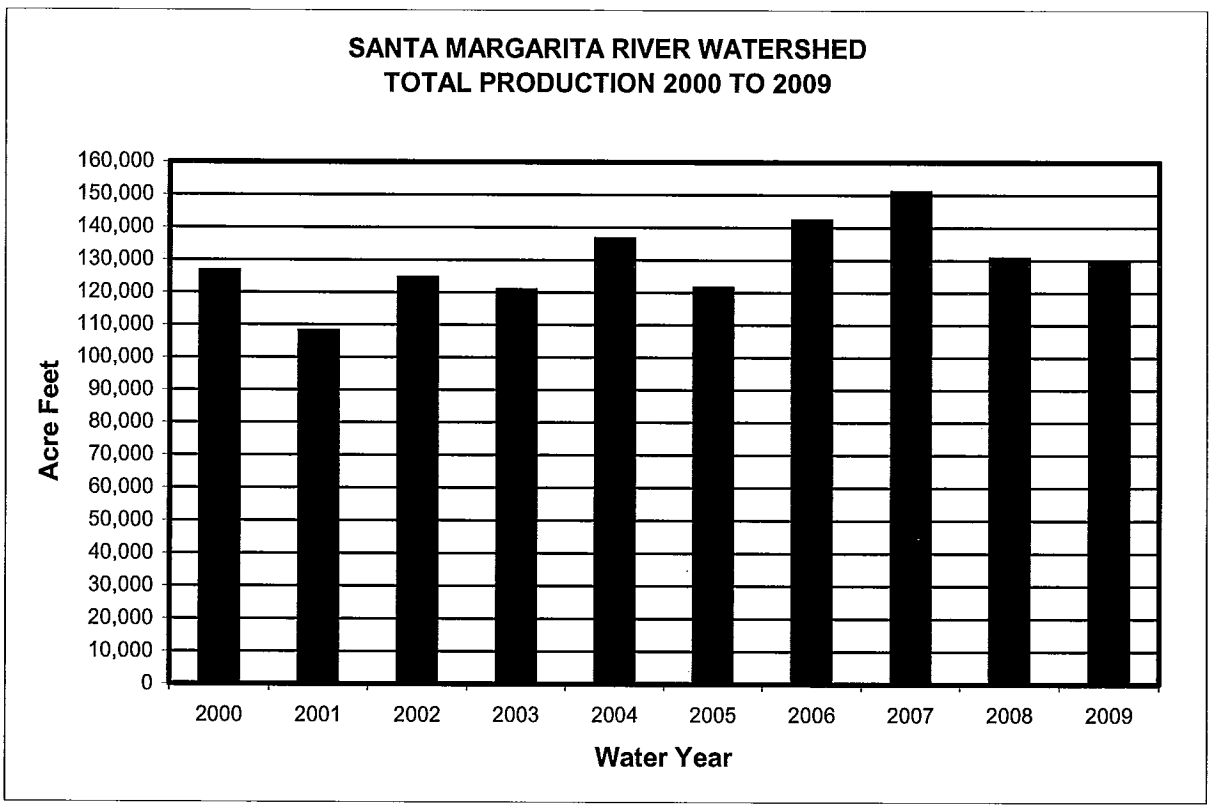
Figure 1.2



Section 7 –Total imported supplies plus local production totaled 129,714 acre feet compared to 130,745 acre feet reported in 2007-08. Of that quantity, 47,095 acre feet were used for agriculture; 7,908 acre feet were used for commercial purposes; 59,303 acre feet were used for domestic purposes; 26 acre feet were discharged to Murrieta Creek; 11 acre feet were discharged to Santa Gertrudis Creek; 5,265 acre feet were discharged by Rancho California WD during 2008-09 pursuant to the Cooperative Water Resources Management Agreement (CWRMA) (3,992 acre feet to the Santa Margarita River from MWD WR-34 and 1,052 acre feet to Murrieta Creek from the System River Meter and 221 acre feet from the potable connection to WR-34 outlet pipe); 3,146 acre feet of fresh water were exported by Camp Pendleton; and 2,357 acre feet were recharged by Rancho California WD to storage. The overall system loss was 4,879 acre feet. System gain or loss is the result of many factors including errors in measurement, differences between periods of use and periods of production, leakage and unmeasured uses. This data are shown on Table 7.1.

Total annual production for the period 2000-2009 is shown on Figure 1.3.

Figure 1.3



Section 8 – Use of water from small storage ponds may be unauthorized. Camp Pendleton has taken the position that exportation of treated wastewater, the source of which is the native waters of the Santa Margarita River system, without legal authority for such exportation, is unauthorized use of water.

Section 9 - Threats to water supply include high nitrate levels in Rainbow Creek and Anza Valley in past years, potential overdraft conditions in the Murrieta-Temecula and Anza groundwater basins, and salt balance issues in the upper Watershed. Additional threats have been recently identified including high concentrations of nitrates, arsenic and fluoride in the Murrieta-Temecula area as well as the discovery of the quagga mussel in imported supplies.

Section 10 – The U. S. Geological Survey (USGS) monitored surface water quality at the Temecula gaging station on the Santa Margarita River.

Groundwater samples from wells were analyzed for water quality by Camp Pendleton, Western MWD - Murrieta Division, Rancho California WD, and the USGS (on Indian Reservations) during 2008-09. The two primary constituents of interest are nitrates and total dissolved solids (TDS). The Basin Plan Objective for TDS of 750 mg/l was exceeded in seven of nine wells at Camp Pendleton. Two wells sampled by Rancho California WD showed concentrations exceeding 750 mg/l, the Basin Plan Objective.

Section 11 - The Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District was approved by the District Court on August 20, 2002. During the 2009 calendar year, Rancho California WD discharged 4,795 acre feet to the Santa Margarita River to meet flow requirements under the Agreement. During 2009, 3,092 acre feet were calculated as input to the groundwater account but the balance was already at the maximum balance of 5,000 acre feet and no additional water was credited to the account.

Section 12 - Projected Watermaster tasks for the next five years are listed.

Section 13 - A total Watermaster budget for the Water Year 2010-11 is proposed to be $566,160. This budget includes $334,630 for the Watermaster Office and $231,525 for operation of gaging stations and groundwater monitoring by the USGS.

SECTION 2 - INTRODUCTION

2.1 Background

On January 25, 1951, the United States of America filed Complaint No. 1247 in the United States District Court for the Southern District of California to seek a judicial determination of all respective water rights within the Santa Margarita River Watershed. The Final Judgment and Decree was entered on May 8, 1963, and appealed to the U. S. Court of Appeals. A Modified Final Judgment and Decree was entered on April 6, 1966. Among other things, the Decree provided that the Court:

> . . . retains continuing jurisdiction of this cause as to the use of all surface waters within the watershed of the Santa Margarita River and all underground or sub-surface waters within the watershed of the Santa Margarita River, which are determined in any of the constituent parts of this Modified Final Judgment to be a part of the sub-surface flow of any specific river or creek, or which are determined in any of the constituent parts of this Modified Final Judgment to add to, contribute to, or support the Santa Margarita River stream system.

In March 1989, the Court issued an Order appointing the Watermaster to administer and enforce the provisions of the Modified Final Judgment and Decree and subsequent orders of the Court. The appointing Order described the Watermaster's powers and duties as well as procedures for funding and operating the Watermaster's office. Also in 1989, the Court appointed a Steering Committee that at the conclusion of 2008-09 was comprised of representatives from the United States, Eastern Municipal Water District, Fallbrook Public Utility District, Metropolitan Water District of Southern California, Pechanga Tribe, Western Municipal Water District, and Rancho California Water District. The purposes of the Steering Committee are to assist the Court, to facilitate litigation, and to assist the Watermaster.

2.2 Authority

Section II of the appointing Order requires that the Watermaster submit a written report containing findings and conclusions to the Court promptly after the end of each water year.

2.3 Scope

The subjects addressed in this report are responsive to Section II of the appointing Order. Information and data contained in this report are based on information reported to the Watermaster by others. Therefore, the Watermaster does not guarantee the completeness and accuracy of the information presented in this report, although most of the data presented are based on measurements. Estimates by the Watermaster are so noted.

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SECTION 3 - SURFACE WATER AVAILABILITY AND USE

3.1 Surface Flow

Over the years, flows in the Santa Margarita River Watershed have been measured at the stations listed on Table 3.1. A number of these stations have been discontinued. During Water Year 2008-09 the USGS operated 13 stations under an agreement with the Watermaster. These include three stations where Riverside County Flood Control and Water Conservation District shares the local costs with the Watermaster. In addition to stream flows, the USGS also measures water elevation and precipitation at Vail Lake.

The USGS also operates several stations in the watershed under contract with Camp Pendleton. These include stream gaging stations on Fallbrook Creek and on the outlet channel and spillway for Lake O'Neill. The USGS also operates a tidal water level recorder on the Santa Margarita River at its mouth.

Monthly flows for stations in Water Year 2008-09 are shown on Table 3.2. Those flows consist of USGS discharge determinations available at the time this report is published. Official USGS discharges for 2008-09 are published by the USGS at the following website: *http://waterdata.usgs.gov/ca/nwis/sw*

In considering the historical record of flow at these stations, it should be recognized that the long term averages include variations in watershed conditions such as level of development, groundwater production, return flows, impoundments and vegetative use as well as hydrologic conditions, changes in gaging station locations and other factors. Descriptions of the various historical locations of gaging stations may be found in the publication, *Water Resources Data - California*, which was published annually by the USGS in hard copy form through Water Year 2003-04. For subsequent years the gaging station descriptions can be found at the website provided above.

TABLE 3.1

SANTA MARGARITA RIVER WATERSHED

STREAM GAGING STATIONS

2008-09

STATION NAME	STATION NO.	AREA SQ MI	RECORDS FROM	PERIOD OF RECORD 1920–2000
Temecula Creek Near Aguanga	11042400	131	USGS	8/57
Wilson Creek Above Vail Lake	11042490	122	USGS	10/89 10/94
Temecula Creek At Vail Dam	11042520	320	USGS	2/23 10/77
Vail Lake at Temecula (Reservoir Storage)	11042510	320	USGS	10/48
Pechanga Creek Near Temecula	11042631	13.8	USGS	10/87
Warm Springs Creek Near Murrieta	11042800	55.4	USGS	10/87
Santa Gertrudis Creek Near Temecula	11042900	90.1	USGS	10/87
Murrieta Creek Near Murrieta	11042700	30	USGS	10/97
Murrieta Creek At Temecula	11043000	222	USGS	10/25
Santa Margarita River Near Temecula	11044000	588	USGS	2/23
Rainbow Creek Near Fallbrook	11044250	10.3	USGS	9/89
Sandia Creek Near Fallbrook	11044350	21.1	USGS	9/89
Santa Margarita River At FPUD Sump 1/	11044300	620	USGS	10/24 9/80 9/89
Santa Margarita River Tributary Near Fallbrook	11044600	0.52	USGS	10/61 9/65
DeLuz Creek Near DeLuz	11044800	33	USGS	10/92
DeLuz Creek Near Fallbrook 2/	11044900	47.5	USGS/ USMC	2/51 77 9/89-9/90 4/02-2/03
Santa Margarita River Near DeLuz Station	11045000	705	USGS	10/24 - 9/26
Fallbrook Creek 3/ Near Fallbrook	11045300	6.97	USGS/ USMC	10/64 9/76 12/88
Santa Margarita River At Ysidora 4/	11046000	723	USGS	3/23
	WATER YEAR ENDING			1920 1930 1940 1950 1960 1970 1980 1990 2000

1/ Period of record includes measurements for Santa Margarita near Fallbrook (#11044500) for period October 1924 to September 1980
2/ Recorded by USMC, Camp Pendleton October 1966 to 1977 3/ Recorded by USMC, Camp Pendleton prior to October 1993
4/ Station temporarily operated as SMR at USMC Diversion Dam near Ysidora #11045050 from February 26, 1999 to September 27, 2001

TABLE 3.2

SANTA MARGARITA RIVER WATERSHED
MEASURED SURFACE WATER FLOW

2008-09
Quantities in Acre Feet

GAGING STATION	DRAINAGE AREA SQ MI	MONTH OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	WATER YEAR TOTAL	ANNUAL AVERAGE THRU 2008	YEARS OF RECORD THRU 2008
Temecula Creek Near Aguanga	131	22	36	448	145	1,080	299	153	60	35	7	7	10	2,302	5,650	51
Pechanga Creek Near Temecula 1/	13.1	0	0	45	0	0	0	0	0	0	0	0	0	45	488	21
Warm Springs Creek Near Murrieta	55.4	0	137	1,170	20	605	14	13	0	0	0	0	0	1,959	3,120	21
Santa Gertrudis Creek Near Temecula	90.2	0	88	577	0	366	0	0	0	0	0	0	0	1,031	2,960	21
Murrieta Creek Near Murrieta 2/	30	0	105	936	1	757	46	3	0	0	0	0	0	1,848	----- 3/ 4,430	----- 8 (1998-2005)
Murrieta Creek At Temecula	222	475	794	4,550	50	3,230	20	7	5	2	1	0	0	9,134	10,086	84
Santa Margarita River Near Temecula	588	480	916	5,780	634	3,800	664	645	224	680	708	241	176	14,948	15,084 20,390	60 (1949-2008) 26 (1923-48)
Rainbow Creek Near Fallbrook	10.3	10	32	622	61	276	49	25	16	12	7	6	4	1,119	2,720	19
Sandia Creek Near Fallbrook	21.1	75	165	704	442	693	446	276	239	171	76	48	42	3,377	7,130	19
Santa Margarita River At FPUD Sump	620	488	1,050	6,330	990	5,470	966	744	463	857	708	271	136	18,473	30,670	19
DeLuz Creek Near DeLuz	33	0	0	358	113	522	182	60	1	0	0	0	0	1,236	9,270	16 (1993-2008)
Santa Margarita River At Ysidora	723	643	467	8,110	889	6,670	1,600	724	345	322	270	42	0	20,082	31,637 4/ 31,390	60 (1949-2008) 26 (1923-48)
Fallbrook Creek Near Fallbrook	6.97	0	5	212	36	118	30	12	3	1	0	0	0	418	1,283 1,462 5/	20 (1989-2008) 12 (1965-76)

1/ In summer 2006 gaging location was moved upstream 0.4 miles from prior location to current location 100 feet upstream of Metropolitan Water District pipe crossing, 0.4 miles upstream of the Rainbow Canyon Road/Old Highway 395 Bridge.
2/ Previously published as Murrieta Creek at Tenaja Road
3/ Continuous record stopped on February 22, 2005 in lieu of bridge installation. Only discharge measurements were taken from February 2005 until September 2007.
4/ Includes record of two years at Santa Margarita River at USMC Diversion Dam near Ysidora station
5/ Includes wastewater flows

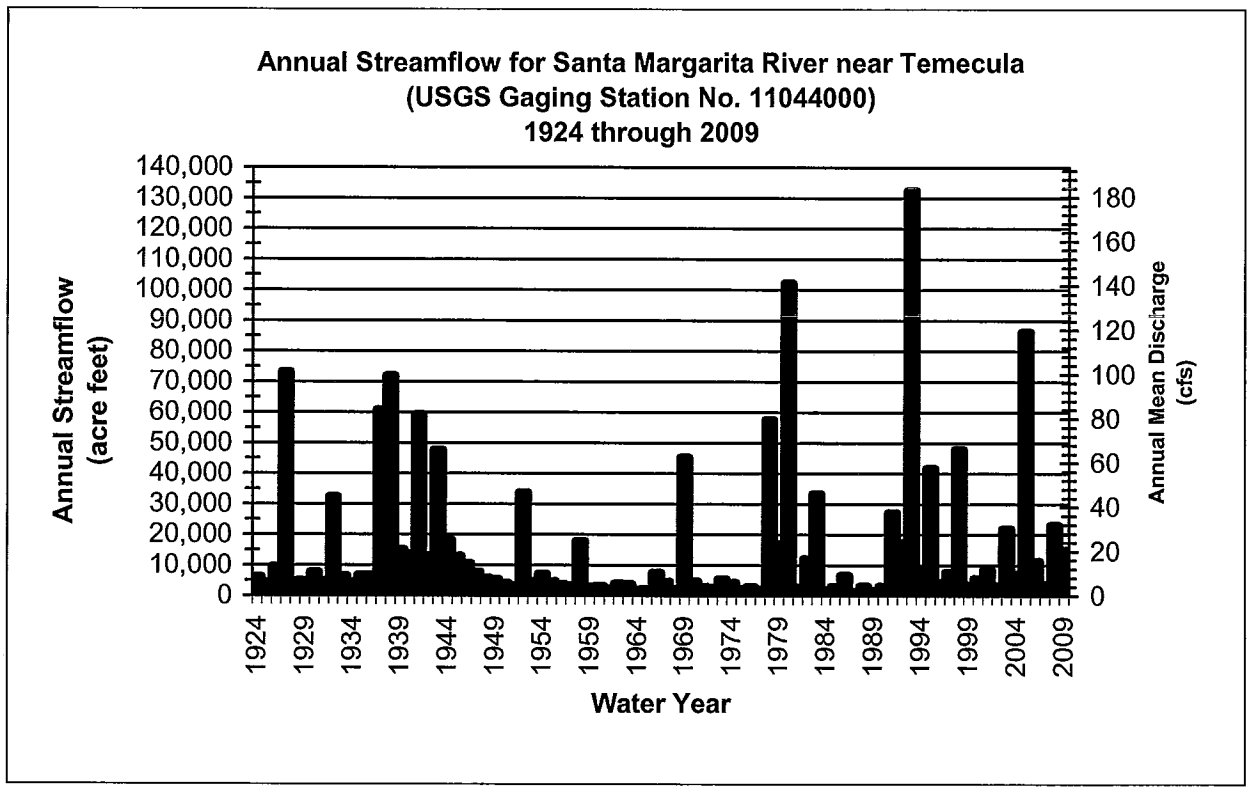
Total flows at four long-term stations for Water Years 2007-08 and 2008-09 are compared with their averages in the tabulation below. Average flows for the Santa Margarita River stations near Temecula and near Ysidora are shown for two periods: before and after Vail Dam was constructed (1923 to 1948, and 1949 to 2006).

	TOTAL FLOW		AVERAGE FLOW
	2007-08 Acre Feet	2008-09 Acre Feet	Through 2008 Acre Feet
Temecula Creek Near Aguanga	4,220	2,302	5,650 (1957-2008)
Murrieta Creek At Temecula	16,713	9,134	10,086 (1925-2008)
Santa Margarita River Near Temecula	23,071	14,948	15,084 (1949-2008) 20,390 (1923-1948)
Santa Margarita River At Ysidora (various locations)	30,966	20,082	31,637 (1949-2008) 31,390 (1923-1948)

The foregoing tabulation indicates the flows for Water Year 2008-09 were varied compared to average flows for the indicated periods through 2008. Flows for long-term stations on Murrieta Creek at Temecula, the Santa Margarita River near Temecula and the Santa Margarita River at Ysidora were 91%, 99% and 63% of their long-term averages, respectively. Flows at Temecula Creek near Aguanga were 41% of the long-term average.

The Santa Margarita River near Temecula station is of particular interest relative to discharge requirements specified in the Cooperative Water Resources Management Agreement (CWRMA) between Camp Pendleton and Rancho California WD, as described in Section 11. The long-term time series for annual streamflow for Santa Margarita River near Temecula is provided on Figure 3.1 showing the 2008-09 flows were in the third quartile and less than the flows for the prior year.

Figure 3.1

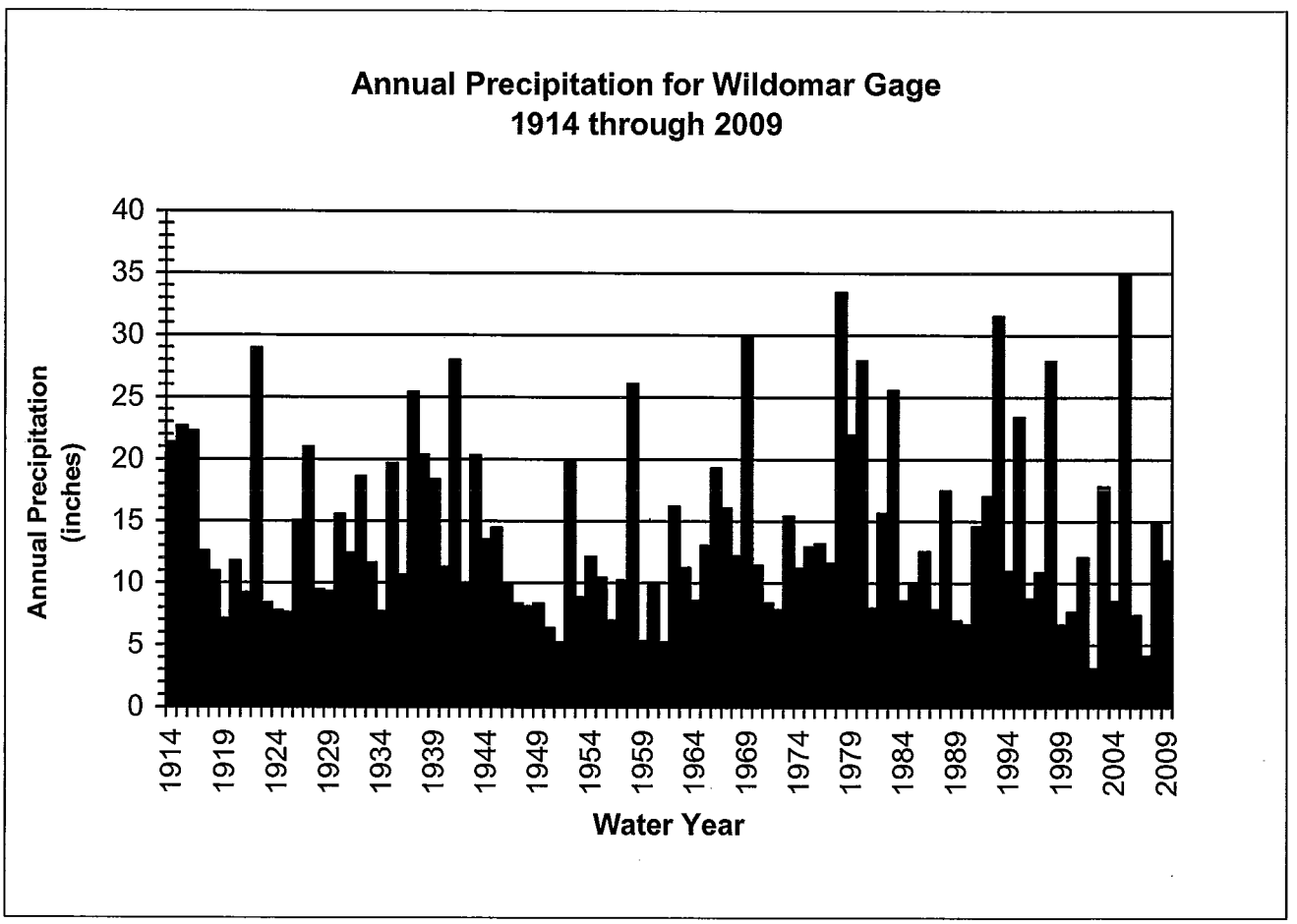


It is also interesting to review long-term precipitation records relative to long-term streamflow. Figure 3.2 shows the long-term time series for annual precipitation for the Wildomar gage maintained by the Riverside County Flood Control and Water Conservation District. The Wildomar gage is specified in the CWRMA for determining water year types in establishing Rancho California WD discharge requirements to meet flows for the Santa Margarita River near Temecula. The long-term average precipitation for the Wildomar Gage for the period 1914 through 2009 is 13.94 inches. The reported precipitation for Water Year 2008-09 is 11.81 inches, which is in the third quartile for the period of record.

Monthly flows shown in Table 3.2 consist primarily of naturally occurring surface runoff, including return flows, except for Rancho California WD discharges into the Santa Margarita River and Murrieta Creek. Most of the Rancho California WD discharges are pursuant to the CWRMA. During Water Year 2008-09 the total CWRMA discharges into the Santa Margarita River and Murrieta Creek equaled 5,265 acre feet.

The discharges into Santa Margarita River totaled 3,992 acre feet from outlet WR-34, located just upstream from the Santa Margarita River near Temecula gaging station. In 2009 Rancho California WD extended a pipeline from its distribution system to discharge at the same location as the outlet WR-34. Discharges from the potable connection to the Santa Margarita River totaled 221 acre feet. Additional discharges into Murrieta Creek occurred during the periods when the pipeline serving WR-34 was shut down or when Rancho California WD elected to discharge from the System River Meter due to quagga mussel concerns as described in Section 9. The discharges to Murrieta Creek totaled 1,052 acre feet from the System River Meter.

Figure 3.2



During 2008-09, Rancho California WD also released 26 acre feet from wells into Murrieta Creek, and 11 acre feet from wells into Santa Gertrudis Creek.

3.2 Surface Water Diversions

Surface diversions to surface water storage and groundwater storage are shown in Table 3.3 for Vail Lake and Table 3.4 for Lake O'Neill. In general, diversions to surface storage at Vail Lake and Lake O'Neill are computed as being equal to inflow less spill, however, diversion to surface storage at Vail Lake excludes inflow during the period from May 1 through October 31 when Permit 7032 does not allow such diversions. Inflow to Vail Lake is calculated as the sum of evaporation, spill, releases and change of storage. Inflow into Vail Lake during the period when diversions are not permitted is released and not credited to groundwater storage.

Direct surface diversions for 2008-09 are shown in Table 3.5. The use is primarily irrigation. Estimated consumptive uses, losses and returns are also shown.

3.3 Water Storage

Major water storage facilities in the Santa Margarita River Watershed are listed on Table 3.6, together with the water in storage on September 30, 2008 and September 30, 2009. Total Santa Margarita River stream system water in storage at the end of Water Year 2008-09 totaled 22,709 acre feet, compared to 25,039 acre feet at the end of the previous year. Imported water in storage in Lake Skinner and Diamond Valley Lake, both operated by Metropolitan Water District of Southern California (MWD), is also shown on Table 3.6.

TABLE 3.3

SANTA MARGARITA RIVER WATERSHED
SURFACE WATER DIVERSIONS TO STORAGE FOR VAIL LAKE
2008-09
Quantities in Acre Feet

	Surface Water Storage		
	2006-07	**2007-08**	**2008-09**
Storage end of prior year	30,300	26,450	24,160
Inflow - Total	1,145	6,664	3,227
Inflow to be Bypassed [1]	209	216	225
Spill	0	0	0
Diversions to Surface Storage [2]	936	6,448	3,002
Annual Evaporation	4,082	3,893	4,006
Releases - Total	913	5,061	1,461
Release to GW Storage [3]	704	4,845	1,236
Change of Storage	(3,850)	(2,290)	(2,240)
Storage End of Year	26,450	24,160	21,920
	Groundwater Storage		
Recharge Release from Vail Lake	704	4,845	1,236 [4]

Data reported by Rancho California WD except end of year storage reported by U. S. Geological Survey
1/ Inflow to be bypassed Oct 1 to Oct 31 and May 1 to Sept 30 in accordance with Permit 7032
2/ Inflow less Spill less Inflow to be Bypassed
3/ Total Release less Inflow to be Bypassed
4/ Includes 929 AF rediverted into Upper VDC recharge basins

TABLE 3.4

SANTA MARGARITA RIVER WATERSHED
SURFACE WATER DIVERSIONS TO STORAGE FOR LAKE O'NEILL
2008-09
Quantities in Acre Feet

	Surface Water Storage		
	2006-07	**2007-08**	**2008-09**
Storage end of prior year	496	615	879
Inflow - Total	1,547 [1]	3,253 [2]	1,730 [3]
Spill	0	0	78
Diversions to Surface Storage	1,547 [4]	3,253 [4]	1,652 [4]
Annual Evaporation	353	394	501
Releases - Total	334	1,510	836
Release to GW Storage	334	1,510	836
Apparent Seepage to GW	741 [5]	1,084 [5]	405 [5]
Change of Storage	(119)	264	(90)
Storage End of Year	615	879	789
	Groundwater Storage		
Recharge Release from Lake O'Neill	1,075 [6]	2,594 [6]	1,241 [6]
Deliveries to Recharge Ponds	3,886	7,788	6,335
Indirect Recharge from Ditch System	1,099	1,330	1,119
TOTAL	6,060	11,712	8,695

1/ 1,230 AF diverted from the Santa Margarita River, 211 estimated inflow from Fallbrook Creek, 44 AF from local runoff, and 62 AF from rainfall on lake surface
2/ 2,047 diverted from the Santa Margarita River, 734 AF estimated inflow from Fallbrook Creek, 322 AF from local runoff, and 150 AF from rainfall on lake surface
3/ 1,065 AF diverted from the Santa Margarita River, 418 AF estimated inflow from Fallbrook Creek, 145 AF from local runoff, and 102 AF from rainfall on lake surface
4/ Inflow less Spill
5/ Includes seepage losses, leakage through flashboards and unaccounted for water
6/ Includes Release to GW Storage and Apparent Seepage to GW from Lake O'Neill

TABLE 3.5

SANTA MARGARITA RIVER WATERSHED
SURFACE WATER DIVERSIONS TO USE
2008-09
Quantities in Acre Feet

DIVERTER	Surface Diversions	Consumptive Use[1]	Consumptive Loss[2]	Return
Blue Bird Ranch	31.5	21.2	3.2	7.1
James Carter	145	97.9	14.5	32.6
Chambers	7	4.7	0.7	1.6
Cal June, Inc.	9	6.1	0.9	2.0
Papac	38	25.7	3.7	8.6
Sage Ranch Nursery	100	67.5	10.0	22.5
Rose Family 1985 Trust	7	4.7	0.7	1.6
Val Verde Partners (Strange)	250	168.8	25.0	56.2
Wilson Creek Dev. LLC	350	236.2	35.0	78.8
Cahuilla Indian Reservation	5.6	3.7	0.7	1.2
San Diego State University	43.1	29.1	4.3	9.7
TOTAL	986.2	665.6	98.7	221.9

[1] Consumptive use equals 75% of Diversions less Losses
[2] Losses equal 10% of Diversions
[3] Returns equal 25% of Diversions less Losses

TABLE 3.6

SANTA MARGARITA RIVER WATERSHED
WATER IN STORAGE
2008-09
Quantities in Acre Feet

Santa Margarita River Storage	Total Capacity 1/	Water in Storage 9/30/2008	Water in Storage 9/30/2009
Dunn Ranch Dam	90	0	0
Upper Chihuahua Creek Reservoir	47	0	0
Vail Lake	49,370	24,160	21,920
Lake O'Neill	1,380	879	789
SUBTOTAL	**50,887**	**25,039**	**22,709**
Imported Water Storage			
Lake Skinner	44,000	37,340	40,085
Diamond Valley Lake	810,000	490,891	351,271
SUBTOTAL	**854,000**	**528,231**	**391,356**
TOTAL STORAGE	**904,887**	**553,270**	**414,065**

1/ Capacity shown is current capacity reported by owner. Original capacity or decreed capacity may not be reflected in this table.

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SECTION 4 - SUBSURFACE WATER AVAILABILITY

4.1 General

Much of the water from the Santa Margarita River stream system is obtained by pumping subsurface water. The Court has identified two basic types of subsurface water in its interlocutory judgments. One type is vagrant, local, percolating waters that do not add to, support or contribute to the Santa Margarita River or its tributaries. Such waters have been determined to be outside the continuing jurisdiction of the Court. These waters are typically found in the basement complex and/or residuum deposits in the Watershed. Wells tapping these deposits typically have low yields.

Other subsurface waters were found by the Court to add to, contribute to and support the Santa Margarita River and/or its tributaries. Aquifers containing such waters have been designated by the Court as younger alluvium and older alluvium. Younger alluvial deposits are commonly exposed along streams and in valleys. Older alluvium may be found underneath younger alluvium and is not limited to areas along stream channels. Older alluvium may or may not be exposed at ground surface. The use of subsurface water found in younger and older alluvium is generally under the continuing jurisdiction of the Court and is reported upon in this report.

4.2 Extractions

Total production of Santa Margarita River water by substantial water users in the Watershed from all sources is listed on Table 4.1 by hydrologic area along with estimated consumptive use and return flows. Recovery of imported water that has been directly recharged is not included in Table 4.1. Substantial water users include water purveyors as well as private irrigators who irrigate eight acres or more or use an equivalent quantity of water.

In 2008-09, production by purveyors totaled 36,697 acre feet, compared to 35,291 acre feet in 2007-08. Monthly quantities are shown in Appendix A and annual production for water years between 1966 and 2009 is shown in Appendix B.

The quantities of subsurface extractions by private irrigators are based on the irrigated acreage and the crop type. These quantities are reported in Appendix C to total 5,561 acre feet in 2008-09. Of the subsurface extractions, 75 percent is estimated to have been consumptively used and 25 percent to have been return flow. Return flow is that portion of the total deliveries that is not consumed. Although return flows average about 25 percent, such flows are affected with the type of use (domestic, commercial and irrigation), the type of irrigation application (drip, micro-sprinkler, furrow), and exports from watersheds.

TABLE 4.1

SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATER PRODUCTION BY SUBSTANTIAL USERS

2008-09

HYDROLOGIC AREA	WATER PURVEYOR PRODUCTION ACRE FEET	OTHER IRRIGATED ACRES *	OTHER IRRIGATION PRODUCTION ACRE FEET *	TOTAL GROUNDWATER PRODUCTION ACRE FEET	SURFACE WATER DIVERSIONS ACRE FEET *	TOTAL PRODUCTION ACRE FEET	ESTIMATED CONSUMPTIVE USE ACRE FEET 1/	ESTIMATED RETURN FLOW ACRE FEET
Wilson Creek **Above Aguanga GWA** Includes Anza Valley	425 *(Lake Riverside, (Anza MWC, Cahuilla)*	398 2/	833	1,258	6	1,264	948	316
Temecula Creek **Above Aguanga GWA**	23 *(Butterfield Oaks MHP)*	297	833	856	38	894	668	226
Aguanga GWA	560 *(Outdoor Resorts) (Jojoba Hills)*	570	1,911	2,471	600	3,071	2,258	813
Upper Murrieta Creek (Warm Springs Creek above 7S/3W-14)	0	0	0	0	0	0	0	0
Lower Murrieta Creek (Santa Gertrudis/Tucalota Creek above 7S/2W-18 -- Includes FPUD Diversion from Lake Skinner)	0	410	43	43	100	143	100	43
Murrieta-Temecula GWA	29,291 *(RCWD **, WMWD (Murrieta Division), EMWD, Pechanga and Hawthorn)*	857	1,327	30,618	145	30,763	23,061	7,702
Santa Margarita River Below the Gorge								
Deluz Creek	0	294	610	610	45	655	488	167
Sandia Creek	0	55	0	0	9	9	6	3
Rainbow Creek	0	0	0	0	0	0	0	0
Santa Margarita River	6,398 *(USMC)*	19	4	6,402	43	6,445	2,471	828
TOTAL	**36,697**	**2,900**	**5,561**	**42,258**	**986** 3/	**43,244**	**30,000**	**10,098**

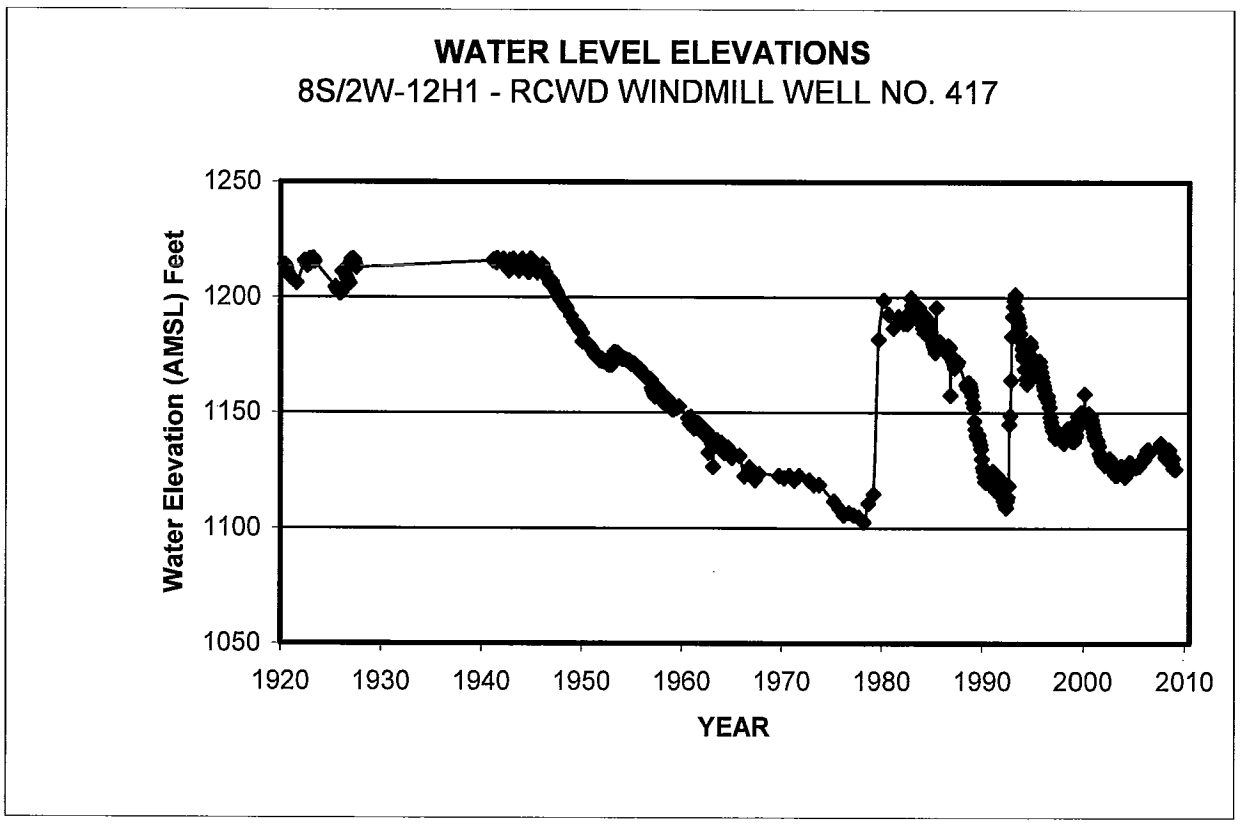
1/ Estimated consumptive use is equal to 75% of Total Groundwater Production plus 75% of Surface Water Diversions less 10% (CU = .75 {GW + .90 * SW}), except for Camp Pendleton where export of 3,146 acre feet is excluded and return flows include any measured wastewater returns to the watershed.
2/ Includes lands overlying deep aquifer in Anza Valley.
3/ Includes surface water diversion for irrigation, commercial and domestic use.
* - Data taken from Appendix C.
** - RCWD pumped an additional 367 AF that was exported to the San Mateo Watershed

4.3 Water Levels

Water levels in selected wells in the Watershed are measured periodically by various entities. Historical water levels in five wells at various locations in the Watershed are shown in this report on Figures 4.1, 4.2, 4.3, 4.4 and 4.5.

Figure 4.1 shows water levels in Well No. 8S/2W-12H1 (Windmill Well) located in the Rancho California WD service area downstream from Vail Lake. Note the extended drawdown from 1945 to 1978, the major recoveries during the wet years in 1980 and 1993, and the effect of relatively dry years after 1980 and after 1993. Water levels declined 5.5 feet between September 30, 2008 and September 30, 2009. It should be noted that the Windmill Well is located in Pauba Valley about 1.5 miles downslope from the Valle de los Caballos (VDC) recharge area, where releases from Vail Lake as well as imported water are recharged. In Water Year 2008-09, 14,828 acre feet of imported water were recharged in the VDC of which 84 percent was recovered in the same year.

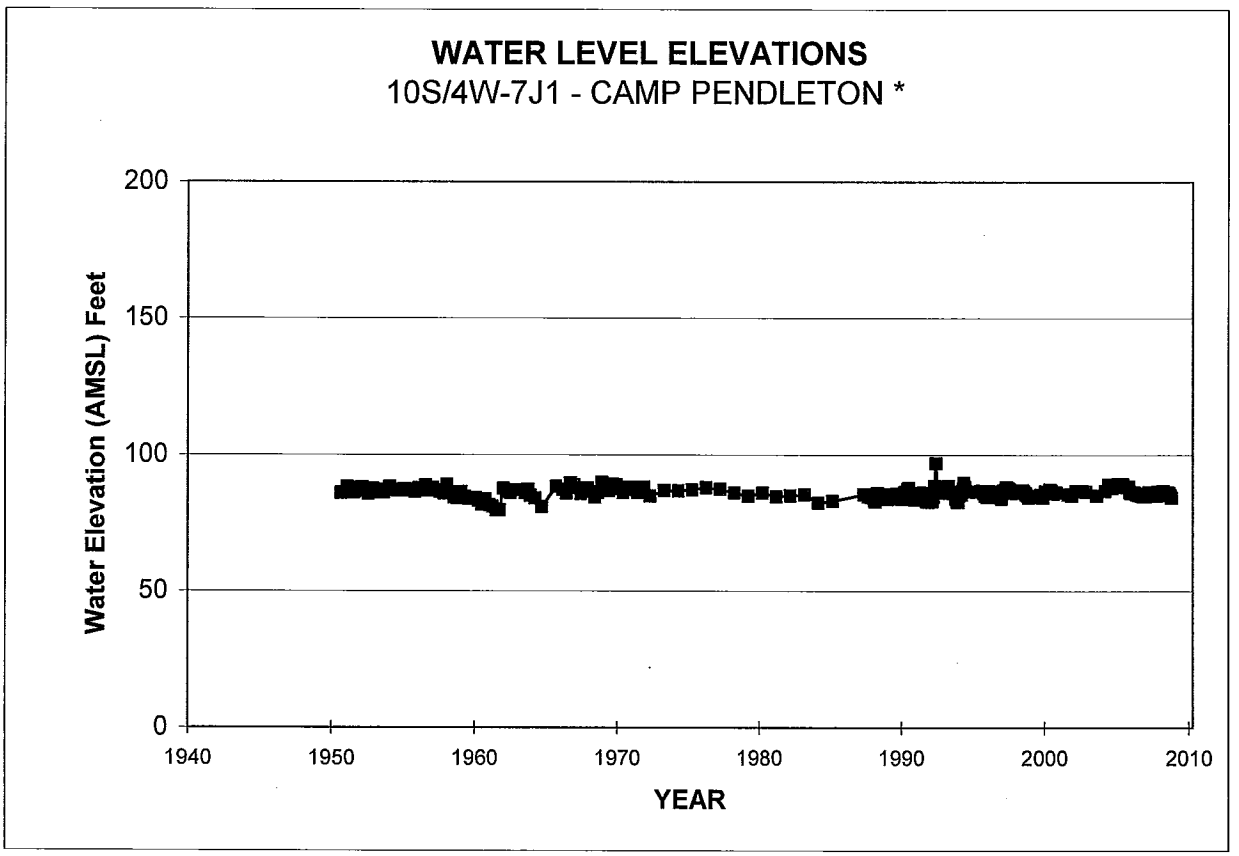
FIGURE 4.1



Collar El. 1216.7 Feet; Depth 515 Feet; Drilled in Alluvium
Ref: RCWD reports (1920-2009)

Figure 4.2 shows water levels at Camp Pendleton in Well No. 10S/4W-7J1 (previously referred to as 10S/4W-7J4) a monitoring well located in the Upper Sub-basin. Fluctuations in recent years illustrate recharge during the winter months and drawdown each summer, with the water levels generally between 82 and 90 feet in elevation. Water levels in Well 7J1 declined 0.8 feet in the period between September 2008 and September 2009.

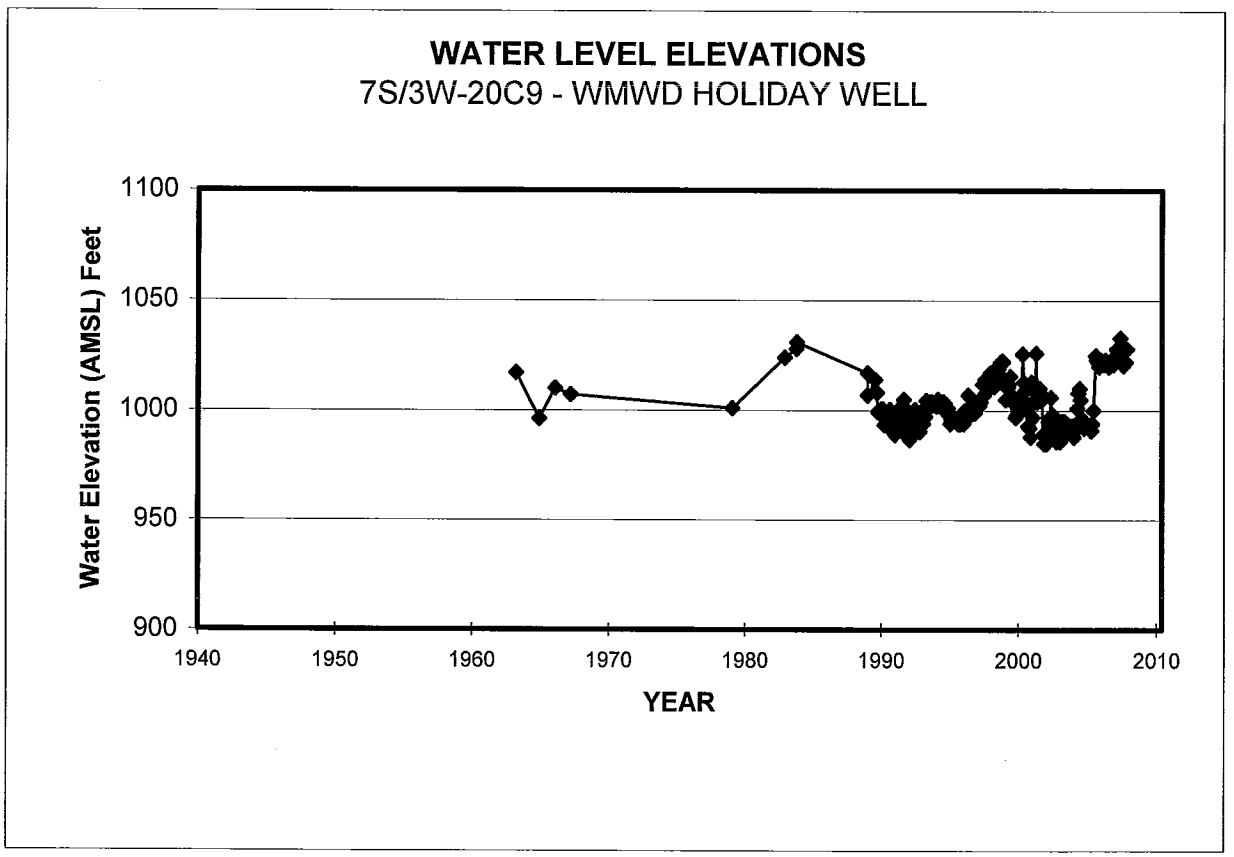
FIGURE 4.2



Ground El. 92 Feet; Depth 141 Feet; Perf. Unknown; Drilled in Alluvium
Camp Pendleton Records (1950-72) (1988-2009); Leeds Hill Study (1973-85) Dates Estimated
* Well previously referred to as 10S/4W-7J4

Figure 4.3 shows water levels from Holiday Well No. 7S/3W-20C9 in the Murrieta Division service area of Western Municipal Water District. The Holiday Well was used as a production well until February 2006 but now is used only as a monitoring well. Water levels in this well declined by 6 feet between September 30, 2008 and August 31, 2009. Water levels in the Lynch Well, 7S/3W-17R2, which serves as a monitoring well and had no production in 2008-09, rose by 3 feet.

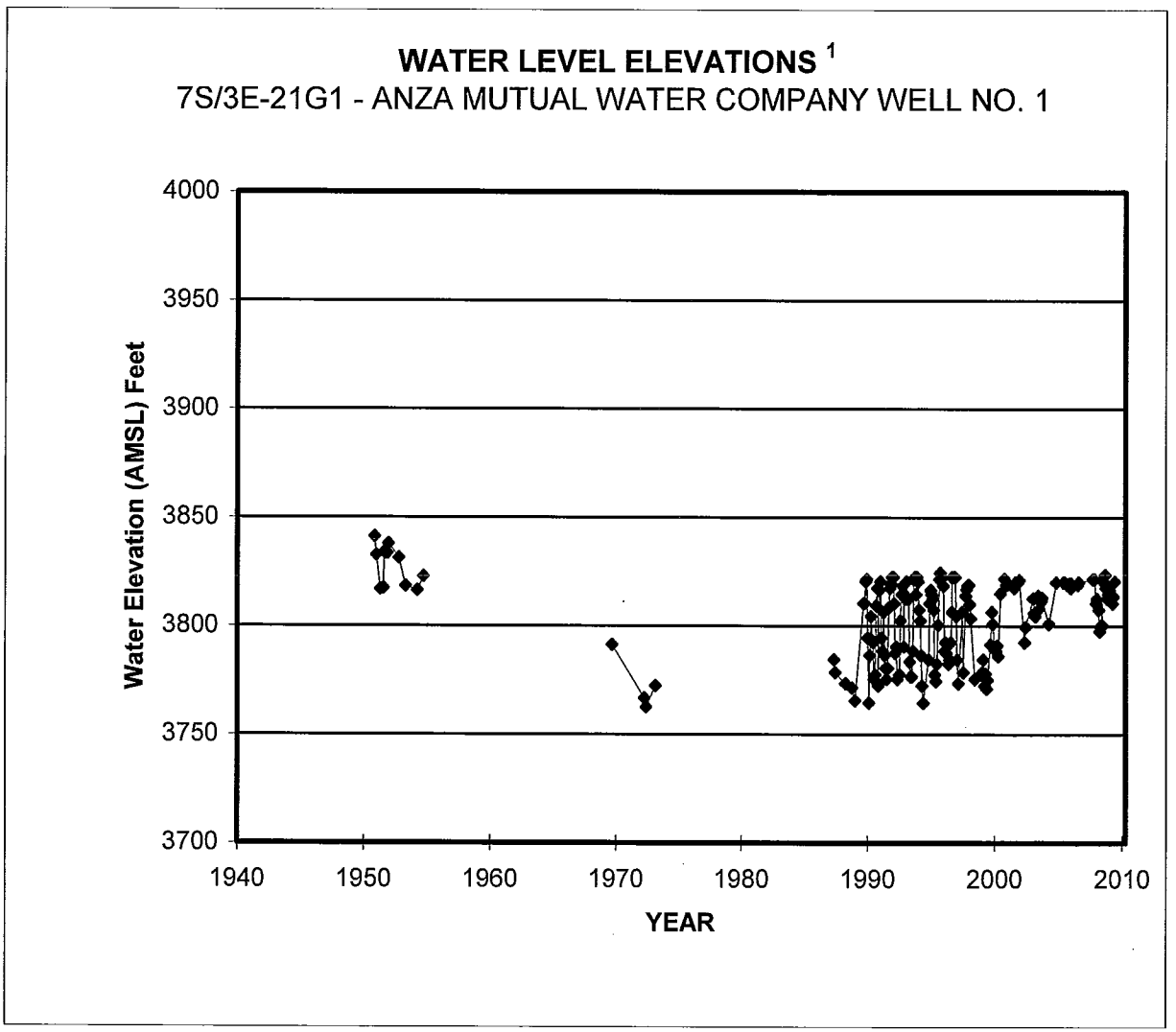
FIGURE 4.3



Ground El. 1090 Feet; Depth 307 Feet; Perf. 60 - 307 Feet
Western Municipal Water District

Figure 4.4 shows water levels for Well No. 7S/3E-21G1, Anza Mutual Water Company Well No. 1, a production well located in the Anza Valley. Water levels in this well rose 20 feet by the end of 2008-09. As may be noted from Figure 4.4, recent measurements show annual 50 foot fluctuations in groundwater levels at this well, partly in response to the operation of nearby irrigation wells. Current levels are within the historical range.

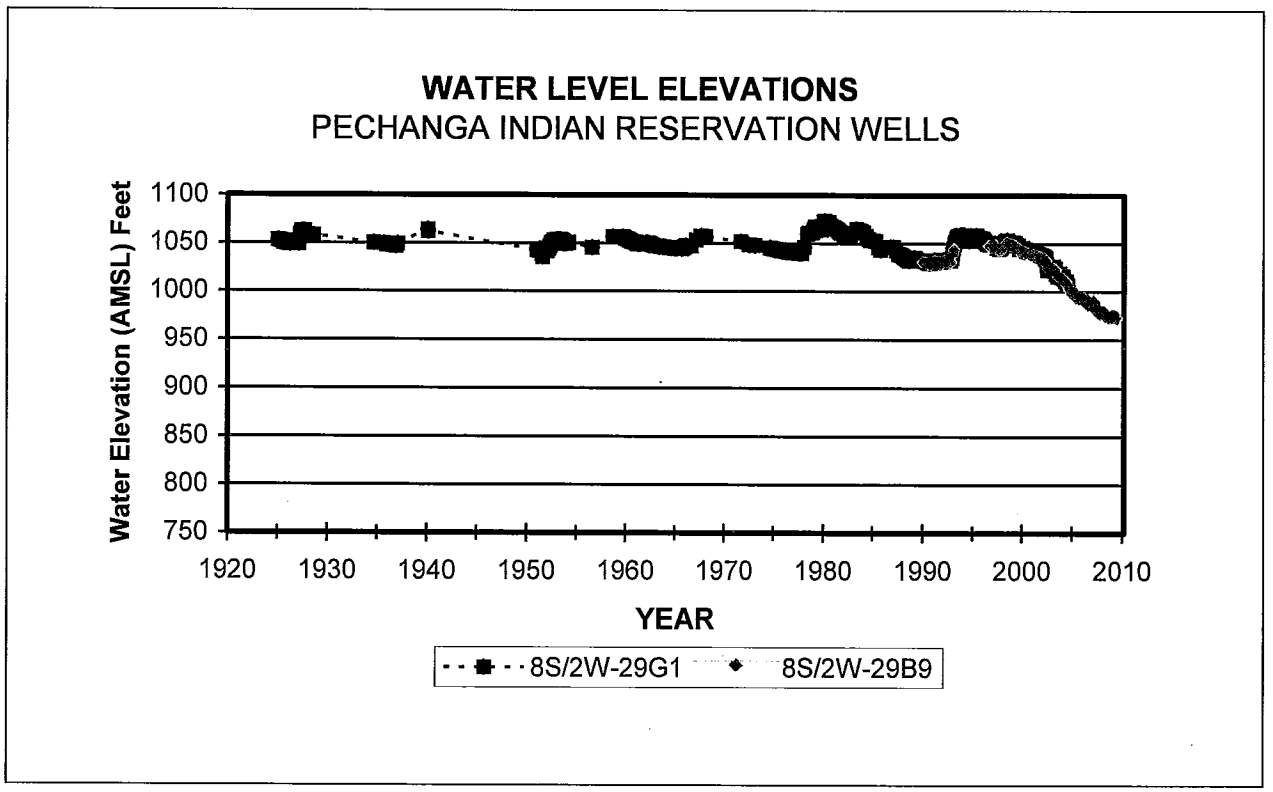
FIGURE 4.4



[1] Static water levels plotted after April 1999
Ground El. 3862.6 Feet; Depth 260 Feet; Perf. 20 - 260 Feet; Drilled in Alluvium
Anza Mutual Water Co. Well No. 1 (1987-2009); DWR Bulletin 91-22 (1950-73)

Figure 4.5 shows water levels at Well No. 8S/2W-29G1, located in Wolf Valley on the Kelsey Tract of the Pechanga Indian Reservation. The well is not used for water production and its depth as measured in 1972 was 159 feet. Water levels collected since 1925 reflect unconfined groundwater levels. As shown on Figure 4.5 the groundwater levels have fluctuated within a 44 foot range above and below elevation 1050 feet in response to wet years and dry periods until recently. In the past few dry years, levels have declined below their usual range. In November 2004, this well went dry due to the preceding relatively dry hydrological conditions and pumping of the nearby New Kelsey Well on the Pechanga Reservation. In order to continue to monitor water levels on the Pechanga Indian Reservation, water levels for Well No. 8S/2W-29B9 are also shown on Figure 4.5. Well No. 8S/2W-29B9 is completed in the younger alluvium. As shown on Figure 4.5 water levels for Well No. 8S/2W-29B9 coincide with water levels for the common period of record for Well No. 8S/2W-29G1. Water levels in Well 8S/2W-29B9 declined by 1.3 feet in 2008-09.

FIGURE 4.5



8S/2W-29G1: Ground El. 1091.1 Feet; Depth 159.1 Feet
8S/2W-29B9: Ground El. 1075.93 Feet; Depth 113.0 Feet
U.S. Geological Survey Records

Changes in water levels in the above noted wells between the end of the previous Water Year and the end of the 2009 Water Year are shown below:

Well	Water Elevation 2008 Feet	Water Elevation 2009 Feet	Change in Water Level Feet
RCWD 8S/2W-12H1	1131.0	1125.5	Down 5.5
USMC 10S/4W-7J1*	85.1	84.3	Down 0.8
WMWD 7S/3W-20C9	1028.0	1022.0**	Down 6.0
Anza MWC 7S/3E-21G1	3800.6	3820.6	Up 20.0
Pechanga IR 8S/2W-29B9	974.3***	973.0****	Down 1.3
Pechanga IR 8S/2W-29G1	N/A	N/A	Well Dry

* Well previously referred to as 10S/4W-7J4
** Reading taken 8/31/09
*** Reading taken 9/4/08
**** Reading taken 8/27/09

4.4. Groundwater Storage

Bulletin 118 Update 2003 prepared by the State of California Department of Water Resources describes three groundwater basins in the Santa Margarita River Watershed: Santa Margarita Valley, Temecula Valley, and Coahuila (Cahuilla) Valley. These basins are also known as the Santa Margarita Groundwater Basin, the Murrieta-Temecula Groundwater Basin, and the Anza Groundwater Basin. Groundwater storage in each of these basins is described in this section.

Santa Margarita Groundwater Basin – The Santa Margarita Groundwater Basin is located along the Santa Margarita River at Camp Pendleton and includes three sub-basins: Upper, Chappo, and Ysidora. Useable groundwater storage is summarized in Table 4.2. Table 4.2 shows that the total combined storage for all the sub-basins between the depths of 5 and 100 feet is 48,100 acre feet. However, much of that storage is below sea level. Thus, the useable capacity is considered to be 28,700 acre feet as shown in Table 4.2. In 2008-09 useable groundwater storage in place was computed for all three sub-basins to be 26,601 acre feet. The useable storage in place for the three sub-basins amounted to 26,423 acre feet in 2007-08. Thus there was an increase in groundwater storage in place of 178 acre feet for the water year. It may be noted that classification of storage as useable is made without allowances for maintenance of riparian habitat.

Table 4.2

SANTA MARGARITA RIVER WATERSHED

GROUNDWATER STORAGE AT CAMP PENDLETON
2008-09
Quantities in Acre Feet

	Sub-basin			
I. Available Storage	Upper	Chappo	Ysidora	Total
A. Total Storage [1]	12,500	27,000	8,600	48,100
B. Useable Storage	12,500	15,000 [2]	1,200 [3]	28,700
II. Unused Storage				
A. Wells used for Depth	10S/4W-7J1*	10S/4W-18L1	11S/5W-11D4	
B. Land Surface Elevation - Feet	92.0	73.6	18.8	
C. Depth to Water - Feet [4]	7.7	8.3	10.4	
D. Depth below 5 Feet	2.7	3.3	5.4	----
E. Average Area - Acres [5]	840	2,550	1,060	----
F. Specific Yield [6]	0.216	0.130	0.090	----
G. Unused Storage below 5 Feet	490	1,094	515	----
III. Useable Storage in Place [7]	12,010	13,906	685	26,601
IV. Useable Storage in Place 2007-08	12,170	13,816	437 R	26,423 R
V. Change in Storage 2008-09	(160)	90	248	178

1 Computed by USGS (Worts, F. C., Jr. and Boss, R. F., *Geology and Ground-Water Resources of Camp Pendleton, CA, July 1954)* as the storage between depths of 5 and 100 feet
2 Storage between 5 foot depth and sea level
3 Storage between 5 foot depth and 10 feet above sea level
4 Reported by Camp Pendleton as end of September values unless noted otherwise
5 Average area estimated over depth interval for unused storage
6 From Worts and Boss for depth interval of 5 to 50 feet
7 Useable storage includes stored water reserved for riparian habitat; however specific amount stored for such purposes not delineated.
* Previously referred to as Well 10S/4W-7J4
R -- Revised

Murrieta-Temecula Groundwater Basin – The Murrieta-Temecula Groundwater Basin is located along Murrieta and Temecula Creeks in the Upper Santa Margarita River Watershed. Total groundwater storage at the end of water year 2001 was computed for each of 22 hydrologic subareas that make up the Groundwater Basin. These computations were based on the areal extent of each subarea, the thickness of each of three aquifers, (younger alluvium, Pauba aquifer and Temecula aquifer), a specific yield for each aquifer, and the depth to water in each aquifer at the end of the water year. Specific yields were based on unconfined conditions for all aquifers. The total groundwater storage in the uppermost 500 feet as of September 30, 2001, was estimated at 1,340,556 acre feet.

Annual changes in groundwater storage have been computed for the years since 2001 using two methodologies – a water budget method and a groundwater level method. The water budget method determines the change in storage as the difference between the major elements of inflow and outflow to the groundwater area. Table 4.3 shows the changes for Water Years 2005 through 2009. The change in groundwater storage for Water Year 2009 calculated using the water budget method is a decrease of 6,670 acre feet.

The groundwater level method is based on the changes in water levels in key wells in the hydrologic sub-areas as shown on Table 4.4. Unfortunately water levels were not available in 2009 for key wells in Subareas 5, 13, 16 and 17. Well 402, the key well in sub-area 5, has not been measured in many years, thus sub-area 5 has been excluded from the computation in recent years. Apparently, roots have prevented measurement of water levels in Well 414, the key well in sub-area 13 since 2003. Sub-areas 16 and 17 overlie the Temecula aquifer that has a storativity of 0.0036 so water level changes in those subareas produce relatively minor storage changes compared to a similar change in the younger alluvium or Pauba aquifers. Changes in storage under the groundwater level method for Water Years 2005 through 2009 are shown in Table 4.4. The change in groundwater storage for Water Year 2009 is calculated as a loss of 1,104 acre feet.

The foregoing two methods are based on independent measurements and estimates. The estimates from the two methods are generally comparable for 2009 as well as 2002 through 2004 as reported in prior Watermaster reports. The estimates from the two methods for 2005 through 2008 indicate differences in the results. It will take testing over a number of years under varying hydrologic conditions to refine these approaches. These values will be compared with those computed with the groundwater model when the model is updated.

TABLE 4.3

SANTA MARGARITA RIVER WATERSHED
CHANGES IN GROUNDWATER STORAGE
MURRIETA-TEMECULA GROUNDWATER AREA
Water Budget Method
Quantities in Acre Feet

Elements of Inflow	Water Year Ending 2005	2006	2007	2008	2009
Releases from Vail [1]	(1,269)	1,399	704	4,845	1,236
Releases from Lake Skinner [2]	2,710	292	54	132	142
Freshwater Releases to Stream [3]	3,384	4,923	3,859	4,092	5,302
Reclaimed Water Released to Stream [4]	0	0	0	0	0
Recharged Imported Water [5]	16,504	18,820	14,175	12,419	14,828
Return Flow from RCWD Groundwater Production [6]	8,958	9,250	9,137	8,660	9,325
Return Flow from Import Direct Use [7]	3,422	4,397	5,428	4,725	3,903
Return Flow from Applied Wastewater [8]	1,598	1,818	1,904	1,335	1,565
Underflow and Tributary Inflow [9]	123,020	9,212	785	27,906	15,251
Subtotal	158,327	50,111	36,046	64,114	51,552
Elements of Outflow					
Riparian Evapotranspiration and Underflow [10]	508	508	508	508	508
Total RCWD Groundwater Production [11]	38,948	40,216	39,727	37,653	40,541
Net Pumping by Others [12]	3,119	3,265	3,066	1,841	2,225
Surface Outflow [13]	86,330	11,271	3,894	23,071	14,948
Subtotal	128,905	55,260	47,195	63,073	58,222
Change in Groundwater Storage	29,422	(5,149)	(11,149)	1,041	(6,670)

1 - Table A-7, Vail Release and Recharge
2 - Section 5.4
3 - Table A-7, SMR Release
4 - Table A-7, Reclaimed Wastewater, Murrieta Creek Discharge (ceased October 18, 2002)
5 - Table A-7, Footnote 3
6 - Table 7.8, Total Production times 0.23
7 - Rancho Division Direct Use Imports, Table A-7 Footnote 3, times 0.23
8 -The sum of: (Reclaimed Wastewater Table A-7, Reuse in SMRW) plus (Table A-1, Reuse in SMRW), plus (Table A-5 Pechanga's Reclaimed Wastewater from EMWD), times 0.23
9 - Murrieta Creek Flow times 1.6697 which is based on a correlation between Murrieta Creek flow and Tributary Inflow, Areal Recharge and Subsurface Inflow for the period 1977-1998 as shown in Table II-10, Vol. II, Geology and Hydrology, Surface and Ground Water Model of the Murrieta-Temecula Ground Water Basin, California, dated January 31, 2003.
10 - Table II-10, Vol. II, Geology and Hydrology, Surface and Ground Water Model of the Murrieta-Temecula Ground Water Basin, California, dated January 31, 2003.
11 - Table 7.8 Total Production
12 - The sum of Groundwater Production from: [Table A-1 (EMWD), A-5 (Pechanga IR), A-10 (WMWD Murieta Division, previously A-5), Appendix C Murrieta-Temecula Groundwater Area], times .77
13 - Table 3.2 Santa Margarita near Temecula

TABLE 4.4

SANTA MARGARITA RIVER WATERSHED

CHANGES IN USEABLE GROUNDWATER STORAGE

MURRIETA-TEMECULA GROUNDWATER AREA

Groundwater Level Method

					Water Depth at End of Water Year Feet					Change in Depth Feet					Change in Storage in Water Year Acre Feet				
Sub-area	Key Aquifer	Specific Yield/ Storativity	Key Well	Aquifer Area Acres	2005	2006	2007	2008	2009	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2005	2006	2007	2008	2009
1	Temecula	0.0036	301 [4]	1371	122.82	116.54	129.00	166.96	198.02	5.26	6.28	(12.46)	(37.96)	(31.06)	26	31	(61)	(187)	(153)
2	Pauba	0.0398	439	479	25.74	31.17	37.10	39.81	34.73	12.24	(5.43)	(5.93)	(2.71)	5.08	233	(104)	(113)	(52)	97
3	Pauba	0.0309	146	802	24.23	28.96	33.36	43.80	34.38	7.69	(4.73)	(4.40)	(10.44)	9.42	191	(117)	(109)	(259)	233
4	Pauba	0.0350	401	694	69.93	169.80	82.71	175.88	111.37	10.10	(99.87)	87.09	(93.17)	64.51	245	(2,426)	2,115	(2,263)	1,567
5	Pauba	0.0319	402 [1]	1322	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6	Pauba	0.0698	495	1562	89.10	89.88	101.24	107.68	105.95	(2.50)	(0.78)	(11.36)	(6.44)	1.73	(273)	(85)	(1,239)	(702)	189
7	Pauba	0.0012	211 [2]	719	134.38	134.75	88.17	172.33	160.02	10.00	(0.37)	46.58	(84.16)	12.31	9	(0)	40	(73)	11
8	Qyal	0.20	492 [3]	339	27.56	29.40	18.72	29.61	28.35	2.71	(1.84)	10.68	(10.89)	1.26	184	(125)	724	(738)	85
	Pauba	0.0891	492 [3]	496	27.56	29.40	18.72	29.61	28.35	2.71	(1.84)	10.68	(10.89)	1.26	120	(81)	472	(481)	56
9	Temecula	0.0036	410	2066	324.13	326.04	329.51	327.10	334.60	(41.56)	(1.91)	(3.47)	2.41	(7.50)	(309)	(14)	(26)	18	(56)
10	Qyal	0.20	426	1438	38.96	43.91	44.20	43.19	41.12	2.49	(4.95)	(0.29)	1.01	2.07	716	(1,424)	(83)	290	595
	Pauba	0.0746	426	1165	38.96	43.91	44.20	43.19	41.12	2.49	(4.95)	(0.29)	1.01	2.07	216	(430)	(25)	88	180
11	Qyal	0.20	422	1405	60.32	60.54	61.49	61.33	62.32	(1.31)	(0.22)	(0.95)	0.16	(0.99)	(368)	(62)	(267)	45	(278)
	Pauba	0.0634	422	1413	60.32	60.54	61.49	61.33	62.32	(1.31)	(0.22)	(0.95)	0.16	(0.99)	(117)	(20)	(85)	14	(89)
12	Qyal	0.20	417 [5]	1769	90.22	85.21	82.85	85.74	91.19	4.30	5.01	2.36	(2.89)	(5.45)	1,521	1,773	835	(1,022)	(1,928)
	Pauba	0.0422	417 [5]	752	90.22	85.21	82.85	85.74	91.19	4.30	5.01	2.36	(2.89)	(5.45)	136	159	75	(92)	(173)
13	Qyal	0.20	414 [1]	898	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pauba	0.0198	414 [1]	398	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Temecula	0.0036	462	2084	427.18	409.71	420.46	407.13	423.20	3.24	17.47	(10.75)	13.33	(16.07)	24	131	(81)	100	(121)
15	Temecula	0.0036	464	1347	319.97	321.97	324.01	325.67	325.30	(2.22)	(2.00)	(2.04)	(1.66)	0.37	(11)	(10)	(10)	(8)	2
16	Temecula	0.0036	209 [1]	1967	—	—	—	—	503.60	—	—	—	—	—	—	—	—	—	—
17	Temecula	0.0036	139 [1]	2008	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Pauba	0.0967	129 [2]	1546	204.12	204.62	205.22	212.51	217.39	(3.73)	(0.50)	(0.60)	(7.29)	(4.88)	(558)	(75)	(90)	(1,090)	(730)
19	Temecula	0.0036	466	1562	323.07	298.35	287.03	292.00	297.70	(0.46)	24.72	11.32	(4.97)	(5.70)	(3)	139	64	(28)	(32)
20	Pauba	0.0738	493	3231	280.13	273.78	267.95	268.02	270.75	(4.92)	6.35	5.83	(0.07)	(2.73)	(1,173)	1,514	1,390	(17)	(651)
21	Pauba	0.1392	463	2303	54.92	55.04	55.81	55.44	55.46	2.91	(0.12)	(0.77)	0.37	(0.02)	933	(38)	(247)	119	(6)
*	Pauba	0.0325	Lynch	1008	80.00	67.00	63.00	72.00	69.00	(35.00)	13.00	4.00	(9.00)	3.00	(1,147)	426	131	(295)	98
TOTAL															**597**	**(838)**	**3,411**	**(6,633)**	**(1,104)**

1 - Well not measured -sub-area excluded for change in storage calculation
2 - For 2007 used reading of April 29, 2007
3 - For 2005 used reading of August 28, 2005
4 - For 2006 used reading of July 30, 2006
5 - For 2007 used reading of March 4, 2007
* A portion of Murrieta Division of Western MWD

Anza Groundwater Basin – The Anza Groundwater Basin is located along Cahuilla Creek in the upper portion of the Santa Margarita River Watershed.

The most recent study that determined storage volumes was conducted by Riverside County in 1990. That study concluded that the groundwater storage of about 182,200 acre feet in 1950 had decreased to about 165,000 acre feet in 1986. The study also concluded that ". . . basin hydrogeologic features, production facilities conditions, and locations/depths of storage . . ." limited the useable portion to 40% of the groundwater storage or about 56,200 acre feet in 1986.

During Water Years 2005 through 2009 a series of water level measurements were made by the USGS in Anza Valley under contract with the Bureau of Indian Affairs. The data from these measurements are available at the USGS website: *http://nwis.waterdata.usgs.gov/ca/nwis/gwlevels* .

The wells included in the program can be located by selecting the latitude-longitude box selection criteria and specifying the following bounds:

North Latitude - 33° 37' 00"
South Latitude - 33° 30' 00"
West Longitude - 116° 48' 00"
East Longitude - 116° 38' 00"

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SECTION 5 - IMPORTS/EXPORTS

5.1 General

Court Orders require the Watermaster to determine the quantities of imported water used in the Watershed. Most of the water imported into the Santa Margarita River Watershed is delivered by Metropolitan Water District of Southern California (MWD) to local districts. MWD obtains its water from the State Water Project (SWP) and the Colorado River. Both the SWP and the Colorado River system have major storage reservoirs to provide long-term carryover storage. The quantities of water in storage at the end of the water year in the major reservoirs in each system are indicated on Table 5.1. Total storage in the SWP for the last ten years is shown graphically on Figure 5.1. Similarly, total storage for the Colorado River Reservoirs for the last ten years is shown on Figure 5.2. It may be seen from Table 5.1 that during Water Year 2008-09 water in storage in the SWP increased from 1.87 million acre feet on September 30, 2008 to 2.06 million acre feet on September 30, 2009. Storage on September 30, 2009 corresponds to about 39 percent of the total SWP storage capacity.

Water in storage in the Colorado River system increased 0.1 million acre feet from 33.7 million acre feet in the prior year to 33.8 million acre feet on September 30, 2009. On September 30, 2009 those reservoirs contained 52 percent of their total combined capacity.

The California Department of Water Resources prepares projections of water availability in the SWP for the coming year (2010) on a monthly basis from February through May. The report DWR Bulletin 120-4-10 dated May 1, 2010, indicated that statewide precipitation October 1 through April 30 was 110 percent of average compared to 80 percent last year. As of June 22, 2010, the SWP allocation for 2010 will meet 50 percent of contractors' requests.

The following entities imported water directly or indirectly from MWD into the Santa Margarita River Watershed:

Eastern Municipal Water District
Elsinore Valley Municipal Water District
Fallbrook Public Utility District
Rainbow Municipal Water District
Rancho California Water District
U. S. Naval Weapons Station – Fallbrook Annex
Western Municipal Water District

TABLE 5.1

SANTA MARGARITA RIVER WATERSHED
STORAGE IN STATE WATER PROJECT AND COLORADO RIVER RESERVOIRS
Thousands of Acre Feet */1*

STATE WATER PROJECT RESERVOIRS

Reservoir	Total Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Oroville	3,540	1,920	1,488	1,400	2,284	1,753	2,877	2,833	1,568	1,097	1,337
San Luis (State Share)	1,060	388	516	394	653	514	925	911	445	200	224
Pyramid	171	164	162	165	165	161	160	163	166	163	166
Castaic	324	285	287	310	314	298	306	266	313	268	200
Silverwood	73	70	72	72	70	72	72	72	73	71	70
Perris	132	110	122	115	114	116	82	72	66	69	62
Total	5,300	2,937	2,647	2,456	3,600	2,914	4,422	4,317	2,631	1,868	2,059
Percent of Capacity		55%	50%	46%	68%	55%	83%	81%	50%	35%	39%

MAJOR COLORADO RIVER RESERVOIRS

Reservoir	Total Capacity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Flaming Gorge	3,789	3,010	2,982	2,675	2,635	2,679	3,177	3,130	3,063	3,024	3,394
Blue Mesa	941	560	597	275	387	507	588	667	687	650	651
Navajo	1,709	1,357	1,409	872	729	935	1,516	1,420	1,510	1,319	1,314
Powell	27,000	20,939	19,135	14,468	12,109	9,170	11,939	11,917	11,929	14,509	15,463
Mead	28,537	22,444	19,873	17,093	15,618	13,937	15,219	13,887	12,505	12,013	10,933
Mohave	1,818	1,523	1,610	1,577	1,643	1,605	1,573	1,584	1,545	1,586	1,501
Havasu	648	566	567	565	562	589	554	555	576	584	564
Total	64,442	50,399	46,173	37,525	33,683	29,422	34,566	33,160	31,815	33,685	33,820
Percent of Capacity		78%	72%	58%	52%	46%	54%	51%	49%	52%	52%

1/ Storage reported for end of water year on September 30

FIGURE 5.1

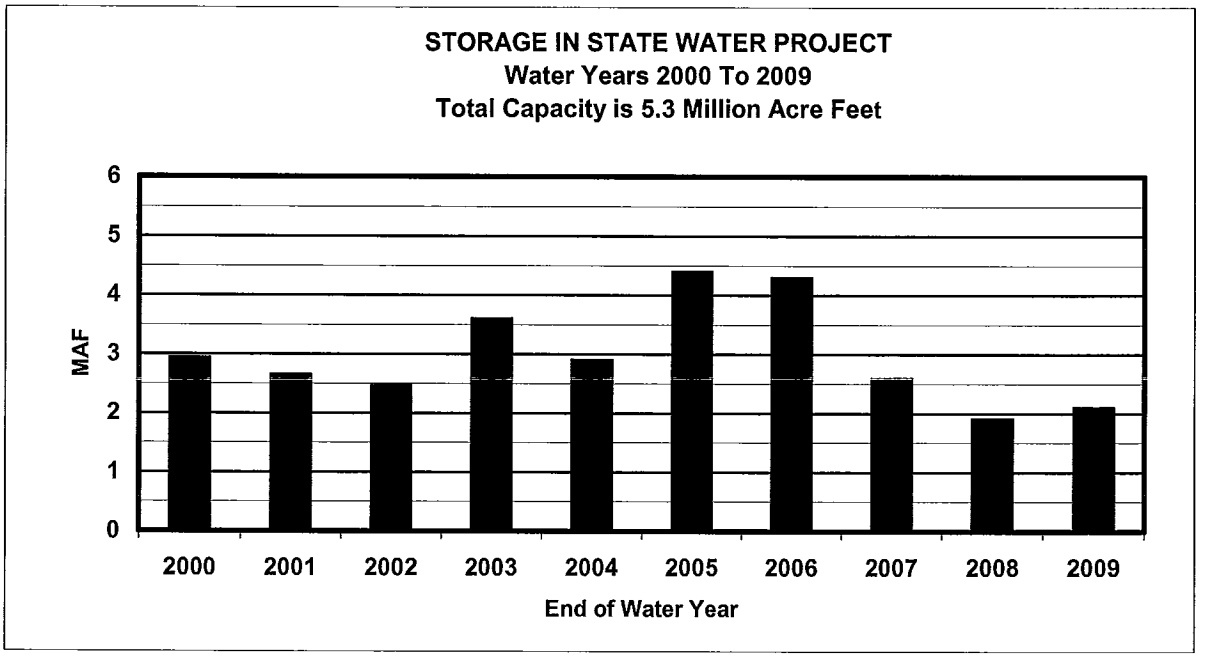
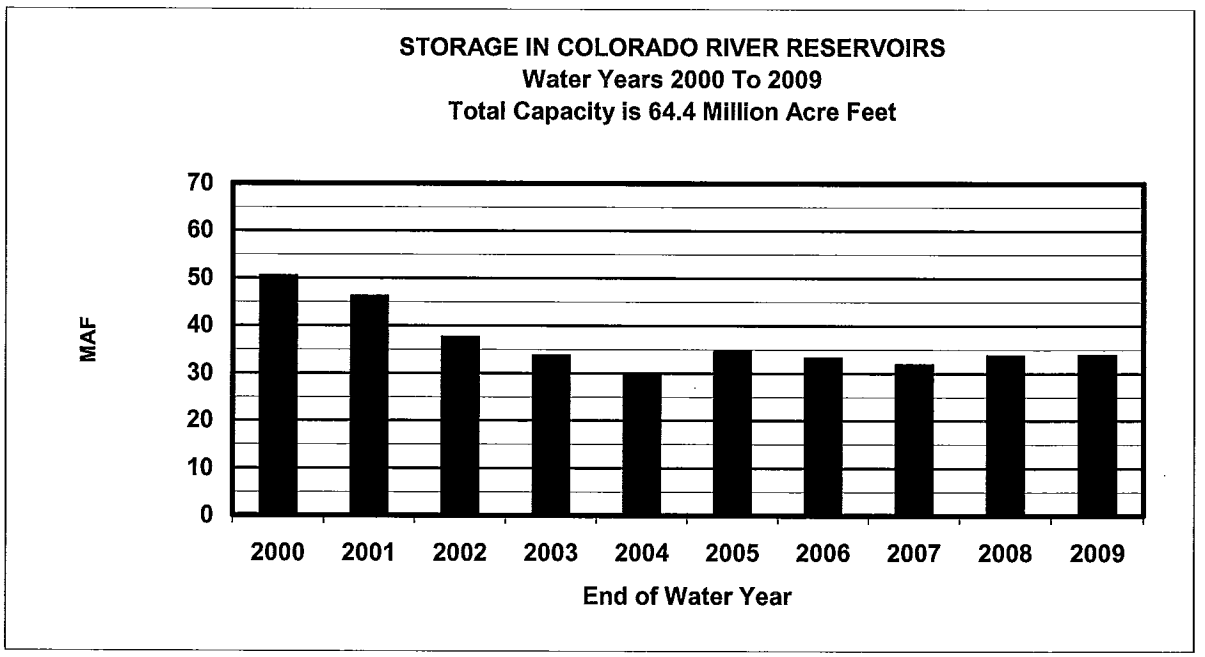


FIGURE 5.2



In addition to net deliveries through member agencies, MWD, pursuant to a Court Order, imported 465 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley during 2008-09. MWD also imported an additional 142 acre feet into the Watershed as a result of maintenance releases from its storage and delivery system. MWD records show the maintenance releases included 50 acre feet from Lake Skinner to Tucalota Creek. The remaining releases were made from various locations on the delivery system including 17 acre feet to tributaries of Tucalota Creek, 66 acre feet to tributaries of Murrieta Creek, and 9 acre feet to Murrieta Creek.

Water is also imported into the Santa Margarita River Watershed from adjacent watersheds. Such importation occurs from the Santa Ana Watershed where Elsinore Valley MWD delivers water to a portion of its service area that is inside the Santa Margarita River Watershed. Elsinore Valley MWD obtains its supply from imports or from wells outside the Santa Margarita River Watershed.

At Camp Pendleton there is a pipeline connection to wells located in the Las Flores Creek Watershed to the north of the Santa Margarita River Watershed. Water can be either imported or exported through that line, depending on relative water demands and pumping capacities.

Exportations from the Santa Margarita River Watershed include water pumped at Camp Pendleton that is used in the San Luis Rey River Watershed to the south or in the Las Flores Creek Watershed to the north. The wastewater that is derived from the exported fresh water is returned to the watershed for treatment at the Southern Region Tertiary Treatment Plant. Reclaimed wastewater is used for irrigation both within and outside the watershed. Treated wastewater in excess of reclaimed use is exported for discharge at the Oceanside Outfall. Wastewater from the Fallbrook area and the Naval Weapons Station is exported by the Fallbrook Public Utility District and wastewater in the Elsinore Valley MWD is exported by that district. Rancho California WD exports water into the San Mateo Creek Watershed.

Eastern MWD uses a 24-inch pipeline along Winchester Road to transport wastewater from the Temecula Valley Regional Water Reclamation Facility to areas within the Watershed for reuse as well as for export of up to 10 MGD from the Watershed. Eastern MWD uses a second, 48-inch pipeline along Palomar Valley for delivery of reclaimed wastewater for reuse and export from the Watershed. Rancho California WD also uses the Palomar Valley pipeline for exporting wastewater from the Watershed. The exported wastewater can be reused outside the watershed, delivered to storage facilities or discharged to Temescal Creek. In 2008-09, Eastern MWD's export of wastewater that was discharged to Temescal Creek was 2,772 acre feet. Rancho California WD had no export of wastewater for discharge to Temescal Creek in 2009.

The following paragraphs of this report describe imports and exports during Water Year 2008-09 and during the period 1966-2009. There is also discussion of MWD's Lake Skinner and Diamond Valley Lake operations.

5.2 Water Year 2008-09

During 2008-09 a total of 86,612 acre feet of water of net imported supplies were distributed for use in the Santa Margarita River Watershed. This compares with 89,119 acre feet in 2007-08 and represents a decrease of approximately three percent. The term net imports is used because several entities report gross imports into the Santa Margarita River Watershed but due to system configurations and operations a portion of the gross imports may be transported to serve areas outside of the watershed. Thus, the net imports reflect the quantities of imported supplies used within the Santa Margarita River Watershed. Net imports into the Santa Margarita River Watershed are listed on Table 5.2 for Water Year 2008-09.

The water exported from the Santa Margarita River Watershed for 2008-09 primarily includes wastewater except for Camp Pendleton and Rancho California WD. As described in Section 7, Camp Pendleton exports native water for use outside the watershed. Also, Rancho California WD exports groundwater as part of a blended water supply to serve customers in the San Mateo Watershed. Exports from the Santa Margarita River Watershed for 2008-09 were 19,069 acre feet as shown on Table 5.2. This compares to 19,975 acre feet in 2007-08 and represents a decrease of about 5 percent.

The quality of the water supplies imported through the MWD system in 2008-09 is indicated by the average monthly total dissolved solids at the Skinner Treatment Plant effluent line as shown on Table 5.3. The table also shows the percent of imported water obtained from the SWP. Water imported by Elsinore Valley MWD has the same quality as the MWD system.

5.3 Water Years 1966-2009

Water quantities imported by districts into the Santa Margarita River Watershed during Water Years 1966-2009 are shown on Table 5.4. Total imports to these districts are measured; however some districts serve lands outside the Watershed. For these districts, which include Eastern MWD, Elsinore Valley MWD, Fallbrook PUD and Rainbow MWD, the portion delivered in the Santa Margarita River Watershed must be estimated.

Review of the historical trend of total imports shown on Table 5.4 indicates significant year-to-year variations with relatively low imports in wet years and higher imports in dry years, combined with an underlying growth rate to serve increasing municipal water demands in the Murrieta-Temecula area.

TABLE 5.2

SANTA MARGARITA RIVER WATERSHED

IMPORTS/EXPORTS

2008-09

Quantities in Acre Feet

	NET IMPORTS										EXPORTS 3/								
											-------- CAMP PENDLETON --------								
YEAR MONTH	EASTERN MWD	ELSINORE VALLEY MWD	FALLBROOK PUD	MWD 1/	MURRIETA DIVISION WESTERN MWD	RAINBOW MWD	RANCHO CAL WD	U. S. NAVAL WS	WESTERN MWD 2/	TOTAL NET IMPORTS	EXPORTS 4/	WASTEWATER RETURNS 5/	NET EXPORT	U.S. NAVAL WS	EASTERN MWD 6/	ELSINORE VALLEY MWD	FALLBROOK PUD	RANCHO CAL WD 7/	TOTAL EXPORTS
2008																			
OCT	1,658	799	1,002	69	174	184	5,865	7	5	9,763	719	107	612	1.2	1,060	77	91	39	1,880
NOV	260	838	660	29	177	227	3,895	6	4	6,096	448	94	354	0.9	1,056	93	102	35	1,641
DEC	753	564	275	8	104	117	1,793	9	3	3,626	352	61	291	1.1	1,241	89	108	30	1,760
2009																			
JAN	782	443	416	22	71	51	2,176	4	3	3,968	355	70	285	0.4	1,220	93	103	20	1,721
FEB	625	429	245	82	79	103	999	5	3	2,570	318	58	260	0.8	1,193	78	91	25	1,648
MAR	1,385	529	618	34	49	53	3,455	6	4	6,133	414	91	323	0.8	1,187	89	108	14	1,722
APR	1,359	621	755	34	104	120	3,804	5	4	6,806	441	109	332	0.6	910	90	93	32	1,458
MAY	1,620	810	790	106	150	135	4,821	5	5	8,442	455	114	341	0.9	968	87	94	30	1,521
JUNE	1,385	976	759	42	170	220	4,733	7	4	8,296	475	105	370	1.2	835	91	92	39	1,428
JULY	1,887	963	984	71	174	172	6,972	8	6	11,237	569	120	449	1.5	836	93	93	35	1,508
AUG	1,726	1,181	978	59	207	255	6,041	6	4	10,457	545	114	431	1.2	831	97	86	32	1,478
SEPT	1,032	922	1,075	51	195	215	5,716	6	6	9,218	509	107	402	1.5	690	92	83	36	1,305
TOTAL	14,472	9,075	8,557	607	1,654	1,852	50,270	74	51	86,612	5,600	1,150	4,450	12	12,027	1,069	1,144	367	19,069

1/ Metropolitan Water District direct deliveries in Domenigoni Valley as shown on Table A-4 plus miscellaneous maintenance releases.
2/ Improvement District A - Rainbow Canyon Only (WR-13)
3/ All exports are wastewater except as noted for Camp Pendleton and Rancho California WD.
4/ Agricultural and Camp Supply use outside the SMRW, reclaimed use outside the SMRW, plus export to Oceanside Outfall as shown on Table A-8.
5/ Estimated as reclaimed percentage of Cemp Supply use outside the SMRW as shown on Table A-8.
6/ Includes Other Reuse shown on Table A-1 which includes changes of storage in Winchester and Sun City storage ponds, evaporation and percolation losses, and discharges to Temescal Creek in the Santa Ana Watershed for discharge to Temescal Creek.
7/ Includes groundwater used in San Mateo Watershed and wastewater exported via Palomar Valley pipeline.

TABLE 5.3

SANTA MARGARITA RIVER WATERSHED
TOTAL DISSOLVED SOLIDS
CONCENTRATION OF IMPORTED WATER

YEAR MONTH	TOTAL DISSOLVED SOLIDS MG/L /1		PERCENT STATE PROJECT WATER	
	2007-08	2008-09	2007-08	2008-09
OCT	438	576	54	22
NOV	439	543	55	30
DEC	490	541	43	32
JAN	502	614	42	17
FEB	280	643	36	6
MAR	304	625	36	8
APR	518	587	38	12
MAY	512	566	38	19
JUNE	590	575	20	21
JULY	554	537	32	30
AUG	556	536	27	28
SEPT	573	540	23	23

1/ As measured in the Skinner Treatment Plant Effluent line.
* - Skinner Plant treated a blend of California State Project Water and Colorado River water

TABLE 5.4

SANTA MARGARITA RIVER WATERSHED

IMPORTS/EXPORTS

Quantities in Acre Feet

	NET IMPORTS										EXPORTS 5/								
											-------- CAMP PENDLETON --------								
WATER YEAR	EASTERN MWD	ELSINORE VALLEY MWD	FALLBROOK PUD 1/	MWD 2/	MURRIETA DIVISION WESTERN MWD	RAINBOW MWD	RANCHO CAL WD 3/	U.S. NAVAL WS	WESTERN MWD 4/	TOTAL IMPORTS	EXPORTS	WASTEWATER RETURNS	NET EXPORT	U. S. NAVAL WS	EASTERN MWD	ELSINORE VALLEY MWD	FALLBROOK PUD	RANCHO CAL WD 7/	TOTAL EXPORTS
1966	1,604	N/R	3,351	0	0	1,308	0	0	24	6,287	3,251	974	2,277	0	0	0	0		2,277
1967	1,630	N/R	2,852	0	0	1,095	0	0	20	5,597	3,180	1,243	1,937	0	0	0	0		1,937
1968	1,464	N/R	3,423	0	0	1,377	0	0	27	6,291	3,368	1,214	2,154	0	0	0	0		2,154
1969	1,741	N/R	2,837	0	0	1,253	0	0 E	25	5,856	3,276	1,170	2,106	0	0	0	0		2,106
1970	1,417	N/R	3,538	0	0	1,689	0	0 E	31	6,675	3,809	1,113	2,696	0	0	0	0		2,696
1971	1,383	N/R	3,405	0	0	1,650	0	76 E	34	6,548	3,527	1,090	2,437	0	0	0	0		2,437
1972	1,470	N/R	3,916	0	0	2,037	0	115 E	34	7,572	3,543	1,168	2,375	0	0	0	0		2,375
1973	1,533	N/R	3,210	0	0	1,616	0	115 E	30	6,504	3,544	1,187	2,357	0	0	0	0		2,357
1974	1,601	N/R	3,967	0	0	2,049	0	115 E	36	7,768	3,532	1,140	2,392	0	0	0	0		2,392
1975	1,969	N/R	3,597	0	0	1,247	0	115 E	34	6,962	3,098	1,530	1,568	0	0	0	0		1,568
1976	2,493	N/R	4,627	0	0	2,239	119	115 E	35	9,628	3,619	1,497	2,122	0	0	0	0		2,122
1977	2,947	N/R	5,212	0	0	2,343	1,845	115 E	24	12,486	3,194	1,416	1,778	0	0	0	0		1,778
1978	2,551	569	5,202	0	0	2,188	5,774	115 E	26	16,425	3,071	1,283	1,788	0	0	0	0		1,788
1979	1,894	712	5,723	0	0	2,348	7,009	115 E	24	17,824	4,756	1,427	3,329	0	0	0	0		3,329
1980	1,192	696	6,404	0	0	2,489	10,126	115 E	25	21,047	3,651	1,405	2,246	0	0	0	0		2,246
1981	716	798	8,543	0	0	3,153	15,282	115 E	34	28,642	3,892	1,249	2,643	0	0	0	0		2,643
1982	1,112	678	7,079	0	0	2,460	13,378	115 E	34	24,856	3,761	1,273	2,488	0	0	0	0		2,488
1983	1,211	658	6,720	0	0	2,190	5,752	115 E	26	16,672	3,000	1,242	1,758	26 E	0	0	1,003		2,787
1984	699	816	8,506	0	0	3,068	6,716	115 E	26	19,946	3,243	1,120	2,123	26 E	0	0	1,032		3,181
1985	679	808	7,831	0	0	3,410	7,158	102	27	20,015	3,377	1,200	2,177	26 E	0	0	1,060		3,263
1986	760	882	8,585	0	0	2,945	11,174	94	34	24,474	3,326	981	2,345	16 P	0	0	1,096		3,457
1987	1,155	938	8,656	0	0	3,390	7,564	116	36	21,855	3,444	1,799	1,645	26	0	4	1,129		2,805
1988	2,047	1,032	8,033	0	0	2,985	17,854	120	36	32,108	3,457	1,872	1,585	26	0	55	1,154		2,820
1989	3,746	1,341	9,066	0	0	3,003	22,895	128	23	40,202	3,418	1,446	1,972	23	0	74	1,181		3,250
1990	5,601	2,255	10,103	0	0	3,818	22,030	145	22	43,974	2,971	1,451	1,520	27	0	114	1,271		2,932
1991	9,479	2,421	7,962	0	0	2,904	21,238	109	21	44,134	2,168	1,219	949	13	0	134	960		2,056
1992	8,593	2,190	7,893	0	0	2,277	16,931	99	25	38,008	2,426	1,548	878	7	0	140	1,083		2,108
1993	5,393	1,914	6,925	0	0	1,965	11,411	117	31	27,756	2,329	1,926	403	16	705	150	1,255		2,529
1994	7,150	3,221	7,250	0	0	1,651	16,386	73	37	35,768	2,702	1,501	1,201	5	3,159	170	1,068		5,603
1995	4,625	3,117	6,538	547	0	1,661	15,108	125	29	31,750	2,781	1,611	1,170	12	3,908	185	1,153		6,428
1996	4,960	4,181	7,993	1,005	0	1,815	23,600	100	35	43,689	3,577	1,493	2,084	5	2,993	213	1,035		6,330
1997	3,284	4,283	7,894	3,521	0	1,429	26,992	109	30	47,542	3,643	1,932	1,711	6	3,201	226	1,021		6,165
1998	5,117	5,100	6,382	5,023	0	1,601	19,584	97	31	42,935	3,742	2,073	1,669	8	4,513	247	1,482		7,919
1999	4,327	6,134	7,430	3,781	0	1,727	34,490	111	41	58,041	3,558	2,130	1,428	5	4,133	254	1,377		7,197
2000	7,256	7,172	9,365	712	0	2,217	55,409	104	42	82,277	4,072	2,115	1,957	7	3,649	279	1,634		7,526
2001	5,948	6,592	8,398	689	0	1,804	41,823	73	59	65,386	3,653	2,075	1,578	8	4,457	310	1,643		7,996
2002	8,117	7,596	9,580	595	0	1,676	54,148	97	64	81,873	3,701	1,950	1,751	9	5,325	412	1,495		8,992
2003	9,062	7,091	9,130	495	102	1,510	50,744	88	42	78,264	3,767	1,688	2,079	10	7,636	483	1,706	64	11,978
2004	9,138	8,438	11,749	766	330	1,888	62,408	73	50	94,840	4,951 6/	0	4,951	8	9,115	600	1,620	312	16,606
2005	10,858	8,215	9,702	556	75	1,610	47,614	40	62	78,732	4,625 6/	0	4,625	16	11,676	927	1,782	1,574	20,600
2006	14,161	9,819	10,622	506	316	1,851	60,611	64	66	98,016	4,912 6/	0	4,912	8	10,906	938	1,716	1,379	19,859
2007	15,398	10,811	12,292	660	723	2,262	63,818	70	45	106,079	5,152 6/	0	5,152	12	10,553	837	1,142	364	18,060
2008	14,952	9,951	8,934	493	2,180	1,790	50,683	82	54	89,119	4,774 6/	0	4,774	11	12,789	901	1,139	361	19,975
2009	14,472	9,075	8,557	607	1,654	1,852	50,270	74	51	86,612	5,600 8/	1,150	4,450	12	12,027	1,069	1,144	367	19,069

1/ Includes DeLuz Heights MWD prior to 1991
2/ Metropolitan Water District direct deliveries in Domenigoni Valley plus miscellaneous maintenance releases beginning 2009
3/ For period 2003 to present values shown are net imports excluding imported water delivered to San Mateo Watershed
4/ Improvement District A - Rainbow Canyon Only (WR-13)
5 / All exports are wastewater except as noted for Camp Pendleton and Rancho Cal WD
6 / Includes export of native water plus wastewater from in-basin use
7 / Includes groundwater used in San Mateo Watershed and wastewater exported to Santa Ana Watershed
8/ Includes export of native water plus reclaimed wastewater.

N/R - Not Reported
P - Partial year data
E - Estimate

Exports over the 1966-2009 period are also shown on Table 5.4. These include estimated water exports on Camp Pendleton less estimated wastewater returns, as well as an estimate of exports by the Fallbrook Public Utility District and the Naval Weapons Station after 1983, and Elsinore Valley MWD after 1986. Exports by Eastern MWD were initiated in 1992-1993 and Rancho California WD began exporting water in 2002-03. Exports do not include water that naturally flows from the Santa Margarita River into the Pacific Ocean.

5.4 Lake Skinner

Lake Skinner is a 44,000 acre foot reservoir constructed by MWD on Tucalota Creek, within the Santa Margarita River Watershed. The purpose of Lake Skinner is to provide regulatory and emergency storage capacity for water imported to southern California. MWD does not have a water right to store or divert water in Lake Skinner. Accordingly, a Memorandum of Understanding and Agreement on Operation of Lake Skinner (MOU), dated November 12, 1974, approved by the Court on January 16, 1975, contains provisions to protect Santa Margarita River Watershed water users from potential effects of Lake Skinner on either subsurface or surface flows.

Protection against a decrease in subsurface flows caused by the dam is afforded by a provision in the MOU that requires that MWD release water from Lake Skinner into Tucalota Creek if groundwater levels in Well AV-28B fall below an elevation of 1356.64 feet. At the end of September 30, 2009, the well level was 1358.45 feet, a decline of 3.35 feet compared to September 30, 2008.

The MOU also provides that all local surface inflow that enters Lake Skinner will be released into Tucalota Creek. In its 1980 modification the MOU provides that local surface inflow is to be determined by using the hydrologic equation for Lake Skinner that is specified in the MOU. That equation is used to determine inflow and the related release for large flood events. However, in many years the local inflow is small compared to the large quantities of imported water inflow and outflow at Lake Skinner. The error of measurement for these large inflows and outflows is larger than the local inflow in many instances. Accordingly, MWD also monitors the flow in Tucalota Creek, Rawson Creek and Middle Creek during storms and uses those observations to supplement the hydrologic equation.

On February 16, 2005, the Court approved an Order Amending the MOU to provide for diversion from Lake Skinner on Fallbrook PUD's behalf after specified releases are made, according to State Water Resource Control Board Permit 11356 and the amended Lake Skinner MOU. In 2008-09 no water accumulated in Lake Skinner for diversion to Fallbrook PUD.

In 2008-09 MWD records show no local inflow to Lake Skinner and thus there were no required releases in accordance with the MOU. However, MWD released 50 acre feet from Lake Skinner in 2008-09 into Tucalota Creek for maintenance purposes.

5.5 Diamond Valley Lake

Diamond Valley Lake is located in Diamond and Domenigoni Valleys within the Santa Margarita River Watershed. The Lake was created by three dams, one each at the east and west ends of Domenigoni/Diamond Valley and a saddle dam at the low point on the north rim. The East Dam diverts surface and groundwater flows from a 4.2 square mile drainage area in the Santa Margarita River Watershed, known as Goodhart Canyon, into the Santa Ana River Watershed. The West Dam intercepts existing westward surface and subsurface flows from an additional 13.19 square mile area.

MWD does not have a water right to store local waters in the reservoir, so a Memorandum of Understanding and Agreement on Operation of Domenigoni Valley Reservoir (now known as Diamond Valley Lake) (MOU) was developed and approved by the Court on January 19, 1995. Among other things, the MOU provides:

> The quantity and quality of surface runoff that would flow past the West Dam in the absence of the Reservoir will be determined and a like quantity of water of similar quality will be released from the Reservoir or San Diego Canal (SDC) into Warm Springs Creek.

The MOU indicates that the required releases would be determined by measuring the surface inflows into Goodhart Canyon Detention Basin. A quantity equal to 4.1 times the measured flow will be released into Warm Springs Creek.

Total required releases into Warm Springs Creek during 2008-09 were 16.385 acre feet. The total released during the year was 17.473 acre feet.

Although all surface waters within the Santa Margarita River Watershed in Domenigoni Valley and Diamond Valley are subject to the continuing jurisdiction of the Court, groundwater contained within the younger alluvium, north of the south line of Section 9, Township 6 South, Range 2 West, SBM is not considered by the Court to be a part of the Santa Margarita River system as long as groundwater levels are below an elevation of 1400 feet. During 2008-09 groundwater elevations in Well MO-6, which is located along the south line of Section 9, increased 4.68 feet from 1360.99 feet at the beginning of the water year to 1365.67 feet on October 19, 2009.

During 2008-09, there were no injections into the Domenigoni Valley groundwater basin pursuant to Agreements for Mitigation of Groundwater. However, pursuant to a Court Order, MWD imported 465 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley. As previously noted the groundwater in the Domenigoni Valley groundwater basin is outside this Court's jurisdiction when groundwater levels are below 1400 feet.

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SECTION 6 - WATER RIGHTS

6.1 General

Water is used in the Santa Margarita River Watershed under a variety of water rights. In the early 1960's, the U. S. District Court in its Interlocutory Judgments described water rights in the Watershed as primarily riparian rights and overlying rights. Riparian rights belong to owners of land parcels located adjacent to streams in the Watershed or overlying younger alluvium deposits generally along the stream channels. Overlying rights were divided by the Court into two categories based on the location where the water is obtained and used. Water extracted from lands where subsurface waters add to, contribute to and support the Santa Margarita River stream system was found to be subject to the continuing jurisdiction of the Court. Lands in this category were identified by the Court and listed in Interlocutory Judgments. In general, these parcels of land overlie younger or older alluvium deposits. The Court has stated that the issue of apportionment of water rights has not been presented to the Court, but the Court would litigate the apportionment if and when in the future it becomes necessary to do so.

The other category of overlying use applies to parcels of land where subsurface flows do not add to, contribute to or support the Santa Margarita River stream system. These parcels were also identified by the Court and found to be outside the continuing jurisdiction of the Court. In general, these lands overlie basement complex or residuum deposits.

The Court also described a number of other rights in the Watershed. These included surface water appropriative water rights that have been administered by the State of California since 1914. These rights are discussed in the following subsection of this report.

In Interlocutory Judgment No. 41, the Court found that the United States reserved rights to the use of the waters of the Santa Margarita River stream system which under natural conditions would be physically available on the Cahuilla, Pechanga and Ramona Indian Reservations, including rights to the use of groundwater, sufficient for the present and future needs of the Indians residing thereon. In Interlocutory Judgment No. 44, the Court recognized and reserved water rights for lands within the Cleveland and San Bernardino National Forests and for lands being administered pursuant to the Taylor Grazing Act.

Since the early 1960's there have been substantial changes in water use in the Watershed, especially in the Murrieta-Temecula Groundwater Area. During the 1950's and early 1960's when this case was under active litigation, most of the water use in the Murrieta-Temecula area consisted of individual property owners pumping water for use on their own properties. In 1965, the Rancho California WD was formed. The District developed Agency Agreements with most of the landowners within the District. In these

Agency Agreements, the landowners "...without transferring any water rights and privileges pertaining to said land...." designated the District as their exclusive agent for the development and management of their water supply.

Thus, many landowners within the Rancho California WD are not exercising their overlying rights. Instead, Rancho California WD pumps groundwater and uses it throughout the District area as agent on behalf of the landowners.

Rancho California WD also pumps water as a groundwater appropriator along with Western Municipal Water District within its Murrieta Division.

Another change from the early 1960's is the large scale importation of water into the Santa Margarita River Watershed by Rancho California WD. A portion of such importation finds its way into the groundwater aquifers. The legal status of return flows from imported supplies as well as direct recharge of imported water was clarified by the final judgment in *City of Los Angeles v. City of San Fernando, et al.,* 1975 14 Cal. 3rd 199. This decision in the Supreme Court of the State of California made two major findings with respect to imported water.

The first was that agencies have the right to recharge and store imported water in a groundwater basin and to extract the imported water for use, subject to applicable state and federal laws. In addition, agencies that import and deliver water to lands overlying a groundwater basin have a continuing right to extract the return flow from such water. The return flow is that portion of the imported supply that percolates into the groundwater basin. In the San Fernando case this portion was found to range from 20 percent to 35.7 percent of the imported supplies.

The Rancho Division of the Rancho California WD overlies the Murrieta-Temecula Groundwater Area. Thus a portion of the import supply delivered to the Rancho Division of Rancho California WD percolates into the underlying aquifers.

Imported water is also supplied to the Santa Rosa Division within Rancho California WD, however only a relatively small part of this division overlies the Murrieta-Temecula Groundwater Area. Thus there is less imported water return flow from the Santa Rosa Division.

Classification of Rancho California WD supplies into various water right categories is discussed in Section 7 of this Report.

Camp Pendleton representatives contend that the Court has jurisdiction over imported water to the full extent that imported water, as well as its use, its returns and its products, affects in any significant manner the water rights within the Watershed over which the Court has traditionally asserted its jurisdiction. Other parties dispute the Court's jurisdiction over imported water.

6.2 Appropriative Surface Water Rights

Another broad category of water rights used in the Watershed is surface water appropriative rights. Since 1914, these rights have been administered by the SWRCB.

A list of current permits, licenses and other active rights obtained from the SWRCB is shown on Table 6.1. A permit by the SWRCB authorizes water diversion, sets terms for the water project's completion and development of water use, and may impose other conditions. After the permittee demonstrates that construction is complete, water is being put to use and the permit conditions have been met, the SWRCB can issue a license. The license remains in effect as long as the license conditions are met and the water is put to beneficial use.

Active direct diversion rights and storage rights from creeks in the Watershed are summarized below:

	Direct Diversions Gallons Per Day	Storage Acre Feet
Cahuilla Valley	720	5
Cottonwood Creek	485,000	60
Cutea Creek	5,825	---
DeLuz Creek	4,700	100
Fern Creek	213,000	100
Kohler Canyon	158,000	40
Long Canyon Spring	89	---
Rainbow Creek	---	0.5
Rattlesnake Canyon	12,000	---
Temecula Creek	25,820	40,000
Sandia Canyon	---	8
Sourdough Spring	55	---
Santa Margarita River	133	4,000
Nelson Creek	1,550	---
TOTAL	906,892	44,313.5

These direct diversion rights of 906,892 gallons per day correspond to 1.4 cfs or 2.78 acre feet per day.

TABLE 6.1

SANTA MARGARITA RIVER WATERSHED
APPROPRIATIVE WATER RIGHTS

PERMITS AND LICENSES

I.D. NO.	OWNER	FILING DATE	SOURCE OF WATER	POINT OF DIVERSION	AMOUNT	USE	STATUS
6629	William H. & Sandra J. Cyrus	4/9/30	Coahuila Valley	Sec. 4, 7S, 3E	DD-720 gpd	D	License
6893	Earl C. & Mamie LaBine	2/13/31	Temecula Creek	Sec. 20, 9S, 2E	DD-820 gpd	D/I	License
7035	Nyla Lawler	8/10/31	Cutca Creek	Sec. 29, 9S, 1E	DD-5725 gpd	D/I	License
7731	Earl C. & Mamie LaBine	11/02/33	Temecula Creek	Sec. 20, 9S, 2E	DD-7200 gpd	D/I	License
9137	Goodarz Irani	10/07/37	Temecula Creek	Sec. 12, 9S, 1E	DD-400 gpd	D	License
9291	Luis Olivos	5/13/38	Nelson Creek	Sec. 23, 8S, 5W	DD-1550 gpd	D	License
10806	James R., Phyllis & Bruce Grammer	4/22/44	Temecula Creek	Sec. 34, 9S, 2E	DD-2880 gpd	D	License
11161	Roy C. Pursche & Barbara Booth	9/26/45	Rattlesnake Canyon	Sec. 28, 9S, 2E	DD-12,000 gpd	D/I	License
11518	Rancho California Water District	8/16/46	Temecula Creek	Sec. 10, 8S, 1W	ST-40,000 AF	D/I/IN/M/R	Permit
11587	U. S. Bureau of Reclamation	10/11/46	Santa Margarita River	Sec. 12, 9S, 4W	ST-10,000 AF	D/I/M	Permit
12178	Fallbrook Public Utility District	11/28/47	Santa Margarita River	Sec. 3, 7S, 4W	ST-10,000 AF	D/I/M	Permit
12179	U. S. Bureau of Reclamation	11/28/47	Santa Margarita River	Sec. 12, 9S, 4W	ST-10,000 AF	D/I/M	Permit
13505	David H. & Kathleen C. Lypps	12/12/49	Cottonwood Creek	Sec. 30, 8S, 4W	DD-0.75 cfs & ST-42 AF	R/S	License
17239	Ward Family Trust	8/15/56	Temecula Creek	Sec. 20, 9S, 2E	DD-120 gpd	D/E	License
20507	David H. & Kathleen C. Lypps	11/24/61	Cottonwood Creek	Sec. 19, 8S, 4W Sec. 30, 8S, 4W	ST-18 AF	I/R	License
20608	Pete and Dorothy Prestininzi	2/13/62	DeLuz Creek	Sec. 20, 8S, 4W	ST-100 AF	D/I/R	License
20742	U. S. Cleveland National Forest	4/24/62	Sourdough Spring	Sec. 25, 9S, 1E	DD-55 gpd	E	License
21074	U. S. Cleveland National Forest	12/07/62	Cutca Spring	Sec. 17, 9S, 1E	DD-100 gpd	S/W	License
21471A	U. S. Department of Navy	9/23/63	Santa Margarita River	Sec. 5, 10S, 4W Sec. 2, 11S, 5W	ST-4,000 AF	D/I/M/Z	License
21471B	U. S. Bureau of Reclamation	9/23/63	Santa Margarita River	Sec. 32, 9S, 4W	ST-165,000 AF	D/I/M/Z	Permit
27756	James R. Grammer	5/23/83	Temecula Creek	Sec. 3, 10S, 2E	DD-14,400 gpd	I/S	Permit
28133	Charles F. Ruggles	5/14/84	Cahuilla Creek	Sec. 15, 8S, 2E	ST-5AF	E/H/I/R/S	Permit

OTHER RIGHTS

05751S/Federal	U. S. Cleveland National Forest	1/01/70	Long Canyon Spring	Sec. 16, 9S, 1E	DD-89 gpd	E/R/S/W
000024/State	Judge Dial Perkins	12/26/86	Santa Margarita River	Sec. 12, 9S, 4W	DD-133.3 gpd	D
000751/State	Lawrence Butler	5/31/67	Fern Creek	Sec. 31, 8S, 4W	DD-0.33 cfs ST-100 AF	I
011411/State	Agri Empire, Inc.	5/16/84	Kohler Canyon	Sec. 33, 9S, 2E	DD-0.245 cfs ST-40 AF	I/S
012235/State	William A. & Lois D. Cunningham	8/27/85	DeLuz Creek	Sec. 4, 9S, 4W	DD-4700 gpd	D/I
001583/Stock	George F. Yackey	12/27/77	Sandia Canyon	Sec. 25, 8S, 4W	ST-8.0 AF	S
002380/Stock	Chris R. & Jeanette L. Duarte	12/16/77	Rainbow Creek	Sec. 12, 9S, 3W	ST-0.5 AF	S

KEY TO USE: *DD - Direct Diversion* *D - Domestic* *R - Recreation* *E - Fire Protection* *H - Fish Culture*
ST - Diversion to Storage *I - Irrigation* *M - Municipal* *S - Stockwatering* *Z - Other*
IN - Industrial *W - Fish & Wildlife Protection and/or Enhancement*

Storage rights shown in Table 6.1 include 185,000 acre feet of storage rights on the Santa Margarita River held by the U. S. Bureau of Reclamation (ID Nos. 11587, 12179, and 21471B) that have not been exercised. The deadline for exercising these rights is currently set at December 31, 2008. On November 14, 2008, the U. S. Bureau of Reclamation filed petitions for time extensions for completion of beneficial use under the three permits. On September 14, 2009 change petitions were filed to amend the permits to conform to the Santa Margarita Conjunctive Use Project being developed jointly by the U. S. Bureau of Reclamation, Department of the Navy Marine Corps Base Camp Pendleton, and Fallbrook Public Utility District. Those extension and change petitions have been accepted and in accordance with SWRCB Order 2009-0063-EXEC they are under consideration in tandem.

Table 6.1 also lists other rights recognized by the SWRCB. These rights generally are based on Statements of Water Diversion and Use that have been filed with the SWRCB. Such statements include one by the United States on behalf of the Cleveland National Forest, which states that the diversion and use of water from Long Canyon Spring is made pursuant to a withdrawal and reservation of the land and resources for National Forest System purposes as of February 14, 1907.

Besides the federal filing, there are also Statements of Water Diversion and Use filed by individuals. Three of these statements represent riparian or pre-1914 appropriative diversions from DeLuz Creek, Fern Creek and Santa Margarita River that have been reported to the SWRCB. The other statement represents a pre-1914 appropriative right to divert water from a spring in Kohler Canyon into a 40 acre foot reservoir.

The last two rights noted on Table 6.1 represent filings made in 1977 pursuant to Subchapter 2.5 to Chapter 3 of Title 23 of the California Code of Regulations. That subchapter deals with Water Rights for Stockponds.

In addition to appropriative rights under SWRCB jurisdiction, there are a number of nonstatutory appropriative rights that were established prior to 1914. These rights continue to be used to support diversions of water from the Santa Margarita River stream system. Such rights, which are listed in the various Interlocutory Orders developed in this litigation, are shown on Table 6.2.

In 1990-91, in Order No. 91-07, the SWRCB revised its Order No. 89-25 entitled, "Order Adopting Declaration of Fully Appropriated Stream Systems and Specifying Conditions for Acceptance of Applications and Registrations." These Orders list the Santa Margarita River stream system as fully appropriated "from the confluence of the Santa Margarita River and the Pacific Ocean upstream including all tributaries where hydraulic continuity exists."

TABLE 6.2

SANTA MARGARITA RIVER WATERSHED
PRE - 1914 APPROPRIATIVE WATER RIGHTS
Listed in Interlocutory Decrees

LISTED OWNER	CURRENT OWNER	DATE OF APPROPRIATION	SOURCE OF WATER	POINT OF DIVERSION	AMOUNT	USE
Anderson, Nina B.	Nezami, Mohammed	April 11, 1892	Fern Creek	NW 1/4 Of SE 1/4 Sec 31, T8S, R4W	32 gpm	Irrigation
Butler, Lawrence W. and Mary C.	Vanginkel, Norman Tr and Vanginkel, Deborah San Diego Gas & Electric	Sept. 23, 1896	Fern Creek	NW 1/4 Of SE 1/4 Sec 31, T8S, R4W	Capacity of 8 inch pipe	Irrigation
Wilson, Samuel M. and Hazel A.	Shirley, Robert G. and Bobbi J.	Aug. 3, 1911	DeLuz Creek	NW 1/4 Of SW 1/4 Sec 32, T8S, R4W	50 miner's inches 65 AF/Yr	Irrigation
United States	United States	1883	Santa Margarita River	Sec 5, T10S, R4W	20 cfs 1200 AF/Yr	Domestic Irrigation

The consequences of this Order are as follows:

1. The Board is precluded from accepting any application to appropriate water from the Santa Margarita River System except where the proposed appropriation is consistent with conditions contained in the Declaration.

2. Initiation of a water right pursuant to the Water Rights Permitting Reform Act of 1988 (Water code Section 1228 et seq.) --that is, by registering small use domestic appropriations--is precluded, except where the proposed appropriation is consistent with conditions contained in the Declaration. Small use domestic appropriations refer to uses that do not exceed direct diversions of 4,500 gallons per day or diversion by storage of 10 acre feet per year for incidental aesthetic, recreational, or fish and wildlife purposes.

3. Pursuant to Water Code Section 1206(a) the Board is authorized, but not required, to cancel pending applications where inconsistent with conditions contained in the Declaration; previous Orders implement a procedure for disposition of such applications pending on the effective date of the Declaration.

The Order provides for reconsideration of the Order either upon petition of an interested party or upon the Board's own motion.

6.3 Fallbrook PUD Changes Point of Diversion and Place of Use for Permit No. 11356

On November 20, 2001, the Chief of the Division of Water Rights of the State Water Resources Control Board authorized an Order Approving Changes in Source Point of Diversion, Place of Use and Amending the Permit (No. 11356). The permit allows Fallbrook PUD to divert and store up to 10,000 acre feet per year at Lake Skinner. The Court approved an Order Amending the Memorandum of Understanding and Agreement on Operation of Lake Skinner on February 16, 2005. The Amendment provides for diversions from Lake Skinner after specified releases are made.

On December 18, 2009, Fallbrook PUD filed a petition for a time extension for completion of beneficial use under Permit No. 11356. The petition was accepted and noticed by the SWRCB on January 23, 2009 and is pending.

6.4 Federal Reserved Water Rights Claims by Cahuilla and Ramona Bands

On October 6, 2006, the Cahuilla Band of Indians filed a Motion to Intervene as Plaintiff-Intervenor in *United States v. Fallbrook Public Utility District, et al.* The Cahuilla Band also filed a Complaint asking the Court to quantify its federal reserved water rights by confirming elements of the water rights as declared and decreed by the Court in Interlocutory Judgment No. 41. On October 16, 2006, the Ramona Band of Cahuilla filed a similar motion and Complaint. On January 22, 2007, the Court issued an Order granting the Motions to Intervene and filing the Complaints in Intervention. On February 25, 2009, the Court ordered the Cahuilla Band and Ramona Band as plaintiffs to serve by April 30, 2009 all water right holders subject to the Court's jurisdiction within the entire watershed. Service was completed and the parties commenced negotiations. On April 1, 2009, the Cahuilla and Ramona Bands filed motions to dismiss claims against certain downstream defendants and to file second amended complaints to limit the claims to the Anza-Cahuilla Groundwater Area. On April 29, 2009, the Court issued an Order granting the motions. The parties are progressing with negotiations and Court proceedings for quantification of each Band's federal reserved water rights based on the second amended complaints.

6.5 Federal Reserved Water Rights Claims by Pechanga Band

In 1974, the Pechanga Band of Luiseño Indians filed a Motion to intervene as a Plaintiff-Intervenor in *United States v. Fallbrook Public Utility District, et al.* and in 1975 the Court granted the Motion. Rather than filing a complaint asking the Court to quantify its federal reserved water rights, the Pechanga Band is in the process of resolving its claims to water rights in the Santa Margarita River Watershed through a comprehensive settlement agreement with the United States and principal water districts, including Rancho California WD, Eastern MWD, and Metropolitan Water District. On December 17, 2009, Pechanga and Rancho California WD announced an agreement on a framework, developed with the assistance of Metropolitan Water District and the United States Federal Negotiating Team, to resolve Pechanga's water rights claims. On April 27, 2009, Pechanga and Rancho California WD agreed to a Settlement Conceptual Agreement and on June 11, 2009, the Rancho California WD Board approved the Settlement Conceptual Agreement. On November 16, 2009, the parties announced the Pechanga Water Rights Settlement Agreement was finalized. On December 11, 2009 and January 26, 2010 the Pechanga Indian Water Rights Settlement Act was introduced in the United States House of Representatives and Senate, respectively. The parties are now in the process of obtaining Congressional and Court approvals.

SECTION 7 - WATER PRODUCTION AND USE

7.1 General

Water production and use data were obtained from several types of substantial users including water purveyors, Indian Reservations, mobile home parks and private landowners. Private landowners who qualify as substantial water users are those who irrigate eight or more acres or who produce or use an equivalent quantity of water.

Major water purveyors who reported production and use data in the 2008-09 Water Year are listed as follows:

Anza Mutual Water Company
Eastern Municipal Water District
Elsinore Valley Municipal Water District
Fallbrook Public Utility District
Lake Riverside Estates
Metropolitan Water District of Southern California
Rainbow Municipal Water District
Rancho California Water District
U. S. Marine Corps, Camp Pendleton
U.S. Naval Weapons Station, Fallbrook Annex
Western Municipal Water District

Lake Riverside Estates is listed with major water purveyors although it does not deliver water to customers. However it does produce make-up water for losses from Lake Riverside.

In addition to the major purveyors, there are a number of smaller water systems in the Watershed. Of these, Butterfield Oaks Mobile Home Park, Jojoba Hills SKP Resort, Outdoor Resorts Rancho California, Inc. and Hawthorn Water System are substantial users.

Three Indian Reservations, the Cahuilla, Pechanga and Ramona, are noted in Interlocutory Judgment No. 41, the Judgment that deals with Water Rights on Indian Reservations in the Watershed. Estimates and/or measurements of water production and use are reported for the Cahuilla, Pechanga and Ramona Indian Reservations.

A portion of a fourth Reservation, the Pauma Mission Reserve Tract of the Pauma Yuima Band of Mission Indians, is also located within the Watershed. However, these lands overlie basement complex, which waters have been found by the Court to not add to, support or contribute to the Santa Margarita River stream system.

The final category of water users is private landowners who use water primarily for irrigation.

The water use data collected for the 2008-09 Water Year are summarized on Table 7.1. Total imported supplies plus local production totaled 129,714 acre feet compared to 130,745 reported in 2007-08. Of that quantity, 47,095 acre feet were used for agriculture; 7,908 acre feet were used for commercial purposes; 59,303 acre feet were used for domestic purposes; 26 acre feet were discharged to Murrieta Creek; 11 acre feet were discharged to Santa Gertrudis Creek; 5,265 acre feet were discharged by Rancho California WD during 2008-09 pursuant to the Cooperative Water Resources Management Agreement (CWRMA) (3,992 acre feet to the Santa Margarita River from MWD WR-34; 1,052 acre feet to Murrieta Creek from the System River Meter and 221 acre feet from the potable connection to WR-34 outlet pipe); 3,146 acre feet of fresh water were exported by Camp Pendleton; and 2,357 acre feet were recharged by Rancho California WD to storage. The overall system loss was 4,879 acre feet. System gain or loss is the result of many factors including errors in measurement, differences between periods of use and periods of production, leakage and unmeasured uses.

Monthly production and use data for major water purveyors are attached to this report as Appendix A. Uses are listed under agricultural, ag/domestic, commercial and domestic categories. The definition of agricultural, ag/domestic, commercial and domestic uses varies for the different purveyors in the Watershed. Accordingly definitions of these uses for major water purveyors are shown on Table 7.2. It is noted that much of the non-agricultural water use in the Watershed can also be considered municipal use, which includes both the domestic and commercial uses shown in tables in this report. Similar data for Water Years 1966-2009 are summarized in tables presented in Appendix B. Appendix C presents information on substantial users outside purveyor service areas.

7.2 Water Purveyors

Anza Mutual Water Company

Anza Mutual Water Company's service area is in the eastern part of the Watershed in the Anza Valley. Production is from two wells: Well No. 1 drilled in 1951 and perforated from 20 feet to 260 feet; and Well No. 2 drilled later to a depth of 287 feet and perforated in the bottom 130 feet. Production for 2008-09 was 34.13 acre feet from Well No. 1 as shown in Appendix A, Table A-11. Well No. 2 was not in use for 2008-09. Water levels in Well No. 1 increased 20 feet from last year.

TABLE 7.1

SANTA MARGARITA RIVER WATERSHED
WATER PRODUCTION AND USE
2008-09
Quantities in Acre Feet

	PRODUCTION			USE					
	WELL/ SURFACE	IMPORT	TOTAL	AG	COMM	DOM	LOSS	TOTAL	WATER RIGHT
WATER PURVEYORS									
Anza Mutual Water Company	34	0	34	0	0	31	3 1/	34	Appropriative
Eastern MWD	0	14,472	14,472	0	0	13,748	724	14,472	Appropriative
Elsinore Valley MWD	0	9,075	9,075 12/	147	2,015	6,913	0	9,075	--------
Fallbrook PUD	0	8,557	8,557	4,151	533	3,363	510	8,557	Appropriative
Lake Riverside Estates	348	0	348	0	348 2/	0	0	348	Appropriative
Metropolitan Water District	0	465	465	441	0 3/	0	24	465	--------
Murrieta Division of Western MWD	861	1,654	2,515	396	219	1,723	177	2,515	Appropriative
Rainbow MWD	0	1,852	1,852	1,463	0	220	169	1,852	--------
Rancho California WD	27,453 4/	50,270 5/	77,723	32,797 6/	4,306	30,159	10,461 7/	77,723	Various
U.S.M.C. - Camp Pendleton	6,398	0	6,398	273	------ 8/	2,681	3,444 1/ 9/	6,398	Appropriative/ Riparian
U.S. Naval Weapons Station	0	74	74	0	------ 8/	67	7 1/	74	--------
Western MWD Improvement District A Through Rancho California WD	0	51	51	0	46	0	5 1/	51	--------
INDIAN RESERVATIONS									
Cahuilla	49	0	49	0	------	49	0	49	Overlying/Reserved
Pechanga	952	0	952	548	441	195	(232) 13/	952	Overlying/Reserved
SMALL WATER SYSTEMS									
Butterfield Oaks	23	0	23	8	0	13	2 1/	23	Riparian/Overlying
Outdoor Resorts	492	0	492	429	0	57	6 1/	492	Overlying
Jojoba Hills SKP Resort	68	0	68	0	0	61	7 1/	68	Overlying
Hawthorn Water System	25	0	25	0	0	23	2 1/	25	Appropriative
OTHER SUBSTANTIAL USERS	6,541 10/	0	6,541	6,442	0	0	99 11/	6,541	
TOTAL	**43,244**	**86,470**	**129,714**	**47,095**	**7,908**	**59,303**	**15,408** 14/	**129,714**	

1/ Assumes 10% system loss
2/ Recreation Use
3/ Construction use at Diamond Valley Lake
4/ 26,584 AF production from Old Alluvium and 1,236 AF of Vail Recovery less 367 AF exported to the San Mateo Watershed
5/ Includes 32,168 AF direct use; 14,828 AF direct recharge; 3,992 AF from MWD WR-34; and minus 718 AF export
6/ 26,811 AF Ag, and 5,986 AF Ag/Domestic
7/ 26 AF discharged into Murrieta Creek; 11 AF discharged into Santa Gertrudis Creek; 3,992 AF discharged into Santa Margarita River from MWD WR-34; 1,052 AF from System River Meter; 221 AF from potable connection to WR-34 outlet pipe and 2,357 AF of import remaining in storage; and a system loss of 2,802 AF
8/ Listed with Domestic uses
9/ Includes exports of 3,146 acre feet
10/ 986 AF for surface diversion plus 5,604 AF from groundwater as shown in Appendix C, minus 49 AF on the Cahuilla Reservation
11/ 10% of surface diversions
12/ Sales figures
13/ Includes a system loss of 36 acre feet, minus 268 acre feet of reclaimed wastewater from EMWD, accounted for on Table A-1. See Table A-5 for Pechanga production and use
14/ Includes an overall system loss of 4,879 AF

TABLE 7.2

SANTA MARGARITA RIVER WATERSHED
DEFINITIONS OF WATER USE
BY MUNICIPAL WATER PURVEYORS
2008-09

DISTRICT	AGRICULTURAL	DOMESTIC	COMMERCIAL
EASTERN MUNICIPAL WATER DISTRICT	A commercial enterprise producing a crop/livestock on at least 5 acres and able to accept a delivery of at least 24 consecutive hours	Single family, multiple units and agricultural uses of less than 5 acres	Not reported
ELSINORE VALLEY MUNICIPAL WATER DISTRICT	Delivery of water for agricultural purposes in growing or raising for commerce, trade or industry or for use by public eduational or correctional institutions	Delivery of water to single family residential customers in single, detached residential units	Delivery of water to multi-family residential units; commercial, industrial establishments; cities, political sub-divisions or quasi-governmental associations
FALLBROOK PUBLIC UTILITY DISTRICT	AG - A commercial enterprise producing a crop/livestock/fowl on at least 1 acre fully used for ag purposes; can include incidental domestic use related to residency AG/DOM - Water used for both ag and domestic purposes	Single family, multi-unit and large domestic residences and the first 20,000 gallons used by an ag/domestic meter	Offices, businesses, schools and hydrants
PECHANGA INDIAN RESERVATION	Irrigation, including water used for golf course, parks, grass areas, and landscaping	Residential	Resort, on-Reservation businesses, tribal facilities
RAINBOW MUNICIPAL WATER DISTRICT	AG- 1 acre or more of plantable, resalable products DOM/AG - Same as Ag with a house on the parcel	DOMESTIC - Homes	Generally no commercial use in district
RANCHO CALIFORNIA WATER DISTRICT	AG - 1 acre or more of plantable, resalable products GOLF - Outside water use at golf courses VINEYARDS - Outside irrigation for vineyards LANDSCAPE - Landscaping around freeways, parking lots, office buildings, median strips. AG/DOM - First 1600 c.f. for each user alloted to domestic, and the balance to agriculture	DOMESTIC - Homes MULTIPLE - Apartments and Condominiums	COMMERCIAL - Office buildings, industrial users other than agri-businesses FLOATING - Fire hydrants used during construction CONSTRUCTION - Other fire hydrants used for grading LAKE SKINNER - Recreational use at Lake Skinner MISCELLANEOUS - Schools, fire departments, parks, government agencies DETECTOR CK. METERS - Only used when there is a fire
MURRIETA DIVISION OF WESTERN MUNICIPAL WATER DISTRICT	Agricultural uses and irrigation for crops	Homes and multiple units	Businesses, public agencies, schools and construction
USMC, CAMP PENDLETON	Irrigation - Water used for ag purposes, not landscaping, golf courses or parks	Camp Supply - Includes landscaping, parks and commercial use	Reported under Camp Supply

Interlocutory Judgment No. 33 divides aquifers in Anza Valley at this location into two categories: the shallow aquifer and the deep aquifer. Based on information available to the Court the shallow aquifer was determined to include the younger and older alluvial deposits in the Anza Groundwater Basin and extend to a maximum but variable depth of approximately 100 feet. The deep aquifer underlies the shallow aquifer in an area about one-half mile in width and two miles in length, within portions of Sections 16, 17, 21, 22, 27 and 28 of Township 7 South, Range 3 East, SBM. Anza Mutual Water Company's wells are within the area of the deep aquifer. From the perforated intervals in the wells, it may be concluded that most of the production from Well No. 1 and all of the production from Well No. 2 are from the deep aquifer. Interlocutory Judgment No. 33 concluded that waters contained in the deep aquifer did not add to, support or contribute to the Santa Margarita River stream system and were, therefore, declared to be outside the Court's jurisdiction.

Thus, most of the water produced by the Anza Mutual Water Company is outside the Court's jurisdiction. The relatively small portion pumped from the shallow aquifer in Well No. 1 is pumped under a groundwater appropriative right. Data for Water Years 1989 -2009 are shown in Appendix Table B-12.

Eastern Municipal Water District

Eastern MWD is a member agency of MWD and its service area includes a portion of the Rancho California WD and the Murrieta Division of Western MWD. Within the Watershed, the District wholesales water to those districts and also retails water directly to consumers. Water sold to Rancho California WD and the Murrieta Division of Western MWD is not listed in this report as imported water to Eastern MWD.

Eastern MWD's service area outside Rancho California WD and the Murrieta Division of Western MWD is located in the northern part of the Watershed. Water for the Eastern MWD retail service area is all imported with no groundwater production during 2008-09.

Imports, not including water wholesaled to Rancho California WD or the Murrieta Division of Western MWD or delivered to Elsinore Valley MWD, totaled 16,919 acre feet. A portion of that import amounting to 2,447 acre feet was exported from the Santa Margarita River Watershed for delivery to Eastern MWD's retail customers located outside the watershed, resulting in net import to the watershed of 14,472 acre feet. These data are shown in Appendix A.

In addition to importing fresh water, Eastern MWD also reclaims wastewater at its Temecula Valley Regional Water Reclamation Facility.

Disposition of wastewater from the Temecula Valley Regional Water Reclamation Facility (Facility) service area for Water Years 2007-08 and 2008-09 is shown below:

Use	2007-08 Quantity AF	2007-08 Percent %	2008-09 Quantity AF	2008-09 Percent %
Reuse in Santa Margarita	1,450	10	2,615	18
Reuse outside Santa Margarita	5,925	42	6,786	46
Subtotal	7,375	52	9,401	64
Discharge to Dissipater at Temescal Creek	4,210	29	2,772	19
Other	2,654	19	2,469	17
TOTAL	14,239	100	14,642	100

It can be noted that the quantities of reclaimed wastewater used within the Santa Margarita River Watershed increased from 1,450 acre feet in 2007-08 to 2,615 acre feet in 2008-09. During the same period reuse outside the Santa Margarita River Watershed increased from 5,925 acre feet to 6,786 acre feet. From the foregoing it may be concluded that 18 percent of the wastewater is reused in the watershed and 46 percent is used outside the watershed. The quantity of wastewater discharged to the dissipater at Temescal Creek decreased from 4,210 acre feet to 2,772 acre feet. The Other use decreased from 2,654 acre feet to 2,469 acre feet. This Other use includes changes of storage in Winchester and Sun City storage ponds, as well as evaporation and percolation losses.

Because of concerns about the potential export of native Santa Margarita water, the sources of water supply to the Facility service area were determined and are shown on Table 7.3. In 2008-09, 15 percent of the supply to the service area was groundwater. Thus, the percent of groundwater supply was less than the percentage of wastewater reused within the Santa Margarita Watershed, and on a proportional basis there was no export of native waters. It is noted that Rancho California WD does not agree with this method for calculating export of native waters.

TABLE 7.3

SANTA MARGARITA RIVER WATERSHED

WATER DELIVERIES TO TEMECULA VALLEY
REGIONAL WATER RECLAMATION FACILITY SERVICE AREA

	2005		2006		2007		2008		2009	
Eastern MWD	AF	%	AF	%	AF	%	AF	%	AF	%
Deliveries to TVRWRF Service Area										
1. Groundwater	0		0		0		0		0	
2. Import 1/	10,858		14,161		15,398		14,952		14,472	
3. Total	10,858		14,161		15,398		14,952		14,472	
Rancho California WD										
Deliveries to TVRWRF Service Area										
1. Groundwater 2/	8,486		8,150		5,923		5,700		5,230	
2. Import 3/	10,696		12,753		17,230		16,431		15,609	
3. Total 4/	19,182		20,903		23,153		22,131		20,839	
Total Deliveries to TVRWRF Service Area										
1. Groundwater	8,486	28.2%	8,150	23.2%	5,923	15.4%	5,700	15.4%	5,230	14.8%
2. Import	21,554	71.8%	26,914	76.8%	32,628	84.6%	31,383	84.6%	30,081	85.2%
3. Total	30,040	100.0%	35,064	100.0%	38,551	100.0%	37,083	100.0%	35,311	100.0%

1/ EMWD imports are based on discharges from EM-17.
2/ Based on ratio of groundwater to total production in Rancho Division of RCWD
3/ Based on ratio of import to total production in Rancho Division of RCWD
4/ Total RCWD deliveries in TVRWRF Service Area

On August 4, 2009, a Judgment was entered in *United States and Fallbrook Public Utility District v. Eastern Municipal Water District and Rancho California Water District* (CV 04-8182 CBM (RNBx), United States District Court, Central District of California) pertaining to the export of treated wastewater from the Santa Margarita River Watershed. For purposes of this annual report the export of treated wastewater will be reported consistent with prior annual reports with no changes pursuant to the recent Judgment. Once this case is resolved pending any motions for reconsideration and possible appeals, the Watermaster will reevaluate the calculations and reporting to be included in future annual reports.

Estimates of water production and use for the period 1966-2009 are shown in Appendix B.

Elsinore Valley Municipal Water District

Elsinore Valley MWD provides water to its service area around Lake Elsinore, a portion of which is within the Santa Margarita River Watershed. Elsinore Valley MWD obtains its supply from ten wells, all located outside the Santa Margarita River Watershed, and also imports MWD water through Eastern MWD and Western MWD.

As shown in Appendix A, the Elsinore Valley MWD reports that 9,075 acre feet of imported water was delivered in the portion of its service area that is inside the Santa Margarita River Watershed in 2008-09. Also during 2008-09, approximately 1,069 acre feet of wastewater were exported from that same area.

Production and use during the period 1966 to 2009 are shown in Appendix B.

Fallbrook Public Utility District

In 2008-09, Fallbrook PUD imported 15,355 acre feet through its contract with the San Diego County Water Authority as shown in Appendix A. Of this quantity, 2,767 acre feet were delivered to the former DeLuz Heights Water District service area that is entirely within the Santa Margarita River Watershed. Of the remaining importations it is estimated that 46 percent, or 5,790 acre feet, were delivered to lands inside the Santa Margarita River Watershed. The remainder was delivered to lands in the adjacent San Luis Rey River Watershed. Thus, imports to the Watershed totaled 8,557 acre feet in 2008-09. Fallbrook PUD did not receive any water diverted at Lake Skinner for 2008-09. It is noted the District is working with the Watermaster to refine estimates of deliveries inside and outside the watershed, and such refinements will be included in future annual reports.

In addition, the District has three wells; however, in 2008-09, there was no pumpage from these wells. In 2008-09, Fallbrook PUD treated 1,187 acre feet of wastewater from areas served within the Watershed, of which 31 acre feet were reused in the Watershed, and the remainder was exported.

Production during the period 1966 to 2009 included direct diversions from the Santa Margarita River for water years before 1972 as well as imported water and well production as shown in Appendix B.

Lake Riverside Estates

Lake Riverside Estates pumps water from Well No. 7S/2E-32C1, into Lake Riverside to replace evaporation losses. Production for 2008-09 was 348 acre feet as shown in Appendix A, Table A-11. The production well was drilled in 1962 and is located in an area of younger alluvium in the Cahuilla Groundwater Basin. The well was drilled to a depth of 338 feet.

Interlocutory Judgment No. 33 indicates that the owners of lands in the Cahuilla Groundwater Basin have correlative overlying rights to the use of the groundwater that is the basis for this production. Data for 1989 - 2009 are shown on Appendix Table B-12.

Metropolitan Water District of Southern California

Pursuant to a Court Order, MWD imported 465 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley. MWD did not import any water for groundwater recharge and there was no water used for construction purposes. As previously noted, the groundwater in the Domenigoni Valley groundwater basin is outside this Court's jurisdiction when groundwater levels are below 1400 feet. This production is shown in Appendix A and production for the period 1966 - 2009 is shown in Appendix B.

Rainbow Municipal Water District

Rainbow MWD is located in San Diego County in the south-central part of the Watershed. In 2008-09 the District imported a total of 27,075 acre feet of water as shown on Table B-7. However, most of the District is in the San Luis Rey River Watershed and only about seven percent of the District's imported supply was delivered to the portion of the District's service area inside the Santa Margarita River Watershed. As shown in Appendix A, total deliveries of imported water in the Santa Margarita River Watershed in 2008-09 amounted to 1,852 acre feet.

The import production for years between 1966 and 2009 is shown in Appendix B.

Rancho California Water District

Rancho California WD serves water to a 99,600 acre service area in the central portion of the Watershed. The District produced water from 47 wells in 2008-09 and also imported water, as shown in Appendix A. Use is shown in Appendix A under the categories of agriculture, ag/domestic, commercial and domestic. In Water Year 2008-09

well production of native water included 27,820 acre feet from the Murrieta-Temecula Groundwater Area. This quantity included 26,584 acre feet from the older alluvium, and 1,236 acre feet of recovered Vail recharge. A portion of the groundwater amounting to 367 acre feet was exported for use in the San Mateo Watershed, resulting in a net well production of 27,453 acre feet.

Import supplies totaled 50,988 acre feet of which 32,168 acre feet were used for direct use, 14,828 acre feet were recharged, and 3,992 acre feet were discharged by Rancho California WD to the Santa Margarita River from MWD Meter WR-34 during 2008-09 pursuant to the CWRMA. A portion of that import amounting to 718 acre feet were exported from the Santa Margarita River Watershed resulting in net import to the Watershed of 50,270 acre feet.

During 2008-09, use totaled 77,723 acre feet including 26,811 acre feet by agriculture; 5,986 acre feet by ag/domestic; 4,306 acre feet by commercial; 30,159 acre feet by domestic; 5,302 acre feet were released into Murrieta Creek, Temecula Creek, Santa Gertrudis Creek and the Santa Margarita River; 2,357 acre feet of import were recharged to storage; and 2,802 acre feet were system loss.

In 2008-09 Rancho California WD did not export wastewater from the Watershed to the dissipater at Temescal Creek in the Santa Ana Watershed.

Rancho California WD produces groundwater under a variety of rights as follows:

1. Recovery of water appropriated at Vail Lake
2. Recovery of import return flows and recharged imported water
3. Groundwater appropriative rights
4. As agent on behalf of overlying landowners

Vail Appropriation

Rancho California WD's Vail Dam appropriative rights are described in Application No. 11518 as amended on June 17, 1947, and in Permit 7032 originally issued on February 18, 1948. Permit 7032 was subsequently amended on July 28, 1971 and April 22, 2009. The water right provides that the District may store up to 40,000 acre feet in Vail Reservoir each year between November 1 and April 30, subject to applicable limitations. The water so stored may be used for recreational uses at Vail Lake and municipal, domestic, industrial, and irrigation uses within the entire service area of Rancho California WD. Such uses may be by direct diversion from Vail Lake or by recovery of water released from Vail and spread downstream in Pauba Valley. Points of re-diversion for recovery from underground storage are permitted for 12 production wells: Rancho California WD Well Nos. 109, 110, 123, 132, 152, 153, 157, 158, 210, 232, 233, and 234.

A total of 1,236 acre feet were released from Vail during 2008-09 for groundwater recharge. Releases from Vail for groundwater recharge for the period 1980 to 2009 are shown on Appendix Table B-8.

Permit 7032 operations for 2008-09 are summarized on Table 7.4. The recovery from groundwater recharge for 2008-09 was 1,236 acre feet corresponding to the amount released from Vail for recharge and thus there was no change in the Vail recharge account balance.

It is noted with the issuance of the amended Permit 7032 in 2009 the place of use, purposes of use, and permitted points of re-diversion were changed. Accordingly, the reporting of Permit 7032 operations needs to be modified to reflect the changed permit conditions. Table 7.4 was modified to reflect the changes subject to further refinement as part of the update of the CWRMA groundwater model. The reporting on Table 7.4 reflects the assumption that all water released from Vail for recharge in 2008-09 was recovered from the younger alluvium by pumping from the permitted recovery wells. The remainder of the pumping from the younger alluvium was apportioned to direct import recharge. The updated groundwater model will be used to develop a refined accounting methodology for recharge and recovery of Vail releases and imported water. The updated model will also be used to evaluate the status of and accounting for the Vail recharge account and the imported water carryover account.

Imported Water Return Flows

Return flows for 2008-09 based on imported water use in the Rancho Division and Santa Rosa Division are shown on Table 7.5 and on Table 7.6.

In those tables, imported water is allocated to agricultural, ag/domestic, commercial and domestic uses in each of eight hydrogeologic areas in the Rancho Division service area and three hydrogeologic areas in the Santa Rosa Division service area. This allocation is the proportion of the total deliveries to each use that is made up of imported water. In 2008-09, 58.89 percent of the supply to the Rancho Division was imported and 65.02 percent of the supply to the Santa Rosa Division was imported.

In general the Santa Rosa Division does not overlie the groundwater area. However there are several areas classified as being in the Santa Rosa Division that do overlie the groundwater area and generate return flows from imported supplies. Data from most of these lands have been reported since December 1991.

TABLE 7.4

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT
PERMIT 7032 OPERATIONS
2008-09
Quantities in Acre Feet

Diversion to Storage in Vail Lake /1		3,002
Release to Groundwater Storage /1		1,236
Recovery from Groundwater Storage /2 /3		
Younger Alluvium	1,236	
Older Alluvium	0	
Total		1,236
Vail Recharge Account Balance from 2007-08		54,297
Release minus Recovery		0
Vail Recharge Account Balance for 2008-09		54,297

1/ See Table 3.3
2/ Permitted Points of Re-Diversion RCWD Well Nos. 109, 110, 123, 132, 152, 153, 157, 158, 210, 232, 233 and 234
3/ Total pumping from Vail recovery wells is greater than amount shown as recovered under Permit 7032.
Total pumping from the 12 recovery wells shown on Table 7.8.

TABLE 7.5

SANTA MARGARITA RIVER WATERSHED

RANCHO CALIFORNIA WATER DISTRICT

RETURN FLOW CREDIT

2008-09

RANCHO DIVISION

Quantities in Acre Feet

HYDROGEOLOGIC AREAS

	0 NO HYDRO-GEO CODE	1 MURRIETA WOLF 1/2 QYAL 1/2 QTOAL	2 SANTA GERTRUDIS QYAL	3 LOWER MESA QTOAL	4 PAUBA QYAL	5 SOUTH MESA QTOAL	6 UPPER MESA QTOAL	7 PALOMAR QTOAL	TOTAL
AGRICULTURAL *									
Total Use	886.09	936.50	608.62	2,522.30	329.06	759.60	679.18	837.56	7,558.91
% Import	58.89	58.89	58.89	58.89	58.89	58.89	58.89	58.89	
Import Use	521.79	551.48	358.40	1,485.30	193.77	447.30	399.95	493.21	4,451.20
% Credit	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
Credit	130.45	137.87	89.60	371.33	48.44	111.83	99.99	123.30	1,112.80
AG/DOMESTIC									
Total Use	559.12	42.15	0.00	36.21	517.56	40.06	438.01	150.67	1,783.78
% Import	58.89	58.89	58.89	58.89	58.89	58.89	58.89	58.89	
Import Use	329.25	24.82	0.00	21.32	304.77	23.59	257.93	88.73	1,050.41
% Credit	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
Credit	82.31	6.21	0.00	5.33	76.19	5.90	64.48	22.18	262.60
COMMERCIAL									
Total Use	264.79	1,249.74	837.56	782.56	220.92	131.20	51.94	7.69	3,546.39
% Import	58.89	58.89	58.89	58.89	58.89	58.89	58.89	58.89	
Import Use	155.93	735.93	493.21	460.83	130.09	77.26	30.58	4.53	2,088.36
% Credit	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	
Credit	15.59	73.59	49.32	46.08	13.01	7.73	3.06	0.45	208.84
DOMESTIC									
Total Use	1,302.87	2,428.93	2,553.76	11,811.47	740.50	3,797.78	1,829.51	595.48	25,060.32
% Import	58.89	58.89	58.89	58.89	58.89	58.89	58.89	58.89	
Import Use	767.22	1,430.32	1,503.83	6,955.40	436.06	2,236.39	1,077.34	350.66	14,757.22
% Credit	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
Credit	191.80	357.58	375.96	1,738.85	109.01	559.10	269.34	87.67	3,689.30
TOTAL USE	3,012.87	4,657.32	3,999.94	15,152.55	1,808.03	4,728.64	2,998.64	1,591.40	37,949.40
TOTAL									
Total Import Use	1,774.18	2,742.55	2,355.44	8,922.85	1,064.69	2,784.54	1,765.80	937.13	22,347.19
Total Credit	420.16 **	575.25	514.88	2,161.59	246.66	684.55	436.86	233.60	5,273.54
Total Credit Qyal		287.62	514.88		246.66				1,049.16
Total Credit Qtoal		287.62		2,161.59		684.55	436.86	233.60	3,804.22

* Includes golf course and landscape irrigation
** This credit not applied to either Qyal or Qtoal

TABLE 7.6

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT
RETURN FLOW CREDIT
2008-09
SANTA ROSA DIVISION
Quantities in Acre Feet

	HYDROGEOLOGIC AREAS			
	1 MURRIETA WOLF 1/2 QYAL 1/2 QTOAL	3 LOWER MESA QTOAL	8 RTS 279, 280 & 285 1/4 QYAL 3/4 QTOAL	TOTAL
AGRICULTURAL *				
Total Use	0.00	0.00	589.65	589.65
% Import	65.02	65.02	65.02	
Import Use	0.00	0.00	383.39	383.39
% Credit	25.00	25.00	25.00	
Credit	0.00	0.00	95.85	95.85
AG/DOMESTIC				
Total Use	0.00	0.00	0.00	0.00
% Import	65.02	65.02	65.02	
Import Use	0.00	0.00	0.00	0.00
% Credit	25.00	25.00	25.00	
Credit	0.00	0.00	0.00	0.00
COMMERCIAL				
Total Use	0.00	0.00	607.08	607.08
% Import	65.02	65.02	65.02	
Import Use	0.00	0.00	394.72	394.72
% Credit	10.00	10.00	10.00	
Credit	0.00	0.00	39.47	39.47
DOMESTIC				
Total Use	0.00	0.00	1,409.30	1,409.30
% Import	65.02	65.02	65.02	
Import Use	0.00	0.00	916.32	916.32
% Credit	25.00	25.00	25.00	
Credit	0.00	0.00	229.08	229.08
TOTAL USE	0.00	0.00	2,606.02	2,606.02
TOTAL				
Total Import Use	0.00	0.00	1,694.43	1,694.43
Total Credit	0.00	0.00	364.40	364.40
Total Credit Qyal	0.00		91.10	91.10
Total Credit Qtoal	0.00	0.00	273.30	273.30

* Includes golf course and landscape irrigation

The percentage of imported water that becomes return flow varies according to the use as follows:

Agricultural Use	25%
Ag/Domestic Use	25%
Commercial Use	10%
Domestic Use	25%

Based on the foregoing factors, the return flow credit for 2008-09 is computed to be 5,273.54 acre feet for the Rancho Division and 364.40 acre feet for the Santa Rosa Division, as shown on Tables 7.5 and 7.6 respectively.

Some of the hydrogeologic areas overlie older alluvium and some overlie younger alluvium. Comparison of exposures of younger alluvium with maps of the District's hydrogeologic areas indicates that the Santa Gertrudis, Pauba and half of the Murrieta-Wolf areas overlie younger alluvium. The area of the Santa Rosa Division that overlies the groundwater area is one-fourth in the younger alluvium and three-fourths in the older alluvium. Import return flows in these areas can be credited against pumping from the younger alluvium. These credits for 2008-09 are 1,049.16 acre feet for the Rancho Division and 91.10 acre feet for the Santa Rosa Division, as shown on Tables 7.5 and 7.6 respectively.

Rancho California WD imported an additional 14,828 acre feet of water for groundwater recharge in 2008-09, of which 12,471 acre feet were recovered.

Division of Local Water

During 2008-09, Rancho California WD pumped 40,541 acre feet of groundwater, comprised of 28,070 acre feet of local water and 12,471 acre feet of recovered imported water. Some of this water was pumped from the younger alluvium and some from the older alluvium. The Court determined that water in both the younger alluvium and older alluvium adds to, contributes to and supports the Santa Margarita River stream system. The primary reason for differentiating between younger alluvium and older alluvium production is that, in California, production from the younger alluvium is generally considered to be governed by water rights that apply to the regulation of surface waters. Production from the older alluvium is generally considered to be governed by regulations that apply to groundwater. Of the 28,070 acre feet of local water, 250 acre feet were delivered to the Pechanga Indian Reservation under the terms of the Wolf Valley Groundwater Management Agreement. This production is shown on Appendix Table A-5.

During joint development of a groundwater model of the area it was necessary to develop estimates of the transmissivity for each aquifer. These estimates were based on pumping tests. The resulting transmissivity values were then used to estimate the relative groundwater production from each aquifer. For Rancho California WD wells, the percent production estimated to originate in the younger alluvium is shown in Table 7.7.

Production from the younger alluvium and older alluvium for 2008-09 using the percentages noted in Table 7.7 is presented in Table 7.8. It may be noted that 13,707 acre feet were pumped from the younger alluvium and 26,834 acre feet were pumped from the older alluvium in 2008-09.

The production of 13,707 acre feet from the younger alluvium, as shown on Table 7.8 includes recovery of 1,236 acre feet of Vail recharge and 12,471 acre feet of direct import recharge. The recovered Vail recharge of 1,236 acre feet is determined as the total Vail release from recharge shown on Table 7.4

Rancho California WD imported 14,828 acre feet of water in 2008-09 for direct recharge of which 12,471 acre feet were recovered leaving 2,357 acre feet as unrecovered direct recharge.

Imported water carryover to 2008-09 includes the following:

		AF
1.	Carryover from 2007-08	46,941
2.	Unrecovered direct recharge in 2008-09	2,357
3.	Import Return Flow Credit for 2008-09	1,140
4.	Total Carryover to 2009-10	50,438

Thus, 50,438 acre feet of imported supplies remain available to offset younger alluvium production in future years.

TABLE 7.7

SANTA MARGARITA RIVER WATERSHED
PERCENT PRODUCTION FROM YOUNGER ALLUVIUM IN RANCHO CALIFORNIA WATER DISTRICT WELLS

RCWD WELL NO.	LOCATION TOWNSHIP/ RANGE/ SECTION	SEAL DEPTH FEET	PERFORATED INTERVAL FEET	DEPTH YOUNGER ALLUVIUM FEET	PERCENT YOUNGER ALLUVIUM %		REMARKS
106	7S/3W-26R1	55	130-210; 250-310; 340-440; 700-740; 780-980	0	0.0%	Murrieta	No. 108 Winchester, clay 0'-40'
107	7S/3W-26J1	55	60-120; 190-260; 280-300; 390-590	58	0.0%	Murrieta	No. 105 - gravel & clay 58'-84'
108	7S/3W-25E1		60-110; 190-280; 350-410; 430-450: 470-490: 530-590	55	0.0%	Murrieta	Formerly No. 109 gravel/sandy clay 55'-70'
109	8S/2W-17J1	52	70-150; 170-210	75	84.0%		Brown clay and gravel 75' to 105'
110	8S/1W-6K1	54	75-155	165	97.0%		Clay 165'-190'. Prior to 10/23/97 perf int. 70-150; 200-240; 320-380; 420-460
113	7S/2W-25H1	52	96-136; 275-462; 482-542	Shallow	0.0%		
116	8S/1W-6J	Unknown	60-120; 140-200; 220-260; 270-330; 370-390	150	94.0%		Clay 150'-170'
119	8S/2W-19J	55	170-260; 300-470		0.0%	Wolf Valley	Perforated below 170'
123	8S/1W-7B	55	100-260; 300-380; 420-500	135	65.0%		Brown Sand Clay 135'-210'
129	7S/2W-20L	Unknown	180-290; 416-480; 520-600	Shallow	0.0%	Santa Gertrudis Creek	Qyal very shallow along Santa Gertrudis Creek
132	8S/1W-7D	55	70-390; 430-500	135	82.0%		Brown Clay Streaks 135'-175'
135	7S/3W-27M10	55	70-170	50	0.0%	Murrieta Valley	Silty clay 50'-69'
141	8S/2W-11P	55	120-190; 215-235; 270-380; 430-510	104	0.0%		Silt & sand 104'-185'; Well 11L1 is 112'
144	7S/3W-27D	55	983-1123; 1143-1283; 1343-1483; 1503-1743	25	0.0%	Murrieta Valley	Sand with silty clay 25'-45'
146	7S/3W-28	50	50-190	42	0.0%	Murrieta	
152	8S/1W-5K	50	70-470; 490-540	130	90.8%		Forebay
153	8S/1W-5K3	50	50-220	170	99.0%		Forebay
157	8S/1W-5L	50	50-210	128	96.8%		Forebay
158	8S/1W-5K	50	50-210	100	96.5%		Forebay
205	7S/3W-35A	50	150-1000	10	0.0%	Santa Gertrudis/ Murrieta Valley	Sandy clay 10'-20'
210	8S/2W-12K	None	48-228	140	94.0%		Clay cobblestones 160'-167', 175'-227'
218	8S/2W-20B5	27	48-289	40	0.0%		Old 28; clay with sand layer 40'-60'; now monitoring wells 427, 428 and 429
466	8S/3W-1P2	Unknown	106-822	49	0.0%	Long Canyon	Old 219, Cantarini, hard clay 49'-60'
220	7S/3W-26Q1	34	114-450	58	0.0%		Clay 58' - 73'
467	8S/2W-12K1	Unknown	50-100; 100-140	140	100.0%		Old 221, JK, Exh. 16, Monitoring well since 1983
223	8S/2W-20C1	Unknown	48-250	60	94.0%	Wolf Valley	CAT Well; east of Wildomar Fault; nearby Exh 16 wells 17Q @62' & 17M @55' are also east of Wildomar Fault
224	8S/2W-15D	Unknown	48-250	106	68.0%		Old Well 50, clay 106'-138'
230	8S/2W-11J1	Unknown	24-31; 32.5-34; 35-40; 61-65; 70-76; 80-85; 86.5-91; 92.5-98.5	>119	100.0%		Old Well 30, depth of well is 119'
231	8S/2W-20B6	55	80-120; 150-270	35	0.0%		Old 104, P-34, Clay 20'-23'; 35'-41'; East of Wildomar Fault
232	8S/2W-11J3	51	95-135; 175-215; 235-295	135	92.0%		Old 111, 105, P-31; coarse sand & clay 135' - 155'
233	8S/2W-12K2	51	95-135; 175-215; 235-295	145	88.0%		Old 112, P32; sand and clay at 145'-220'
234	8S/2W-11P1	52	80-100; 120-140; 200-240; 280-320; 340-400	125	74.0%		Brown Clay at 125'; sand and clay at 125'-140'
235	8S/3W-1Q1	55	Unknown	Shallow	0.0%	Long Canyon	
240	8S/2W-11L1	Unknown	48-298	112	86.0%		Old Well No. 40; clay 112'-136'
301	7S/3W-18Q1	93	140-280; 280-520; 540-640	26	0.0%	Murrieta	Old JR1; blue clay 26'-32'

TABLE 7.8

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT
WELL PRODUCTION FROM YOUNGER AND OLDER ALLUVIUM
2008-09
Quantities in Acre Feet

WELL NO.	QYAL	QTOAL	TOTAL
101	0.00	137.00	137.00
102	0.00	225.00	225.00
106	0.00	429.00	429.00
108	0.00	864.00	864.00
109	585.48	111.52	697.00
110	1,288.16	39.84	1,328.00
113	0.00	554.00	554.00
118	0.00	1,066.00	1,066.00
119 *	0.00	991.00	991.00
120	0.00	285.00	285.00
121	0.00	0.00	0.00
122 *	0.00	762.00	762.00
123	104.65	56.35	161.00
124	0.00	550.00	550.00
125	0.00	560.00	560.00
126	0.00	1,339.00	1,339.00
128	0.00	0.00	0.00
129	0.00	0.00	0.00
130	0.00	908.00	908.00
131	0.00	1,096.00	1,096.00
132	1,116.02	244.98	1,361.00
133	0.00	705.00	705.00
135	0.00	108.00	108.00
138	0.00	2,273.00	2,273.00
139	0.00	945.00	945.00
140	0.00	955.00	955.00
141	0.00	551.00	551.00
143	0.00	811.00	811.00
144	0.00	500.00	500.00
145	0.00	809.00	809.00
146	0.00	69.00	69.00
149	0.00	365.00	365.00
151	0.00	0.00	0.00
152	1,891.36	191.64	2,083.00
153	1,460.25	14.75	1,475.00
155	0.00	32.00	32.00
156	0.00	780.00	780.00
157	2,132.50	70.50	2,203.00
158	1,682.00	61.01	1,743.00
201	0.00	0.00	0.00
203	0.00	705.00	705.00
205	0.00	447.00	447.00
207	0.00	0.00	0.00
208	0.00	0.00	0.00
209	0.00	0.00	0.00
210	576.22	36.78	613.00
211*	0.00	494.00	494.00
215	0.00	483.00	483.00
216	0.00	102.00	102.00
217	0.00	1,055.00	1,055.00
231	0.00	0.00	0.00
232	865.72	75.28	941.00
233	1,749.44	238.56	1,988.00
234	255.30	89.70	345.00
235	0.00	1,115.00	1,115.00
301	0.00	0.00	0.00
302	0.00	0.00	0.00
309	0.00	2,533.00	2,533.00
TOTAL	**13,707.10**	**26,833.90**	**40,541.00**

* - A total of 250 AF of water from Wells 119, 122 and 211 was delivered to Pechanga Indian Reservation for their use.

Western Municipal Water District

Western MWD operations within the Watershed are comprised of three categories. First, Western MWD wholesales imported water to Rancho California WD. Deliveries to Rancho California WD are included under Rancho California WD. Second, Western MWD serves water to its Murrieta Division in the vicinity of the City of Murrieta. Third, Western MWD serves imported water to its Improvement District A near the southern boundary of Riverside County along the I-15 freeway. Improvement District A is operated by Rancho California WD under an operations and maintenance contract on behalf of Western MWD.

Murrieta Division

In November 2005, Western MWD merged with the Murrieta County Water District assuming their operations in an area in the vicinity of the City of Murrieta. Prior Watermaster Reports present information under Murrieta County Water District.

All of the Murrieta Division of Western MWD wells are located in the Murrieta-Temecula Groundwater Area. Interlocutory Judgment No. 30 indicates the younger alluvium deposits in Murrieta Valley extend in various depths to a maximum of approximately 30 feet from the ground surface.

The Court noted that it was impossible, based on evidence available in 1962, to determine with exactness the depth of the younger alluvial deposits throughout the Valley. However, the Court did retain continuing jurisdiction so that subsequent findings could be made, if needed. Older alluvial deposits are found below the younger alluvium.

Six of the seven Murrieta Division wells are perforated at depths of 106 feet or more. The Holiday Well has perforations beginning at a depth of 60 feet. This depth is well below the maximum depth of younger alluvium found by the Court in 1962. In addition, water depths in the Holiday Well ranged from 64 to 70 feet in 2008-09, and there has been no production from the Holiday Well since March 2006. Accordingly all of Murrieta Division well production is from the older alluvium under a groundwater appropriative right.

In Water Year 2008-09, the Murrieta Division of Western MWD produced 861 acre feet of water from the North Well and imported 1,654 acre feet as shown in Appendix Table A-10.

The following table itemizes the production from the Murrieta Division wells:

Well Designation	Well Name	2008-09 Production Acre Feet	Casing Depth Feet	Water Depth Feet	Well Depth Feet	Perforated Interval Feet
7S/3W-20	New Clay	0	101	245 – 290	940	330 – 350 370 – 470 680 – 790 830 – 900
7S/3W-20C9	Holiday	0	25	64 – 70	307	60 – 307
7S/3W-20G5	House	0	50	*	298	120 – 252
7S/3W-17R2	Lynch	0	26	59 – 74	212	172 – 212
7S/3W-18J2	North	861	50	261 – 297	650	240 – 260 500 – 640
7S/3W-20D	South	0	50	*	446	120 – 446
7S/3W-7M	Alson	0	50	*	416	106 – 416
TOTAL		861				

* Water levels not measured during Water Year 2008-09

Western MWD's Murrieta Division production for the period between 1966 and 2009 is shown in Appendix Table B-11.

Improvement District A

In Water Year 2008-09, imports to Improvement District A amounted to approximately 51 acre feet as shown in Appendix Table A-11. Deliveries to Improvement District A through turnout WR-13 for the period 1966 to 2009 are shown in Table 5.4 and Appendix Table B-12.

U. S. Marine Corps - Camp Pendleton

Camp Pendleton is located on the coastal side of the Santa Margarita River Watershed. Water was provided by 12 wells that produced 6,398 acre feet in Water Year 2008-09: three wells used for agricultural production and nine wells used for Camp Supply. This production is from the younger alluvium and is based on riparian and appropriative rights. The water is used for both agricultural use and Camp Supply including domestic and commercial uses as well as irrigation for landscaping and park areas. For 2008-09, 882 acre feet were used for agricultural use and 5,516 acre feet were used for Camp Supply. Camp Pendleton water use is located both inside and outside the Watershed. A total of 3,252 acre feet were used inside the Watershed and 3,146 acre feet were exported to areas of the Base outside the Watershed. The production and use of water for Camp Pendleton are shown on Appendix Table A-8.

Beginning in December 2008 all wastewater for Camp Pendleton is treated at the Southern Region Tertiary Treatment Plant replacing the regional treatment Plant Nos. 1, 2, 3, and 13. On March 11, 2009, the Regional Water Quality Control Board issued Order No. R9-2009-0021 for a Master Reclamation Permit for the Camp Pendleton Southern Region Tertiary Treatment Plant. Wastewater effluent is discharged to either: (1) approved areas for use of reclaimed water for irrigation purposes; or (2) the Oceanside Outfall under NPDES Permit No. CA0109347, Order No. R9-2003-0155, and Order No. R9-2008-0096. The approved areas for use of reclaimed water are located both within and outside the Watershed. In Water Year 2008-09 the total amount of reclaimed wastewater for Camp Pendleton was 2,503 acre feet as shown on Appendix Table A-8. A total of 537 acre feet were reclaimed for irrigation purposes with 49 acre feet used within the Watershed and 488 acre feet used outside the Watershed. An additional 1,966 acre feet of reclaimed wastewater were exported by Camp Pendleton to the Oceanside Outfall.

Production and estimated use inside and outside the Watershed, as well as wastewater reclamation and use, are shown in Appendix B for the period 1966-2009. It is noted the format and reporting shown in Appendix Table B-9 were changed for the Annual Watermaster Report for Water Year 2008-09. Prior reports show for the period 1966 through 2003 reclaimed use inside the Watershed reported as recharged wastewater from ponds and recharge areas. In addition, the prior reports distinguished the source of the recharged wastewater between wastewater treated within or outside the Watershed at the various regional treatment plants. The format and reporting for Water Year 2008-09 in Appendix Tables A-8 and B-9 reflect current and anticipated operations for the foreseeable future. Accordingly the prior format is obsolete and the reader is directed to prior reports from 2008 and earlier for additional information regarding historical wastewater operations.

U. S. Naval Weapons Station, Fallbrook Annex

The U. S. Naval Weapons Station (NWS) occupies about 9,148 acres northeast of Camp Pendleton. Since 1969 the NWS has relied on imported water delivered via Fallbrook PUD for its supply. Wastewater is exported from the NWS and the Watershed via an outfall line also used by the Fallbrook Public Utility District. In 2008-09, 74 acre feet were imported of which 12 acre feet of wastewater were exported, as shown in Appendix A. Imports and use between 1966 and 2009 are shown in Appendix B.

7.3 Indian Reservations

Water use information about the Cahuilla, Pechanga and Ramona Indian Reservations in the Watershed is described in the following sections:

Cahuilla Indian Reservation

In general, domestic water use on the Cahuilla Indian Reservation is not measured, however reports indicate that 309 people reside on the Reservation. These residents use water primarily for domestic purposes. Annual domestic water use, based on 125 gallons per capita per day, amounts to a total annual use of about 43 acre feet from wells listed in Appendix C. In addition reports indicate Reservation non-irrigated lands are used for the grazing of 500 cattle. Based on a daily requirement of 10 gallons per head per day, the annual use is estimated to be about 6 acre feet.

The foregoing estimate is for total domestic water use on the Reservation. A portion of this use may not be under Court jurisdiction, but the estimate will be used until individual well production quantities are available to allow determination of the portion under Court jurisdiction. The estimated domestic use and stock watering is included on Table 4.1 under water purveyor production.

An additional 5 acre feet pumped from well 7S/2E-26B3 were put to commercial use at a casino. This water overlies basement complex and is outside Court jurisdiction.

Under federal law, production from groundwaters within the lands of the Cahuilla Indian Reservation in either the younger or older alluvial deposits which are a part of the shallow aquifer of the Anza Ground Water Area or which are part of the Cahuilla Ground Water Basin can be considered to be under a federal reserved right, in accordance with Interlocutory Judgment No. 41 which provides as follows in Order No. 3:

> *IT IS FURTHER ORDERED, ADJUDGED AND DECREED that the United States of America intended to reserve, and did reserve, rights to the use of the waters of the Santa Margarita River which under natural conditions would be physically available on the Cahuilla Indian Reservation, including rights to the use of ground waters, sufficient for the present and future needs of the Indians residing thereon with priority dates of December 27, 1875, for lands transferred by the Executive Order of that date; March 14, 1887, for lands transferred by the Executive Order of that date; December 29, 1891, for lands transferred by the Executive Order of that date.*

Pechanga Indian Reservation

On December 21, 2006 the Pechanga Band of Luiseño Mission Indians and Rancho California WD entered into a Groundwater Management Agreement for the Wolf Valley Groundwater Basin. The Pechanga Band and Rancho California WD agreed to manage jointly groundwater pumping from the basin and to manage the basin to protect groundwater resources. Among other things the agreement provides for Rancho California WD to deliver pumped groundwater from its wells to Pechanga.

During 2008-09, Pechanga received 250 acre feet of delivered groundwater from Rancho California WD. In addition the Pechanga Water System produced 702 acre feet from wells, and received 268 acre feet of reclaimed wastewater from Eastern MWD, resulting in a total production for Pechanga of 1,220 acre feet. The monthly production and uses for the Pechanga Indian Reservation are shown in Appendix A, Table A-5. Information about Pechanga Water System wells is shown below:

Well Designation 8S/2W	Name	2008 Water Depth Feet	2009 Water Depth Feet	Well Depth Feet	Perforated Interval Feet
29A2	Kelsey	142	144	425	105 - 415
29B10	Eduardo	285	252	697	437 - 687
29B11	Eagle III	191	173	645	275 - 635
29J3	South Boundary	---	---	350	150 - 340
28M5	Cell Tower	216	158	518	372 - 432 468 - 508

The total groundwater pumping for the Pechanga Water System wells decreased from 865 acre feet in 2007-08 to 702 acre feet in 2008-09. The total pumping in Wolf Valley by Rancho California WD Well Nos. 119, 122 and 211 for both the district's use and for delivery to Pechanga also decreased from 2,827 acre feet in 2007-08 to 2,247 acre feet in 2008-09. Therefore, the total pumping in Wolf Valley for 2008-09 decreased by 743 acre feet.

The wells listed above are in areas of younger alluvium at ground surface. The depth of the younger alluvium in Wolf Valley was estimated by representatives of Rancho California WD and the United States for Rancho California WD Wells No. 495 (8S/2W-20E) and No. 119 (8S/2W-19J) to be in the range of 120 to 170 feet in depth. Thus, based on available well construction data, some of the production is from the younger alluvium and some from the older alluvium. Under state law production from the wells that originate in the older alluvium can be considered to be under a groundwater appropriative right or an overlying right, depending on the circumstances at each well.

Under federal law, production from groundwaters that originate in either the younger or older alluvium within the Murrieta-Temecula Ground Water Area can be considered to be under a federal reserved right, in accordance with Interlocutory Judgment No. 41 which provides as follows in Order No. 7:

> *IT IS FURTHER ORDERED, ADJUDGED AND DECREED that the United States of America intended to reserve, and did reserve, rights to the use of the waters of the Santa Margarita River stream system which under natural conditions would be physically available on the Pechanga Indian Reservation, including rights to the use of ground waters sufficient for the present and future needs of the Indians residing thereon with priority dates of June 27, 1882, for those lands established by the Executive Order of that date; January 9, 1907, for those lands transferred by the Executive Order of that date; August 29, 1893, for those lands added to the Reservation by Patent on that date; and May 25, 1931, for those lands added to the Reservation by Patent of that date.*

Production and uses for the Pechanga Indian Reservation for Water Years 1991- 2009 are shown on Appendix Table B-6.

Ramona Indian Reservation

The Ramona Indian Reservation occupies 560 acres of land of which 321 acres are inside the Watershed. The water supply is provided for domestic use by two individual wells. Total production for 2008-09 is reported as 2.4 acre feet. It has not been determined whether the groundwater production is under Court jurisdiction and thus the estimated water use is not included in the various water use tabulations provided throughout the report.

Under federal law, production from groundwaters contained in shallow aquifer of the Anza Ground Water Basin overlain by lands of the Ramona Indian Reservation within the watershed of the Santa Margarita River can be considered to be under a federal reserved right, in accordance with Interlocutory Judgment No. 41 that provides as follows in Order No. 1:

> *IT IS ORDERED, ADJUDGED AND DECREED that the United States of America when it established the Ramona Indian Reservation intended to reserve and did reserve rights to the use of the waters of the Santa Margarita River stream system which under natural conditions would be physically available on the Ramona Reservation, including rights to the use of ground waters, sufficient for the present and future needs of the Indians residing thereon with a priority date of December 29, 1891.*

7.4 Small Water Systems

There are a number of small water systems for mobile home parks in the Watershed. These range from relatively permanent structures, to those catering to recreational vehicles and campgrounds. Water production from wells is shown in Appendix A, Table A-11 for Butterfield Oaks Mobile Home Park, Hawthorn Water System, Outdoor Resorts Rancho California, Inc., and Jojoba Hills SKP Resort. Data for previous water years is shown on Appendix Table B-12.

7.5 Irrigation Water Use

Estimated water production reported by substantial users for irrigation in the Santa Margarita River Watershed is shown on Table 7.1 to be 6,541 acre feet. This quantity includes 5,561 acre feet of well production and 980 acre feet of surface diversion as shown in Appendix C.

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SECTION 8 - UNAUTHORIZED WATER USE

8.1 General

From time to time there are complaints of unauthorized water uses of various types in the Watershed. Such complaints are investigated in accordance with the powers and duties of the Watermaster. The status of the current list of unauthorized uses is described as follows:

8.2 Unauthorized Small Storage Ponds

Many small dams and reservoirs have been constructed on streams in the Watershed. The legal basis for these ponds is described in the 1988-89 Watermaster Report. Basically, the Court has held that storage of water in ponds less than 10 acre feet in capacity and used for stock watering is a valid use of riparian water. The Court has also held that:

> The temporary or non-seasonal impoundment by riparian owners for the purpose of providing a head for irrigation or for the purpose of temporarily accumulating sufficient water to make possible efficient irrigation is a proper riparian use of water.

Criteria for determining non-seasonal storage of irrigation water have yet to be developed.

8.3 Rancho California Water District Water Use

A number of unauthorized water use issues raised by the United States are settled so long as the Cooperative Water Resource Management Agreement (CWRMA) between the United States on behalf of Camp Pendleton and Rancho California Water District is in effect.

As further explained in Section 11, many of these issues are described in Appendix F. One area of past concern pertains to Rancho California WD's petition to the State Water Resources Control Board (SWRCB) to change the place of use, type of use and re-diversion facilities in Permit 7032. On April 22, 2009, the SWRCB issued an order and amended Permit 7032 with the desired changes and conditions to resolve concerns by Camp Pendleton and the U. S. Fish and Wildlife Service. The reporting of Vail Lake operations in accordance with Amended Permit 7032 is provided on Table 3.3 and in Section 7.

8.4 Exportation of Treated Wastewater Derived from Native Waters

Camp Pendleton continues to assert that the exportation of treated wastewater, the source of which is the native waters of the Santa Margarita River System, without a legal basis for such exportation is an unauthorized water use. Once the so-called "Four-Party Case" in *United States and Fallbrook Public Utility District v. Eastern Municipal Water District and Rancho California Water District* (CV 04-8182 CBM (RNBx), United States District Court, Central District of California) is resolved, the Watermaster will reevaluate the calculations and reporting of exportation of treated wastewater to be included in future annual reports.

SECTION 9 - THREATS TO WATER SUPPLY

9.1 General

General threats to the long-term water supply in the Santa Margarita River Watershed, which have been described in previous Watermaster Reports, are as follows:

1. High nitrate concentrations in Rainbow Creek and in Anza Valley.
2. Potential overdraft conditions at various locations in the Watershed.
3. Potentially adverse salt balance conditions in the upper Santa Margarita River area.

Additional threats to the long-term water supply have been recently identified and are described in the following sections. These additional threats include: (1) high nitrate concentrations in the Murrieta-Temecula area, (2) high concentrations of arsenic and fluoride in the Murrieta-Temecula area, and (3) discovery of the quagga mussel in imported supplies from the Colorado River system.

9.2 High Nitrate Concentrations

In past years, high concentrations of nitrate have been measured in Anza Valley and on Rainbow Creek. Conditions in Anza Valley were generally described in the 1993-94 report. Additional water quality data for Anza Valley have been collected periodically by the Riverside County Department of Health Services and the USGS.

As described in prior Watermaster Reports, in 1999 the Regional Water Quality Control Board, San Diego Region (Regional Board) began preparation of a plan for Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus on Rainbow Creek. On February 9, 2005, the Regional Board adopted an amendment to the Basin Plan to include the Total Nitrogen and Total Phosphorus TMDLs and implementation plan. The State Water Resources Control Board, on November 16, 2005, and Office of Administrative Law, on February 1, 2006, subsequently approved the Basin Plan amendment. The U.S. Environmental Protection Agency granted final approval of the TMDLs on March 22, 2006.

The full plan and amendment are presented on the Regional Board's website: http://www.waterboards.ca.gov/sandiego/tmdls/rainbow%20creek.html.

Key elements of the Rainbow Creek TMDL program are summarized below:

1. The TMDL Numeric Targets for nitrate (as nitrogen) is 10 mg/L, total nitrogen is 1.0 mg/L, and total phosphorous is 0.1 mg/L.

2. The TMDLs for total nitrogen and total phosphorous discharges into Rainbow Creek are calculated to be 1,658 kilograms of nitrogen per year and 165 kilograms of phosphorous per year. The TMDLs are defined as the maximum loads that Rainbow Creek can receive and will attain water quality objectives and protection of designated beneficial uses.

3. A 74 percent overall reduction of total nitrogen loading and an 85 percent overall reduction of total phosphorous loading to Rainbow Creek from point sources (Caltrans) and nonpoint sources (commercial nurseries, agricultural lands, residential land uses, and septic tanks) are required to meet the TMDLs.

4. Nutrient wasteload and load reductions are required over a 16-year phased compliance schedule.

In December 2006 the Regional Board approved its internal Transfer Plan to transfer work on the TMDL program from the development team to the watershed branch for implementation of the program. The implementation tasks and schedule are described in the final technical report for the TMDL program. Implementation is proceeding including the Regional Board awarding grants for San Diego County to conduct a nutrient study and monitoring program as well as working with Caltrans to renew its Statewide Storm Water Permit to incorporate objectives of the Rainbow Creek TMDL program.

Recent data show high concentrations of nitrate pose a risk to water supplies in the Murrieta-Temecula area. In January 2006, Western MWD ceased production from the Holiday Well because nitrate concentrations exceeded the Maximum Contaminant Level (MCL) of 45 mg/l. The depth to the top of the perforated interval for the Holiday Well is only 60 feet and the high nitrate concentrations appear to be a result of nearby septic systems and agricultural practices. Concentrations of nitrate for some of the other Western MWD and Rancho California WD wells in the Murrieta-Temecula area have been detected in the range of 20 to 25 mg/l, which is below the MCL. The other Western MWD and Rancho California WD wells have deeper perforated intervals than the Holiday Well.

9.3 Potential Overdraft Conditions

Previous Watermaster reports have noted concerns about overdraft conditions in Anza Valley and in the Murrieta-Temecula area. Previous studies for Anza Valley include 1976 and 1988 reports by the U. S. Geological Survey and a 1990 report by a consultant to Riverside County. No further studies relative to groundwater use in Anza Valley are available. Historical measurements of groundwater levels for Anza Mutual Water Company's Well No. 1 (7S/3E-21G1) located in Anza Valley are plotted in this Report on Figure 4.4.

No recent published studies of safe yield are available for the Murrieta-Temecula area. Groundwater resources in much of the area are being managed by Rancho California WD. The District prepares an annual groundwater production program with the goal of developing the maximum perennial yield from the basin. The District monitors water levels and well production in each of several hydrogeologic subareas. Each year that data, combined with other information including water quality, natural and artificial recharge, pump settings, and well construction factors, are used to develop a recommended production program. Production rates are commonly lowered in subareas where water levels have declined over several years, and production rates are increased in areas where decline has not occurred. As a final check the recommended production rates are checked using the latest version of the Rancho California WD groundwater model.

In addition, Rancho California WD in cooperation with Camp Pendleton is in the process of refining a multi-level groundwater monitoring network, pursuant to the Cooperative Water Resource Management Agreement. The purpose of the network is to develop data for use in assessing safe yield operations. In September 2006 the USGS began drilling and constructing the Pala Park Groundwater Monitoring Well as part of this network. The monitoring well was completed with six piezometers and continuous water level recording devices. In 2009 the groundwater monitoring network was expanded to include the Wolf Valley Monitoring Well previously constructed by the USGS under a cooperative program with the Pechanga Band. Groundwater levels and water quality data for the two monitoring wells are reported in Appendix E.

Groundwater level data for three additional wells in the Murrieta-Temecula Groundwater Area are included in this report as Figures 4.1, 4.3 and 4.5. Water levels in the Windmill Well (8S/2W-12H1) located at the eastern part of Pauba Valley declined 5.5 feet in 2008-09. Water levels in Well 7S/3W-20C9 in the Murrieta Division of Western MWD area declined 6 feet from last year.

Well 8S/2W-29G1 on the Pechanga Indian Reservation in Wolf Valley became dry at the end of 2003-04. The declining water levels in Well 8S/2W-29G1 appear to be attributed to recent relatively dry hydrologic conditions and pumping of the nearby New Kelsey Well. To allow continued monitoring of water levels on the Reservation, Well No. 29G1 is being replaced with Well No. 8S/2W-29B9 which declined 1.3 feet.

9.4 Salt Balance

A key issue in management of a groundwater basin is potential build up of salts from imported water supplies and use of reclaimed wastewater. Such a build-up could decrease the usability of waters in a basin. Consideration must be given to measures that allow desalination of water supplies and export of salts from a basin to offset the salt load in water entering the groundwater basin.

During 2008-09, Eastern MWD exported 6,786 acre feet of treated wastewater from the watershed for reuse and 2,772 acre feet were exported for operational reasons for discharge to Temescal Creek. Additional treated wastewater may have been exported from the watershed through recirculation in the system but such additional amounts have not been determined. At an average Total Dissolved Solids (TDS) concentration of 650 mg/l there is approximately 1,768 pounds of salt in every acre foot of wastewater. Thus in 2008-09, approximately 8,450 tons of salt were exported by Eastern MWD through the export of 9,558 acre feet of wastewater.

In addition to export of treated wastewater, the salt balances of the Murrieta-Temecula groundwater area and the lower Santa Margarita River groundwater area are affected by discharges from wells into Murrieta Creek, Temecula Creek and Santa Gertrudis Creek. In 2008-09 wells discharged 37 acre feet, as shown below, together with estimated total dissolved solids for each well. Additional water quality data for the wells are provided in Appendix D.

Well No.	Release Acre Feet	TDS mg/l	Sample Date
101	5	810	6/25/09
102	3	700	6/20/95
106	10	340	7/01/09
108	1	370	8/05/09
118	18	610	6/04/09
Total	37		

The salt balance for the Murrieta-Temecula groundwater area is affected by the use of reclaimed wastewater for irrigation. The total use of reclaimed wastewater by Eastern Municipal WD, Rancho California WD, and the Pechanga Band within the Santa Margarita River Watershed for 2008-09 was 6,806 acre feet compared to 5,805 acre feet in 2007-08 and compared to 690 acre feet in 1986-87. Assuming an average TDS concentration of wastewater of 650 mg/l, the salt loading for 6,806 acre feet of reclaimed wastewater is approximately 6,020 tons. It is expected that the use of reclaimed wastewater within the watershed will increase in the future including expanded use of reclaimed wastewater by the Pechanga Band and expanded use by agricultural customers of Rancho California WD.

Trend analyses of TDS levels from groundwater samples throughout the Murrieta-Temecula groundwater area show a mix of increasing and decreasing trends depending upon location and aquifer. A more detailed study should be conducted to analyze available data and develop a comprehensive regional salinity management plan.

9.5 High Arsenic Concentrations

The maximum contaminant level (MCL) for arsenic is 10 ug/l. High concentrations of arsenic have been detected in groundwater wells for both the Murrieta Division of Western MWD and Rancho California WD posing a risk to water supplies in the Murrieta-Temecula area. In November 2007 Western MWD ceased pumping from the New Clay Well due to arsenic levels exceeding the MCL.

The elevated arsenic levels have significantly impacted groundwater pumping and distribution system operations for Rancho California WD. Two wells have been taken out of production due to arsenic levels exceeding the MCL. In 2009 two other wells showed levels exceeding the MCL but were still in operation under approved blending plans.

9.6 High Fluoride Concentrations

The MCL for fluoride is 2 mg/l and samples exhibiting high concentrations of arsenic often show high concentrations of fluoride in the Murrieta-Temecula area. High levels of fluoride are impacting operations for Rancho California WD. One of the wells operating by Rancho California WD under an approved blending plan for arsenic was originally approved for blending due to fluoride levels exceeding the MCL.

9.7 Quagga Mussel

In early January 2007 the invasive, non-native quagga mussel was discovered in Lake Mead. Subsequently MWD discovered the mussel throughout the Colorado River Aqueduct system including in August 2007 finding the mussels in Lake Skinner. To date no mussels have been found in Diamond Valley Lake.

The quagga mussel is indigenous to the Ukraine and was discovered in the United States in September 1989 with the first sighting in the Great Lakes. The quagga mussel is a small freshwater mollusk ranging in size from microscopic in the embryonic stage to about two inches in length at the adult stage. The mussels can be transported during the larval stage with currents or running water and at the adult stage by attaching to hard surfaces such as boats.

The quagga mussel is a filter feeder removing food and nutrients from the water column decreasing the food source for zooplankton and therefore altering the food web. The filtration of the water also alters water clarity impacting aquatic plants and water chemistry. The economic impact is also significant because these species can rapidly colonize hard surfaces, clogging water intake structures, pipes, and screens and reducing pumping and distribution capacities. Costs are also associated with maintenance of facilities and control of the species.

Since the discovery of quagga mussels in the Colorado River Aqueduct and Lake Skinner, MWD has implemented various control activities. In July 2007, the aqueduct was shut down for ten days for inspection, chlorination, and removal of adult populations. Also in July 2007, MWD initiated continuous chlorination in the Colorado Aqueduct to control the spread of quagga mussels. Releases from Lake Skinner are chlorinated at the outlet tower prior to distribution through the raw water delivery system.

Effective October 10, 2007, Assembly Bill 1683 added Section 2301(a)(1) to the California Fish and Game Code prohibiting the release of quagga mussels into the waters of the state. Assembly Bill 1683 also requires development of a quagga mussel control plan. On December 8, 2007 MWD temporarily suspended required releases of water to Tucalota Creek from Lake Skinner and Warm Springs Creek from the San Diego Canal near Diamond Valley Lake. These required releases would have been made in accordance with memoranda of agreement for releasing native inflows from the reservoirs. On March 6, 2008 MWD provided notice to the parties in *United States v. Fallbrook Public Utility District, et al.* regarding the temporary suspension of required releases of native water inflows from Lake Skinner and Diamond Valley Lake. In June 2008, MWD provided notice to the parties in *United States v. Fallbrook Public Utility District, et al.* regarding the resumption of required releases of native water inflows from Lake Skinner and Diamond Valley Lake, according to MWD's Action Plan submitted to California Department of Fish and Game on May 30, 2008. In 2009 there were no required releases of native water from Lake Skinner. The total required releases from Diamond Valley Lake were 16.385 acre feet. The actual releases were 17.473 acre feet and were made in accordance with the approved quagga mussel control plan.

Infestation by the quagga mussel has also altered Rancho California WD operations in accordance with the Cooperative Water Resource Management Agreement. Beginning on April 10, 2008 Rancho California WD periodically ceased making releases of raw water from Turnout WR-34 on the MWD Pipeline No. 5 to meet make-up flow requirements for the Santa Margarita River. Alternatively Rancho California WD release make-up flows from its treated water distribution system at the System River Meter located just upstream of the Murrieta Creek at Temecula gaging station or from the potable connection to the WR-34 discharge location. The treated water is de-chlorinated prior to release to Murrieta Creek.

On July 17, 2009, Rancho California WD submitted its quagga mussel response and control action plan to the California Department of Fish and Game. Key components of the plan include:

- Raw MWD water is released into the Santa Margarita Watershed only when chlorinating is being performed at Lake Skinner.

- All watercraft vessels, trailers, and equipment are being inspected before launching in Vail Lake.

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SECTION 10 - WATER QUALITY

10.1 Surface Water Quality

The USGS collected continuous water quality measurements for dissolved oxygen, pH, specific conductance and temperature at the Santa Margarita River near Temecula gaging station during 2008-09. Data collected at the station are published by the USGS. The highest average daily high and the lowest average daily low for each parameter for each month are shown in Table 10.1 for months in Water Year 2009.

Surface water quality data collected by the USGS in 2004-05 for Cahuilla Creek are shown in Appendix Table D-12. No surface water quality data for Cahuilla Creek were collected in 2008-09.

Surface water quality data collected in prior years by Camp Pendleton, Eastern MWD, and Rancho California WD are listed in earlier Watermaster reports.

10.2 Groundwater Quality

During 2008-09 water quality data were collected from wells at Western MWD – Murrieta Division, Rancho California WD, Pechanga Indian Reservation, and Camp Pendleton.

Western MWD – Murrieta Division sampled three wells in 2008-09 as shown in Appendix D-3. Two of the wells were sampled for nitrates only with one sampling for each well. The North Well was sampled 14 times and included six samples subjected to standard chemical analysis. Concentrations of nitrates were generally below the drinking water standard of 45 mg/l as nitrate for samples in the three wells ranged from less than 1 mg/l to 6.7 mg/l.

Water quality data for Rancho California WD wells are shown in Appendix Table D-4. Samples were collected from 44 wells during 2008-09. Of the 44 wells, 31 wells were analyzed for nitrates and TDS only. Nitrate concentrations ranged up to 24 mg/l as nitrate, with the drinking water standard being 45 mg/l as nitrate. The remaining 13 wells were subjected to standard chemical analysis. Samples from two wells (Wells 101 and 109) show TDS concentrations exceeding 750 mg/l, the Basin Plan objective.

TABLE 10.1

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RANGES IN AVERAGE DAILY CONCENTRATION OF DISSOLVED OXYGEN, PH, SPECIFIC CONDUCTANCE AND TEMPERATURE AT SANTA MARGARITA RIVER NEAR TEMECULA

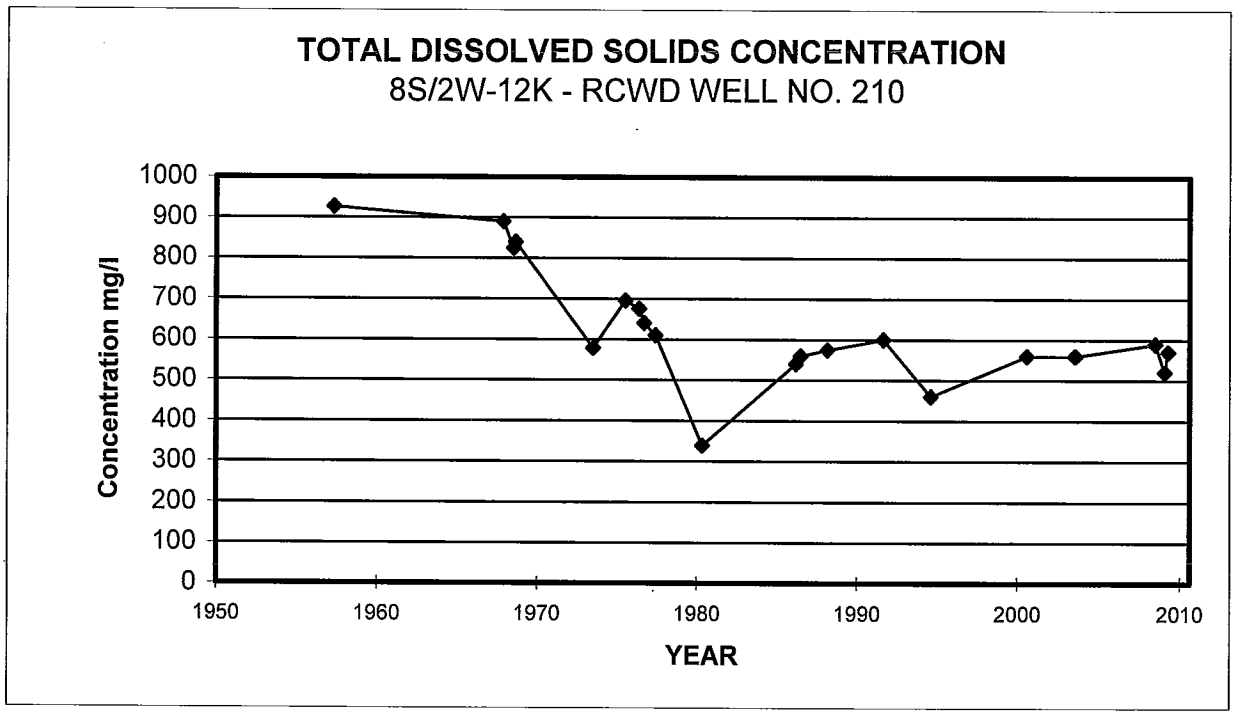
Water Year 2008-09

COLLECTION MONTH/YEAR	DISSOLVED OXYGEN mg/l		pH		SPECIFIC CONDUCTANCE microsiemens/cm		TEMPERATURE Deg C	
	High	Low	High	Low	High	Low	High	Low
2008								
October	8.9	7.6	8.2 *	7.4 *	1,020 *	906 *	24.7	17.3
November	8.9	6.9	8.4 *	7.0 *	1,540 *	139 *	21.5	13.2
December	9.0 *	8.0 *	8.0 *	7.7 *	1,200 *	887 *	19.3 *	14.8 *
2009								
January	10.6	8.2	8.3	8.0	1,090	820	20.2	11.9
February	10.6 *	8.4 *	8.4 *	8.0 *	1,080 *	326 *	19.6 *	11.0 *
March	11.2	9.8	8.4	8.0	1,060	962	17.0	13.5
April	10.1 *	8.8 *	8.4 *	8.2 *	1,020 *	958 *	18.6 *	16.1 *
May	9.6	7.5	8.4	8.0	1,130	877	22.0	18.0
June	8.3	7.5	8.6	8.2	940	879	24.1	20.8
July	7.8 *	7.1 *	8.8 *	8.1 *	935 *	740 *	29.6 *	24.0 *
August	7.9	6.2	8.4	7.9	896	744	29.1	26.9
September	8.2	6.2	8.5	7.9	966	883	29.3	25.6

* - Partial Record - Indicates months with interruptions in record at times due to malfunction of recording equipment. High and low values indicated for days with reported data. Daily data and number of days with no record can be viewed at the following website: *http://web10capp.er.usgs.gov/adr06_lookup/search.jsp* searching by site number 11044000

Total dissolved solids concentrations for Rancho California WD Well 210 are shown on Figure 10.1 for samples collected since 1957 when the well was constructed. The figure shows a decline in TDS from approximately 900 mg/l for the samples collected during the 1960's to the 500-600 mg/l range in recent years. As described in Section 9, trend analyses for other wells throughout the Murrieta-Temecula area show a mix of increasing and decreasing trends in TDS levels depending upon location and aquifer.

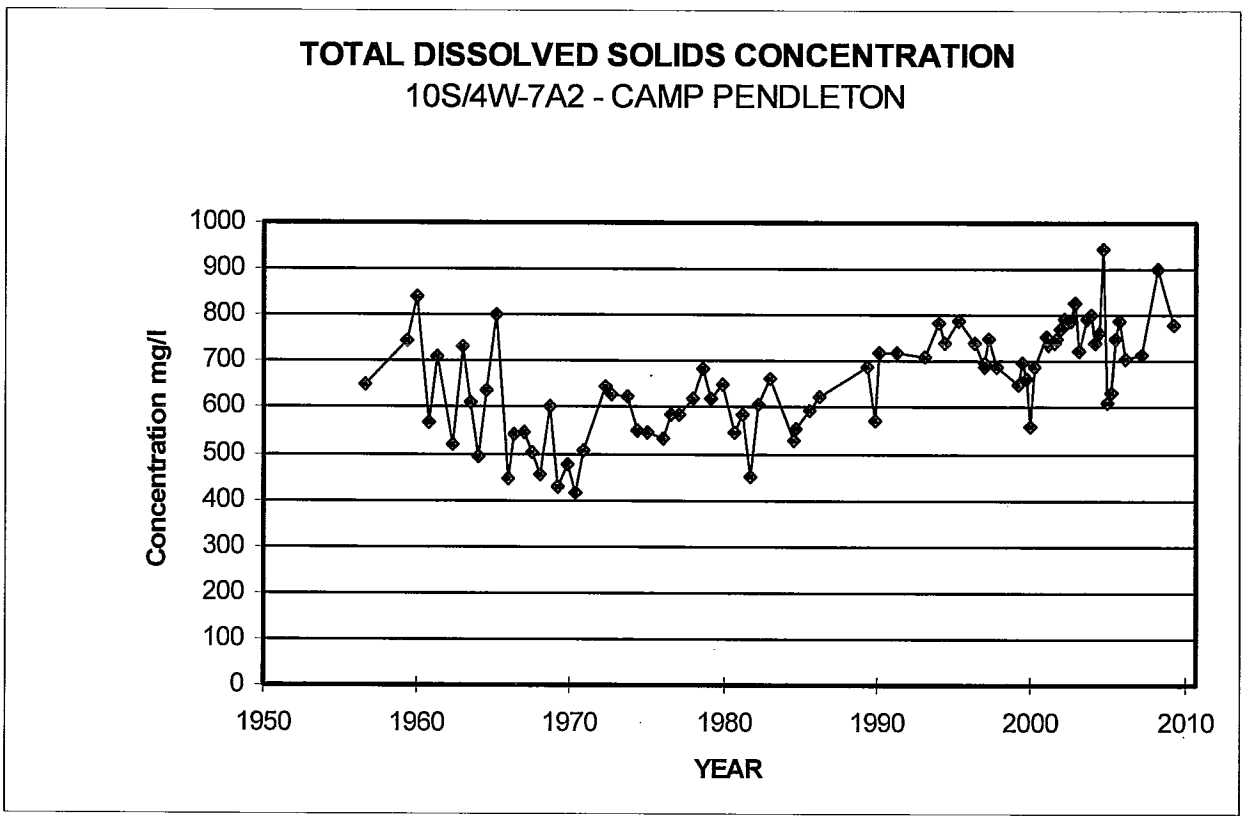
FIGURE 10.1



During 2008-09 samples of groundwater were collected from ten wells at Camp Pendleton as shown on Appendix Table D-6. One well was tested for nitrates only and nine wells were subjected to standard chemical analysis with results generally consistent with the historical results. Of the nine wells sampled, seven provided a sample where TDS concentrations exceeded 750 mg/l, the Basin Plan Objective. Eight wells were tested for TDS levels in both 2008 and 2009. Six of the eight wells showed TDS concentrations that exceeded those in the prior years and two wells showed a decline of TDS concentrations over the previous year.

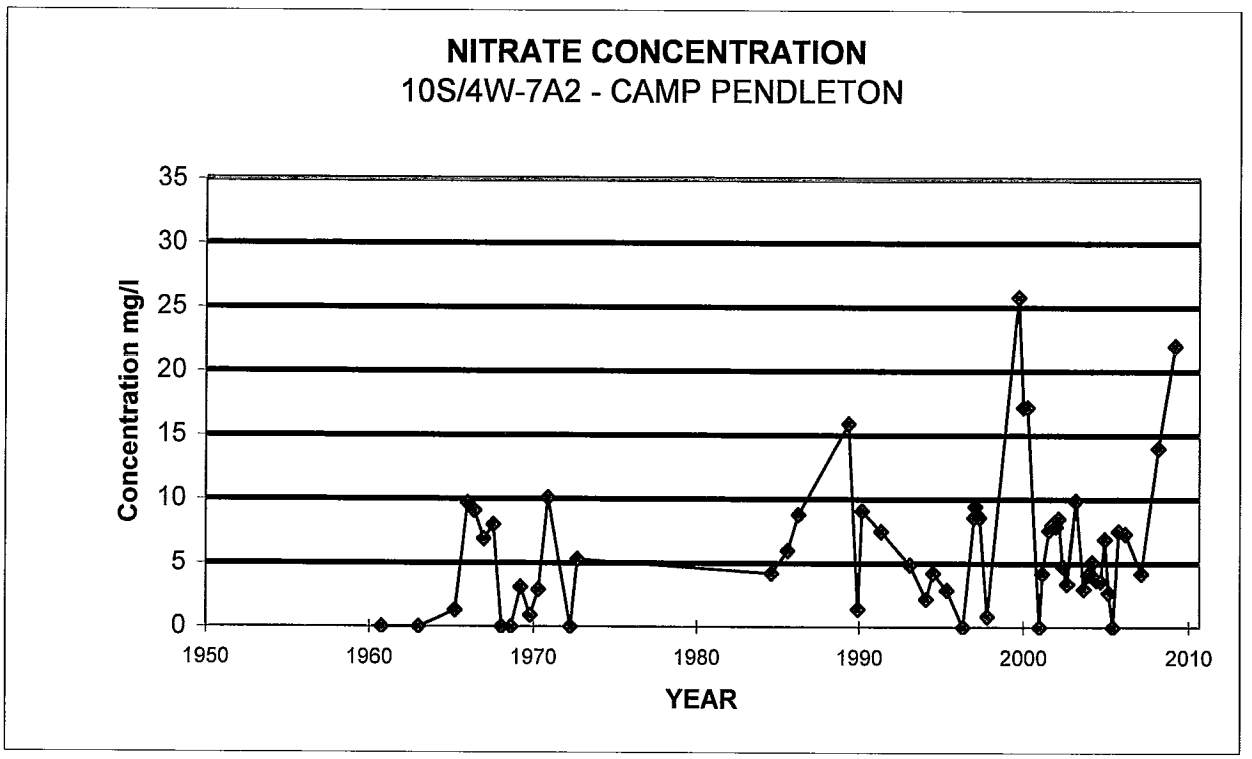
Historical TDS concentrations for Camp Pendleton Well 7A2 are shown on Figure 10.2 for samples collected since mid-1950. The figure shows a decline between mid-1950 and 1970, then a period of increasing concentrations to levels in the 550-950 mg/l range. Analysis of the sample collected in 2008-09 indicated TDS concentrations of 780 mg/l, a decrease of 120 mg/l compared to the sample taken last year.

FIGURE 10.2



Historical nitrate concentrations for the same well (7A2) are shown on Figure 10.3. The one sample collected in 2008-09 shows a nitrate concentration of 22 mg/l, an increase from last year.

FIGURE 10.3



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SECTION 11 – COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

11.1 General

On August 20, 2002, the Cooperative Water Resource Management Agreement (CWRMA) between Camp Pendleton and Rancho California WD was approved by the District Court. The CWRMA provisions specify required accounting will be reported on a calendar year basis and accordingly Section 11 and Appendix E, which serve as the annual report required under CWRMA, present data reported on a calendar year basis. However, the remainder of the Annual Watermaster Report is prepared on a water year basis requiring the CWRMA calendar year reporting to be converted to a water year basis to be incorporated into other sections of the report. The water year period begins on October 1 and concludes on September 30 of the following year.

The CWRMA provides that on May 1 of each year the Technical Advisory Committee is to compute a hydrologic index for the year based on streamflow and precipitation between October and April. In May 2009 the hydrologic index was determined and the year classified as an "Above Normal" hydrologic year. The hydrologic year establishes the required flows at the Santa Margarita River near Temecula gaging station for the calendar year. Required flows for 2008-09, an "Above Normal" year, are listed in Section 5 of the CWRMA and are shown on Table 11.1.

As indicated above, CWRMA calendar year accounting must be converted to a water year basis for other sections of the annual report. The data for October through December 2008 for the various accounts are needed to convert the amounts shown on Table 11.1 to water year values. These data for October through December 2008 were reported in the prior year Annual Watermaster Report. To assist the reader in calculating water year amounts for various CWRMA operations, Table 11.2 in the current report is a repeat of Table 11.1 from the prior year report. Additional information concerning the operations underlying the values reported on Table 11.2 can be found in the prior year report.

Prior to implementation of the Cooperative Water Resources Management Agreement entered into by Rancho California Water District (RCWD) and the United States on behalf of Camp Pendleton, there were each year contentions raised by Camp Pendleton with respect to various aspects of the Annual Watermaster Report. These contentions are settled so long as that agreement is in effect. Accordingly, there is no need to raise those particular issues or publish them in the main text of the annual report or in related correspondence.

TABLE 11.1

SANTA MARGARITA RIVER WATERSHED

MONTHLY SUMMARY OF REQUIRED FLOWS, DISCHARGES, CREDITS AND ACCOUNTS COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

2009 CALENDAR YEAR - ABOVE NORMAL YEAR

Month	USGS Official Discharge AF	USGS Website Daily Discharge AF	Minimum Flow Maintenance Requirement cfs /1,2	Section 5 Flows cfs /3	No. of Days 10-Day Moving Average is Less Than Required Flow	Discharge from WR-34 Per MWD AF /4	Climatic Credits Earned AF /5	Camp Pendleton Groundwater Account /6 Input AF	Camp Pendleton Groundwater Account /6 Cumulative Balance AF
Jan	633.9	664.5	10.6	17.8	0	642.1 *	0.0	387.4	5,000.0
Feb	3,798.3	3,798.3	10.6	17.8	0	223.7 **	0.0	349.9	5,000.0
Mar	664.5	664.5	10.6	17.8	0	656.3	0.0	387.4	5,000.0
Apr	645.0	645.0	10.6	17.8	0	623.4	0.0	374.9	5,000.0
May	223.7	222.5	5.7/3.0	11.7	0	227.8 ***	0.0	12.3	5,000.0
June	680.3	686.3	11.5	9.4	0	709.1	0.0	0.0	5,000.0
July	708.1	708.1	11.5	7.8	0	746.0	0.0	0.0	5,000.0
Aug	240.6	226.1	6.5/3.0	7.6	0	254.0	0.0	248.1	5,000.0
Sept	176.3	178.7	3.0	7.4	0	186.7	0.0	261.8	5,000.0
Oct	184.3	184.7	3.0	7.7	0	202.6 +	0.0	289.0	5,000.0
Nov	184.1	178.7	3.0	8.8	0	189.3 ++	0.0	345.1	5,000.0
Dec	2,906.8	2,907.0	3.3	10.4	0	133.7	0.0	436.6	5,000.0
CALENDAR YEAR TOTAL	**11,045.9**	**11,064.4**			**0**	**4,794.6**	**0.0**	**3,092.4**	**FULL**

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Minimum Flow Maintenance Requirement for January thru April equals 11.5 cfs less 0.9 cfs CAP Credit less 0 Climatic Credit.

2 - On April 30, 2009, Camp Pendleton requested a modification to the flow requirements to aid in a water quality and habitat study. Flow requirements were reduced in May and increased in June, July and Augst, with no net change in required flows. The flow requirement was decreased in May from 11.5 cfs to to 3.0 cfs with an intermediate flow requirement of 5.7 cfs for the first four days of May. Flow requirements were increased for June, July and August from 9.4 cfs, 7.8 cfs, and 7.6 cfs, respectively, to 11.5 cfs, 11.5 cfs, and 10 cfs, respectively. Subsequently, from August 1 through December 31, 2009, Camp Pendleton requested to forego make-up water and reduce the required flow to simulate Critically Dry Hydrologic Conditions. The request to forego water reduced the modified August flow requirement from 10 cfs to 3.0 cfs, with a 6.5 cfs intermediate flow period from August 1-5. The intermediate flows in May and August were intended to provide a transition between the high and low flows.

3 - The Table in Section 5 of the CWRMA sets forth guaranteed monthly flows at the gorge once the Hydrologic Condition for the calendar year is established.

4 - CAP Credit equals WR-34 discharge in excess of 4,000 AF; for 2009 the CAP Credit earned was 795 AF.

* - Includes 46.4 AF from System River Meter and 105.6 AF from potable connection to WR-34 outlet pipe from January 24 – 31 for MWD shutdown

** - Includes 21.3 AF from System River Meter and 48.4 from potable connection to WR-34 outlet pipe from February 1 – 4 for MWD shutdown

*** - Includes 67.3 AF from potable connection to WR-34 outlet pipe from May 3 – 12 and May 27 for MWD Shutdown

+ - Includes 2.5 AF from potable connection to WR-34 outlet pipe on October 31 because of MWD shutdown

++ - Includes 56.8 AF from potable connection to WR-34 outlet pipe from November 1 – 10 because of MWD shutdown

5 - Climatic Credits equal the WR-34 discharges less actual Flow Requirements, which is the flow indicated in Section 5 of the CRWMA less applicable credits but not less than 3.0 cfs. No climatic credits can be earned during an Above Normal Year.

6 - Camp Pendleton's rights to groundwater equals the Flow indicated in Section 5 of the CWRMA less the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to groundwater account shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

TABLE 11.2

SANTA MARGARITA RIVER WATERSHED

MONTHLY SUMMARY OF REQUIRED FLOWS, DISCHARGES, CREDITS AND ACCOUNTS COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

2008 CALENDAR YEAR - ABOVE NORMAL YEAR

Month	USGS Official Discharge AF	USGS Website Daily Discharge AF	Minimum Flow Maintenance Requirement cfs /1	Section 5 Flows cfs /2	No. of Days 10-Day Moving Average is Less Than Required Flow /3	Discharge from WR-34 Per MWD AF /4	Climatic Credits Earned AF /5	Camp Pendleton Groundwater Account /6 Input AF	Camp Pendleton Groundwater Account /6 Cumulative Balance AF
Jan	11,378.0	11,511.1	6.4	17.8	0	193.0	0.0	387.4	5,000.0
Feb	2,207.6	2,300.0	6.4	17.8	0	131.2 *	0.0	362.4	5,000.0
Mar	410.6	404.4	6.4	17.8	0	346.5	0.0	387.4	5,000.0
Apr	386.6	392.3	6.4	17.8	0	328.3 **	0.0	374.9	5,000.0
May	1,249.5	1,245.0	11.5	11.7	0	494.2 ***	0.0	12.3	5,000.0
June	582.5	573.0	9.4	9.4	0	532.4 ****	0.0	0.0	5,000.0
July	494.9	494.9	7.8	7.8	0	473.6 +	0.0	0.0	5,000.0
Aug	469.3	479.6	7.6	7.6	0	480.2 +	0.0	0.0	5,000.0
Sept	455.2	448.7	7.4	7.4	0	456.5 +	0.0	0.0	5,000.0
Oct	480.0	479.4	7.7	7.7	1	481.3 +	0.0	0.0	5,000.0
Nov	916.0	908.2	3.0	8.8	1	407.4 +	0.0	126.5	5,000.0
Dec	5,780.0	5,874.7	3.3	10.4	0	107.0 +	0.0	436.6	5,000.0
CALENDAR YEAR TOTAL	**24,810.2**	**25,111.3**			**2**	**4,431.7**	**0.0**	**2,087.4**	**FULL**

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Minimum Flow Maintenance Requirement for January thru April equals 11.5 cfs less 0 cfs CAP Credit less 5.1 Climatic Credit except for November and December when required flows were reduced to flows of Critically Dry Year per agreement of parties commencing on Nov 20, 2008

2 - The Table in Section 5 of the CWRMA sets forth guaranteed monthly flows at the gorge once the Hydrologic Condition for the calendar year is established.

3 - The 2 days in October and November when the 10-day moving average was less than the required flow were minus 0.1.

4 - CAP Credit equals WR-34 discharge in excess of 4,000 AF; for 2009 the CAP Credit earned was 432 AF

5 - Climatic Credits equal the WR-34 discharges less actual Flow Requirements, which is the flow indicated in Section 5 of the CRWMA less applicable credits but not less than 3.0 cfs. No climatic credits can be earned during an Above Normal Year

6 - Camp Pendleton's rights to groundwater equals the Flow indicated in Section 5 of the CWRMA less the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to groundwater account shown but cumulative balance did not increase due to account balance maximum of 5,000 AF

* Includes 65 AF from System River Meter during February 17 - 22, 2008.

** Includes 224.7 AF from System River Meter during April 10 - 30, 2008.

*** Includes 78.8 AF from System River Meter during May 1 - 4, 2008.

**** Includes 233.3 AF from System River Meter during June 17 - 30, 2008

\+ All flows from July 1 through December 30, 2008 were from System River Meter. December 31 flow of 11.9 AF was from WR-34.

11.2 Required Flows

Under the CWRMA Rancho California WD guarantees that the ten-day moving average of the measured flows at the Santa Margarita River near Temecula gaging station shall meet the required flows for each month during the year. In order to meet the required flows, Rancho California WD discharges make-up water from MWD's Outlet WR-34 into the river immediately upstream from the USGS gaging station.

Flow requirements are based on two-thirds of the median natural flow of the Santa Margarita River at the Gorge for a given hydrologic year type. During the winter period (January through April) the District shall maintain a ten-day running average equal to 11.5 cfs less carry-over credits less requested Foregone Make-Up Water, but not less than 3.0 cfs. The District may earn Climatic Credits in Below Normal and Critically Dry years if it has provided Make-Up Water in excess of the Actual Requirement. The Climatic Credit is equal to the Make-Up Water released less the Actual Requirement less Credits. The Actual Requirement is determined on May 1 of each year and applied retroactively to the flows during the winter period. During the non-winter period (May through December) the District shall maintain a ten-day running average equal to the flow requirements specified in the Agreement as determined on May 1st less requested Foregone Make-Up Water. When the District is required to provide Make-Up Water in any calendar year in excess of 4,000 acre feet, it may apply a CAP Credit for such excess during the following two winter periods. At no time is the District required to make up more than 11.5 cfs.

The measured daily flows, the ten-day moving average, and the differences between the moving average and the required flows are shown in Appendix E-1. Two listings of daily discharges are shown in the tables in Appendix E-1: the USGS official discharge and the USGS website discharge. The discharges shown on the website are those that dictate daily decisions regarding the quantities of Make-Up Water required and those discharges are used to compute the ten-day moving average. The official discharge is a more refined estimate developed later by the USGS for publication.

The number of days each month when the ten-day moving average was less than the required flow is summarized on Table 11.1. For calendar year 2009 there were no days when the moving average was less than the required flow. Rancho California WD released water from the System River Meter to meet the required flows under CWRMA during certain periods of the year due to MWD operational shutdowns and quagga mussel threats.

During calendar year 2009 the total releases by Rancho California WD from WR-34, including releases from the System River Meter and the potable connection were 4,795 acre feet. No climatic credits were used in calendar year 2009 and no climatic credits were earned in accordance with CWRMA provisions that no climatic credits can be earned in an Above Normal Year.

CAP Credits of 795 acre feet were accumulated in calendar year 2009 for use in subsequent years to meet required releases by Rancho California WD.

The CWRMA also provides that Camp Pendleton may acquire rights to groundwater above the gorge by foregoing its right to make-up water from the District, or to the extent that the District's Actual Flow Maintenance requirements are less than the flows in the table in Section 5 of the CWRMA. The maximum cumulative balance for the Camp Pendleton groundwater account is 5,000 acre feet. During calendar year 2009, 3,092 acre feet were calculated as input to the groundwater account but the balance was already at the maximum balance of 5,000 acre feet and no additional water was credited to the account.

11.3 Water Quality

The U. S. Geological Survey continuously monitors four parameters of water quality at the Santa Margarita River near Temecula gaging station, including dissolved oxygen, pH, specific conductance, and temperature. The daily averages for each of these parameters are reported annually. Monthly highs and lows for each parameter are listed in Table 10.1 for the water year ending September 30, 2009.

11.4 Monitoring Programs

The CWRMA provides for the establishment of two monitoring programs: (1) Section 5(g) provides for a program to assess the impacts of operations on water supply, water quality and riparian habitat within Camp Pendleton and (2) Section 7(d) provides for a program to assess safe yield operations of Rancho California WD through the use of a multi-level groundwater monitoring network and periodic updates of the CWRMA Groundwater Model.

During 2007-08, Camp Pendleton initiated the Section 5(g) program named as the Lower Santa Margarita River Watershed Monitoring Program (Program) to evaluate whether the increased flows under CWRMA influence threatened and endangered species, riparian and wetland habitats, or water quality downstream. The Program will also support other water quality monitoring and watershed management activities in the Santa Margarita River Watershed. A copy of the Statement of Work for the Lower Santa Margarita River Watershed Monitoring Program was provided in the 2007 and 2008 Annual Watermaster Reports. The monitoring was funded for a two-year period and the final report, *Hydrological and Biological Support to Lower Santa Margarita River Watershed Monitoring Program Water Years 2008-2009* was published on February 21, 2010. A copy of the final report can be found at the following website: *http://www.usbr.gov/lc/socal/planning*.

In September 2006 the USGS under contract with Camp Pendleton and Rancho California WD constructed a multi-level monitoring well for the Murrieta-Temecula groundwater basin in accordance with Section 7(d) of CWRMA. The Pala Park Groundwater Monitoring Well is located near the confluence of Pechanga and Temecula creeks and was completed to a total depth of 1,499 feet. Six piezometers were installed for continuous water level recording in the saturated zone for the lower five screened intervals and a temperature probe for the upper-most screened interval to detect moisture in the unsaturated zone. The USGS monitoring program for the Pala Park Groundwater Monitoring Well is included in the ongoing Watermaster budget beginning in year 2007-08.

In 2009 the groundwater monitoring program was expanded to include the Wolf Valley Monitoring Well that was previously constructed under a cooperative agreement between the USGS and the Pechanga Band. Two piezometers are installed at the Wolf Valley Well. Approved Watermaster funding of the water quality monitoring for Pala Park Well was used for water quality sampling at both the Pala Park and Wolf Valley wells in 2009. The groundwater level monitoring for the Wolf Valley Well was funded by the Pechanga Band.

Information concerning the construction of the Pala Park and Wolf Valley monitoring wells, groundwater levels, and water quality data can be found at the following website: *http://ca.water.usgs.gov/temecula/*. Information obtained from the website as well as supplemental information for the Pala Park Groundwater Monitoring Well can be found in Appendix E-2. Construction information, groundwater levels, and water quality data for the Wolf Valley Groundwater Monitoring Well are provided in Appendix E-3.

Also during 2007 Camp Pendleton and Rancho California WD initiated an effort to update the CWRMA Groundwater Model in accordance with Section 7(d). Work on updating the groundwater model continued during 2009. The update will incorporate data collected from the Pala Park Groundwater Monitoring Well and other wells in the Murrieta-Temecula groundwater basin as well as take advantage of recent software and computing advancements.

SECTION 12 - FIVE YEAR PROJECTION OF WATERMASTER OFFICE TASKS, EXPENDITURES AND REQUIREMENTS

12.1 General

Projected tasks over the next five years are listed below in two categories: normal tasks, which are part of the usual Watermaster office operation; and additional tasks, which are foreseen but are not part of the normal office operations.

12.2 Normal Tasks

Tasks that are normally part of the Watermaster Office operation are as follows:

1. Update List of Substantial Users
2. Collect Water Production, Use, Import and Availability Data
3. Collect Well Location, Construction and Water Level Data
4. Administer Water Rights
5. Collect Water Quality Data
6. Monitor Water Quality and Water Right Activities
7. Administer Lake Skinner and Diamond Valley Lake MOU's
8. Administer Steering Committee Matters
9. Prepare Court Reports/Budgets
10. Monitor Streamflow and Water Quality Measuring
11. Data Management
12. Administer Cooperative Water Resource Management Agreement

12.3 Additional Tasks

Tasks that have been identified but which are not part of normal operations are as follows:

1. Prepare List of All Water Users Under Court Jurisdiction
2. Prepare Inventory of Ponds and Reservoirs
3. Determine Salt Balance

12.4 Projected Expenditures

Projected expenditures for the current year and over the next five years are listed as follows:

Year		Watermaster Office	USGS Groundwater Monitoring	USGS Gaging Stations	Total
Current Year	2009-10	$327,820	$22,100	$201,750	$551,670
Projected Years	2010-11	$334,635	$27,700	$203,850	$566,160
	2011-12	$344,700	$61,900	$209,900	$616,500
	2012-13	$355,000	$63,800	$216,200	$635,000
	2013-14	$365,700	$65,700	$222,700	$654,100
	2014-15	$376,700	$67,700	$239,400	$673,800

SECTION 13 - WATERMASTER OFFICE BUDGET 2010-2011

A total Watermaster Budget of $566,160 for the Water Year ending September 30, 2011 is shown below.

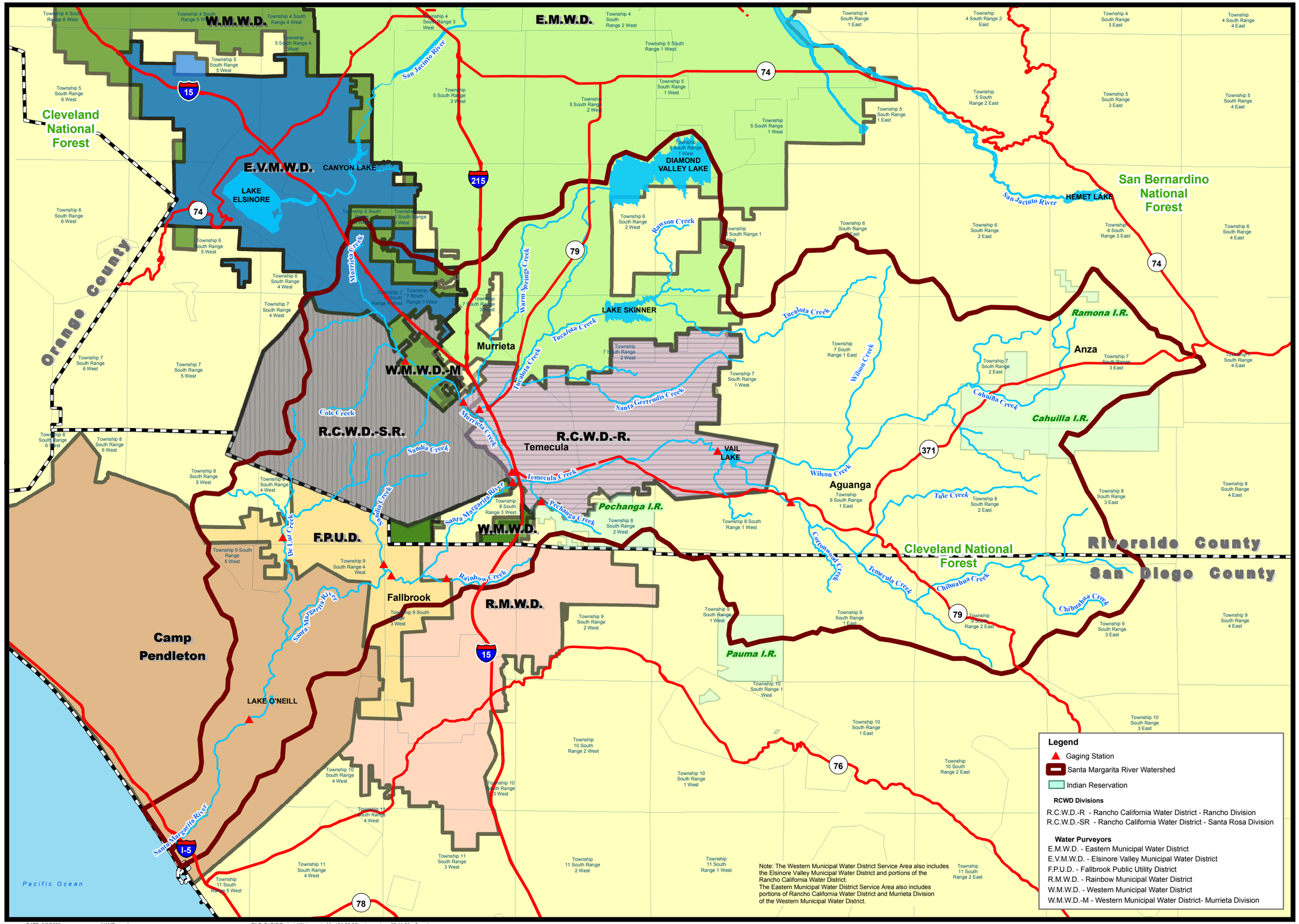
This budget includes $334,635 for the Watermaster Office and $231,525 for USGS gaging station operations and groundwater monitoring. The budgeted cost for services provided by the U. S. Geological Survey is based on the annual renewal of a cooperative agreement with the Watermaster.

	APPROVED BUDGET CURRENT YEAR 2009-10	PROPOSED BUDGET 2010-11
Watermaster Office		
Rent	$ 14,500	$ 14,500
Accounting Services	6,100	6,100
Supplies	1,200	1,200
General Liability & Professional Insurance	500	500
Printing	7,900	7,000
Audit	6,000	6,300
Publications	2,600	2,000
Clerical/Data Management	78,700	82,700
Telephone/Internet	2,700	2,700
Miscellaneous Operating/Maintenance	1,720	1,835
Mileage/Travel	800	800
Office Equipment and Software	2,000	2,000
IT System/Website	10,000	10,000
Watermaster		
Consulting Services	174,000	177,000
Travel Reimbursement	20,000	20,000
SUBTOTAL WATERMASTER OFFICE	**$ 327,820**	**$ 334,635**
USGS		
Gaging Station Operation and Maintenance	$ 174,100	$ 175,925
Water Quality Operation and Maintenance	27,650	27,900
Groundwater Monitoring Wells Water Levels	11,300	16,800
Groundwater Monitoring Wells Water Quality	10,800	10,900
SUBTOTAL USGS	**$ 223,850**	**$ 231,525**
TOTAL	**$ 551,670**	**$ 566,160**

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

Major Water Purveyors

Santa Margarita River Watershed Watermaster



Map Produced by:
Rancho California Water District
Geographic Information Systems
March 2009

1 inch = 4 miles

DATE: 3/9/2009 NAME: rosul FILE: F:\GIS\Projects\WatermasterMap\01-28-09\watermasters_02-11-09_v5.mxd

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX A

WATER PRODUCTION AND USE

WATER YEAR 2008-09

September 2010

TABLE A-1

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

EASTERN MUNICIPAL WATER DISTRICT
2008-09
Quantities in Acre Feet

	PRODUCTION					USE						RECLAIMED WASTEWATER			
MONTH YEAR	WELLS	IMPORT 1/	EXPORT FROM SMRW 2/	NET IMPORT	TOTAL	AG 3/	COMM	DOM 4/	TOTAL	LOSS	TOTAL USE	REUSE IN SMRW 5/	REUSE OUTSIDE SMRW	OTHER REUSE 6/	TOTAL
2008															
OCT	0	1,976	318	1,658	1,658	0	0	1,575	1,575	83	1,658	146	520	540	1,206
NOV	0	453	193	260	260	0	0	247	247	13	260	131	610	446	1,187
DEC	0	849	96	753	753	0	0	715	715	38	753	56	228	1,013	1,297
2009															
JAN	0	805	23	782	782	0	0	743	743	39	782	37	165	1,055	1,257
FEB	0	598	(27)	625	625	0	0	594	594	31	625	29	150	1,043	1,222
MAR	0	1,521	136	1,385	1,385	0	0	1,315	1,315	70	1,385	130	450	737	1,317
APR	0	1,243	(116)	1,359	1,359	0	0	1,291	1,291	68	1,359	265	802	108	1,175
MAY	0	1,485	(135)	1,620	1,620	0	0	1,539	1,539	81	1,620	276	714	254	1,244
JUNE	0	1,459	74	1,385	1,385	0	0	1,316	1,316	69	1,385	323	696	139	1,158
JULY	0	2,342	455	1,887	1,887	0	0	1,793	1,793	94	1,887	355	792	44	1,191
AUG	0	2,446	720	1,726	1,726	0	0	1,640	1,640	86	1,726	388	779	52	1,219
SEPT	0	1,742	710	1,032	1,032	0	0	980	980	52	1,032	479	880	(190)	1,169
TOTAL	0	16,919	2,447	14,472	14,472	0	0	13,748	13,748	724	14,472	2,615	6,786	5,241	14,642

1/ Does not include deliveries to Rancho California WD, Elsinore Valley MWD or Western MWD

2/ Portion of imported supplies exported for delivery to Eastern MWD's retail customers located outside the watershed

3/ Figures are 95% of water pumped and imported to allow for 5% loss

4/ Figures are 95% of water pumped and imported to allow for 5% loss

5/ No sewage diverted to RCWD for 2009 water year for treatment at Santa Rosa Water Reclamation Facility.
Reuse within watershed includes 674 AF sold to RCWD and 268 sold to Pechanga Band.

6/ Other Reuse includes changes of storage in Winchester and Sun City storage ponds, evaporation and percolation losses, and discharges to Temescal Creek in the Santa Ana Watershed of 2,772 AF.

TABLE A-2

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

ELSINORE VALLEY MUNICIPAL WATER DISTRICT
2008-09
Quantities in Acre Feet

	PRODUCTION			USE						
MONTH YEAR	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS *	TOTAL USE	WASTEWATER EXPORTED
2008										
OCT	0	799	799	15	193	591	799	0	799	77
NOV	0	838	838	13	208	617	838	0	838	93
DEC	0	564	564	10	113	441	564	0	564	89
2009										
JAN	0	443	443	7	57	379	443	0	443	93
FEB	0	429	429	6	65	358	429	0	429	78
MAR	0	529	529	6	77	446	529	0	529	89
APR	0	621	621	10	135	476	621	0	621	90
MAY	0	810	810	12	187	611	810	0	810	87
JUNE	0	976	976	16	222	738	976	0	976	91
JULY	0	963	963	13	231	719	963	0	963	93
AUG	0	1,181	1,181	22	293	866	1,181	0	1,181	97
SEPT	0	922	922	17	234	671	922	0	922	92
TOTAL	0	9,075	9,075	147	2,015	6,913	9,075	0	9,075	1,069

* Assumes no loss

TABLE A-3

SANTA MARGARITA RIVER WATERSHED

MONTHLY WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT

2008-09

Quantities in Acre Feet

	PRODUCTION								USE						WASTEWATER			
MONTH YEAR	TOTAL LAKE SKINNER DIVERSIONS	LAKE SKINNER DIVERSIONS DELIVERED	TOTAL DISTRICT IMPORT 1/	DELUZ AREA IMPORT	FALLBROOK AREA IMPORT	SMRW IMPORT 2/	TOTAL SMRW IMPORT	TOTAL PRODUCTION	AG	COMM	DOM	TOTAL IN SMRW	LOSS*	TOTAL USE IN SMRW	FROM SMRW	REUSE IN SMRW	FROM U. S. N.W.S.	EXPORTED FROM SMRW
2008																		
OCT	0	0	1,731	381	1,350	621	1,002	1,002	513	71	431	1,015	(13)	1,002	95	3.10	1.20	91
NOV	0	0	1,410	22	1,388	638	660	660	277	55	271	603	57	660	105	2.10	0.90	102
DEC	0	0	518	69	449	206	275	275	142	36	260	438	(163)	275	109	0.30	1.05	108
2009																		
JAN	0	0	878	22	856	394	416	416	91	28	150	269	147	416	104	0.30	0.44	103
FEB	0	0	431	87	344	158	245	245	149	38	199	386	(141)	245	93	0.90	0.77	91
MAR	0	0	1,115	195	920	423	618	618	214	29	143	386	232	618	109	0.30	0.82	108
APR	0	0	1,317	276	1,041	479	755	755	362	53	290	705	50	755	97	2.80	0.61	93
MAY	0	0	1,419	254	1,165	536	790	790	359	53	255	667	123	790	100	5.40	0.91	94
JUNE	0	0	1,352	253	1,099	506	759	759	364	43	347	754	5	759	97	3.20	1.19	92
JULY	0	0	1,695	378	1,318	606	984	984	505	39	276	820	164	984	98	3.60	1.48	93
AUG	0	0	1,718	348	1,370	630	978	978	508	43	386	937	41	978	91	3.90	1.21	86
SEPT	0	0	1,771	482	1,288	593	1,075	1,075	667	45	355	1,067	8	1,075	89	4.60	1.46	83
TOTAL	0	0	15,355	2,767	12,588	5,790	8,557	8,557	4,151	533	3,363	8,047	510	8,557	1,187	31	12	1,144

1/ Includes deliveries from Lake Skinner Diversion

2/ Approximately 46% of the Fallbrook area is within the Santa Margarita River Watershed

*Loss = Total production less total use

TABLE A-4

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

METROPOLITAN WATER DISTRICT
DELIVERIES IN DOMENIGONI VALLEY
2008-09
Quantities in Acre Feet

	PRODUCTION			USE					
MONTH YEAR	WELLS	IMPORT TO SMRW	TOTAL IN SMRW	AG	COMM/ DOM *	GW RECHARGE	TOTAL DELIVERED	LOSS **	TOTAL USE
2008									
OCT	0	69	69	66	0	0	66	3	69
NOV	0	30	30	29	0	0	29	1	30
DEC	0	8	8	7	0	0	7	1	8
2009									
JAN	0	4	4	3	0	0	3	1	4
FEB	0	10	10	9	0	0	9	1	10
MAR	0	28	28	27	0	0	27	1	28
APR	0	34	34	32	0	0	32	2	34
MAY	0	59	59	56	0	0	56	3	59
JUNE	0	42	42	40	0	0	40	2	42
JULY	0	71	71	68	0	0	68	3	71
AUG	0	59	59	56	0	0	56	3	59
SEPT	0	51	51	48	0	0	48	3	51
TOTAL	0	465	465	441	0	0	441	24	465

* Construction water
** Loss = 5%

TABLE A-5

SANTA MARGARITA RIVER WATERSHED

MONTHLY WATER PRODUCTION AND USE

PECHANGA INDIAN RESERVATION

2008-09

Quantities in Acre Feet

	PRODUCTION				USE					
MONTH YEAR	WELLS ON RESERVATION 1/	DELIVERED GROUNDWATER FROM RCWD 2/	RECLAIMED WASTEWATER FROM EMWD 3/	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 4/	TOTAL USE
2008										
OCT	88	52	0	140	74	34	27	135	5	140
NOV	61	18	0	79	31	31	16	78	1	79
DEC	36	0	0	36	5	23	5	33	3	36
2009										
JAN	62	0	3	65	13	30	13	56	9	65
FEB	45	0	6	51	10	27	12	49	2	51
MAR	57	0	17	74	31	32	9	72	2	74
APR	53	18	34	105	44	37	19	100	5	105
MAY	60	15	49	124	73	43	9	125	(1)	124
JUNE	35	41	28	104	50	38	9	97	7	104
JULY	78	26	61	165	90	50	21	161	4	165
AUG	71	35	38	144	67	48	26	141	3	144
SEPT	56	45	32	133	60	48	29	137	(4)	133
TOTAL	702	250	268	1,220	548	441	195	1,184	36	1,220

1/ Total production attributed to Eduardo, Eagle III, Kelsey, Cell Tower, Ballpark and Zone 5 Rock 1 wells.

2/ Water provided from Rancho California WD Well Nos. 119, 122, and 211.

3/ Reclaimed wastewater provided by Eastern MWD via Wheeling Agreement with Rancho California WD shown as a component of production for Table A-5 only to illustrate water budget for Reservation. Actual production for Watershed accounted for on Table A-1 and Table 7.1 for Eastern MWD.

4/ Loss determined as Total Production less Total Delivered

TABLE A-6

SANTA MARGARITA RIVER WATERSHED

MONTHLY WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT

2008-09

Quantities in Acre Feet

	PRODUCTION			USE				
MONTH YEAR	**LOCAL**	**IMPORT TO WATERSHED**	**TOTAL IN WATERSHED**	**AG**	**COMMERCIAL/ DOMESTIC**	**TOTAL DELIVERIES**	**LOSS***	**TOTAL USE**
2008								
OCT	0	184	184	143	24	167	17	184
NOV	0	227	227	177	30	207	20	227
DEC	0	117	117	90	16	106	11	117
2009								
JAN	0	51	51	38	8	46	5	51
FEB	0	103	103	82	12	94	9	103
MAR	0	53	53	39	9	48	5	53
APR	0	120	120	95	14	109	11	120
MAY	0	135	135	105	17	122	13	135
JUNE	0	220	220	180	20	200	20	220
JULY	0	172	172	138	18	156	16	172
AUG	0	255	255	205	27	232	23	255
SEPT	0	215	215	171	25	196	19	215
TOTAL	0	1,852	1,852	1,463	220	1,683	169	1,852

*Loss = 10% of use

TABLE A-7

SANTA MARGARITA RIVER WATERSHED

MONTHLY WATER PRODUCTION AND USE

RANCHO CALIFORNIA WATER DISTRICT

2008-09

Quantities in Acre Feet

	PRODUCTION							USE									VAIL	RECLAIMED WASTEWATER
MONTH YEAR	WELLS 1/	EXPORT 2/	NET WELLS	IMPORT 3/	EXPORT 4/	NET IMPORT	TOTAL	AG	AG/ DOM	COMM	DOM	SMR RELEASE 5/	IMPORT RECHARGE TO STORAGE 6/	TOTAL USE	LOSS 7/	TOTAL	RELEASE AND RECHARGE 8/	REUSED IN SMRW 9/
2008																		
OCT	2,794	39	2,755	5,956	91	5,865	8,620	3,049	666	437	3,292	489	260	8,193	427	8,620	70	496
NOV	1,877	35	1,842	3,968	73	3,895	5,737	2,954	669	258	2,949	412	354	7,596	(1,859)	5,737	0	326
DEC	1,225	30	1,195	1,831	38	1,793	2,988	1,880	423	560	2,199	108	321	5,491	(2,503)	2,988	0	326
2009																		
JAN	1,970	20	1,950	2,192	16	2,176	4,126	501	130	248	1,331	644	78	2,932	1,194	4,126	0	314
FEB	1,157	25	1,132	1,024	25	999	2,131	1,094	253	254	1,551	224	(233)	3,143	(1,012)	2,131	0	318
MAR	2,234	14	2,220	3,471	16	3,455	5,675	580	144	251	1,345	661	458	3,439	2,236	5,675	0	338
APR	3,075	32	3,043	3,840	36	3,804	6,847	1,740	382	248	2,044	624	(42)	4,996	1,851	6,847	0	344
MAY	2,283	30	2,253	4,887	66	4,821	7,074	2,324	516	380	2,671	230	208	6,329	745	7,074	(28)	327
JUNE	2,515	39	2,476	4,800	67	4,733	7,209	2,512	566	395	2,894	712	126	7,205	4	7,209	(73)	313
JULY	2,922	35	2,887	7,066	94	6,972	9,859	2,459	554	411	3,024	749	270	7,467	2,392	9,859	84	367
AUG	3,010	32	2,978	6,138	97	6,041	9,019	3,325	717	430	3,380	258	680	8,790	229	9,019	917	401
SEPT	2,758	36	2,722	5,815	99	5,716	8,438	4,393	966	434	3,479	191	(123)	9,340	(902)	8,438	266	321
TOTAL	27,820	367	27,453	50,988	718	50,270	77,723	26,811	5,986	4,306	30,159	5,302	2,357	74,921	2,802	77,723	1,236	4,191

1/ Wells recovered 26,584 AF from older alluvium and 1,236 AF from Vail recharge. An additional 250 AF was delivered to Pechanga Indian Reservation and is shown on Table A-5.
2/ Groundwater used in San Mateo Watershed
3/ Includes 32,168 AF direct use (16,971 AF to Rancho Division and 15,197 AF to Santa Rosa Division); 14,828 AF direct recharge; and 3,992 AF from MWD WR-34.
4/ Import used in San Mateo Watershed
5/ 26 AF into Murrieta Creek from Wells 101, 102, and 118; 11 AF into Santa Gertrudis Creek from Wells 106 and 108;
1,052 AF from System River Meter; 221 AF from potable connection to WR-34 outlet pipe and 3,992 AF from MWD WR-34
6/ 14,828 AF of direct recharge less 12,471 AF of import recovery
7/ Loss = Total production less total use and includes 402 acre feet pumped from wells 102, 135 and 146 directly into reclaimed water system.
8/ Vail releases and the related Vail recharge are computed as Total Release less Inflow to be bypassed.
9/ Does not include 674 AF reclaimed wastewater purchsed from EMWD.

TABLE A-8

SANTA MARGARITA RIVER WATERSHED
U.S.M.C. - CAMP PENDLETON
2008-09
Quantities in Acre Feet

	PRODUCTION			USE						RECLAIMED WASTEWATER				EXPORTS		
MONTH YEAR	AG LOCAL	CAMP SUPPLY	TOTAL	AGRICULTURE IN SMRW 1/	AGRICULTURE OUT SMRW 1/	CAMP SUPPLY IN SMRW 2/	CAMP SUPPLY OUT SMRW 2/	TOTAL EXPORT	TOTAL IN SMRW 3/	RECLAIMED USE IN SMRW	RECLAIMED USE OUT SMRW 4/	EXPORTED TO OCEANSIDE OUTFALL	TOTAL 5/	TOTAL 6/	WASTE WATER RETURNS 7/	NET EXPORT
2008																
OCT	331	513	844	103	228	277	236	464	380	0	36	219	255	719	107	612
NOV	21	453	474	6	15	245	208	223	251	0	18	207	225	448	94	354
DEC	0	294	294	0	0	159	135	135	159	0	7	210	217	352	61	291
2009																
JAN	0	337	337	0	0	182	155	155	182	0	13	187	200	355	70	285
FEB	0	277	277	0	0	150	127	127	150	0	6	185	191	318	58	260
MAR	10	438	448	3	7	237	201	208	240	0	22	184	206	414	91	323
APR	16	521	537	5	11	281	240	251	286	2	47	143	192	441	109	332
MAY	33	547	580	10	23	295	252	275	305	12	69	111	192	455	114	341
JUNE	55	504	559	17	38	272	232	270	289	6	51	154	211	475	105	370
JULY	149	575	724	46	103	310	265	368	356	15	82	119	216	569	120	449
AUG	149	546	695	46	103	295	251	354	341	4	64	127	195	545	114	431
SEPT	118	511	629	37	81	276	235	316	313	10	73	120	203	509	107	402
TOTAL	882	5,516	6,398	273	609	2,979	2,537	3,146	3,252	49	488	1,966	2,503	5,600	1,150	4,450

1/ Agricultural water use is divided with 31% used inside the SMRW and 69% used outside the SMRW.
2/ Camp Supply water use is divided with 54% used inside the SMRW and 46% used outside the SMRW.
3/ Assumes no losses
4/ Reclaimed use for irrigation of golf course, landscaping and park areas.
5/ All wastewater treated at Southern Regional Tertiary Treatment Plant (SRTTP) beginning December 2008.
6/ Agriculture and Camp Supply use outside the SMRW, reclaimed use outside the SMRW, plus export to Oceanside Outfall
7/ Percent Camp Supply reclaimed estimated as 2,503 AF divided by 5,516 AF equals 45.38%. Wastewater returns estimated as 45.38% of Camp Supply use outside of SMRW

TABLE A-9

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX
2008-09
Quantities in Acre Feet

	PRODUCTION			USE				WASTEWATER
MONTH YEAR	LOCAL	IMPORT TO WATERSHED 1/	TOTAL	AG	COMMERCIAL/ DOMESTIC	LOSS 2/	TOTAL USE	EXPORTED
2008								
OCT	0.0	7.3	7.3	0.0	6.6	0.7	7.3	1.2
NOV	0.0	6.4	6.4	0.0	5.8	0.6	6.4	0.9
DEC	0.0	8.9	8.9	0.0	8.1	0.8	8.9	1.1
2009								
JAN	0.0	3.9	3.9	0.0	3.5	0.4	3.9	0.4
FEB	0.0	5.2	5.2	0.0	4.7	0.5	5.2	0.8
MAR	0.0	5.9	5.9	0.0	5.4	0.5	5.9	0.8
APR	0.0	5.5	5.5	0.0	5.0	0.5	5.5	0.6
MAY	0.0	4.6	4.6	0.0	4.2	0.4	4.6	0.9
JUNE	0.0	6.6	6.6	0.0	6.0	0.6	6.6	1.2
JULY	0.0	7.6	7.6	0.0	6.9	0.7	7.6	1.5
AUG	0.0	5.8	5.8	0.0	5.3	0.5	5.8	1.2
SEPT	0.0	5.9	5.9	0.0	5.4	0.5	5.9	1.5
TOTAL	0.0	73.6	73.6	0.0	66.9	6.7	73.6	12.0

1/ - Import via Fallbrook Public Utility District

2/ - Loss = 10% of Use

TABLE A-10

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION
2008-09
Quantities in Acre Feet

	PRODUCTION			USE					
MONTH YEAR	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS *	TOTAL USE
2008									
OCT	78	174	252	42	19	168	229	23	252
NOV	83	177	260	42	24	180	246	14	260
DEC	59	104	163	20	15	95	130	33	163
2009									
JAN	35	71	106	10	14	75	99	7	106
FEB	55	79	134	13	14	85	112	22	134
MAR	48	49	97	12	16	86	114	(17)	97
APR	83	104	187	28	16	125	169	18	187
MAY	82	150	232	35	17	159	211	21	232
JUNE	84	170	254	45	21	184	250	4	254
JULY	84	174	258	43	19	168	230	28	258
AUG	87	207	294	60	25	228	313	(19)	294
SEPT	83	195	278	46	19	170	235	43	278
TOTAL	861	1,654	2,515	396	219	1,723	2,338	177	2,515

* Loss = Total production less total delivered

TABLE A-11

SANTA MARGARITA RIVER WATERSHED

MISCELLANEOUS WATER PRODUCTION AND IMPORTS

2008-09

Quantities in Acre Feet

	IMPORT	PRODUCTION					
MONTH YEAR	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	ANZA MUTUAL WATER COMPANY	OUTDOOR RESORTS RANCHO CALIFORNIA, INC.	BUTTERFIELD OAKS MOBILE HOME PARK	LAKE RIVERSIDE ESTATES	HAWTHORN WATER SYSTEM	JOJOBA HILLS SKP RESORT
2008							
OCT	4.90	N/A	8.70	N/A	37.63	2.61	7.17
NOV	4.40	N/A	4.08	N/A	10.16	1.23	5.55
DEC	3.10	N/A	3.45	N/A	1.32	0.86	4.67
2009							
JAN	3.30	N/A	3.21	N/A	15.10	0.68	4.50
FEB	2.60	N/A	3.25	N/A	2.82	0.64	3.21
MAR	4.00	N/A	4.53	N/A	16.33	0.68	5.10
APR	3.70	N/A	3.89	N/A	32.85	0.74	4.71
MAY	4.50	N/A	8.31	N/A	39.21	2.26	6.00
JUNE	4.00	N/A	7.04	N/A	62.39	3.04	5.82
JULY	6.20	N/A	8.33	N/A	50.82	3.49	7.96
AUG	4.40	N/A	4.56	N/A	50.69	4.61	6.73
SEPT	5.80	N/A	3.51	N/A	28.19	4.52	6.44
SUBTOTAL			62.86	15.00			
			429.40 *	8.30 *			
TOTAL	50.90	34.13 **	492.26	23.30	347.51	25.36	67.86

N/A Monthly readings not available
* Estimated non-metered use
** - Production data not available due to meter malfunction, total amount shown assumed to be same as reported for 2008.

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX B

WATER PRODUCTION AND USE

WATER YEAR 1965-66 TO WATER YEAR 2008-09

September 2010

TABLE B-1

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

EASTERN MUNICIPAL WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION					USE						RECLAIMED WASTEWATER					
WATER YEAR	WELLS	IMPORT 1/	EXPORT FROM SMRW	NET IMPORT	TOTAL	AG 2/	COMM	DOM 3/	TOTAL	LOSS	TOTAL USE	REUSE IN SMRW 4/	REUSE OUTSIDE SMRW	OTHER REUSE 5/	RELEASE TO RIVER	RECHARGE	TOTAL
1966	0	1,604	0	1,604	1,604	1,520	0	4	1,524	80	1,604	0	0		0	100	100
1967	0	1,630	0	1,630	1,630	1,544	0	4	1,548	82	1,630	0	0		0	100	100
1968	0	1,464	0	1,464	1,464	1,386	0	5	1,391	73	1,464	0	0		0	100	100
1969	0	1,741	0	1,741	1,741	1,648	0	6	1,654	87	1,741	0	0		0	100	100
1970	0	1,417	0	1,417	1,417	1,340	0	7	1,346	71	1,417	0	0		0	101	101
1971	0	1,383	0	1,383	1,383	1,306	0	8	1,314	69	1,383	0	0		0	119	119
1972	0	1,470	0	1,470	1,470	1,388	0	8	1,396	74	1,470	0	0		0	242	242
1973	0	1,533	0	1,533	1,533	1,447	0	10	1,456	77	1,533	0	0		0	217	217
1974	0	1,601	0	1,601	1,601	1,511	0	10	1,521	80	1,601	0	0		0	193	193
1975	0	1,969	0	1,969	1,969	1,859	0	11	1,871	98	1,969	0	0		0	253	253
1976	145	2,493	0	2,493	2,638	2,356	0	150	2,506	132	2,638	134	0		0	155	289
1977	431	2,947	0	2,947	3,378	2,723	64	423	3,209	169	3,378	244	0		0	70	314
1978	375	2,551	0	2,551	2,926	2,409	0	371	2,780	146	2,926	300	0		0	75	375
1979	289	1,894	0	1,894	2,183	1,784	0	290	2,074	109	2,183	350	0		0	147	497
1980	281	1,192	0	1,192	1,473	1,116	0	283	1,399	74	1,473	375	0		0	220	595
1981	282	716	0	716	998	663	0	285	948	50	998	375	0		0	304	679
1982	321	1,112	0	1,112	1,433	1,038	0	323	1,361	72	1,433	375	0		0	386	761
1983	106	1,211	0	1,211	1,317	1,131	0	120	1,251	66	1,317	375	0		0	466	841
1984	236	699	0	699	935	644	0	244	888	47	935	400	0		0	525	925
1985	314	679	0	679	993	624	0	319	943	50	993	450	0		0	565	1,015
1986	229	760	0	760	989	700	0	239	940	49	989	600	0		0	509	1,109
1987	89	1,155	0	1,155	1,244	638	0	543	1,182	62	1,244	650	0		0	554	1,204
1988	4	2,047	0	2,047	2,051	524	0	1,424	1,948	103	2,051	650	0		0	650	1,300
1989	685	3,746	0	3,746	4,431	1,146	0	3,064	4,209	222	4,431	1,058	0		0	1,636	2,694
1990	492	8,578	2,977	5,601	6,093	978	0	4,810	5,788	305	6,093	1,567	0		0	2,160	3,727
1991	456	16,621	7,142	9,479	9,935	851	0	8,587	9,438	497	9,935	1,282	0		0	2,272	3,554
1992	527	13,486	4,893	8,593	9,120	29	0	8,635	8,664	456	9,120	1,323	0		245	2,385	3,953
1993	524	7,287	1,894	5,393	5,917	36	0	5,585	5,621	296	5,917	1,709	990	(285)	192	2,020	4,626
1994	232	10,082	2,932	7,150	7,382	0	0	7,013	7,013	369	7,382	2,687	2,465	694	0	0	5,846
1995	182	11,539	6,914	4,625	4,807	16	0	4,551	4,567	240	4,807	2,154	1,357	2,551	0	0	6,062
1996	299	11,730	6,770	4,960	5,259	0	0	4,996	4,996	263	5,259	2,979	2,473	520	0	0	5,972
1997	408	5,093	1,809	3,284	3,692	0	0	5,226	5,226	(1,534)	3,692	3,126	2,319	882	0	0	6,327
1998	240	6,609	1,492	5,117	5,357	0	0	5,090	5,090	267	5,357	2,949 5/	2,139	2,374	0	0	7,462
1999	669	7,118	2,719	4,327	4,996	0	0	4,746	4,746	250	4,996	3,741 6/	3,070	1,063	0	0	7,874
2000	630	9,179	1,923	7,256	7,886	0	0	7,493	7,493	393	7,886	4,669 7/	3,664	(15)	0	0	8,318
2001	355	9,219	3,271	5,948	6,303	0	0	5,989	5,989	314	6,303	4,571 8/	3,249	1,208	0	0	9,028
2002	13	12,777	4,954	8,117	8,130	0	0	7,724	7,724	406	8,130	4,843 9/	4,863	462	0	0	10,168
2003	0	14,175	5,113	9,062	9,062	0	0	8,610	8,610	452	9,062	3,542 10/	2,955	4,681	0	0	11,178
2004	0	17,381	8,243	9,138	9,138	0	0	8,960	8,960	178	9,138	3,221 11/	3,688	5,427	0	0	12,336
2,005	0	16,336	5,478	10,858	10,858	0	0	10,749	10,749	109	10,858	2,664 12/	2,690	8,986	0	0	14,340
2,006	0	21,034	6,873	14,161	14,161	0	0	13,453	13,453	708	14,161	3,108 13/	3,510	7,396	0	0	14,014
2007	0	21,161	5,763	15,398	15,398	0	0	14,628	14,628	770	15,398	3,550 14/	5,960	4,593	0	0	14,103
2008	0	18,714	3,762	14,952	14,952	0	0	14,204	14,204	748	14,952	1,450	5,925	6,864	0	0	14,239
2009	0	16,919	2,447	14,472	14,472	0	0	13,748	13,748	724	14,472	2,615	6,786	5,241	0	0	14,642

1/ Does not include deliveries to RCWD, Elsinore Valley MWD, Western MWD
2/ Figures are 95% of water pumped and imported to allow for 5% loss.
3/ Figures are 95% of water pumped and imported to allow for 5% loss.
4/ Reuse within watershed includes noted amount of sewage distributed to RCWD for treatment by RCWD, reclaimed wastewater sold to RCWD for delivery to RCWD reclaimed wastewater customers, and beginning in 2009 reclaimed wastewater sold to the Pechanga Band.
5/ Other Reuse includes changes in storage in Winchester and Sun City storage ponds, evaporation and percolation losses, and discharges to the Santa Ana Watershed.
6/ Includes 905 AF of sewage diverted to RCWD
7/ Includes1,159 AF of sewage diverted to RCWD
8/ Includes1,162 AF of sewage diverted to RCWD
9/ Includes1,201 AF of sewage diverted to RCWD
10/ Includes1,219 AF of sewage diverted to RCWD
11/ Includes 1,056 AF of sewage diverted to RCWD
12/ Includes 0 AF of sewage diverted to RCWD
13/ Includes 574 AF of sewage diverted to RCWD
14/ Includes 910 AF of sewage diverted to RCWD
15/ Includes 797 AF of sewage diverted to RCWD

TABLE B-2

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

ELSINORE VALLEY MUNICIPAL WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION			USE						
WATER YEAR	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS *	TOTAL USE	WASTEWATER EXPORTED
1966										
1967										
1968										
1969										
1970										
1971										
1972										
1973										
1974										
1975										
1976										
1977										
1978										
1979										
1980										
1981										
1982										
1983										
1984										
1985										
1986										
1987										
1988										
1989	0	1,341	1,341				1,341	0	1,341	74
1990	0	2,255	2,255				2,255	0	2,255	114
1991	0	2,421	2,421				2,421	0	2,421	134
1992	0	2,190	2,190				2,190	0	2,190	140
1993	0	2,964	2,964	539	84	2,341	2,964	0	2,964	150
1994	0	3,232	3,232	687	93	2,452	3,232	0	3,232	170
1995	0	3,127	3,127	520	100	2,507	3,127	0	3,127	185
1996	0	4,197	4,197	871	109	3,217	4,197	0	4,197	213
1997	0	4,296	4,296	848	118	3,330	4,296	0	4,296	226
1998	0	5,100	5,100	667	1,396	3,037	5,100	0	5,100	247
1999	0	6,133	6,133	921	1,626	3,586	6,133	0	6,133	254
2000	0	7,174	7,174	1,089	1,971	4,114	7,174	0	7,174	279
2001	0	6,215	6,215	925	1,815	3,475	6,215	0	6,215	310
2002	0	7,596	7,596	1,173	1,902	4,521	7,596	0	7,596	412
2003	0	7,091	7,091	63	2,665	4,363	7,091	0	7,091	483
2004	0	8,438	8,438	96	3,238	5,104	8,438	0	8,438	600
2005	0	8,215	8,215	104	3,044	5,067	8,215	0	8,215	927
2006	0	9,819	9,819	127	4,118	5,574	9,819	0	9,819	938
2007	0	10,811	10,811	150	4,509	6,152	10,811	0	10,811	837
2008	0	9,951	9,951	115	4,149	5,687	9,951	0	9,951	901
2009	0	9,075	9,075	147	2,015	6,913	9,075	0	9,075	1,069

* Assumes no loss

TABLE B-3

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT

Quantities in Acre Feet

	PRODUCTION									USE				
WATER YEAR	TOTAL LAKE SKINNER DIVERSIONS	LAKE SKINNER DIVERSIONS DELIVERED	WELLS	TOTAL DISTRICT IMPORT 1/	DELUZ AREA IMPORT	FALLBROOK AREA IMPORT	FALLBROOK SMRW IMPORT 2/	TOTAL SMRW IMPORT	TOTAL PRODUCTION	AG	COMM/ DOM	TOTAL IN SMRW	LOSS 3/	TOTAL USE IN SMRW
1966			176	11,169	0	11,169	3,351	3,351	3,404	2,735	328	3,063	341	3,404
1967			16	9,508	0	9,508	2,852	2,852	2,857	2,253	319	2,572	285	2,857
1968			13	11,411	0	11,411	3,423	3,423	3,427	2,554	531	3,085	342	3,427
1969			178	9,458	0	9,458	2,837	2,837	2,891	1,787	814	2,601	290	2,891
1970			305	11,794	0	11,794	3,538	3,538	3,630	2,649	617	3,266	364	3,630
1971			7	11,350	0	11,350	3,405	3,405	3,407	2,386	681	3,067	340	3,407
1972			0	13,054	0	13,054	3,916	3,916	3,916	2,749	775	3,524	392	3,916
1973			0	10,610	38	10,572	3,172	3,210	3,210	2,156	732	2,888	322	3,210
1974			0	12,911	134	12,777	3,833	3,967	3,967	2,703	868	3,571	396	3,967
1975			0	11,492	213	11,279	3,384	3,597	3,597	2,420	816	3,236	361	3,597
1976			0	13,147	431	12,716	4,196	4,627	4,627	3,200	965	4,165	462	4,627
1977			20	13,435	587	12,848	4,625	5,212	5,232	3,536	1,174	4,710	522	5,232
1978			97	12,626	651	11,975	4,551	5,202	5,299	3,504	1,265	4,769	530	5,299
1979			187	12,865	961	11,904	4,762	5,723	5,910	3,820	1,498	5,318	592	5,910
1980			192	13,602	1,191	12,411	5,213	6,404	6,596	4,258	1,678	5,936	660	6,596
1981			87	16,878	1,994	14,884	6,549	8,543	8,630	5,688	2,144	7,832	798	8,630
1982			0	13,270	1,805	11,465	5,274	7,079	7,079	4,614	1,862	6,476	603	7,079
1983			0	12,298	1,969	10,329	4,751	6,720	6,720	4,320	1,871	6,191	529	6,720
1984			0	15,429	2,609	12,820	5,897	8,506	8,506	5,814	2,077	7,891	615	8,506
1985			0	14,256	2,358	11,898	5,473	7,831	7,831	5,187	2,135	7,322	509	7,831
1986			0	15,383	2,794	12,589	5,791	8,585	8,585	5,698	2,319	8,017	568	8,585
1987			0	15,313	2,986	12,327	5,670	8,656	8,656	5,793	2,281	8,074	582	8,656
1988			28	14,460	2,559	11,901	5,474	8,033	8,061	5,181	2,348	7,529	532	8,061
1989			94	16,179	3,007	13,172	6,059	9,066	9,160	5,620	2,706	8,326	834	9,160
1990			15	17,568	3,745	13,823	6,358	10,103	10,118	6,275	2,878	9,153	965	10,118
1991			46	13,939	2,871	11,068	5,091	7,962	8,008	5,146	2,314	7,460	548	8,008
1992			45	13,698	2,950	10,748	4,943	7,893	7,938	5,285	2,201	7,486	452	7,938
1993			86	12,695	2,010	10,685	4,915	6,925	7,011	4,329	2,349	6,678	333	7,011
1994			83	13,124	2,246	10,878	5,004	7,250	7,333	4,282	2,666	6,948	385	7,333
1995			3	11,620	2,208	9,412	4,330	6,538	6,541	3,818	2,798	6,316	225	6,541
1996			0	14,168	2,733	11,435	5,260	7,993	7,993	4,411	3,247	7,658	335	7,993
1997			0	14,005	2,688	11,317	5,206	7,894	7,894	4,351	3,249	7,600	294	7,894
1998			0	11,757	1,803	9,954	4,579	6,382	6,382	3,245	2,798	6,043	339	6,382
1999			0	14,307	1,572	12,735	5,858	7,430	7,430	3,748	3,271	7,019	411	7,430
2000			0	15,983	2,705	14,478	6,660	9,365	9,365	5,138	3,903	9,041	324	9,365
2001			0	15,249	2,562	12,687	5,836	8,398	8,398	4,413	3,537	7,950	448	8,398
2002			0	17,422	2,900	14,522	6,680	9,580	9,580	5,185	4,036	9,221	359	9,580
2003			0	15,864	3,393	12,471	5,737	9,130	9,130	6,041	3,737	9,778	(648)	9,130
2004			0	19,640	5,027	14,613	6,722	11,749	11,749	7,018	4,222	11,240	509	11,749
2005	1,261	1,261	0	17,452	3,101	14,351	6,601	9,702	10,963	4,654	4,213	8,867	2,096	10,963
2006	106	106	0	18,403	3,994	14,409	6,628	10,622	10,728	5,958	4,019	9,977	751	10,728
2007	0	0	0	20,750	5,087	15,664	7,205	12,292	12,292	7,271	4,500	11,771	521	12,292
2008	31	31	0	15,540	3,307	12,233	5,627	8,934	8,965	4,492	3,962	8,454	511	8,965
2009	0	0	0	15,355	2,767	12,588	5,790	8,557	8,557	4,151	3,896	8,047	510	8,557

1/ Includes deliveries from Lake Skinner Diversion beginning 2005
2/ Total SMRW production equals SMRW Import plus 30% local (1966-1971)
3/ Loss = Total production less total use (Neglects change in Storage at Red Mtn After 1985)

TABLE B-4

SANTA MARGARITA RIVER WATERSHED
ANNUAL WASTEWATER PRODUCTION AND DISTRIBUTION

FALLBROOK PUBLIC UTILITY DISTRICT
Quantities in Acre Feet

WATER YEAR	TOTAL WASTEWATER PRODUCTION	PERCENT WASTEWATER FROM SMRW	WASTEWATER FROM SMRW	WASTEWATER REUSED IN SMRW	WASTEWATER FROM U.S.N.W.S.	WASTEWATER EXPORTED FROM SMRW	PERCENT WASTEWATER FROM SLR WATERSHED 1/	WASTEWATER IMPORTED FROM SLR WATERSHED
1966	395	81	320		0	0	19	75
1967	460	80	368		0	0	20	92
1968	524	80	419		0	0	20	105
1969	588	79	465		0	0	21	123
1970	652	78	509		0	0	22	143
1971	717	78	559		0	0	22	158
1972	782	77	602		0	0	23	180
1973	847	76	644		0	0	24	203
1974	912	75	684		0	0	25	228
1975	976	75	732		0	0	25	244
1976	1,040	74	770		0	0	26	270
1977	1,105	73	807		0	0	27	298
1978	1,170	72	842		0	0	28	328
1979	1,234	72	888		0	0	28	346
1980	1,298	71	922		0	0	29	376
1981	1,363	70	954		0	0	30	409
1982	1,428	69	985		0	0	31	443
1983	1,492	69	1,029		26 E	1,003	0	0
1984	1,556	68	1,058		26 E	1,032	0	0
1985	1,621	67	1,086		26 E	1,060	0	0
1986	1,685	66	1,112		18 P	1,094	0	0
1987	1,750	66	1,155		27	1,128	0	0
1988	1,815	65	1,180		25	1,155	0	0
1989	1,881	64	1,204		22	1,182	0	0
1990	1,952	66	1,298		27	1,271	0	0
1991	1,622	60	973		11	962	0	0
1992	1,730	63	1,090		7	1,083	0	0
1993	2,051	62	1,271		16	1,255	0	0
1994	1,834	58	1,073		5	1,068	0	0
1995	1,941	60	1,165		12	1,153	0	0
1996	1,799	58	1,040		5	1,035	0	0
1997	1,780	58	1,027		6	1,021	0	0
1998	2,297	65	1,490		8	1,482	0	0
1999	2,175	64	1,382		5	1,377	0	0
2000	2,164	76	1,641		7	1,634	0	0
2001	2,191	76	1,675	24	8	1,643	0	0
2002	2,061	74	1,532	28	9	1,495	0	0
2003	2,276	76	1,737	21	10	1,706	0	0
2004	2,199	75	1,654	26	8	1,620	0	0
2005	2,505	73	1,822	24	16	1,782	0	0
2006	2,479	71	1,750	26	8	1,716	0	0
2007	1,951	61	1,183	29	12	1,142	0	0
2008	1,940	61	1,178	28	11	1,139	0	0
2009	1,900	62	1,187	31	12	1,144	0	0

NOTE: Measured quantities available for Total Wastewater in Water Year 1969 and July 1989. All other quantities are estimated (1966 - 1989). Prior to 1983, Wastewater was discharged into Fallbrook Creek. After 1983, Wastewater is discharged into an ocean outfall.

1/ - San Luis Rey Watershed
E - Estimated
P - Partial Year Data

TABLE B-5

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

METROPOLITAN WATER DISTRICT
DELIVERIES IN DOMENIGONI VALLEY

Quantities in Acre Feet

	PRODUCTION			USE					
WATER YEAR	WELLS	IMPORT TO SMRW	TOTAL IN SMRW	AG	COMM/ DOM *	GW RECHARGE	TOTAL DELIVERED	LOSS **	TOTAL USE
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	547	547	337	183	0	520	27	547
1996	0	1,005	1,005	725	230	0	955	50	1,005
1997	0	3,521	3,521	561	2,747	37	3,345	176	3,521
1998	0	5,023	5,023	183	4,183	406	4,772	251	5,023
1999	0	3,781	3,781	384	2,829	379	3,592	189	3,781
2000	0	712	712	87	339	251	677	35	712
2001	0	689	689	480	0	175	655	34	689
2002	0	595	595	540	25	0	565	30	595
2003	0	496	495	470	0	0	470	25	495
2004	0	766	766	728	0	0	728	38	766
2005	0	556	556	528	0	0	528	28	556
2006	0	506	506	481	0	0	481	25	506
2007	0	660	660	627	0	0	627	33	660
2008	0	493	493	469	0	0	469	24	493
2009	0	465	465	441	0	0	441	24	465

* Construction Water
** Loss = 5%

TABLE B-6

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

PECHANGA INDIAN RESERVATION

Quantities in Acre Feet

	PRODUCTION 1/					USE 2/					
WATER YEAR	SURFACE DIVERSION	WELLS ON RESERVATION	DELIVERED GROUNDWATER FROM RCWD	RECLAIMED WASTEWATER FROM EMWD	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 3/	TOTAL USE
1966											
1967											
1968											
1969											
1970											
1971											
1972											
1973											
1974											
1975											
1976											
1977											
1978											
1979											
1980											
1981											
1982											
1983											
1984											
1985											
1986											
1987											
1988											
1989											
1990											
1991	0	58	0	0	58	0	0	58	N/R	N/R	58
1992	0	66	0	0	66	0	0	66	N/R	N/R	66
1993	0	91	0	0	91	0	0	91	N/R	N/R	91
1994	0	70	0	0	70	0	0	70	N/R	N/R	70
1995	0	63	0	0	63	0	4	59	N/R	N/R	63
1996	0	145	0	0	145	0	45	100	N/R	N/R	145
1997	4	167	0	0	171	0	25	146	N/R	N/R	171
1998	4	175	0	0	179	0	62	117	N/R	N/R	179
1999	4	241	0	0	245	33	84	128	N/R	N/R	245
2000	4	370	0	0	374	51	182	141	N/R	N/R	374
2001	4	291	0	0	295	56	85	154	N/R	N/R	295
2002	4	460	0	0	464	73	194	174	441	23	464
2003	4	600	0	0	604	78	354	148	580	24	604
2004	4	721	0	0	725	81	537	71	689	36	725
2005	0	608	0	0	608	140	401	61	602	6	608
2006	0	754	0	0	754	159	401	194	N/R	N/R	754
2007	0	919	154	0	1,073	275	517	229	1,021	52	1,073
2008	0	865	412	0	1,277	599	370	282	1,251	26	1,277
2009	0	702	250	268	1,220	548	441	195	1,184	36	1,220

1/ Records prior to 1991 not available.
2/ For period 1991 through 2006 uses shown as reported to Watermaster and published in prior Watermaster reports.
3/ For 2007 loss assumed to be 5% for all use types; for prior years any losses shown as reported to Watermaster.
For 2008, 2009 loss determined as Total Production less Total Delivered
N/R--Not reported.

TABLE B-7

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION			USE				
WATER YEAR	LOCAL	IMPORT TO DISTRICT	TOTAL IN WATERSHED 1/	AG 2/	COMMERCIAL/ DOMESTIC 3/	TOTAL DELIVERIES	LOSS 4/	TOTAL USE
1966	0	14,538	1,308	1,049	140	1,189	119	1,308
1967	0	12,167	1,095	878	117	995	100	1,095
1968	0	15,301	1,377	1,104	147	1,252	125	1,377
1969	0	13,917	1,253	1,005	134	1,139	114	1,252
1970	0	18,764	1,689	1,354	181	1,535	154	1,689
1971	0	18,338	1,650	1,324	177	1,500	150	1,650
1972	0	22,633	2,037	1,634	218	1,852	185	2,037
1973	0	17,955	1,616	1,296	173	1,469	147	1,616
1974	0	22,768	2,049	1,643	219	1,863	186	2,049
1975	0	13,856	1,247	1,000	133	1,134	113	1,247
1976	0	24,878	2,239	1,796	240	2,035	204	2,239
1977	0	26,038	2,343	1,879	251	2,130	213	2,343
1978	0	24,312	2,188	1,755	234	1,989	199	2,188
1979	0	26,084	2,348	1,883	251	2,134	213	2,347
1980	0	27,660	2,489	1,997	266	2,263	226	2,489
1981	0	35,036	3,153	2,529	337	2,866	287	3,153
1982	0	27,334	2,460	1,973	263	2,236	224	2,460
1983	0	24,957	2,190	1,735	256	1,991	199	2,190
1984	0	32,526	3,068	2,483	306	2,789	279	3,068
1985	0	28,612	3,410	2,798	302	3,100	310	3,410
1986	0	29,023	2,945	2,353	324	2,677	268	2,945
1987	0	29,449	3,390	2,765	317	3,082	308	3,390
1988	0	29,070	2,985	2,372	342	2,714	271	2,985
1989	0	32,034	3,003	2,385	345	2,730	273	3,003
1990	0	34,612	3,818	3,003	468	3,471	347	3,818
1991	0	27,754	2,904	2,276	364	2,640	264	2,904
1992	0	26,056	2,277	1,877	193	2,070	207	2,277
1993	0	23,766	1,965	1,655	132	1,787	178	1,965
1994	0	22,173	1,651	1,368	133	1,501	150	1,651
1995	0	20,935	1,661	1,398	112	1,510	151	1,661
1996	0	24,835	1,815	1,487	163	1,650	165	1,815
1997	0	24,638	1,429	1,139	160	1,299	130	1,429
1998	0	19,693	1,601	1,315	141	1,456	145	1,601
1999	0	24,961	1,727	1,411	159	1,570	157	1,727
2000	0	30,446	2,217	1,861	154	2,015	202	2,217
2001	0	27,214	1,804	1,439	202	1,641	163	1,804
2002	0	32,854	1,676	1,368	156	1,524	152	1,676
2003	0	29,156	1,510	1,237	136	1,373	137	1,510
2004	0	33,686	1,888	1,567	149	1,716	172	1,888
2005	0	25,135	1,610	1,331	133	1,464	146	1,610
2006	0	29,797	1,851	1,529	154	1,683	168	1,851
2007	0	32,939	2,262	1,871	185	2,056	206	2,262
2008	0	24,390	1,790	1,461	167	1,628	162	1,790
2009	0	27,075	1,852	1,463	220	1,683	169	1,852

1/ 1966 through 1982 estimated to be 9% of total district imports
2/ 1966 through 1982 estimated to be 80.2% of total deliveries to watershed
3/ 1966 through 1982 estimated to be 10.7% of total deliveries to watershed
4/ Loss = 10% of use

TABLE B-8

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

RANCHO CALIFORNIA WATER DISTRICT

Quantities in Acre Feet

	PRODUCTION							USE									VAIL		RECLAIMED WASTEWATER	
YEAR	WELLS	EXPORT 1/	NET WELLS	IMPORT	EXPORT 2/	NET IMPORT	TOTAL	AG	AG/ DOM	COMM	DOM	SMR RELEASE	IMPORT RECHARGE TO STORAGE	TOTAL USE	LOSS 3/	TOTAL	RELEASE AND RECHARGE	IRRIGATION 4/	REUSE IN SMRW	MURRIETA CREEK DISCHARGE 5/
1966				0	0	0	0						0				0	185	0	0
1967	4,288			0	0	0	4,288						0				0	1,136	0	0
1968	5,100			0	0	0	5,100						0				0	398	0	0
1969	3,617			0	0	0	3,617						0				0	697	0	0
1970	6,721			0	0	0	6,721						0				0	540	0	0
1971	7,960			0	0	0	7,960						0				0	1,541	0	0
1972	8,369			0	0	0	8,369						0				0	203	0	0
1973	7,726			0	0	0	7,726						0				0	524	0	0
1974	10,163			0	0	0	10,163						0				0	1,066	0	0
1975	10,357			0	0	0	10,357						0				0	369	0	0
1976	11,809			119	0	119	11,928						0				0	50	0	0
1977	10,522			1,845	0	1,845	12,367						0				0	0	0	0
1978	8,930			5,774	0	5,774	14,704						0				0	0	0	0
1979	11,371			7,009	0	7,009	18,380						0				0	0	0	0
1980	12,621			10,126	0	10,126	22,747						0				10,944	0	0	0
1981	15,612			15,282	0	15,282	30,894						0				6,802	0	0	0
1982	12,631			13,378	0	13,378	26,009						0				6,058	0	0	0
1983	16,675 6/			5,752	0	5,752	22,427						0				12,113	715	0	0
1984	25,660			6,716	0	6,716	32,376						0				6,612	1,144	0	0
1985	24,373			7,158	0	7,158	31,531						0				5,027	1,201	0	0
1986	26,997			11,174	0	11,174	38,171						0				8,722	1,053	0	0
1987	33,735			7,564	0	7,564	41,299						0				8,089	273	48	0
1988	21,367			17,854	0	17,854	39,221						0				4,844	0	82	0
1989	26,131			22,895	0	22,895	49,026	25,333		3,316	13,198	852	0 7/	42,699	6,327	49,026	0	0	168	0
1990	33,241			22,030	0	22,030	55,271	27,643		3,940	14,916	902	0	47,401	7,870	55,271	0	0	133	0
1991	26,503			21,238	0	21,238	47,741	32,924		2,941	10,603	785	0 8/	47,253	488	47,741	6,253	0	352	0
1992	29,968			16,931	0	16,931	46,899	30,651		2,406	9,672	683	0	43,412	3,487	46,899	2,244	0	374	0
1993	31,029			11,411	0	11,411	42,440	29,265		2,141	10,618	519	0	42,543	(103)	42,440	31,704	0	378	0
1994	32,725			16,386	0	16,386	49,111	32,534		2,322	12,370	467	0	47,693	1,418	49,111	8,469	0	1,936	0
1995	33,111			15,108	0	15,108	48,219	31,081		2,526	13,779	1,464	0	48,850	(631)	48,219	11,158	0	1,753	0
1996	36,086			23,600	0	23,600	59,686	35,912		2,752	16,330	2,149	0	57,143	2,543	59,686	9,427	0	2,264	0
1997	33,980			26,992	0	26,992	60,972	38,287		3,350	18,635	2,978	164	63,414	(2,442)	60,972	1,725	0	693 9/	0
1998	26,851			19,584	0	19,584	46,435	28,307		2,805	16,273	459	0	47,844	(1,409)	46,435	4,514	0	1,376 9/	1,179
1999	30,598			34,490	0	34,490	65,088	37,157		3,674	19,610	1,044	2,286	63,771	1,317	65,088	1,010	0	1,524 9/	1,654
2000	27,938			55,409	0	55,409	83,347	40,672	3,339	2,162	23,783	1,067	8,008	79,031	4,316	83,347	(49)	0	3,550 9/	1,854
2001	26,421			41,823	0	41,823	68,244	30,383	4,525	4,053	22,866	514	2,374	64,715	3,529	68,244	(361)	0	3,719 9/	2,015
2002	24,895			54,148	0	54,148	79,043	35,747	5,345	5,285	26,573	715	1,454	75,119	3,924	79,043	(314)	0	4,519 9/	2,180
2003	25,238	64	25,174	50,927	183	50,744	75,918	30,277	4,645	4,457	26,044	4,896	2,750	73,069	2,849	75,918	(658)	0	3,780 9/	104
2004	25,353	312	25,041	63,170	762	62,408	87,449	33,467	5,549	4,883	29,314	3,201	5,094	81,508	5,941	87,449	(101)	0	3,257 9/	0
2005	27,606	319	27,287	48,192	578	47,614	74,901	25,819	5,083	4,790	26,656	3,384	5,162	70,894	4,007	74,901	(1,269)	0	4,284 9/	0
2006	27,559	317	27,242	61,336	725	60,611	87,853	30,888	6,448	5,190	30,209	4,923	6,163	83,821	4,032	87,853	1,399	0	4,796 9/	0
2007	27,645	364	27,281	64,792	974	63,818	91,099	34,810	7,049	5,063	31,820	3,859	2,247	84,848	6,251	91,099	704	0	4,730 9/	0
2008	26,239	361	25,878	51,453	770	50,683	76,561	26,388	5,621	4,785	31,759	4,092	1,417	74,062	2,499	76,561	4,845	0	4,355 9/	0
2009	27,820	367	27,453	50,988	718	50,270	77,723	26,811	5,986	4,306	30,159	5,302	2,357	74,921	2,802	77,723	1,236	0	4,191 9/	0

1/ Groundwater used in San Mateo Watershed
2/ Import used in San Mateo Watershed
3/ Loss = Total production less total use
4/ Irrigation 1966 to 1976 by pumping from Vail Lake.
Figures from 1966 to 1972 supplied by USGS; 1972 to 2002 supplied by RCWD.
5/ Discharge from 2MGD Demonstration project
6/ Includes 98 acre feet from wells out of groundwater area
7/ Import recharge was 2,294 AF but portion remaining in storage was not computed due to lack of data
8/ Import recharge was 701 AF but portion remaining in storage was not computed due to lack of data
9/ Does not include EMWD reclaimed wastewater production

TABLE B-9

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

U.S.M.C. - CAMP PENDLETON
EXCLUDING NAVAL WEAPONS STATION SHOWN ON B-10
Quantities in Acre Feet

	PRODUCTION			USE						RECLAIMED WASTEWATER				
WATER YEAR	AG LOCAL	CAMP SUPPLY	TOTAL	AGRICULTURE IN SMRW 1/	AGRICULTURE OUT SMRW 1/	CAMP SUPPLY IN SMRW 2/	CAMP SUPPLY OUT SMRW 2/	TOTAL EXPORT	TOTAL IN SMRW 3/	RECLAIMED USE IN SMRW 4/	RECLAIMED USE OUT SMRW 5/	EXPORTED TO OCEANSIDE OUTFALL	TOTAL 6/	NET EXPORT 7/
1966	1,101	4,605	5,706	429	672	2,026	2,579	3,251	2,455	1,893			1,893	
1967	796	4,811	5,607	310	486	2,117	2,694	3,180	2,427	2,156			2,156	
1968	986	4,939	5,925	385	601	2,172	2,767	3,368	2,557	2,080			2,080	
1969	940	4,821	5,761	367	573	2,058	2,763	3,276	2,485	2,189			2,189	
1970	1,106	5,481	6,587	431	675	2,347	3,134	3,809	2,778	2,145			2,145	
1971	819	5,291	6,110	319	500	2,264	3,028	3,527	2,583	2,011			2,011	
1972	817	5,323	6,140	319	498	2,278	3,045	3,543	2,597	2,068			2,068	
1973	1,003	5,121	6,124	391	612	2,189	2,932	3,544	2,580	2,137			2,137	
1974	909	5,202	6,111	355	554	2,224	2,978	3,532	2,579	2,055			2,055	
1975	757	4,593	5,350	295	462	1,957	2,636	3,098	2,252	2,519			2,519	
1976	885	5,384	6,269	345	540	2,305	3,079	3,619	2,650	2,447			2,447	
1977	994	4,506	5,500	388	606	1,918	2,588	3,194	2,306	2,358			2,358	
1978	176	5,177	5,353	69	107	2,213	2,964	3,071	2,282	2,446			2,446	
1979	1,070	7,213	8,283	417	653	3,109	4,104	4,756	3,527	2,493			2,493	
1980	835	5,495	6,330	326	509	2,353	3,142	3,651	2,679	2,506			2,506	
1981	1,464	5,240	6,704	571	893	2,241	2,999	3,892	2,812	2,368			2,368	
1982	1,447	5,024	6,471	564	883	2,146	2,878	3,761	2,710	2,254			2,254	
1983	942	4,215	5,157	367	575	1,790	2,425	3,000	2,157	2,494			2,494	
1984	1,078	4,501	5,579	420	658	1,916	2,585	3,243	2,336	2,443			2,443	
1985	1,069	4,764	5,833	417	652	2,039	2,725	3,377	2,456	2,619			2,619	
1986	953	4,807	5,760	372	581	2,062	2,745	3,326	2,434	2,240			2,240	
1987	1,098	4,838	5,936	428	670	2,064	2,774	3,444	2,492	3,166			3,166	
1988	1,223	4,721	5,944	477	746	2,010	2,711	3,457	2,487	3,396			3,396	
1989	856	5,044	5,900	334	522	2,148	2,896	3,418	2,482	2,747			2,747	
1990	855	4,228	5,083	333	522	1,779	2,449	2,971	2,112	2,728			2,728	
1991	554	3,159	3,713	216	338	1,329	1,830	2,168	1,545	2,289	362		2,651	
1992	898	3,254	4,152	350	548	1,376	1,878	2,426	1,726	2,481	279		2,760	
1993	1,067	2,879	3,946	416	651	1,201	1,678	2,329	1,617	2,975	205		3,180	
1994	1,471	3,150	4,621	574	897	1,345	1,805	2,702	1,919	2,535	279		2,814	
1995	985	3,768	4,753	384	601	1,588	2,180	2,781	1,972	2,453	280		2,733	
1996	1,000	5,199	6,199	390	610	2,232	2,967	3,577	2,622	2,444	330		2,774	
1997	1,066	5,238	6,304	416	650	2,244	2,994	3,644	2,660	2,920	509		3,429	
1998	1,026	5,468	6,494	400	626	2,352	3,116	3,742	2,752	3,008	222		3,230	
1999	1,064	5,054	6,118	415	649	2,145	2,909	3,558	2,560	3,023	205		3,228	
2000	1,296	5,765	7,061	506	790	2,483	3,282	4,072	2,989	3,152	411		3,563	
2001	1,025	5,341	6,366	399	626	2,314	3,027	3,653	2,713	3,140	454		3,594	
2002	1,184	5,269	6,453	462	722	2,290	2,979	3,701	2,752	2,900	469		3,369	
2003	1,270	5,210	6,480	495	775	2,218	2,992	3,767	2,713	2,687	415		3,102	
2004	1,227	5,538	6,765	479	748	2,396	3,142	3,890	2,875	0	444	2,544	2,988	
2005	1,317	4,902	6,219	514	803	2,134	2,768	3,571	2,648	0	489	2,526	3,015	
2006	1,530	5,311	6,841	597	933	2,301	3,010	3,943	2,898	0	449	2,298	2,747	
2007	1,385	5,850	7,235	540	845	2,535	3,315	4,160	3,075	0	416	2,309	2,725	
2008	1,606	5,315	6,921	579	1,027	2,603	2,712	3,739	3,182	0	357	2,430	2,787	
2009	882	5,516	6,398	273	609	2,979	2,537	3,146	3,252	49	488	1,966	2,503	4,450

1/ For years 1966 - 2007 agricultural water use is divided with 39% used inside SMRW and 61% used outside SMRW, thereafter proportions are provided by Camp Pendleton.
2/ Prior to 1969 44% used inside the SMRW and 56% used outside the SMRW. For 1969 - 2007 Camp Supply water use inside SMRW equals 44% of sum of Camp. Supply production plus Naval Weapons Station Import, less the NWS Import. Annual proportions provided by Camp Pendleton beginning 2008.
3/ Assumes no losses.
4/ For years 1966 - 2003 reclaimed use inside SMRW reported as recharged wastewater from ponds and recharge areas. See prior reports from 2008 and earlier for additional information.
5/ Reclaimed use for irrigation of golf course, landscaping and park areas.
6/ All wastewater treated at Southern Regional Tertiary Treatment Plant (SRTTP) beginning December 2008.
7/ Net Export equals the sum of Agriculture Out, Camp Supply Out, Reclaimed Out and export to Oceanside Outfall, minus wastewater return, as shown on Table A-8.

TABLE B-10

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX

Quantities in Acre Feet

	PRODUCTION			USE				WASTEWATER
WATER YEAR	LOCAL	IMPORT TO WATERSHED 1/	TOTAL	AG	COMMERCIAL/ DOMESTIC	LOSS 2/	TOTAL USE	EXPORTS
1966	87	0	87	0	79	9	87	0
1967	92	0	92	0	83	9	92	0
1968	108	0	108	0	97	11	108	0
1969	138	0	138	0	113	25	138	0
1970	152	0	152	0	125	27	152	0
1971	39 P	76 E	115	0	100	15	115	0
1972	0	115 E	115	0	105	10	115	0
1973	0	115 E	115	0	105	10	115	0
1974	0	115 E	115	0	105	10	115	0
1975	0	115 E	115	0	105	10	115	0
1976	0	115 E	115	0	105	10	115	0
1977	0	115 E	115	0	105	10	115	0
1978	0	115 E	115	0	105	10	115	0
1979	0	115 E	115	0	105	10	115	0
1980	0	115 E	115	0	105	10	115	0
1981	0	115 E	115	0	105	10	115	0
1982	0	115 E	115	0	105	10	115	0
1983	0	115 E	115	0	105	10	115	26 E
1984	0	115 E	115	0	105	10	115	26 E
1985	0	102	102	0	93	9	102	26 E
1986	0	94	94	0	85	9	94	18 P
1987	0	116	116	0	105	11	116	27
1988	0	120	120	0	109	11	120	25
1989	0	128	128	0	116	12	128	22
1990	0	145	145	0	132	13	145	27
1991	0	109	109	0	99	10	109	11
1992	0	99	99	0	90	9	99	7
1993	0	117	117	0	106	11	117	16
1994	0	73	73	0	66	7	73	5
1995	0	125	125	0	114	11	125	12
1996	0	100	100	0	91	9	100	5
1997	0	109	109	0	99	10	109	6
1998	0	97	97	0	88	9	97	8
1999	0	111	111	0	101	10	111	5
2000	0	104	104	0	95	9	104	7
2001	0	73	73	0	66	7	73	8
2002	0	97	97	0	88	9	97	9
2003	0	88	88	0	80	8	88	10
2004	0	73	73	0	66	7	73	8
2005	0	40	40	0	36	4	40	16
2006	0	64	64	0	58	6	64	8
2007	0	70	70	0	64	6	70	12
2008	0	82	82	0	75	7	82	11
2009	0	74	74	0	67	7	74	12

1/ - Estimate 1969-1984 - Records not available
2/ - Loss = 10% of Use

E - Estimate
P - Partial year data

TABLE B-11

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION
Quantities in Acre Feet

	PRODUCTION			USE					
WATER YEAR	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS *	TOTAL USE
1966	41	0	41	0	0	37	37	4	41
1967	45	0	45	0	0	41	41	4	45
1968	54	0	54	0	0	49	49	5	54
1969	54	0	54	0	0	49	49	5	54
1970	73	0	73	0	0	66	66	7	73
1971	83	0	83	3	0	72	75	8	83
1972	111	0	111	10	0	91	101	10	111
1973	92	0	92	11	0	72	84	8	92
1974	132	0	132	14	0	107	120	12	132
1975	153	0	153	18	0	121	139	14	153
1976	117	0	117	22	0	84	106	11	117
1977	170	0	170	21	0	134	155	15	170
1978	169	0	169	19	0	135	154	15	169
1979	197	0	197	19	0	160	179	18	197
1980	218	0	218	20	0	178	198	20	218
1981	265	0	265	30	0	211	241	24	265
1982	230	0	230	21	0	188	209	21	230
1983	216	0	216	14	0	182	196	20	216
1984	304	0	304	26	0	250	276	28	304
1985	308	0	308	19	0	261	280	28	308
1986	305	0	305	22	0	255	277	28	305
1987	326	0	326	23	0	273	296	30	326
1988	303	0	303	13	35	262	275	28	303
1989	286	0	286	11	72	262	344	(4)	286
1990	465	0	465	13	76	266	355	110	465
1991	459	0	459	15	88	250	353	106	459
1992	492	0	492	6	122	302	430	62	492
1993	508	0	508	4	105	323	432	76	508
1994	512	0	512	10	103	324	437	75	512
1995	521	0	521	12	99	321	432	89	521
1996	629	0	629	88	113	384	585	44	629
1997	638	0	638	76	99	392	567	71	638
1998	603	0	603	79	90	362	531	72	603
1999	827	0	827	79	125	548	752	75	827
2000	1,123	0	1,123	199	365	519	1,083	40	1,123
2001	1,389	0	1,389	163	414	740	1,317	72	1,389
2002	1,679	0	1,679	230	348	1,115	1,693	(14)	1,679
2003	1,748	102	1,850	272	275	1,340	1,887	(37)	1,850
2004	1,979	330	2,309	282	407	1,479	2,168	141	2,309
2005	2,098	75	2,173	262	274	1,539	2,075	98	2,173
2006	2,233	316	2,549	338	396	1,696	2,430	119	2,549
2007	1,978	723	2,701	467	276	1,980	2,723	(22)	2,701
2008	210	2,180	2,390	408	251	1,827	2,486	(96)	2,390
2009	861	1,654	2,515	396	219	1,723	2,338	177	2,515

* Loss = Total production less total delivered

TABLE B-12

SANTA MARGARITA RIVER WATERSHED
MISCELLANEOUS WATER PRODUCTION AND IMPORTS

Quantities in Acre Feet

	IMPORT	PRODUCTION					
YEAR	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	ANZA MUTUAL WATER COMPANY	OUTDOOR RESORTS RANCHO CALIFORNIA, INC.	BUTTERFIELD OAKS MOBILE HOME PARK	LAKE RIVERSIDE ESTATES	HAWTHORN WATER SYSTEM	JOJOBA HILLS SKP RESORT
1966	23.50						
1967	20.40						
1968	27.00						
1969	24.60						
1970	30.60						
1971	34.40						
1972	34.10						
1973	30.20						
1974	36.40						
1975	34.20						
1976	35.00						
1977	24.20						
1978	26.00						
1979	24.00						
1980	24.70						
1981	34.30						
1982	34.20						
1983	26.00						
1984	26.00						
1985	27.00						
1986	34.40						
1987	35.50						
1988	35.70						
1989	22.80	33.00	42.00	23.50	249.52		
1990	21.90	37.00	50.69	23.50	247.42		
1991	20.70	35.06	50.59	12.21	339.77		
1992	24.60	31.21	42.86	12.24	279.04		
1993	31.40	32.16	42.44	12.20	192.09		
1994	36.60	37.32	38.04	23.82	262.69		
1995	29.10	45.69	69.54	22.60	130.06		
1996	35.10	45.53	58.59	21.96	219.73		
1997	30.40	43.87	83.42	30.25	233.56		
1998	31.00	39.54	87.42	24.41	134.96		
1999	40.70	33.30	70.74	25.70	209.55		
2000	41.90	44.67	90.10	24.58	316.57		53.28
2001	58.70	45.00	208.64	23.21	274.25		74.87
2002	64.40	41.10	216.13	24.43	323.65	82.87	91.83
2003	42.40	44.04	201.63	34.56	255.93	81.61	74.70
2004	50.30	40.44	216.77	32.20	350.80	94.19	74.89
2005	62.20	38.26	187.06	18.09	208.08	55.87	66.95
2006	65.80	51.36	198.92	27.30	268.60	40.25	64.68
2007	45.30	39.33	480.70	19.80	421.56	37.22	66.98
2008	53.90	34.13	483.69	23.30	334.31	21.56	65.50
2009	50.90	34.13	492.26	23.30	347.51	25.36	67.86

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX C

SUBSTANTIAL USERS OUTSIDE

ORGANIZED WATER SERVICE AREAS

September 2010

APPENDIX C

SANTA MARGARITA RIVER WATERSHED

SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
AGUANGA GROUNDWATER AREA								
Clawson, Gary A.	43425 Sage Road	917-050-009	309.74	Total				
	Aguanga, Ca. 92536	917-050-007	82.19	|				
		581-070-013	43.10	of				
		581-150-013	120.56	|				
		581-150-016	25.37	|				
		581-070-014	158.08	30.00	Alfalfa	8S/1E-7N(1)	Total	
						8S/1E-7N(2)	of	
						8S/1E-7Q(1)	|	
						8S/1E-7Q(2)	90.00	
Val Verde Partners	m/t P.O. Box 1974	583-040-022	97.78	Total		8S/1E-19Q(1)	0.00	
	Rancho Santa Fe,	583-040-021	13.45	|	Oats and	8S/1E-19Q(2)	250.00	
	Ca. 92067	583-130-001-3	80.00	of	Pasture			
	43023 Hwy 79	583-120-001-2	120.00	|				
	Aguanga, CA 92536	583-060-003-9	41.60	13.45				
						8S/1E-29L Diversion		250.00
Aguanga	c/o Jim Holden	583-120-091	39.57	20.00	Row Crops	8S/1E-33D	Total	
Properties LLC	P. O. Box 519	583-120-083	68.09	65.00	Row Crops	8S/1E-28N1	|	
	Corona, Ca. 91718					8S/1E-28N(2)	|	
(Twin Creek Ranch)	44201 Hwy 79 Aguanga						|	
	44735 Hwy 79 Aguanga	583-120-090	132.82	40.00	Row Crops	8S/1E-29H	of	
		583-150-001	80.00	20.00	Row Crops		|	
							|	
		583-140-014	48.03	15.00	Row Crops	8S/1E-33F	|	
		583-140-015	40.00	35.00	Row Crops	8S/1E-33G1	|	
		583-140-016	40.00	36.00	Row Crops	8S/1E-33B	924.00	
		583-140-018	10.09					
		583-140-019	10.12					
		583-140-020	10.15					
Robert Yanick	41750 Highway 79	917-050-006	233.57	40.00	Row Crops	8S/1W-13Q1	Total of	
	Aguanga, CA 92536					8S/1W-13Q2	380.00	
		917-170-003	80.81	15.00	Row Crops			
		917-290-001	126.26	20.00	Row Crops			
		917-290-002	82.25	20.00	Row Crops			

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
AGUANGA GROUNDWATER AREA (Cont)								
Harris, Homer N. and Dolores G.	44444 Sage Road Aguanga, CA 92536	581-160-014	17.73	Total Of		8S/1E-18J(1)		
				17.00	Citrus & Grass	8S/1E-18J(2)		
		581-160-015	7.42	10.00	Fruit			
		581-150-009	7.00	6.00	Fruit	8S/1E-18H(1)	14.06	
						8S/1E-18H(2)	0.00	
		581-180-022	30.00	0.00				
		581-180-004	20.00	0.00				
		581-180-020	20.00	0.00		8S/1E-17M	30.47	
		581-180-021	2.15			8S/1E-17E	22.36	
Valeywide Recreation and Parks District	901 W. Esplanade Ave San Jacinto, CA 92582	581-170-009	7.82	7.82	Grass	Used 8S/1E-17E owned by Harris		
Wilson Creek Farms	Sage Road Aguanga, CA 92536 m/t P. O. Box 2921 Hemet, CA 92546	581-170-012	190.40			8S/1E-17B	200.00	
		581-170-013	99.63	50.00	Row Crops			
		581-180-005	2.76					
		581-180-009	120.00	110.00	Row Crops			
		581-190-013	280.00					
		581-190-014	40.00					
Wilson Creek Development LLC	Sage Road Aguanga, CA 92536 m/t P. O. Box 2921 Hemet, CA 92546	581-070-002	160.00					
		581-070-005	640.00			8S/1E-9Q		350.00
		581-100-013	80.00					
		581-100-019	30.00					
		581-100-020	10.00					
		581-100-022	20.00					
		581-100-038	9.53					
		581-100-039	9.23					
		581-100-040	8.91					
TOTAL AGUANGA GROUNDWATER AREA				**570.27**			**1,910.89**	**600.00**

APPENDIX C

SANTA MARGARITA RIVER WATERSHED

SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
TEMECULA CREEK ABOVE AGUANGA GROUNDWATER AREA								
Agri-Empire, Inc.	m/t P. O. Box 490	113-090-01	377.07	95.00	Potatoes			
	San Jacinto, CA 92383	113-090-03	21.46					
		113-090-05	541.22					
		113-100-01	389.81			9S/2E-11B - Diversion		0.00
		113-130-01	150.09			9S/2E-17D - Spring		0.00
		113-140-03	196.54			9S/2E-16N2	1.30	
						9S/2E-16M	108.00	
						9S/2E-16F1	22.00	
						9S/2E-16N1	93.00	
						9S/2E-16F2	0.00	
						9S/2E-16K - Diversion		0.00
		113-140-04	503.24					
		113-140-05	45.09					
		113-140-06	93.94					
		114-020-09	37.16					
		114-030-08	331.79			9S/2E-22	0.00	
		114-030-26	42.87					
* Land leased from Arlie W. and Coral R. Bergman	37126 Hwy 79 Warner Springs, CA 92086	113-140-01 *	358.62	73.00	Potatoes	9S/2E-16B(1)	155.00	
						9S/2E-16B(2)	0.00	
						9S/2E-16G	0.00	
		113-140-02 *	38.75	0.00				
Papac, Andrew and Olga	m/t 2030 Santa Anita Ave South El Monte, CA 91733 38642 Highway 79 Warner Springs, CA 92086	113-060-012	63.21	20.00	Bermuda Grass	9S/2E-7D	38.00	
						9S/2E-7E - Diversion		38.00
Lovingier Family Trust	35490 Highway 79 Warner Springs, CA 92086	114-120-042	78.41	Total		9S/2E-35D1		
				|		9S/2E-35D1		
		114-070-007	76.42	|		9S/2E-27R1	Total	
				of		9S/2E-27R2	of	
				|		9S/2E-27J	415.42	
		114-080-014	42.51	|				
		114-080-013	21.30	109.32	Pasture			
TOTAL TEMECULA CREEK ABOVE AGUANGA GROUNDWATER AREA				**297.32**			**832.72**	**38.00**

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
ANZA VALLEY								
Agri-Empire, Inc.	P.O. Box 490 San Jacinto, CA 92383							
	Section 10	575-050-044	14.36	0.00				
		575-060-002	133.93	0.00		7S/3E-11N4	241.00	
						7S/3E-11P3	100.00	
	Section 13	575-100-037	57.80	0.00				
	Section 14	575-110-021	143.75	0.00		7S/3E-14D1	38.00	
		575-110-027	54.45	0.00				
		575-310-002	39.09	0.00		7S/3E-14C2	243.00	
		575-310-011	80.00	0.00				
		575-310-012	80.00	0.00				
		575-310-013	17.46	0.00				
		575-310-014	0.75	0.00				
		575-310-027	17.46	0.00				
		575-310-028	0.92	0.00				
		575-090-010	38.80	0.00				
	Section 17	573-180-011	39.74	0.00				
	Section 20	576-060-009	Total	Total				
		576-060-031		|				
		576-060-033	79.45	|				
		576-060-038	5.41	of				
		576-070-003	80.00	|				
		576-070-005	116.57	180.00	Potato			

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
ANZA VALLEY (Cont)								
Agri-Empire, Inc. (Cont)								
	Section 21	576-100-061	37.71	0.00				
	Section 22	576-100-061	37.71	0.00				
		576-110-001	160.00	38.00	Potato			
		576-110-002	28.00	0.00				
		576-110-004	50.00	0.00				
		576-110-006	19.29	0.00		7S/3E-21R3	156.00	
		576-110-007	17.85	0.00				
		576-110-008	17.00	0.00				
		576-110-009	18.41	0.00				
		575-120-012	88.03	0.00				
		575-130-003	19.55	0.00				
		575-130-006	40.89	70.00	Potato			
		575-130-008	18.56	0.00				
		575-130-009	20.06	0.00				
		575-130-010	20.07	0.00				
		575-130-011	19.19	0.00				
		575-130-012	18.18	0.00				
		575-130-013	19.02	0.00				
		575-130-014	19.00	0.00				
		575-130-015	17.58	0.00				
		575-120-018	20.45	0.00				
		575-120-019	20.45	0.00				
		575-120-032	4.69	0.00				
		575-120-033	4.68	0.00				
		575-120-034	4.68	0.00				
		575-120-035	4.28	0.00				
	Section 23	575-140-019	105.04	60.00	Potato			

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
ANZA VALLEY (Cont)								
Cahuilla Indian Reservation								
	Domestic and Commercial Wells Reported by Bureau of Indian Affairs						Total	
	Wells in Basement Complex	Wells out of Watershed	Wells with QYAL and/or QTOAL					
	7S/2E-14L1	8S/3E-2A1	7S/2E-14J1	7S/2E-28Q1	7S/3E-31L2			
	7S/2E-25D1	8S/3E-2B1	7S/2E-14M1	7S/2E-33C1	7S/3E-34E1			
	7S/2E-26B1	8S/3E-2D1	7S/2E-14M2	7S/2E-33E1	7S/3E-34N1			
	7S/2E-26B2	8S/3E-2E1	7S/2E-14R1	7S/2E-33N1	7S/3E-34Q1			
	7S/2E-26B3	8S/3E-2G1	7S/2E-23A1	7S/3E-27C1	8S/2E-4D1			
	7S/2E-34E1	8S/3E-2H1	7S/2E-23D1	7S/3E-27C2	8S/2E-4N1			
	7S/2E-36A1	8S/3E-2K1	7S/2E-23F1	7S/3E-27H1	8S/2E-4N2			
	7S/2E-36J1		7S/2E-23G1	7S/3E-27M1	8S/2E-4P1			
	7S/2E-36R1		7S/2E-23H1	7S/3E-28A1	8S/2E-4R1			
	7S/3E-26A1		7S/2E-23K1	7S/3E-28A2	8S/2E-4R2			
	7S/3E-29Q1		7S/2E-23M1	7S/3E-28D1	8S/3E-5Q1		of	
	7S/3E-30H1		7S/2E-23P1	7S/3E-29C1	8S/3E-6J1			
	7S/3E-31A1		7S/2E-23Q1	7S/3E-29M1				
	7S/3E-31N1		7S/2E-25C1	7S/3E-3OP1				
	7S/3E-31Q1		7S/2E-25F1	7S/3E-3OQ1				
	7S/3E-32D1		7S/2E-25R1	7S/3E-3OR1				
	7S/3E-32D2		7S/2E-26E1	7S/3E-3OR2				
	8S/3E-6B1		7S/2E-26L1	7S/3E-3OR3				
	8S/3E-6B2		7S/2E-27A1	7S/3E-31C1				
	8S/3E-6G1		7S/2E-27H1	7S/3E-31F1				
	8S/3E-6R1		7S/2E-28N1	7S/3E-31L1		Domestic	43.00	
						Stock Watering		5.60
SUBTOTAL ANZA VALLEY				**348.00**			**821.00**	**5.60**
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
LEWIS VALLEY								
Green Shell Company	39850 Sage Road Hemet, CA 92343	571-080-012	80.00	50.00	Olive Trees	7S/1E-20Q	55.00	
SUBTOTAL LEWIS VALLEY				**50.00**			**55.00**	**0.00**
TOTAL WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA				**398.00**			**876.00**	**5.60**

APPENDIX C

SANTA MARGARITA RIVER WATERSHED

SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
MURRIETA-TEMECULA GROUNDWATER AREA								
Louidar	c/o McMillan Farm Mgt.	943-040-011	20.00	18.00	Citrus	7S/2W-28L	248.00	
	29379 Rancho Cal. Rd	943-060-010	94.49	89.00	Citrus			
	#201	943-060-011	26.50	29.00	Citrus			
	Temecula, CA 92390							
Anza Grove	c/o McMillan Farm Mgt.	942-180-002	40.28	Total				
Selina J Cavaletto	29379 Rancho Cal. Rd	942-240-003	40.83	of				
Lassalette Enterprise	#201	942-240-004	40.83	|				
	Temecula, CA 92390	942-240-005	39.31	155.00	Citrus	7S/2W-26B1	233.00	
Vail Lake USA LLC	29400 Rancho Cal. Road	917-240-019	54.13	0.00				
Mendoza, Bertha	Temecula, CA 92593	917-240-015	20.00	0.00				
		917-150-006	120.00	110.00	Citrus	8S/1W-21K(1)	262.00	
	38695 Highway 79			0.00		8S/1W-21K(2)		
	Warner Springs, CA 92086					8S/1W-21P(1)		
						8S/1W-21P(2)		
James A. and	Highway 79 S	943-230-001	109.34	75.00	Grapes			
Maggie Carter	Temecula, CA	917-250-004	80.00	Total		8S/1W-25Q	0.00	
Living Trust	m/t P. O. Box 28739	917-250-005	80.00	of		8S/1W-25P	29.00	
	Santa Ana, CA 92799-8739			|		8S/1W-25N(1)Spring 3		0.00
		917-250-007	240.00	220.00	Grapes	8S/1W-36K Spring 4		0.00
						8S/1W-36H Spring 6		0.00
						8S/1W-36K(1)	60.00	
						8S/1W-36K(2)	58.00	
						8S/1W-36K(3)	92.00	
						8S/1W-36L - Stream Diversion		145.00

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
MURRIETA-TEMECULA GROUNDWATER AREA (Cont)								
Regency Properties	44051 Rainbow Cyn Rd.	922-220-002	86.11	Total		8S/2W-19(D)	304.71	
Temecula Creek Golf	Temecula, CA 92592	922-220-003	5.75	|				
		922-220-004	52.18	|				
		922-220-007	14.36	|				
		922-220-008	3.99	of				
		922-230-002	59.29	|				
		922-230-003	1.00	|				
		922-230-004	40.00	|				
		922-230-007	25.00	|				
		922-230-008	16.11	150.00	Grass			
Carson, David M.	25471 Hayes Ave	909-260-036	8.87	7.00	Pasture	7S/3W-29G	39.90	
and Carol J.	Murrieta, CA 92362	909-260-042	4.31	3.50	Pasture			
TOTAL MURRIETA-TEMECULA GROUNDWATER AREA				**856.50**			**1,326.61**	**145.00**
SANTA MARGARITA RIVER BELOW GORGE								
DE LUZ CREEK								
Ezor, Albert E.	40922 DeLuz Road	101-271-17	47.79	12.00	Avocados	8S/4W-29D(1)	36.80	
	Fallbrook, CA 92028			2.00	Vegetables	8S/4W-29D(2)	Total	
Prestininzi, Pete	2525 E. Mission Road	101-220-12	31.63	6.00	Pasture & Flowers			
and Dorothy N.	Fallbrook, CA 92028	101-210-53	50.44	12.00	Avocados	8S/4W-20A(1)	16.00	
	Richmond Truck Trail				and Citrus	8S/4W-20H(1)	16.00	
	and DeLuz Murrieta Road					8S/4W-20H(2)	14.00	
						8S/4W-20A(2)		
						8S/4W-20H(3)		
						8S/4W-20A - Diversion		0.00
Varela, Alfred	41125 DeLuz Rd	101-210-11	15.23	8.50	Avocados	8S/4W-20Q(1)	21.60	
	Fallbrook, CA 92028			0.50	Citrus	8S/4W-20Q(2)	Total	

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
SANTA MARGARITA RIVER BELOW GORGE (Cont)								
DE LUZ CREEK (Cont)								
Lake Forest LLC	41257 DeLuz Rd	101-210-12	30.28	10.00	Avocados	8S/4W-20Q(1)	Total	
	Fallbrook, CA 92028			18.00	Citrus	8S/4W-20Q(2)	of	
	m/t 26051 Glen Canyon Dr.					8S/4W-20Q(3)	66.20	
	Laguna Hills, CA 92653			2.00	Row crops			
Wagner Family Trust	41128 DeLuz	101-210-23	17.19	15.00	Avocados			
	Fallbrook, CA 92028	101-210-22	4.55	3.00	Persimmons	8S/4W-20P(1)	0.00	
						8S/4W-20P(2)	0.00	
						8S/4W-20P(3)	39.30	
Chambers, Robert R. and Clytia M.	m/t 11439 Laurelcrest Dr.	101-571-03	41.72	20.00	Flowers	8S/4W-28A	55.00	
	Studio City, CA 91604					8S/4W-28A - Diversion		7.00
	40888 DeLuz-Murrieta Rd.	102-130-42	73.14	5.00	Fruit	9S/4W-9B(1)*	32.00	
				20.00	Flowers	9S/4W-9B(2)*	1.00	
	* Well located in bedrock complex and outside the Court's jurisdiction					9S/4W-9B(3)*	33.00	
Welburn, Douglas J. and Sue	40787 DeLuz Murrieta Rd.	101-571-08	26.98	8.00	Gourds/Melons	8S/4W-28G1	35.00	
	Fallbrook, CA 92028			1.50	Fruit Trees			
	40751 DeLuz Murrieta Rd							
Nezami, Mohammed Bluebird Ranch	2193 Calle Rociada	101-312-02	58.17	45.00	Flowers	8S/4W-31K(1)	Total	
	Fallbrook, CA			5.00	Avocados	8S/4W-31K(2)	of	
	m/t P. O. Box 1089					8S/4W-31K(3)	|	
	Fallbrook, CA 92088	101-312-01	82.29	42.00	Flowers	8S/4W-31L	162.18	
						8S/4W-31L - Diversion		31.48
Vanginkel, Norman and Deborah	39452 DeLuz Road	101-312-03	80.00	25.00	Nursery Stock	8S/4W-31J(2)	20.00	
	Fallbrook, CA 92028					8S/4W-31J(3)	2.00	
	m/t 20664 Calle De La Ladera					8S/4W-31J(4)	60.00	
	Yorba Linda, CA 92887					8S/4W-31J(5)	0.00	
		102-052-04	22.04	10.00	Avocados			
		102-731-02	4.26					
Rose Family 1985 Trust Ross Lake LLC	William and Joanne Rose	101-430-27	2.73	Total of				
	39985 Daily Road	101-430-30	16.39	7.00	Avocados			
	Fallbrook, CA 92028	101-500-01	16.62	7.00	Limes			
				6.00	Persimmons			
		101-480-14	13.20	3.00	Flowers	8S/4W-34- Lake Diversion		7.00
SUBTOTAL DELUZ CREEK				**293.50**			**610.08**	**45.48**

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
SANTA MARGARITA RIVER BELOW GORGE (Cont)								
SANDIA CREEK								
Cal June, Inc.	m/t P. O. Box 9551 No. Hollywood, CA 91609 40376 Sandia Creek Fallbrook, CA 92028	101-360-40	126.32	55.00	Avocados	8S/4W-25P(1) 8S/4W-25P(2) 8S/4W-25P(3) 8S/4W-25P(4) 8S/4W-25P(5) 8S/4W-25P - Diversion		9.00
SUBTOTAL SANDIA CREEK				**55.00**			**0.00**	**9.00**
SANTA MARGARITA RIVER								
San Diego State University Foundation	47981 Willow Glen Rd. Temecula, CA m/t Matt Rahn, Director SDSU Foundation 5500 Campanile Dr. San Diego, CA 92182-4614	918-040-11 918-060-17	120.00 40.00	5.00 14.00	Citrus Avocados	8S/3W-33Q1 8S/3W-33Q(2) 8S/3W-33Q - Diversion	4.31 0.00	43.10
SUBTOTAL SANTA MARGARITA RIVER				**19.00**			**4.31**	**43.10**
TOTAL SANTA MARGARITA RIVER BELOW GORGE				**367.50**			**614.39**	**97.58**

APPENDIX C

SANTA MARGARITA RIVER WATERSHED

SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2008-09	IRRIGATED CROP 2008-09	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
LOWER MURRIETA								
Ronnenberg Family Trust	c/o Cliff Ronnenberg	571-020-046	81.09	0.00				
	11292 Western Avenue	571-020-047	40.80	0.00				
	Stanton, CA 90680	571-020-048	36.75	0.00				
(Sage Ranch Nursery)	42522 E. Benton Rd.	571-020-049	148.86	0.00		7S/1E-7D	5.50	
	Aguanga, CA	571-020-004	1.50	0.00				
		571-520-007	109.50	Total				
		571-520-008	99.43	|				
		571-520-009	80.23	of				
		571-520-010	78.20	|				
		915-140-003	101.65	|				
		915-140-008	21.39	|				
		470-210-007	53.62	|				
		470-220-004	121.00	400.00	Olive trees	7S/1E-7E - Diversion		100.00
EG High Desert Properties LLC	39800 E. Benton Rd.	915-120-18	37.74	10.00	Pasture	7S/1W-10R(1)	Total	
	Temecula, CA 92390					7S/1W-10R(2)	of	
	m/t 12881 Bradley Avenue					7S/1W-10R(3)	|	
	Sylmar, CA 91342					7S/1W-10R(4)	38.00	
						7S/1W-10R(5)	Domestic	
						7S/1W-10R(6)		
						7S/1W-10R(7)		
TOTAL LOWER MURRIETA				**410.00**			**43.50**	**100.00**
GRAND TOTAL				**2,899.59**			**5,604.11**	**986.18**
GRAND TOTAL	Not including Cahuilla Indian Reservation			**2,899.59**			**5,561.11**	**980.58**

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX D

WATER QUALITY DATA

September 2010

TABLE D-3

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Holiday Well	06/16/89	1300	775	122	39	100	2	178	66	372	40
7S/3W-20C09	10/18/91	---	---	---	---	---	---	---	---	---	25
	11/15/91	---	---	---	---	---	---	---	---	---	26
	12/13/91	---	---	---	---	---	---	---	---	---	28
	01/10/92	---	---	---	---	---	---	---	---	---	27
	02/07/92	---	---	---	---	---	---	---	---	---	27
	05/01/92	---	---	---	---	---	---	---	---	---	32
	05/29/92	---	---	---	---	---	---	---	---	---	28
	08/21/92	---	---	---	---	---	---	---	---	---	27
	01/22/93	960	605	83	29	83	2	130	84	278	33
	10/15/93	---	---	---	---	---	---	---	---	---	32
	03/30/94	---	---	---	---	---	---	---	---	---	44
	06/22/94	---	---	---	---	---	---	---	---	---	35
	09/14/94	---	---	---	---	---	---	---	---	---	31
	12/07/94	---	---	---	---	---	---	---	---	---	30
	03/01/95	---	---	---	---	---	---	---	---	---	32
	06/21/95	---	---	---	---	---	---	---	---	---	11
	09/13/95	---	---	---	---	---	---	---	---	---	27
	12/06/95	---	---	---	---	---	---	---	---	---	26
	03/27/96	---	---	---	---	---	---	---	---	---	15
	06/06/96	---	---	---	---	---	---	---	---	---	24
	09/11/96	---	---	---	---	---	---	---	---	---	22
	11/08/96	---	---	---	---	---	---	---	---	---	55
	11/14/96	---	---	---	---	---	---	---	---	---	25
	12/05/96	---	---	---	---	---	---	---	---	---	24
	03/27/97	---	---	---	---	---	---	---	---	---	20
	06/18/97	---	---	---	---	---	---	---	---	---	21
	12/03/97	---	---	---	---	---	---	---	---	---	18
	03/25/98	---	---	---	---	---	---	---	---	---	21
	04/22/98	1090	680	89	29	85	1	150	76	290	22
	06/17/98	---	---	---	---	---	---	---	---	---	23
	10/01/98	---	---	---	---	---	---	---	---	---	25
	12/02/98	---	---	---	---	---	---	---	---	---	28
	02/24/99	---	---	---	---	---	---	---	---	---	33
	03/24/99	---	---	---	---	---	---	---	---	---	26
	09/09/99	---	---	---	---	---	---	---	---	---	36

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Holiday Well (Cont)	12/03/99	---	---	---	---	---	---	---	---	---	32
7S/3W-20C09	07/12/00	---	---	---	---	---	---	---	---	---	21
	08/04/00	1290	790	110	36	99	---	180	110	320	21
	10/24/01	---	---	---	---	---	---	---	---	---	17
	03/06/02	---	---	---	---	---	---	---	---	---	15
	07/11/02	---	780	---	---	---	---	---	---	310	---
	10/03/03	---	800	113	---	---	---	---	---	332	---
	04/21/04	---	---	---	---	---	---	---	---	---	11
	01/27/05	---	980	160	47	---	---	---	---	440	---
	03/30/05	---	---	---	---	---	---	---	---	---	35
	01/26/06	1700	1000	160	48	130	1.6	240	130	---	46
	01/30/06	---	---	---	---	---	---	---	---	---	49
House Well	06/16/89	660	345	34	3	95	2	87	60	153	<1
7S/3W-20G06	02/27/91	770	---	---	---	---	---	110	65	168	<1
	03/01/91	730	---	---	---	---	---	110	---	---	<1
	03/08/91	680	420	42	5	90	2	110	68	122	<1
	05/10/91	750	---	---	---	---	---	---	---	---	<1
	10/11/91	---	---	---	---	---	---	---	---	---	<1
	11/08/91	---	---	---	---	---	---	---	---	---	<1
	05/22/92	---	---	---	---	---	---	---	---	---	<1
	08/14/92	---	---	---	---	---	---	---	---	---	<1
	01/22/93	720	415	40	5	106	2	100	68	168	<1
	09/07/94	---	---	---	---	---	---	---	---	---	<1
	12/27/95	---	---	---	---	---	---	---	---	---	<1
	03/22/95	---	---	---	---	---	---	---	---	---	<1
	06/14/95	---	---	---	---	---	---	---	---	---	<1
	09/06/95	---	---	---	---	---	---	---	---	---	<1
	12/27/95	---	---	---	---	---	---	---	---	---	<1
	03/20/96	---	---	---	---	---	---	---	---	---	<2
	06/12/96	---	---	---	---	---	---	---	---	---	<2
	09/04/96	---	---	---	---	---	---	---	---	---	<2
	12/26/96	---	---	---	---	---	---	---	---	---	<2
	03/19/97	---	---	---	---	---	---	---	---	---	<2
	06/12/97	---	---	---	---	---	---	---	---	---	<2

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
House Well (Cont)	12/30/97	---	---	---	---	---	---	---	---	---	<2
7S/3W-20G06	03/18/98	---	---	---	---	---	---	---	---	---	<2
	04/15/98	660	360	30	3	94	1	91	62	130	<2
	06/10/98	---	---	---	---	---	---	---	---	---	<2
	10/01/98	---	---	---	---	---	---	---	---	---	<2
	12/23/98	---	---	---	---	---	---	---	---	---	<2
	02/17/99	---	---	---	---	---	---	---	---	---	<2
	03/17/99	---	---	---	---	---	---	---	---	---	<2
	06/09/99	---	---	---	---	---	---	---	---	---	<2
	09/01/99	---	---	---	---	---	---	---	---	---	<2
	12/22/99	---	---	---	---	---	---	---	---	---	ND
	03/15/00	640	370	29	3	92	2	82	61	130	<2
	06/07/00	---	---	---	---	---	---	---	---	---	<2
	09/27/00	---	---	---	---	---	---	---	---	---	<2
	10/24/01	---	---	---	---	---	---	---	---	---	<2
	03/06/02	---	---	---	---	---	---	---	---	---	<2
	07/11/02	---	440	---	---	---	---	---	---	170	---
	10/03/03	630	380	34	3	103	---	87	---	140	ND
	04/21/04	---	---	---	---	---	---	---	---	---	<2
South Well	09/07/90	690	405	62	17	68	2	83	56	229	4
7S/3W-20D	10/04/91	---	---	---	---	---	---	---	---	---	2
	11/01/91	---	---	---	---	---	---	---	---	---	3
	11/26/91	---	---	---	---	---	---	---	---	---	2
	05/15/92	---	---	---	---	---	---	---	---	---	<1
	10/01/93	---	---	---	---	---	---	---	---	---	2
	09/28/94	---	---	---	---	---	---	---	---	---	1
	12/21/94	---	---	---	---	---	---	---	---	---	3
	03/15/95	---	---	---	---	---	---	---	---	---	2
	06/07/95	---	---	---	---	---	---	---	---	---	2
	09/27/95	---	---	---	---	---	---	---	---	---	2
	12/20/95	---	---	---	---	---	---	---	---	---	3
	03/13/96	---	---	---	---	---	---	---	---	---	2
	06/15/96	---	---	---	---	---	---	---	---	---	3
	09/25/96	---	---	---	---	---	---	---	---	---	3
	12/18/96	---	---	---	---	---	---	---	---	---	3
	04/09/97	---	---	---	---	---	---	---	---	---	2
	06/04/97	---	---	---	---	---	---	---	---	---	2

ND - None Detected

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
South Well (Cont)	03/11/98	---	---	---	---	---	---	---	---	---	<2
7S/3W-20D	04/08/98	820	500	73	18	67	2	92	73	250	3
	06/03/98	---	---	---	---	---	---	---	---	---	3
	10/01/98	---	---	---	---	---	---	---	---	---	3
	12/16/98	---	---	---	---	---	---	---	---	---	2
	03/10/98	---	---	---	---	---	---	---	---	---	2
	06/09/99	---	---	---	---	---	---	---	---	---	2
	09/22/99	---	---	---	---	---	---	---	---	---	<2
	12/15/99	---	---	---	---	---	---	---	---	---	ND
	02/09/00	810	460	55	14	84	1	99	63	210	<2
	05/03/00	---	---	---	---	---	---	---	---	---	<2
	08/04/00	780	440	47	9	100	---	99	48	210	<2
	08/23/00	---	---	---	---	---	---	---	---	---	<2
	10/24/01	---	---	---	---	---	---	---	---	---	<2
	03/20/02	---	---	---	---	---	---	---	---	---	4
	07/11/02	---	460	---	---	---	---	---	---	180	---
	10/03/03	---	460	59	---	---	---	---	---	207	---
	04/21/04	---	---	---	---	---	---	---	---	---	<2
	01/27/05	---	610	110	28	---	---	---	---	300	---
	03/30/05	---	---	---	---	---	---	---	---	---	5
	01/26/06	800	440	42	9.1	110	1.2	120	65	---	1.2
	04/12/06	---	---	---	---	---	---	---	---	---	6.1
	05/10/06	---	---	---	---	---	---	---	---	---	1.6
	06/14/06	---	---	---	---	---	---	---	---	---	1.4
	07/12/06	---	---	---	---	---	---	---	---	---	<1
	08/09/06	---	---	---	---	---	---	---	---	---	1.4
	09/13/06	---	---	---	---	---	---	---	---	---	1.5
	10/11/06	---	---	---	---	---	---	---	---	---	1.4
	11/08/06	---	---	---	---	---	---	---	---	---	1.3
	12/13/06	---	---	---	---	---	---	---	---	---	1.3
	01/10/07	---	---	---	---	---	---	---	---	---	1.4
	02/13/07	---	---	---	---	---	---	---	---	---	5.3
	03/14/07	---	---	---	---	---	---	---	---	---	1.2
	04/11/07	---	---	---	---	---	---	---	---	---	<2
	05/09/07	---	---	---	---	---	---	---	---	---	<2
	06/13/07	---	---	---	---	---	---	---	---	---	1.2
	07/11/07	---	---	---	---	---	---	---	---	---	4.7
	08/15/07	800	480	40	8.5	100	<1	110	61	200	1.1
	09/12/07	---	---	---	---	---	---	---	---	---	5.6

ND - None Detected

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
South Well (Cont)	11/14/07	---	---	---	---	---	---	---	---	---	1.4
7S/3W-20D	12/04/07	---	---	---	---	---	---	---	---	---	1.2
	01/24/08	---	---	---	---	---	---	---	---	---	4.6
	03/26/08	---	---	---	---	---	---	---	---	---	3.9
	04/23/08	---	---	---	---	---	---	---	---	---	4.1
	06/09/08	---	---	---	---	---	---	---	---	---	4.1
	07/14/08	---	---	---	---	---	---	---	---	---	5.1
	09/08/08	---	---	---	---	---	---	---	---	---	4.9
	01/19/09	---	---	---	---	---	---	---	---	---	6.7
North Well	06/16/89	730	390	40	7	98	2	98	45	201	<1
7S/3W-18J02	10/25/91	---	---	---	---	---	---	---	---	---	<1
	11/22/91	---	---	---	---	---	---	---	---	---	<1
	05/08/92	---	---	---	---	---	---	---	---	---	<1
	08/28/92	---	---	---	---	---	---	---	---	---	<1
	01/22/93	680	405	39	8	99	2	100	51	183	<1
	10/22/93	---	---	---	---	---	---	---	---	---	<1
	07/08/94	810	520	---	---	87	---	130	53	---	<1
	09/21/94	---	---	---	---	---	---	---	---	---	<1
	12/14/94	---	---	---	---	---	---	---	---	---	<1
	03/08/95	---	---	---	---	---	---	---	---	---	<1
	06/28/95	---	---	---	---	---	---	---	---	---	<1
	09/20/95	---	---	---	---	---	---	---	---	---	<1
	12/13/95	---	---	---	---	---	---	---	---	---	<1
	03/06/96	---	---	---	---	---	---	---	---	---	<2
	06/26/96	---	---	---	---	---	---	---	---	---	<2
	09/18/96	---	---	---	---	---	---	---	---	---	<2
	12/11/96	---	---	---	---	---	---	---	---	---	<2
	06/25/97	---	---	---	---	---	---	---	---	---	<2
	07/08/98	760	460	49	9	100	2	110	51	220	<2
	10/01/98	---	---	---	---	---	---	---	---	---	<2
	12/09/98	---	---	---	---	---	---	---	---	---	<2
	02/03/99	---	---	---	---	---	---	---	---	---	<2
	03/03/99	---	---	---	---	---	---	---	---	---	<2
	06/23/99	---	---	---	---	---	---	---	---	---	<2
	09/22/99	---	---	---	---	---	---	---	---	---	<2
	12/08/99	---	---	---	---	---	---	---	---	---	<2
	01/05/00	780	440	47	9	100	---	99	48	210	<2
	05/03/00	---	---	---	---	---	---	---	---	---	<2
	07/19/00	---	---	---	---	---	---	---	---	---	<2

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
North Well (Cont)	10/24/01	---	---	---	---	---	---	---	---	---	<2
7S/3W-18J02	03/06/02	---	---	---	---	---	---	---	---	---	<2
	07/11/02	---	420	---	---	---	---	---	---	180	---
	10/03/03	---	440	53	---	---	---	---	---	---	---
	04/21/04	---	---	---	---	---	---	---	---	---	<2
	01/27/05	---	440	59	10	---	---	---	---	230	---
	03/30/05	---	---	---	---	---	---	---	---	---	<2
	01/26/06	820	450	60	11	96	2	120	52	---	1
	05/10/06	---	---	---	---	---	---	---	---	---	<1
	07/19/06	---	---	---	---	---	---	---	---	---	<1
	08/16/06	---	---	---	---	---	---	---	---	---	<1
	09/20/06	---	---	---	---	---	---	---	---	---	<1
	10/18/06	---	---	---	---	---	---	---	---	---	<1
	11/15/06	---	---	---	---	---	---	---	---	---	<1
	01/17/07	---	---	---	---	---	---	---	---	---	<1
	02/21/07	---	---	---	---	---	---	---	---	---	<2
	03/21/07	---	---	---	---	---	---	---	---	---	<2
	04/18/07	---	---	---	---	---	---	---	---	---	<2
	05/16/07	---	---	---	---	---	---	---	---	---	<2
	07/23/07	---	500	---	---	---	---	---	---	---	---
	07/26/07	---	540	---	---	---	---	---	---	---	---
	08/15/07	830	520	59	11	89	1.2	110	54	230	<2
	09/19/07	---	---	---	---	---	---	---	---	---	<2
	12/04/07	---	---	---	---	---	---	---	---	---	1.5
	01/24/08	---	---	---	---	---	---	---	---	---	1.8
	03/26/08	---	---	---	---	---	---	---	---	---	2.5
	04/23/08	---	---	---	---	---	---	---	---	---	2.0
	05/19/08	---	---	---	---	---	---	---	---	---	2.2
	06/16/08	---	---	---	---	---	---	---	---	---	2.1
	07/21/08	---	---	---	---	---	---	---	---	---	<2
	09/15/08	---	---	---	---	---	---	---	---	---	2.0
	01/19/09	---	---	---	---	---	---	---	---	---	1
	02/23/09	---	---	---	---	---	---	---	---	---	<2
	03/16/09	---	---	---	---	---	---	---	---	---	<2
	04/20/09	---	---	---	---	---	---	---	---	---	<2
	05/18/09	---	---	---	---	---	---	---	---	---	<2
	06/02/09	830	470	54	11	92	1.6	100	54	230	<2
	06/08/09	830	410	57	10	89	1.6	110	54	230	<2

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
North Well (Cont)	06/15/09	---	---	---	---	---	---	---	---	---	<1
7S/3W-18J02	07/07/09	870	490	51	9.8	87	1.5	110	56	220	---
	07/20/09	830	460	54	10	90	1.7	110	52	220	<2
	08/03/09	820	480	49	9.4	82	1.4	120	49	220	<2
	08/25/09	---	---	---	---	---	---	---	---	---	1.2
	09/08/09	800	460	55	11	97	1.7	120	52	220	<2
	09/21/09	---	---	---	---	---	---	---	---	---	1.1
New Clay Well	03/09/04	480	340	23	1	87	1	79	64	98	<2
7S/3W-20	01/26/06	590	310	20	1.2	93	1.2	85	57	---	<1
	01/31/06	---	---	---	---	---	---	---	---	---	7.2
	01/31/06	---	---	---	---	---	---	---	---	---	6.9
	04/04/06	---	---	---	---	---	---	---	---	---	<1
	04/12/06	---	---	---	---	---	---	---	---	---	<1
	05/10/06	---	---	---	---	---	---	---	---	---	<1
	06/07/06	---	---	---	---	---	---	---	---	---	<1
	07/05/06	---	---	---	---	---	---	---	---	---	<1
	08/02/06	---	---	---	---	---	---	---	---	---	<1
	09/06/06	---	---	---	---	---	---	---	---	---	<1
	10/04/06	---	---	---	---	---	---	---	---	---	<1
	11/01/06	---	---	---	---	---	---	---	---	---	<1
	12/06/06	---	---	---	---	---	---	---	---	---	<1
	01/04/07	---	---	---	---	---	---	---	---	---	<1
	02/07/07	---	---	---	---	---	---	---	---	---	<1
	03/07/07	---	---	---	---	---	---	---	---	---	<2
	04/04/07	---	---	---	---	---	---	---	---	---	<2
	05/02/07	---	---	---	---	---	---	---	---	---	<2
	06/06/07	---	---	---	---	---	---	---	---	---	<2
	07/05/07	---	---	---	---	---	---	---	---	---	<2
	08/01/07	---	---	---	---	---	---	---	---	---	<2
	08/15/07	510	270	13	<1	91	1	65	50	83	<2
	09/05/07	---	---	---	---	---	---	---	---	---	<2
	12/04/07	---	---	---	---	---	---	---	---	---	<2
	03/26/08	---	---	---	---	---	---	---	---	---	<1
	04/23/08	---	---	---	---	---	---	---	---	---	<1
	05/05/08	---	---	---	---	---	---	---	---	---	<1
	06/02/08	---	---	---	---	---	---	---	---	---	<1
	07/07/08	---	---	---	---	---	---	---	---	---	<1
	09/02/08	---	---	---	---	---	---	---	---	---	<2
	12/04/07	---	---	---	---	---	---	---	---	---	<2
	03/26/08	---	---	---	---	---	---	---	---	---	<1
	04/23/08	---	---	---	---	---	---	---	---	---	<1
	05/05/08	---	---	---	---	---	---	---	---	---	<1
	06/02/08	---	---	---	---	---	---	---	---	---	<1
	07/07/08	---	---	---	---	---	---	---	---	---	<1
	09/02/08	---	---	---	---	---	---	---	---	---	<2
	01/19/09	---	---	---	---	---	---	---	---	---	<2

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT
MURRIETA DIVISION

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Lynch Well 7S/3W-17R02	06/16/89	760	410	70	17	55	1	86	30	262	8
Morris Well 7S/3W-19R	09/07/90	530	280	38	7	68	3	50	49	168	3
Alson Well 7S/3W-7M	06/06/90	1520	915	138	46	110	1	250	81	433	31
	07/21/98	1260	880	100	37	120	<1	180	92	330	23
	09/09/98	1200	850	110	39	120	<1	180	100	320	23
	05/03/00	---	---	---	---	---	---	---	---	---	20
	05/19/00	1290	800	97	36	110	<1	180	96	330	19
	11/28/01	1290	750	93	33	110	<1	180	96	310	17
	03/06/02	---	---	---	---	---	---	---	---	---	20
	07/01/02	---	650	---	---	---	---	---	---	270	---
	10/03/03	880	550	80	26	95	---	ND	ND	259	ND
	01/27/05	1100	640	100	32	110	---	150	81	320	---
	01/26/06	1500	870	120	41	120	1.2	230	120	---	18
	04/12/06	---	---	---	---	---	---	---	---	---	19
	05/10/06	---	---	---	---	---	---	---	---	---	18
	06/28/06	---	---	---	---	---	---	---	---	---	20
	07/26/06	---	---	---	---	---	---	---	---	---	20
	08/23/06	---	---	---	---	---	---	---	---	---	18
	09/27/06	---	---	---	---	---	---	---	---	---	21
	10/25/06	---	---	---	---	---	---	---	---	---	22
	11/22/06	---	---	---	---	---	---	---	---	---	22
	12/27/06	---	---	---	---	---	---	---	---	---	21
	01/24/07	---	---	---	---	---	---	---	---	---	22
	02/28/07	---	---	---	---	---	---	---	---	---	22
	03/29/07	---	---	---	---	---	---	---	---	---	23
	04/25/07	---	---	---	---	---	---	---	---	---	19

ND - None Detected

TABLE D-4

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 101	06/01/88	810	495	76	15	79	8	116	16	314	---
7S/3W-34G1	08/05/88	---	---	---	---	---	---	---	---	---	<1
	05/23/90	630	365	30	6	91	2	101	35	107	3
	08/04/93	860	465	76	14	78	2	120	22	275	<1
	08/09/96	820	480	69	14	83	2	110	15	310	<2
	10/16/97	---	---	---	---	---	---	---	---	---	<2
	08/11/99	840	510	70	14	85	2	110	17	300	<2
	06/25/02	---	---	---	---	---	---	---	---	---	<2
	08/14/02	870	500	66	14	85	2.5	120	15	250	<2
	06/11/03	---	---	---	---	---	---	---	---	---	<2
	06/15/04	---	---	---	---	---	---	---	---	---	<2
	06/14/05	---	---	---	---	---	---	---	---	---	<1
	08/09/05	880	440	75	15	87	2.5	140	22	300	<1
	06/07/06	---	---	---	---	---	---	---	---	---	<1
	06/01/07	---	---	---	---	---	---	---	---	---	<2
	06/03/08	---	620	---	---	---	---	---	---	---	<2
	08/11/08	1000	550	91	18	110	2.9	150	36	300	<2
	09/09/08	---	620	---	---	---	---	---	---	---	---
	01/08/09	---	840	---	---	---	---	---	---	---	
	06/25/09	---	810	---	---	---	---	---	---	---	<2
No. 102	01/04/89	695	370	9	2	134	1	101	25	195	<1
8S/3W-2Q1	01/15/92	930	615	38	4	160	3	160	55	250	<1
	05/17/95	850	475	21	1	144	1	120	130	98	<1
	06/20/95	1190	700	26	2	207	2	150	220	131	<1
	06/09/97	---	---	---	---	---	---	---	---	---	<2
No. 105	07/06/89	500	280	30	6	66	2	71	22	134	14
7S/3W-25M1	03/17/93	480	310	17	2	80	2	67	22	110	14
No. 106	06/29/88	920	485	38	5	143	3	182	66	70	16
7S/3W-26R1	05/13/92	880	515	35	4	142	2	180	72	110	17
	05/16/95	870	495	32	3	138	2	160	57	116	14
	07/07/97	---	---	---	---	---	---	---	---	---	8
	07/20/98	---	---	---	---	---	---	---	---	---	9
	07/20/99	---	---	---	---	---	---	---	---	---	9
	07/06/00	---	---	---	---	---	---	---	---	---	8

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 106 (Cont)	05/01/01	490	300	7	<1	96	<1	70	23	100	8
7S/3W-26R1	07/10/01	---	---	---	---	---	---	---	---	---	12
	07/03/02	---	---	---	---	---	---	---	---	---	8
	07/07/03	---	---	---	---	---	---	---	---	---	6.8
	05/11/04	530	310	9	<1	93	1	80	25	88	8
	07/13/04	---	---	---	---	---	---	---	---	---	8
	07/07/05	---	---	---	---	---	---	---	---	---	6.5
	07/19/06	---	---	---	---	---	---	---	---	---	6.1
	05/02/07	550	290	8.8	<1	91	<1	84	26	85	3.7
	07/03/07	---	---	---	---	---	---	---	---	---	6
	07/07/08	---	370	---	---	---	---	---	---	---	12
	01/13/09	---	440	---	---	---	---	---	---	---	---
	04/16/09	---	310	---	---	---	---	---	---	---	---
	07/01/09	---	340	---	---	---	---	---	---	---	6.8
No. 107	04/11/88	490	365	19	4	73	2	69	22	116	15
7S/3W-26J1	05/29/91	950	535	63	15	104	3	130	120	171	11
No. 108	05/25/88	780	455	51	11	96	2	120	68	153	14
7S/3W-25E1	05/29/91	930	500	59	14	104	3	130	110	153	10
	05/13/94	640	395	23	5	100	2	120	51	104	7
	05/16/95	---	---	---	---	---	---	---	---	---	5
	05/13/97	540	300	7	<1	110	<1	110	15	85	4
	05/05/99	---	---	---	---	---	---	---	---	---	8
	05/16/00	630	350	7	<1	110	<1	130	12	65	3
	05/02/01	---	---	---	---	---	---	---	---	---	2
	11/19/02	---	---	---	---	---	---	---	---	---	2
	04/14/05	---	---	---	---	---	---	---	---	---	2
	04/18/06	---	---	---	---	---	---	---	---	---	1
	05/12/06	750	360	8.2	<1	140	<1	190	7.9	50	1.1
	02/13/08	---	---	---	---	---	---	---	---	---	1.4
	08/06/08	---	400	---	---	---	---	---	---	---	---
	02/05/09	---	340	---	---	---	---	---	---	---	2.2
	05/08/09	730	380	7.2	<1	130	<1	170	9.4	60	<2.0
	08/05/09	---	370	---	---	---	---	---	---	---	---
No. 109	06/01/88	1400	920	136	35	120	4	100	300	296	---
8S/2W-17J1	08/05/88	---	---	---	---	---	---	---	---	---	10
	06/12/91	1330	800	110	26	120	5	120	270	275	9
	06/22/94	1370	1010	138	32	124	5	140	320	287	7
	06/06/95	---	---	---	---	---	---	---	---	---	8
	06/13/97	1440	1010	130	31	140	4	140	330	280	10
	07/16/97	---	---	---	---	---	---	---	---	---	2.2 as N

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 109 (Cont)	04/14/99	---	---	---	---	---	---	---	---	---	12
8S/2W-17J1	04/11/00	---	---	---	---	---	---	---	---	---	13
	06/21/00	1330	870	120	28	130	4	120	280	270	3.2
	04/10/01	---	---	---	---	---	---	---	---	---	13
	06/11/03	1400	970	140	32	130	4	130	340	290	12
	06/19/03	1400	970	150	32	120	4.2	130	340	290	12
	01/07/04	---	---	---	---	---	---	---	---	---	13
	01/11/05	---	---	---	---	---	---	---	---	---	13
	01/04/06	---	---	---	---	---	---	---	---	---	12
	07/12/06	1300	930	130	30	130	4.8	130	280	280	12
	01/10/07	---	---	---	---	---	---	---	---	---	13
	01/04/08	---	---	---	---	---	---	---	---	---	13
	07/07/08	---	810	---	---	---	---	---	---	---	---
	01/13/09	---	860	---	---	---	---	---	---	---	16
	04/02/09	---	810	---	---	---	---	---	---	---	---
	07/06/09	---	770	---	---	---	---	---	---	---	---
No. 110	03/31/88	1100	630	70	23	132	6	115	163	268	3
8S/1W-06K1	03/11/93	1010	610	60	21	124	5	110	200	201	3
	04/27/95	---	---	---	---	---	---	---	---	---	1
	07/20/99	---	---	---	---	---	---	---	---	---	<2
	07/06/00	---	---	---	---	---	---	---	---	---	2
	07/10/01	---	---	---	---	---	---	---	---	---	2
	03/11/02	850	500	58	20	81	5	74	190	160	<2
	07/03/02	---	---	---	---	---	---	---	---	---	<2
	09/16/03	---	---	---	---	---	---	---	---	---	2
	09/01/04	---	---	---	---	---	---	---	---	---	2
	03/02/05	810	510	56	21	79	4.9	76	170	150	<2
	09/07/05	---	---	---	---	---	---	---	---	---	1.8
	09/06/07	---	---	---	---	---	---	---	---	---	2
	03/04/08	980	560	59	21	95	4.6	110	160	190	2.5
	01/20/09	---	610	---	---	---	---	---	---	---	---
	04/02/09	---	550	---	---	---	---	---	---	---	---
	07/09/09	---	560	---	---	---	---	---	---	---	---

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 113	03/28/88	700	400	41	12	87	2	11	20	192	18
7S/2W-25H01	03/21/91	570	290	21	5	79	2	88	17	119	11
	03/03/94	700	410	46	13	86	2	120	25	189	19
	04/27/95	---	---	---	---	---	---	---	---	---	24
	03/20/97	880	500	53	15	96	2	140	33	200	22
	07/20/98	---	---	---	---	---	---	---	---	---	23
	09/16/98	---	---	---	---	---	---	---	---	---	22
	02/25/99	---	---	---	---	---	---	---	---	---	19
	04/14/99	---	---	---	---	---	---	---	---	---	17
	06/03/99	---	---	---	---	---	---	---	---	---	21
	09/14/99	---	---	---	---	---	---	---	---	---	22
	10/21/99	---	---	---	---	---	---	---	---	---	25
	11/02/99	---	---	---	---	---	---	---	---	---	22
	12/14/99	---	---	---	---	---	---	---	---	---	23
	01/11/00	---	---	---	---	---	---	---	---	---	18
	03/07/00	810	470	75	16	59	2	70	94	200	11
	04/11/00	---	---	---	---	---	---	---	---	---	23
	05/03/00	---	---	---	---	---	---	---	---	---	24
	06/21/00	---	---	---	---	---	---	---	---	---	23
	09/13/00	---	---	---	---	---	---	---	---	---	23
	10/06/00	---	---	---	---	---	---	---	---	---	21
	02/14/01	---	---	---	---	---	---	---	---	---	16
	05/30/01	---	---	---	---	---	---	---	---	---	23
	06/12/01	---	---	---	---	---	---	---	---	---	22
	08/01/01	---	---	---	---	---	---	---	---	---	22
	11/13/01	---	---	---	---	---	---	---	---	---	22
	05/01/02	---	---	---	---	---	---	---	---	---	19
	08/06/02	---	---	---	---	---	---	---	---	---	20
	11/05/02	---	---	---	---	---	---	---	---	---	21
	02/07/03	---	---	---	---	---	---	---	---	---	22
	03/05/03	1000	610	65	19	110	2.5	160	41	260	26
	08/05/03	---	---	---	---	---	---	---	---	---	21
	11/13/03	---	---	---	---	---	---	---	---	---	24
	02/10/04	---	---	---	---	---	---	---	---	---	24
	05/04/04	---	---	---	---	---	---	---	---	---	23
	08/10/04	---	---	---	---	---	---	---	---	---	24
	11/17/04	---	---	---	---	---	---	---	---	---	25
	02/09/05	---	---	---	---	---	---	---	---	---	25

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 113 (Cont)	05/12/05	---	---	---	---	---	---	---	---	---	23
7S/2W-25H01	11/02/05	---	---	---	---	---	---	---	---	---	25
	02/14/06	---	---	---	---	---	---	---	---	---	24
	03/08/06	880	540	54	15	100	2.3	140	31	210	24
	05/11/06	---	---	---	---	---	---	---	---	---	24
	08/03/06	---	---	---	---	---	---	---	---	---	21
	11/08/06	---	---	---	---	---	---	---	---	---	23
	02/07/07	---	---	---	---	---	---	---	---	---	24
	05/01/07	---	---	---	---	---	---	---	---	---	23
	08/07/07	---	---	---	---	---	---	---	---	---	23
	02/12/08	---	---	---	---	---	---	---	---	---	22
	05/06/08	---	540	---	---	---	---	---	---	---	21
	08/11/08	---	530	---	---	---	---	---	---	---	21
	11/06/08	---	570	---	---	---	---	---	---	---	24
	02/05/09	---	530	---	---	---	---	---	---	---	21
	03/03/09	930	520	56	15	97	2.1	150	41	210	22
	05/11/09	---	---	---	---	---	---	---	---	---	19
	08/04/09	---	520	---	---	---	---	---	---	---	20
No. 118	08/08/90	715	480	14	1	162	1	120	79	101	1
8S/3W-11B	09/26/90	---	---	---	---	---	---	---	---	---	1
	09/10/93	860	525	19	1	178	1	130	94	198	<1
	06/20/95	---	---	---	---	---	---	---	---	---	<1
	09/16/96	970	560	33	2	180	2	120	120	230	<2
	07/23/97	---	---	---	---	---	---	---	---	---	0.2 as N
	09/16/98	---	---	---	---	---	---	---	---	---	2
	11/02/99	1040	580	46	4	170	2	130	100	240	<2
	09/20/00	---	---	---	---	---	---	---	---	---	<2
	08/18/02	---	---	---	---	---	---	---	---	---	<2
	11/08/02	1100	590	46	4.5	160	1.3	140	94	240	<2
	09/23/03	---	---	---	---	---	---	---	---	---	<2
	12/30/04	---	---	---	---	---	---	---	---	---	<2
	01/25/05	---	---	---	---	---	---	---	---	---	<2
	09/07/05	---	---	---	---	---	---	---	---	---	<1
	11/03/05	980	590	55	5.1	150	1.7	140	110	240	<1
	09/05/07	---	---	---	---	---	---	---	---	---	1.1
	09/08/08	---	670	---	---	---	---	---	---	---	<2
	11/06/08	1100	640	71	150	150	1.9	150	140	250	ND
	12/05/08	---	660	---	---	---	---	---	---	---	---
	03/03/09	---	620	---	---	---	---	---	---	---	---
	06/04/09	---	610	---	---	---	---	---	---	---	---

ND - None Detected

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 119	07/16/96	450	280	44	9	35	<1	39	18	180	15
8S/2W-19J	08/14/97	---	---	---	---	---	---	---	---	---	12
	12/24/97	---	320	---	---	---	---	---	---	---	3.1 as N
	03/04/98	---	380	---	---	---	---	---	---	---	3.3 as N
	06/04/98	---	---	---	---	---	---	---	---	---	3.8 as N
	06/12/98	---	400	---	---	---	---	---	---	---	---
	09/16/98	---	---	---	---	---	---	---	---	---	3.7 as N
	01/08/99	---	430	---	---	---	---	---	---	---	---
	04/13/99	---	---	---	---	---	---	---	---	---	28
	06/02/99	---	560	---	---	---	---	---	---	---	4.8 as N
	07/27/99	940	640	103	21	58	1	70	150	264	30
	09/14/99	---	---	---	---	---	---	---	---	---	22
	09/14/99	---	---	---	---	---	---	---	---	---	4.8 as N
	10/26/99	---	---	---	---	---	---	---	---	---	24
	11/02/99	---	---	---	---	---	---	---	---	---	22
	12/14/99	---	560	---	---	---	---	---	---	---	22
	04/04/00	---	---	---	---	---	---	---	---	---	20
	12/14/00	---	---	---	---	---	---	---	---	---	4.6 as N
	03/29/01	---	---	---	---	---	---	---	---	---	20
	06/20/01	---	---	---	---	---	---	---	---	---	4.2 as N
	09/14/01	---	---	---	---	---	---	---	---	---	4.2 as N
	09/28/01	---	---	---	---	---	---	---	---	---	18
	11/16/01	---	---	---	---	---	---	---	---	---	16
	05/23/02	---	480	---	---	---	---	---	---	---	18
	07/24/02	770	490	81	15	49	1.1	51	90	240	19
	11/08/02	---	---	---	---	---	---	---	---	---	15
	02/19/03	---	---	---	---	---	---	---	---	---	17
	02/10/04	---	---	---	---	---	---	---	---	---	15
	02/28/05	---	---	---	---	---	---	---	---	---	10
	07/06/05	820	600	95	20	63	1.4	64	140	260	13
	02/07/06	---	---	---	---	---	---	---	---	---	15
	02/07/07	---	---	---	---	---	---	---	---	---	15
	02/12/08	---	---	---	---	---	---	---	---	---	15
	05/14/08	---	520	---	---	---	---	---	---	---	13
	07/08/08	810	520	88	17	57	1.4	66	120	250	14
	08/11/08	---	480	---	---	---	---	---	---	---	13
	11/17/08	---	520	---	---	---	---	---	---	---	16
	02/05/09	---	460	---	---	---	---	---	---	---	13
	05/11/09	---	560	---	---	---	---	---	---	---	12
	08/04/09	---	540	---	---	---	---	---	---	---	14

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 120	06/20/90	570	330	6	1	116	1	82	31	113	11
8S/2W-17G	06/10/93	590	340	6	<1	122	1	85	35	104	12
	07/19/96	630	360	6	<1	120	1	88	42	120	14
	06/16/97	---	---	---	---	---	---	---	---	---	10
	08/14/97	---	---	---	---	---	---	---	---	---	9
	06/02/99	620	360	6	<1	122	<1	84	45	120	10
	06/06/00	---	---	---	---	---	---	---	---	---	11
	06/13/01	---	---	---	---	---	---	---	---	---	12
	06/01/02	670	370	8.1	<1	130	1	86	46	130	11
	06/11/03	---	---	---	---	---	---	---	---	---	12
	06/22/04	---	---	---	---	---	---	---	---	---	15
	06/15/05	720	410	11	<1	140	1.3	90	62	140	12
	06/07/06	---	---	---	---	---	---	---	---	---	11
	06/01/07	---	---	---	---	---	---	---	---	---	10
	06/05/08	690	400	11	<1	140	104	89	66	140	10
	06/05/08	---	400	---	---	---	---	---	---	---	10
	09/15/08	---	350	---	---	---	---	---	---	---	---
	08/21/09	---	500	---	---	---	---	---	---	---	11
No. 121	10/27/89	900	475	63	14	99	2	109	28	290	<1
7S/3W-34J	05/19/92	1000	560	72	17	120	3	170	56	270	<1
	07/18/97	---	---	---	---	---	---	---	---	---	ND
	07/24/97	---	640	---	---	---	---	---	---	---	ND
	08/20/97	---	---	---	---	---	---	---	---	---	ND
	09/03/97	---	---	---	---	---	---	---	---	---	ND
	06/19/02	---	---	---	---	---	---	---	---	---	ND
No. 122	06/23/97	---	---	---	---	---	---	---	---	---	6
8S/2W-20P1	07/25/97	660	460	64	13	44	1	61	65	190	8
	10/10/97	---	---	---	---	---	---	---	---	---	9
	12/23/97	---	400	---	---	---	---	---	---	---	1.8 as N
	03/25/98	---	450	---	---	---	---	---	---	---	2.2 as N
	06/03/98	---	---	---	---	---	---	---	---	---	2.4 as N
	06/05/98	---	460	---	---	---	---	---	---	---	---
	09/17/98	---	---	---	---	---	---	---	---	---	2.2 as N
	01/08/99	---	450	---	---	---	---	---	---	---	---
	06/03/99	---	470	---	---	---	---	---	---	---	2.1 as N
	04/13/99	---	---	---	---	---	---	---	---	---	9
	09/21/99	---	---	---	---	---	---	---	---	---	2.1 as N
	03/07/00	---	---	---	---	---	---	---	---	---	16
	04/04/00	---	---	---	---	---	---	---	---	---	9
	06/28/00	780	470	79	16	62	1	73	100	210	11

ND - None Detected

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 122 (Cont)	12/13/00	---	---	---	---	---	---	---	---	---	2.5 as N
8S/2W-20P2	03/27/01	---	---	---	---	---	---	---	---	---	2.5 as N
	04/18/01	---	---	---	---	---	---	---	---	---	10
	06/20/01	---	---	---	---	---	---	---	---	---	2.4 as N
	09/13/01	---	---	---	---	---	---	---	---	---	2.7 as N
	12/13/01	---	550	---	---	---	---	---	---	---	---
	05/14/02	---	570	---	---	---	---	---	---	---	9
	03/05/03	---	---	---	---	---	---	---	---	---	10
	03/16/04	---	---	---	---	---	---	---	---	---	12
	03/17/05	---	---	---	---	---	---	---	---	---	9
	03/21/06	---	---	---	---	---	---	---	---	---	9.4
	03/06/07	---	---	---	---	---	---	---	---	---	9.7
	03/03/08	---	---	---	---	---	---	---	---	---	8.5
	03/07/08	---	620	---	---	---	---	---	---	---	---
	10/08/08	---	620	---	---	---	---	---	---	---	---
	01/20/09	---	680	---	---	---	---	---	---	---	---
	03/10/09	---	---	---	---	---	---	---	---	---	8.9
	04/16/09	---	660	---	---	---	---	---	---	---	---
	07/14/09	---	670	---	---	---	---	---	---	---	---
No. 123	06/06/90	1100	690	69	27	132	6	130	170	281	4
8S/1W-7B	06/10/93	1120	690	74	25	136	6	120	190	250	5
	02/05/97	930	550	55	18	110	5	83	130	250	1.3
	04/27/99	---	---	---	---	---	---	---	---	---	3
	06/02/99	---	---	---	---	---	---	---	---	---	3
	07/20/99	---	---	---	---	---	---	---	---	---	2
	08/11/99	---	---	---	---	---	---	---	---	---	2
	09/14/99	---	---	---	---	---	---	---	---	---	2
	10/21/99	---	---	---	---	---	---	---	---	---	2
	11/02/99	---	---	---	---	---	---	---	---	---	2
	02/09/00	1150	610	59	20	100	5	83	150	240	3
	02/09/01	---	---	---	---	---	---	---	---	---	3
	03/10/03	880	550	59	20	87	4.5	80	180	170	<2
	02/03/04	---	---	---	---	---	---	---	---	---	2
	02/14/05	---	---	---	---	---	---	---	---	---	2
	02/14/06	---	---	---	---	---	---	---	---	---	3.6
	03/14/06	890	530	65	22	88	5	91	180	180	2.3
	04/24/07	---	---	---	---	---	---	---	---	---	1.4
	05/01/07	---	---	---	---	---	---	---	---	---	2.7

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 123 (Cont)	06/05/07	---	---	---	---	---	---	---	---	---	2.2
8S/1W-7B	07/05/07	---	---	---	---	---	---	---	---	---	2.5
	08/07/07	---	---	---	---	---	---	---	---	---	2.2
	09/05/07	---	---	---	---	---	---	---	---	---	2.1
	09/06/07	---	---	---	---	---	---	---	---	---	2
	10/03/07	---	---	---	---	---	---	---	---	---	2
	12/13/07	---	---	---	---	---	---	---	---	---	1.9
	01/10/08	---	---	---	---	---	---	---	---	---	1.4
	02/13/08	---	---	---	---	---	---	---	---	---	1.1
	03/03/08	---	---	---	---	---	---	---	---	---	1.3
	03/07/08	---	540	---	---	---	---	---	---	---	---
	04/08/08	---	---	---	---	---	---	---	---	---	2.2
	05/12/08	---	---	---	---	---	---	---	---	---	2.4
	06/23/08	---	---	---	---	---	---	---	---	---	2.7
	07/08/08	---	---	---	---	---	---	---	---	---	2.9
	08/12/08	---	---	---	---	---	---	---	---	---	2.6
	09/15/08	---	---	---	---	---	---	---	---	---	2.7
	11/06/08	---	---	---	---	---	---	---	---	---	2.6
	12/05/08	---	---	---	---	---	---	---	---	---	2
	01/07/09	---	640	---	---	---	---	---	---	---	ND
	02/04/09	---	---	---	---	---	---	---	---	---	1.6
	03/09/09	980	610	62	21	97	4.8	98	180	110	<2.0
	04/02/09	---	600	---	---	---	---	---	---	---	<2.0
	05/07/09	---	---	---	---	---	---	---	---	---	<2.0
	06/01/09	---	---	---	---	---	---	---	---	---	<2.0
	07/09/09	---	590	---	---	---	---	---	---	---	<2.0
	08/05/09	---	---	---	---	---	---	---	---	---	<2.0
No. 124	06/20/90	660	380	38	4	92	3	97	48	153	13
8S/2W-11R1	07/22/93	690	430	42	5	89	3	90	57	159	17
	07/18/95	---	---	---	---	---	---	---	---	---	11
	10/26/99	700	420	45	4	94	3	97	61	160	16
	07/06/00	---	---	---	---	---	---	---	---	---	17
	07/10/01	---	---	---	---	---	---	---	---	---	16
	07/03/02	---	---	---	---	---	---	---	---	---	10
	10/02/02	600	330	24	2.4	92	1.9	75	38	150	10
	01/08/03	---	---	---	---	---	---	---	---	---	2.3 as N
	07/01/03	---	---	---	---	---	---	---	---	---	8.3
	07/07/04	---	---	---	---	---	---	---	---	---	9.4

ND - None Detected

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 124	07/06/05	---	---	---	---	---	---	---	---	---	8.4
8S/2W-11R1	10/05/05	580	360	19	2.4	96	1.6	74	35	140	7.8
	09/26/06	---	---	---	---	---	---	---	---	---	17
	09/05/07	---	---	---	---	---	---	---	---	---	8.2
	10/28/08	780	490	52	6.5	84	3.1	91	84	150	1.8
	01/13/09	---	390	---	---	---	---	---	---	---	---
	04/07/09	---	330	---	---	---	---	---	---	---	---
	07/09/09	---	320	---	---	---	---	---	---	---	---
No. 125	06/20/90	740	425	17	5	132	3	99	54	186	4
8S/2W-12H	06/10/93	770	450	18	5	140	3	150	60	131	3
	06/20/95	---	---	---	---	---	---	---	---	---	2
	06/09/97	---	---	---	---	---	---	---	---	---	2
	09/17/98	---	---	---	---	---	---	---	---	---	3
	06/03/99	720	440	10	3	135	2	89	76	170	<2
	11/02/99	---	---	---	---	---	---	---	---	---	3
	11/15/00	---	---	---	---	---	---	---	---	---	2
	07/24/01	---	---	---	---	---	---	---	---	---	4
	06/19/02	700	400	8.8	2.3	130	1.8	87	54	170	<2
	07/03/02	---	---	---	---	---	---	---	---	---	2
	01/13/03	---	---	---	---	---	---	---	---	---	.38 as N
	07/01/03	---	---	---	---	---	---	---	---	---	<2
	06/09/04	---	---	---	---	---	---	---	---	---	<2
	06/14/05	650	350	8.3	2.1	130	1.6	82	52	180	1.8
	06/13/06	---	---	---	---	---	---	---	---	---	2.8
	06/05/07	---	---	---	---	---	---	---	---	---	1.6
	06/10/08	770	460	17	4.6	150	2.4	93	64	190	2.7
	09/15/08	---	370	---	---	---	---	---	---	---	---
	12/05/08	---	450	---	---	---	---	---	---	---	---
	03/04/09	---	440	---	---	---	---	---	---	---	---
	06/01/09	---	560	---	---	---	---	---	---	---	<2.0
No. 126	05/04/88	480	290	4	<1	106	<1	53	14	64	<1
8S/2W-15H	07/06/89	500	270	2	1	108	<1	55	11	98	<1
	07/18/95	540	315	1	<1	122	<1	72	11	122	<1
	07/07/97	---	---	---	---	---	---	---	---	---	<2
	07/16/97	---	---	---	---	---	---	---	---	---	0.2 as N
	07/23/97	---	---	---	---	---	---	---	---	---	0.2 as N
	08/20/97	---	---	---	---	---	---	---	---	---	0.4 as N

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 126 (Cont)	09/03/97	---	---	---	---	---	---	---	---	---	0.2 as N
8S/2W-15H	09/17/97	---	---	---	---	---	---	---	---	---	0.2 as N
	07/20/98	520	330	2	<1	120	<1	56	11	130	<2
	09/16/98	---	300	---	---	---	---	---	---	---	0.4 as N
	04/14/99	---	---	---	---	---	---	---	---	---	2
	04/11/00	---	---	---	---	---	---	---	---	---	<2
	04/11/01	---	---	---	---	---	---	---	---	---	2
	07/12/01	530	300	2	<1	100	<1	53	12	140	<2
	06/20/02	---	---	---	---	---	---	---	---	---	<2
	08/06/02	---	---	---	---	---	---	---	---	---	<2
	01/08/03	---	---	---	---	---	---	---	---	---	0.25 as N
	11/04/03	---	---	---	---	---	---	---	---	---	<2
	07/22/04	520	310	1.5	ND	110	ND	59	10	120	0.27 as N
	11/03/04	---	---	---	---	---	---	---	---	---	<2
	11/02/05	---	---	---	---	---	---	---	---	---	<1
	11/08/06	---	---	---	---	---	---	---	---	---	<1
	07/03/07	530	330	1.4	<1	110	<1	62	10	140	<2
	11/14/07	---	---	---	---	---	---	---	---	---	1.9
	08/07/08	---	280	---	---	---	---	---	---	---	---
	02/04/09	---	280	---	---	---	---	---	---	---	---
	05/06/09	---	280	---	---	---	---	---	---	---	---
	08/04/09	---	270	---	---	---	---	---	---	---	---
No. 128	07/06/89	400	230	27	3	54	2	59	7	101	25
7/3W-36M	07/08/92	390	230	21	2	59	2	55	1	110	24
	07/20/95	380	275	16	2	66	1	65	10	101	19
	07/07/97	---	---	---	---	---	---	---	---	---	15
	07/20/98	370	260	12	<1	71	1	48	11	110	14
	06/02/99	---	---	---	---	---	---	---	---	---	13
	06/08/01	---	---	---	---	---	---	---	---	---	14
	07/10/01	400	230	10	<1	68	<1	44	12	100	12
	06/20/02	---	---	---	---	---	---	---	---	---	12
	01/08/03	---	---	---	---	---	---	---	---	---	12
	01/14/04	---	---	---	---	---	---	---	---	---	10
	07/14/04	390	240	8.3	1	67	1	48	11	92	13
	01/11/05	---	---	---	---	---	---	---	---	---	6
	01/10/06	---	---	---	---	---	---	---	---	---	7.9

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 129	11/29/89	430	260	16	3	66	2	71	16	92	9
7S/2W-20L	08/08/90	440	280	20	5	64	2	72	14	119	10
	04/01/92	---	---	---	---	---	---	---	---	---	12
	09/10/93	470	275	24	6	60	2	74	16	110	13
	08/09/96	460	270	19	3	67	2	70	15	100	11
	02/04/97	---	---	---	---	---	---	---	---	---	53
	12/20/00	550	330	44	13	47	2	81	14	130	20
	03/22/01	---	---	---	---	---	---	---	---	---	20
	04/17/01	---	---	---	---	---	---	---	---	---	20
	05/02/01	---	---	---	---	---	---	---	---	---	18
	06/08/01	---	---	---	---	---	---	---	---	---	20
	10/16/01	---	---	---	---	---	---	---	---	---	19
	11/13/01	---	---	---	---	---	---	---	---	---	18
	02/26/02	---	---	---	---	---	---	---	---	---	16
	05/23/02	---	---	---	---	---	---	---	---	---	14
	09/18/02	---	---	---	---	---	---	---	---	---	15
No. 130	02/17/88	650	365	16	1	132	1	69	64	0	4
8S/2W-11R	02/14/91	640	365	4	<1	132	1	68	56	122	---
	04/24/91	---	---	---	---	---	---	---	---	---	3
	02/09/94	650	410	3	<1	148	1	81	72	146	4
	05/16/95	---	---	---	---	---	---	---	---	---	4
	02/05/97	780	450	4	<1	170	<1	78	82	150	5
	05/14/97	---	---	---	---	---	---	---	---	---	4
	04/14/99	---	---	---	---	---	---	---	---	---	5
	02/10/00	750	440	4	<1	170	<1	76	77	170	5
	04/12/00	---	---	---	---	---	---	---	---	---	5
	05/25/00	---	---	---	---	---	---	---	---	---	6
	05/24/01	---	---	---	---	---	---	---	---	---	6
	05/24/02	---	---	---	---	---	---	---	---	---	5
	02/19/03	820	460	4.1	<1	170	<1	87	96	180	5
	05/04/04	---	---	---	---	---	---	---	---	---	5.1
	05/12/05	---	---	---	---	---	---	---	---	---	5
	02/14/06	800	450	4.1	<1	170	<1	83	91	200	5.1
	05/12/06	---	---	---	---	---	---	---	---	---	4.5
	05/01/07	---	---	---	---	---	---	---	---	---	4.5
	05/07/08	---	440	---	---	---	---	---	---	---	4.1
	08/12/08	---	470	---	---	---	---	---	---	---	---
	11/09/08	---	560	---	---	---	---	---	---	---	---
	02/11/09	840	440	4.6	<1	170	<1	91	110	150	4.8
	05/11/09	---	480	---	---	---	---	---	---	---	3.5
	08/31/09	---	470	---	---	---	---	---	---	---	---

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 131	03/10/88	530	270	4	<1	108	1	57	52	31	1
8S/1W-12J	03/21/91	630	335	7	<1	120	1	74	65	98	3
	03/03/94	660	345	9	<1	124	2	86	73	119	2
	03/30/95	---	---	---	---	---	---	---	---	---	2
	03/20/97	660	370	6	<1	125	1	81	73	100	2
	07/07/97	---	---	---	---	---	---	---	---	---	<2
	07/27/98	---	---	---	---	---	---	---	---	---	2
	06/03/99	---	---	---	---	---	---	---	---	---	<2
	03/07/00	720	380	9	<1	140	2	81	80	130	3
	06/21/00	---	---	---	---	---	---	---	---	---	2
	06/27/01	---	---	---	---	---	---	---	---	---	2
	06/05/02	---	---	---	---	---	---	---	---	---	<2
	03/13/03	700	390	8	<1	130	1.4	88	88	130	3
	06/11/03	---	---	---	---	---	---	---	---	---	<2
	06/09/04	---	---	---	---	---	---	---	---	---	<2
	06/15/05	---	---	---	---	---	---	---	---	---	2
	03/07/06	710	420	9.1	<1	140	1.5	93	93	130	3
	06/07/06	---	---	---	---	---	---	---	---	---	1.7
	06/26/07	---	---	---	---	---	---	---	---	---	2.4
	06/04/08	---	390	---	---	---	---	---	---	---	1.5
	09/15/08	---	330	---	---	---	---	---	---	---	---
	12/03/08	---	430	---	---	---	---	---	---	---	---
	03/04/09	640	370	6	<1	130	1.2	71	77	130	<2.0
	03/04/09	---	380	---	---	---	---	---	---	---	---
	06/02/09	---	360	---	---	---	---	---	---	---	<2.0
No. 132	04/18/88	1000	620	94	13	103	6	109	153	235	2
8S/1W-07D	05/08/91	920	590	64	19	110	5	100	160	201	<1
	05/13/94	730	460	50	15	78	5	73	110	195	1
	05/16/95	---	---	---	---	---	---	---	---	---	<1
	07/18/95	860	520	59	17	100	4	90	130	223	1
	07/20/98	900	590	69	20	110	5	89	150	230	2
	01/06/99	---	---	---	---	---	---	---	---	---	2
	02/03/99	---	---	---	---	---	---	---	---	---	2
	04/14/99	---	---	---	---	---	---	---	---	---	3
	06/03/99	---	---	---	---	---	---	---	---	---	3
	07/27/99	---	---	---	---	---	---	---	---	---	5
	08/11/99	---	---	---	---	---	---	---	---	---	4
	09/15/99	---	---	---	---	---	---	---	---	---	4

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 132 (Cont)	10/21/99	---	---	---	---	---	---	---	---	---	4
8S/1W-07D	11/02/99	---	---	---	---	---	---	---	---	---	3
	12/15/99	---	---	---	---	---	---	---	---	---	3
	05/03/00	---	---	---	---	---	---	---	---	---	2
	05/16/01	800	500	57	17	74	5	63	180	150	3
	05/01/02	---	---	---	---	---	---	---	---	---	2
	05/03/05	---	---	---	---	---	---	---	---	---	<2
	05/12/06	---	---	---	---	---	---	---	---	---	3.2
	05/01/07	---	---	---	---	---	---	---	---	---	4.7
	05/03/07	820	500	53	16	64	4.4	72	150	160	3.2
	05/06/08	---	670	---	---	---	---	---	---	---	3.6
	08/12/08	---	690	---	---	---	---	---	---	---	---
	11/06/08	---	650	---	---	---	---	---	---	---	---
	02/05/09	---	570	---	---	---	---	---	---	---	---
	05/11/09	---	590	---	---	---	---	---	---	---	<2.0
	08/05/09	---	600	---	---	---	---	---	---	---	---
No. 133	03/28/90	970	605	50	20	112	5	120	131	235	3
8S/1W-7C	03/11/93	970	580	48	19	120	4	110	140	204	3
	06/06/95	---	---	---	---	---	---	---	---	---	2
	07/18/95	850	680	26	10	142	2	120	100	174	2
	06/23/97	---	---	---	---	---	---	---	---	---	3
	07/20/98	790	500	24	9	140	2	96	93	170	2
	08/02/00	---	---	---	---	---	---	---	---	---	3
	03/28/01	800	460	22	10	130	2	98	100	170	<2
	08/02/01	---	---	---	---	---	---	---	---	---	<2
	09/18/02	---	---	---	---	---	---	---	---	---	2
	09/16/03	---	---	---	---	---	---	---	---	---	2
	03/12/04	810	500	25	10	130	2.4	95	99	180	2
	03/07/07	820	500	26	9.7	140	2.4	94	98	160	2.3
	03/03/08	---	---	---	---	---	---	---	---	---	2.1
	03/07/08	---	480	---	---	---	---	---	---	---	---
	07/08/08	---	470	---	---	---	---	---	---	---	---
	01/07/09	---	540	---	---	---	---	---	---	---	---
	03/04/09	---	---	---	---	---	---	---	---	---	2.6
	04/02/09	---	460	---	---	---	---	---	---	---	---
	07/09/09	---	450	---	---	---	---	---	---	---	---

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 135	05/24/89	2450	1390	122	65	300	2	410	225	464	33
7S/3W-27M	06/06/90	1540	945	73	36	215	1	250	150	323	13
	12/11/90	4400	2670	270	109	480	4	1030	380	314	<1
	08/06/92	1800	810	63	33	170	1	200	160	281	---
	01/16/97	---	---	---	---	---	---	---	---	---	3.7 as N
	02/04/97	---	---	---	---	---	---	---	---	---	3.5 as N
	02/12/97	---	---	---	---	---	---	---	---	---	4.0 as N
	02/20/97	---	---	---	---	---	---	---	---	---	3.4 as N
	02/25/97	---	---	---	---	---	---	---	---	---	3.4 as N
	03/04/97	---	---	---	---	---	---	---	---	---	3.7 as N
	03/18/97	---	---	---	---	---	---	---	---	---	3.3 as N
	03/25/97	---	---	---	---	---	---	---	---	---	3.5 as N
	04/08/97	---	---	---	---	---	---	---	---	---	3.4 as N
	04/15/97	---	---	---	---	---	---	---	---	---	3.4 as N
	04/22/97	---	---	---	---	---	---	---	---	---	3.5 as N
	05/06/97	1930	1050	97	48	220	2	340	190	360	3.3 as N
	05/14/97	---	---	---	---	---	---	---	---	---	3.4 as N
	05/21/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/04/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/11/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/18/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/25/97	---	---	---	---	---	---	---	---	---	3.3 as N
	07/02/97	---	---	---	---	---	---	---	---	---	3.3 as N
	09/17/97	1960	1260	---	---	---	---	430	220	---	13
No. 138	10/30/90	460	240	19	2	74	2	71	13	113	18
8S/2W-6F	10/06/93	420	240	11	<1	70	1	56	10	92	14
	10/11/96	430	270	9	<1	78	1	55	8.9	100	15
	04/14/99	---	---	---	---	---	---	---	---	---	5
	06/03/99	---	---	---	---	---	---	---	---	---	3
	10/26/99	430	240	10	<1	76	1	60	11	100	19
	03/13/00	---	---	---	---	---	---	---	---	---	5
	03/22/01	---	---	---	---	---	---	---	---	---	17
	03/13/02	---	---	---	---	---	---	---	---	---	21
	06/20/02	---	---	---	---	---	---	---	---	---	16
	10/02/02	440	220	10	<1	75	1.2	58	7.8	96	17
	06/12/03	---	---	---	---	---	---	---	---	---	16
	12/30/04	---	---	---	---	---	---	---	---	---	5
	01/27/05	---	---	---	---	---	---	---	---	---	12
	10/18/05	430	280	11	<1	72	1.3	65	8.3	110	18
	01/06/06	---	---	---	---	---	---	---	---	---	17
	01/10/07	---	---	---	---	---	---	---	---	---	16
	01/08/08	---	---	---	---	---	---	---	---	---	16

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 138 (Cont)	10/08/08	430	220	12	59	82	1.1	59	11	32	18
8S/2W-6F	01/08/09	---	---	---	---	---	---	---	---	---	18
	01/12/09	---	280	---	---	---	---	---	---	---	---
	04/08/09	---	250	---	---	---	---	---	---	---	---
	07/06/09	---	240	---	---	---	---	---	---	---	---
No. 139	12/29/87	460	295	24	7	65	1	60	11	104	7
7S/2W-32G	11/23/92	450	275	32	9	46	2	60	13	134	20
	12/19/95	500	298	36	12	50	2	72	12	156	2.8
	03/25/97	---	---	---	---	---	---	---	---	---	10
	03/13/00	---	---	---	---	---	---	---	---	---	9
	03/28/01	---	---	---	---	---	---	---	---	---	8
	03/11/02	530	280	29	10	57	2	73	13	140	9
	03/09/04	---	---	---	---	---	---	---	---	---	8
	03/09/05	520	310	21	7.7	72	1.3	78	13	150	6
	03/09/06	---	---	---	---	---	---	---	---	---	9.9
	03/07/07	---	---	---	---	---	---	---	---	---	6.9
	04/15/08	550	340	40	14	43	1.9	80	10	150	14
	07/17/08	---	330	---	---	---	---	---	---	---	---
	10/08/08	---	320	---	---	---	---	---	---	---	---
	01/13/09	---	390	---	---	---	---	---	---	---	---
	07/06/09	---	290	---	---	---	---	---	---	---	---
	04/08/09	---	310	---	---	---	---	---	---	---	5.8
No. 140	02/18/88	560	325	33	10	65	2	77	14	153	13
7S/2W-33F	01/15/92	450	235	11	2	88	1	68	18	107	2
	02/28/95	560	325	36	11	58	2	94	14	140	12
	03/25/97	---	---	---	---	---	---	---	---	---	8
	02/27/98	650	360	31	11	76	2	95	16	130	5
	09/17/98	---	---	---	---	---	---	---	---	---	8
	05/16/01	---	---	---	---	---	---	---	---	---	11
	02/01/01	650	370	31	12	72	2	110	21	150	4
	05/24/02	---	---	---	---	---	---	---	---	---	7
	04/05/05	680	390	37	16	69	2.3	140	18	150	4
	04/06/06	---	---	---	---	---	---	---	---	---	4.4
	04/24/07	---	---	---	---	---	---	---	---	---	3
	04/08/08	630	340	26	9.5	79	1.9	110	21	140	2.7
	04/08/08	---	350	---	---	---	---	---	---	---	2.7
	07/07/08	---	360	---	---	---	---	---	---	---	---
	01/07/09	---	400	---	---	---	---	---	---	---	---
	04/15/09	---	380	---	---	---	---	---	---	---	4.6
	07/06/09	---	360	---	---	---	---	---	---	---	---

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 141	01/06/88	780	440	64	11	82	3	65	91	217	13
8S/2W-11P	01/30/92	820	500	63	13	95	3	79	110	238	19
	03/30/95	840	490	58	11	100	3	70	97	241	14
	03/25/97	---	---	---	---	---	---	---	---	---	15
	03/26/98	760	480	62	12	90	3	69	86	230	16
	01/04/99	---	---	---	---	---	---	---	---	---	14
	02/12/99	---	---	---	---	---	---	---	---	---	19
	10/21/99	---	---	---	---	---	---	---	---	---	17
	11/03/99	---	---	---	---	---	---	---	---	---	14
	12/14/99	---	---	---	---	---	---	---	---	---	14
	06/20/00	---	---	---	---	---	---	---	---	---	15
	01/04/01	700	450	52	6	84	3	75	70	190	15
	09/28/01	---	---	---	---	---	---	---	---	---	18
	11/08/02	---	---	---	---	---	---	---	---	---	15
	09/16/03	---	---	---	---	---	---	---	---	---	19
	01/13/04	760	490	65	11	84	3.1	70	90	220	21
	01/06/05	---	---	---	---	---	---	---	---	---	18
	01/06/06	---	---	---	---	---	---	---	---	---	16
	06/04/08	---	410	---	---	---	---	---	---	---	11
	12/05/08	---	480	---	---	---	---	---	---	---	---
	03/04/09	---	440	---	---	---	---	---	---	---	---
	06/02/09	---	390	---	---	---	---	---	---	---	10
No. 143	01/15/88	670	345	8	2	134	1	91	57	95	11
8S/2W-17J	10/17/90	660	345	25	4	112	2	89	62	140	12
	03/03/94	690	370	24	3	114	2	93	68	131	11
	03/30/95	---	---	---	---	---	---	---	---	---	11
	03/25/97	600	330	15	2	110	1	87	44	89	9
	07/18/97	---	---	---	---	---	---	---	---	---	2.0 as N
	07/23/97	---	---	---	---	---	---	---	---	---	2.0 as N
	08/20/97	---	---	---	---	---	---	---	---	---	2.3 as N
	09/03/97	---	---	---	---	---	---	---	---	---	2.2 as N
	09/17/97	---	---	---	---	---	---	---	---	---	2.0 as N
	09/17/98	---	350	---	---	---	---	---	---	---	2.3 as N
	10/21/99	---	---	---	---	---	---	---	---	---	13
	03/07/00	730	400	21	3	120	2	84	68	140	12
	10/13/00	---	---	---	---	---	---	---	---	---	8
	10/10/01	---	---	---	---	---	---	---	---	---	8
	11/19/02	---	---	---	---	---	---	---	---	---	10
	01/13/03	---	---	---	---	---	---	---	---	---	2.1 as N

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 143 (Cont)	03/10/03	650	370	14	1.9	110	1	92	52	130	10
8S/2W-17J	01/07/04	---	---	---	---	---	---	---	---	---	12
	01/18/05	---	---	---	---	---	---	---	---	---	10
	01/06/06	---	---	---	---	---	---	---	---	---	8.7
	06/08/06	560	270	9.5	1.3	100	1	86	<0.5	100	7.2
	01/10/07	---	---	---	---	---	---	---	---	---	7.3
	01/04/08	---	---	---	---	---	---	---	---	---	7.1
	01/08/09	---	---	---	---	---	---	---	---	---	9
	02/04/09	---	300	---	---	---	---	---	---	---	---
	05/11/09	---	290	---	---	---	---	---	---	---	---
	08/05/09	---	300	---	---	---	---	---	---	---	---
No. 144	09/14/88	610	335	8	<1	114	1	95	33	92	<1
7S/3W-27D3	12/19/95	730	420	34	1	124	1	120	33	186	<1
	12/20/00	690	400	28	1	120	<1	120	35	170	<2
	05/22/01	---	---	---	---	---	---	---	---	---	<2
	08/20/02	---	---	---	---	---	---	---	---	---	<2
	08/27/03	---	---	---	---	---	---	---	---	---	<2
	12/16/03	630	420	33	1.8	110	1	110	28	170	<2
	08/12/04	---	---	---	---	---	---	---	---	---	<2
	10/11/05	---	---	---	---	---	---	---	---	---	2
	12/07/06	670	370	21	1	98	1.2	110	27	150	<1
	08/07/07	---	---	---	---	---	---	---	---	---	<2
	08/11/08	---	320	---	---	---	---	---	---	---	<2
	02/09/09	---	340	---	---	---	---	---	---	---	---
	05/08/09	---	360	---	---	---	---	---	---	---	---
	08/05/09	---	370	---	---	---	---	---	---	---	<2
No. 145	10/04/90	800	490	43	8	110	2	110	78	171	<1
7S/3W-28C	10/06/93	650	375	23	3	106	1	85	58	146	<1
	11/27/96	650	340	26	2	110	1	87	48	150	<2
	02/04/97	670	370	24	2	110	1	87	55	160	<2
	01/28/98	---	---	---	---	---	---	---	---	---	<2
	01/04/99	---	---	---	---	---	---	---	---	---	<2
	10/26/99	690	400	29	3	110	1	96	61	170	<2
	01/06/00	---	---	---	---	---	---	---	---	---	<2
	01/25/01	---	---	---	---	---	---	---	---	---	<2
	01/18/02	---	---	---	---	---	---	---	---	---	<2
	10/09/02	690	390	26	2.3	110	1.2	94	52	160	<2
	01/15/03	---	---	---	---	---	---	---	---	---	<2

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 145 (Cont)	01/07/04	---	---	---	---	---	---	---	---	---	<2
7S/3W-28C	01/13/05	---	---	---	---	---	---	---	---	---	<2
	10/11/05	680	430	33	2.7	120	1.4	100	54	180	<1
	10/18/05	700	440	34	2.8	120	1.5	100	59	180	<1
	04/13/06	---	---	---	---	---	---	---	---	---	<1
	01/19/07	---	---	---	---	---	---	---	---	---	<1
	01/04/08	---	---	---	---	---	---	---	---	---	<2
	08/11/08	---	360	---	---	---	---	---	---	---	---
	10/08/08	720	400	37	3.2	100	1.3	95	56	150	ND
	01/06/09	---	---	---	---	---	---	---	---	---	ND
	02/03/09	---	390	---	---	---	---	---	---	---	---
	05/08/09	---	410	---	---	---	---	---	---	---	---
	08/05/09	---	400	---	---	---	---	---	---	---	---
No. 146	12/10/96	900	500	57	23	98	<1	100	64	280	15
7S/3W-28	03/02/00	---	---	---	---	---	---	---	---	---	4
No. 149	06/15/93	---	---	---	---	---	---	---	---	---	5
8S/1W-2C	10/10/01	---	---	---	---	---	---	---	---	---	4
	03/11/02	1040	610	61	23	120	4	100	170	250	4
	12/11/02	---	---	---	---	---	---	---	---	---	3.2
	01/23/03	---	---	---	---	---	---	---	---	---	4
	03/12/03	1000	600	59	22	120	3.7	100	170	230	3
	01/13/04	---	---	---	---	---	---	---	---	---	4
	01/11/06	---	---	---	---	---	---	---	---	---	2.5
	03/09/06	940	580	56	21	110	3.8	87	160	220	2.7
	01/24/07	---	---	---	---	---	---	---	---	---	2.4
	03/11/08	---	550	---	---	---	---	---	---	---	---
	07/08/08	---	590	---	---	---	---	---	---	---	---
	01/08/09	---	590	---	---	---	---	---	---	---	2.6
	03/04/09	900	590	52	20	100	3.6	93	170	210	2.5
	04/02/09	---	570	---	---	---	---	---	---	---	---
	07/13/09	---	560	---	---	---	---	---	---	---	---
No. 149A	08/26/88	950	540	71	211	96	1	115	47	302	18
7S/3W-28A	10/31/91	800	480	36	13	122	3	93	110	195	---
No. 150	09/29/88	1950	1235	134	29	225	2	290	220	390	15
7S/3W-27P	12/21/91	1000	590	74	17	108	4	130	110	207	---

ND - None Detected

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 151	09/20/88	5780	3410	280	114	840	5	1660	670	369	<1
7S/3W-34B	Abandoned										
No. 151	07/25/91	860	485	53	16	103	4	90	130	183	---
8S/2W-2G	07/28/91	730	400	39	12	100	3	91	58	177	---
	07/29/91	600	340	9	2	122	5	63	34	204	---
	10/17/91	510	295	3	<1	118	1	45	10	137	---
	08/10/94	550	340	3	<1	110	1	59	22	119	<1
	06/16/97	---	---	---	---	---	---	---	---	---	<2
	08/14/97	540	300	2	<1	110	<1	44	10	160	<2
	09/16/98	---	---	---	---	---	---	---	---	---	<2
	01/06/00	510	300	1	<1	110	<1	33	4.6	180	<2
	01/06/05	---	---	---	---	---	---	---	---	---	<2
	05/12/09	530	380	1.4	1	110	<1	36	7.7	140	<2.0
No. 152	01/11/02	860	550	64	20	77	6	75	190	160	<2
8S/1W-5K2	01/08/03	---	---	---	---	---	---	---	---	---	<2
	01/07/04	---	---	---	---	---	---	---	---	---	<2
	01/24/05	850	510	71	25	77	4.6	85	190	160	<2
	01/04/06	---	---	---	---	---	---	---	---	---	1.1
	01/10/07	---	---	---	---	---	---	---	---	---	<1
	04/08/08	---	510	---	---	---	---	---	---	---	---
	01/02/09	---	580	---	---	---	---	---	---	---	ND
	04/06/09	---	620	---	---	---	---	---	---	---	---
	07/13/09	---	610	---	---	---	---	---	---	---	---
No. 153	12/29/93	804	485	53	18	92	5	86	120	214	<1
8S/1W-5K3	04/13/99	880	540	63	23	79	5	68	220	150	<2
	04/11/00	---	---	---	---	---	---	---	---	---	2
	06/14/01	---	---	---	---	---	---	---	---	---	<2
	04/02/02	820	500	63	22	75	4.2	80	190	140	<2
	04/14/05	700	410	44	17	65	3	76	110	140	3
	04/04/06	---	---	---	---	---	---	---	---	---	2.3
	04/04/07	---	---	---	---	---	---	---	---	---	<2
	04/08/08	920	560	62	23	79	4.3	100	170	170	1.9
	01/02/09	---	570	---	---	---	---	---	---	---	---
	04/06/09	---	610	---	---	---	---	---	---	---	<2.0
	07/13/09	---	590	---	---	---	---	---	---	---	---

ND - None Detected

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 154	01/28/94	930	530	46	20	106	6	89	130	214	3
8S/1W-5L2											
No. 155	09/16/93	680	355	22	2	108	1	90	64	104	<1
7S/3W-28C	02/23/95	760	445	30	3	126	1	120	82	140	4
	06/06/95	---	---	---	---	---	---	---	---	---	5
	08/14/97	---	---	---	---	---	---	---	---	---	4
	02/25/98	880	540	43	5	130	1	100	100	190	5
	07/27/98	---	---	---	---	---	---	---	---	---	3
	02/09/00	---	---	---	---	---	---	---	---	---	2
	09/13/00	690	410	23	2	120	<1	100	72	130	2
	02/14/01	---	---	---	---	---	---	---	---	---	5
	02/21/02	---	---	---	---	---	---	---	---	---	2
	02/28/03	---	---	---	---	---	---	---	---	---	<2
	01/07/04	600	360	10	<1	120	<1	100	60	100	<2
	02/23/04	---	---	---	---	---	---	---	---	---	6
	10/11/05	---	---	---	---	---	---	---	---	---	2
	02/16/05	---	---	---	---	---	---	---	---	---	5
	02/07/06	---	---	---	---	---	---	---	---	---	4.9
	02/07/07	---	---	---	---	---	---	---	---	---	2.5
No. 156	08/11/08	670	350	48	13	78	2.2	70	62	190	1.9
7S/3W-18	08/11/08	---	370	---	---	---	---	---	---	---	1.7
	05/08/09	---	400	---	---	---	---	---	---	---	---
	08/05/09	---	410	---	---	---	---	---	---	---	1.5
No. 157	04/13/99	930	600	59	21	110	7	95	150	240	<2
8S/1W-5L	04/11/00	---	---	---	---	---	---	---	---	---	2
	06/14/01	---	---	---	---	---	---	---	---	---	<2
	04/02/02	830	520	60	22	78	4.1	78	190	150	<2
	04/14/05	720	420	47	18	69	3.2	74	120	150	2
	04/04/07	---	---	---	---	---	---	---	---	---	<2
	04/08/08	1100	640	68	24	110	4.3	130	170	230	2.6
	07/08/08	---	580	---	---	---	---	---	---	---	---
	01/02/09	---	560	---	---	---	---	---	---	---	---
	04/06/09	---	640	---	---	---	---	---	---	---	<2.0
	07/13/09	---	590	---	---	---	---	---	---	---	---

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 158	06/21/94	1090	620	67	23	124	7	120	170	259	---
8S/1W-5K	04/14/99	1050	660	63	24	120	7	110	160	270	<2
	04/11/00	---	---	---	---	---	---	---	---	---	2
	06/14/01	---	---	---	---	---	---	---	---	---	2
	04/02/02	900	550	61	22	92	5.7	93	190	180	<2
	04/14/05	800	450	51	19	79	4.6	83	150	160	2
	04/04/06	---	---	---	---	---	---	---	---	---	3.9
	04/04/07	---	---	---	---	---	---	---	---	---	4.6
	04/08/08	1300	760	77	25	140	6.4	150	180	280	3.5
	07/08/08	---	750	---	---	---	---	---	---	---	---
	01/02/09	---	640	---	---	---	---	---	---	---	---
	04/06/09	---	650	---	---	---	---	---	---	---	<2.0
	07/13/09	---	670	---	---	---	---	---	---	---	---
No. 201	03/28/91	530	315	19	6	83	2	83	16	110	2
7S/2W-27J	03/11/93	460	300	8	2	87	1	51	20	146	<1
No. 202	12/11/88	740	440	47	18	84	3	97	48	223	17
7S/2W-36J1											
No. 203	05/18/88	960	580	50	39	110	4	96	115	275	---
8S/1W-6P1	06/29/88	970	530	44	36	112	4	120	123	250	5
	06/12/91	800	415	21	17	108	3	91	90	174	2
	06/22/94	980	645	59	38	99	4	130	130	256	4
	06/07/95	---	---	---	---	---	---	---	---	---	5
	06/23/97	880	530	31	26	120	3	100	110	230	4
	08/14/97	---	---	---	---	---	---	---	---	---	3
	11/02/99	---	---	---	---	---	---	---	---	---	5
	06/22/00	820	580	94	18	58	<1	63	110	250	22
	07/12/00	880	570	43	33	120	3	100	130	240	7
	08/08/00	---	---	---	---	---	---	---	---	---	6
	11/22/00	---	---	---	---	---	---	---	---	---	5
	11/20/01	---	---	---	---	---	---	---	---	---	5
	11/08/02	---	---	---	---	---	---	---	---	---	4
	01/08/03	---	---	---	---	---	---	---	---	---	.90 as N
	06/10/03	850	460	31	23	100	2.2	92	100	220	5
	11/04/03	---	---	---	---	---	---	---	---	---	5
	11/18/04	---	---	---	---	---	---	---	---	---	7
	06/08/06	940	540	39	32	110	3	100	130	220	5.5
	06/01/07	---	---	---	---	---	---	---	---	---	5.1
	06/04/08	---	520	---	---	---	---	---	---	---	4.3
	09/16/08	---	450	---	---	---	---	---	---	---	---
	12/02/08	---	500	---	---	---	---	---	---	---	---
	03/04/09	---	470	---	---	---	---	---	---	---	---
	06/01/09	---	440	---	---	---	---	---	---	---	2.7

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 204	05/22/91	740	425	50	12	85	3	120	18	198	19
7S/2W-26G	05/13/94	690	375	37	7	85	3	130	19	125	19
No. 205	03/28/88	500	290	23	3	81	2	83	27	107	21
7S/3W-35A	03/13/91	490	275	22	3	75	2	62	23	113	21
	03/03/94	510	275	20	2	72	2	72	24	104	20
	04/26/95	---	---	---	---	---	---	---	---	---	22
	03/25/97	480	270	20	2	75	2	66	18	110	21
	05/09/01	410	270	21	3	67	1	60	17	120	23
	11/13/01	---	---	---	---	---	---	---	---	---	21
	02/19/02	---	---	---	---	---	---	---	---	---	20
	05/14/02	---	---	---	---	---	---	---	---	---	18
	08/27/02	---	---	---	---	---	---	---	---	---	20
	11/20/02	---	---	---	---	---	---	---	---	---	18
	01/08/03	---	---	---	---	---	---	---	---	---	4.5 as N
	03/31/03	---	---	---	---	---	---	---	---	---	18
	06/11/03	---	---	---	---	---	---	---	---	---	18
	09/16/03	---	---	---	---	---	---	---	---	---	21
	12/04/03	---	---	---	---	---	---	---	---	---	20
	03/09/04	---	---	---	---	---	---	---	---	---	18
	06/09/04	---	---	---	---	---	---	---	---	---	18
	09/01/04	---	---	---	---	---	---	---	---	---	19
	12/07/04	---	---	---	---	---	---	---	---	---	20
	03/08/05	---	---	---	---	---	---	---	---	---	21
	06/07/05	---	---	---	---	---	---	---	---	---	17
	09/13/05	---	---	---	---	---	---	---	---	---	16
	12/05/05	---	---	---	---	---	---	---	---	---	15
	03/09/06	---	---	---	---	---	---	---	---	---	17
	06/07/06	---	---	---	---	---	---	---	---	---	17
	04/15/09	500	290	19	2	71	1.4	68	18	120	20
	07/14/09	---	270	---	---	---	---	---	---	---	20
No. 207	09/01/88	510	245	1	<1	108	<1	54	26	82	<1
8S/2W-14B	09/14/88	480	305	3	<1	106	<1	58	23	24	1
	08/14/91	480	245	1	<1	100	<1	52	28	55	<1
	08/10/94	440	285	2	<1	91	1	56	29	76	2
	08/15/97	510	280	2	<1	97	<1	52	25	98	<2
	07/27/98	---	---	---	---	---	---	---	---	---	2
	12/27/00	480	280	2	<1	100	<1	53	30	120	2

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 208	09/01/88	680	415	44	15	77	3	119	14	186	18
7S/2W-35M	09/14/88	690	440	44	14	77	3	129	14	183	16
	08/14/91	600	340	23	7	89	2	85	18	162	4
	08/10/94	560	370	22	6	89	2	93	20	156	5
	06/06/95	---	---	---	---	---	---	---	---	---	4
	08/12/96	---	---	---	---	---	---	---	---	---	2
	07/27/99	---	---	---	---	---	---	---	---	---	15
	08/18/99	---	---	---	---	---	---	---	---	---	20
No. 209	05/22/91	790	435	40	14	105	2	150	35	162	8
7S/2W-28J	05/13/94	760	525	64	22	48	3	150	15	153	25
	06/20/95	---	---	---	---	---	---	---	---	---	5
	05/15/97	690	390	10	3	130	<1	110	56	130	1.3
No. 210	04/15/59	1366	---	101	23	150	10	149	200	275	3
8S/2W-12K	01/18/63	400	926	99	30	17.5	4.5	145	255	329	4
	11/30/67	1415	890	136	5	152	10	146	230	305	3
	07/26/68	1250	825	96	22	144	8	130	190	290	5
	09/06/68	1310	840	82	26	132	5	142	222	276	12
	07/19/73	1200	579	84	21.4	149	6.8	122	237	301	19.7
	08/08/75	1140	695	84	14	150	6	101	190	287	15
	06/22/76	1240	675	76	26	142	7	101	205	278	36
	10/13/76	1120	640	92	22	100	6	110	170	262	5
	06/16/77	1130	610	84	18	114	6	110	170	259	11
	05/20/80	580	340	30	8	75	4	51	67	152	9
	04/03/86	800	540	65	17	86	4.5	75	112	235	3.5
	07/15/86	830	560	72	19	86	4	87	118	250	4
	03/28/88	1030	575	76	22	93	5	99	143	247	4
	09/25/91	1040	600	74	20	120	5	120	160	238	5
	09/19/94	645	460	52	14	79	4	70	100	198	2
	09/16/96	---	---	---	---	---	---	---	---	---	3
	09/16/98	---	---	---	---	---	---	---	---	---	3
	12/15/98	---	---	---	---	---	---	---	---	---	2
	01/04/99	---	---	---	---	---	---	---	---	---	2
	02/03/99	---	---	---	---	---	---	---	---	---	2
	04/08/99	---	---	---	---	---	---	---	---	---	3
	06/02/99	---	---	---	---	---	---	---	---	---	3
	09/07/99	---	---	---	---	---	---	---	---	---	4
	10/21/99	---	---	---	---	---	---	---	---	---	5

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 210 (Cont)	12/15/99	---	---	---	---	---	---	---	---	---	5
8S/2W-12K	05/03/00	---	---	---	---	---	---	---	---	---	5
	09/13/00	830	560	64	17	100	4	74	190	180	4
	05/08/01	---	---	---	---	---	---	---	---	---	4
	05/13/02	---	---	---	---	---	---	---	---	---	3
	01/08/03	---	---	---	---	---	---	---	---	---	.52 as N
	08/20/03	---	---	---	---	---	---	---	---	---	2.2
	09/16/03	830	560	65	18	78	4.5	76	180	160	2
	08/10/04	---	---	---	---	---	---	---	---	---	3.2
	08/02/05	---	---	---	---	---	---	---	---	---	5.4
	08/15/06	---	---	---	---	---	---	---	---	---	6.7
	08/14/07	---	---	---	---	---	---	---	---	---	12
	08/12/08	---	590	---	---	---	---	---	---	---	7.6
	03/05/09	---	520	---	---	---	---	---	---	---	---
	06/02/09	---	570	---	---	---	---	---	---	---	---
	08/05/09	---	---	---	---	---	---	---	---	---	4.9
No. 211	04/08/97	720	400	67	14	54	1	59	65	220	13
8S/2W-20R1	12/23/97	---	410	---	---	---	---	---	---	---	3.1 as N
	03/25/98	---	620	---	---	---	---	---	---	---	3.6 as N
	06/03/98	---	---	---	---	---	---	---	---	---	3.4 as N
	06/05/98	---	480	---	---	---	---	---	---	---	---
	09/17/98	---	---	---	---	---	---	---	---	---	3.3 as N
	12/17/98	---	430	---	---	---	---	56	66	---	16
	06/03/99	---	430	---	---	---	---	---	---	---	3.4 as N
	12/14/99	---	310	---	---	---	---	---	---	---	10
	04/04/00	700	430	71	14	52	1	57	66	220	17
	06/22/00	---	400	---	---	---	---	---	---	---	15
	12/13/00	---	---	---	---	---	---	---	---	---	4.5 as N
	03/27/01	---	---	---	---	---	---	---	---	---	4.5 as N
	06/20/01	---	---	---	---	---	---	---	---	---	2.7 as N
	09/13/01	---	---	---	---	---	---	---	---	---	4.7 as N
	11/13/01	---	450	---	---	---	---	---	---	---	---
	05/14/02	---	370	---	---	---	---	---	---	---	12
	07/15/03	630	370	61	11	46	1.2	46	51	220	11
	12/09/08	---	480	---	---	---	---	---	---	---	22
	03/09/09	---	560	---	---	---	---	---	---	---	17
	06/02/09	---	480	---	---	---	---	---	---	---	14

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 212	03/28/88	640	330	42	2	74	3	81	33	146	14
8S/2W-11N	09/25/91	600	320	41	2	82	4	86	35	146	14
No. 215	08/15/90	650	380	40	13	71	3	100	14	162	11
7S/2W-34M	09/26/90	---	---	---	---	---	---	---	---	---	13
	06/22/94	630	400	41	13	67	2	110	16	159	11
	06/16/97	630	370	29	9	81	2	110	16	160	6
	08/15/97	---	---	---	---	---	---	---	---	---	7
	08/11/04	630	380	35	12	76	2.6	100	14	150	<2
	09/09/04	---	---	---	---	---	---	---	---	---	9
	06/26/06	---	---	---	---	---	---	---	---	---	6.6
	06/05/07	---	---	---	---	---	---	---	---	---	2.4
	08/14/07	590	320	22	7.3	85	2.2	88	16	150	2.2
	12/02/08	---	370	---	---	---	---	---	---	---	---
	03/09/09	---	380	---	---	---	---	---	---	---	---
	06/04/09	---	300	---	---	---	---	---	---	---	---
No. 216	06/01/88	480	280	25	4	65	2	71	11	134	---
8S/2W-7W	06/29/88	480	275	29	5	59	3	81	7	110	26
	06/12/91	500	285	30	5	59	2	76	9	113	23
	05/27/92	470	285	33	6	53	2	72	10	119	20
	04/25/01	490	300	28	4	55	2	74	13	120	12
	09/21/04	540	320	31	5.6	53	2.1	74	10	130	14
	10/26/04	---	---	---	---	---	---	---	---	---	15
	11/02/04	---	---	---	---	---	---	---	---	---	15
	11/10/04	---	---	---	---	---	---	---	---	---	16
	10/18/05	---	---	---	---	---	---	---	---	---	19
	10/12/06	---	---	---	---	---	---	---	---	---	19
	09/07/07	510	300	28	4.7	57	3.5	82	12	110	18
	10/03/07	---	---	---	---	---	---	---	---	---	17
	04/23/09	---	---	---	---	---	---	---	---	---	14
No. 217	03/28/88	580	285	8	1	108	1	81	20	113	15
8S/2W-17M1	08/10/88	570	280	8	1	105	1	82	20	55	13
	08/14/91	570	305	17	2	99	2	74	28	134	16
	08/10/94	610	365	20	3	97	2	82	38	134	16
	08/15/97	660	370	20	3	107	1	80	41	130	13
	05/09/00	---	---	---	---	---	---	---	---	---	15
	10/12/00	650	380	19	2	110	1	81	49	150	16
	05/14/01	---	---	---	---	---	---	---	---	---	17

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 217 (Cont)	05/14/02	---	---	---	---	---	---	---	---	---	12
8S/2W-17M1	10/15/03	690	400	25	3.3	110	1.6	84	58	150	16
	05/06/04	---	---	---	---	---	---	---	---	---	17
	05/11/06	---	---	---	---	---	---	---	---	---	15
	05/15/07	---	---	---	---	---	---	---	---	---	16
	05/06/08	---	400	---	---	---	---	---	---	---	14
	08/12/08	---	430	---	---	---	---	---	---	---	---
	05/11/09	---	400	---	---	---	---	---	---	---	13
	08/05/09	---	400	---	---	---	---	---	---	---	---
No. 231	08/15/90	1280	805	126	18	120	5	100	310	244	9
8S/2W-20B6	09/26/90	---	---	---	---	---	---	---	---	---	6
	03/04/92	1700	1270	180	51	160	6	140	510	332	5
	06/20/95	1640	1300	171	44	124	6	75	520	287	5.3
	02/27/98	---	---	---	---	---	---	---	---	---	3
	05/16/00	---	---	---	---	---	---	---	---	---	5
	05/24/01	1490	1080	140	35	120	5	120	340	330	3
	05/13/02	---	---	---	---	---	---	---	---	---	2
	07/12/05	---	---	---	---	---	---	---	---	---	2.2
	07/20/06	---	---	---	---	---	---	---	---	---	3.7
	05/02/07	1400	830	120	27	110	4	130	250	300	2.1
	03/07/08	---	900	---	---	---	---	---	---	---	2.4
No. 232	08/15/90	960	590	71	19	110	5	98	130	235	30
8S/2W-11J3	09/26/90	---	---	---	---	---	---	---	---	---	35
	09/25/91	980	565	74	19	106	5	98	120	244	37
	09/19/94	805	495	54	14	92	4	80	110	207	15
	09/13/96	---	---	---	---	---	---	---	---	---	22
	11/04/97	1000	660	76	20	110	4	97	130	230	29
	07/27/98	---	---	---	---	---	---	---	---	---	38
	12/10/98	---	---	---	---	---	---	---	---	---	22
	01/06/98	---	---	---	---	---	---	---	---	---	30
	01/29/99	---	---	---	---	---	---	---	---	---	10
	02/03/99	---	---	---	---	---	---	---	---	---	26
	02/24/99	---	---	---	---	---	---	---	---	---	37
	04/08/99	---	---	---	---	---	---	---	---	---	33
	04/21/99	---	---	---	---	---	---	---	---	---	34
	06/23/99	---	---	---	---	---	---	---	---	---	33
	07/08/99	---	---	---	---	---	---	---	---	---	36
	08/25/99	---	---	---	---	---	---	---	---	---	33
	09/21/99	---	---	---	---	---	---	---	---	---	31

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 232 (Cont)	10/06/99	---	---	---	---	---	---	---	---	---	30
8S/2W-11J3	11/17/99	---	---	---	---	---	---	---	---	---	32
	12/14/99	---	---	---	---	---	---	---	---	---	32
	01/18/00	---	---	---	---	---	---	---	---	---	31
	02/29/00	---	---	---	---	---	---	---	---	---	10
	03/21/00	---	---	---	---	---	---	---	---	---	25
	04/11/00	---	---	---	---	---	---	---	---	---	29
	05/25/00	---	---	---	---	---	---	---	---	---	26
	06/21/00	---	---	---	---	---	---	---	---	---	26
	07/11/00	---	---	---	---	---	---	---	---	---	25
	09/13/00	920	590	65	17	105	4	91	150	210	21
	10/06/00	---	---	---	---	---	---	---	---	---	18
	11/08/00	---	---	---	---	---	---	---	---	---	17
	12/13/00	---	---	---	---	---	---	---	---	---	20
	01/04/01	---	---	---	---	---	---	---	---	---	19
	02/28/01	---	---	---	---	---	---	---	---	---	10
	04/10/01	---	---	---	---	---	---	---	---	---	20
	10/10/01	---	---	---	---	---	---	---	---	---	26
	05/14/02	---	---	---	---	---	---	---	---	---	22
	08/06/02	---	---	---	---	---	---	---	---	---	4*
	01/08/03	---	---	---	---	---	---	---	---	---	6.0 as N
	03/31/03	---	---	---	---	---	---	---	---	---	11
	06/10/03	---	---	---	---	---	---	---	---	---	31
	07/08/03	---	---	---	---	---	---	---	---	---	30
	08/20/03	---	---	---	---	---	---	---	---	---	28
	09/16/03	1100	680	67	18	110	4.3	100	150	240	33
	10/14/03	---	---	---	---	---	---	---	---	---	31
	01/14/04	---	---	---	---	---	---	---	---	---	23
	02/10/04	---	---	---	---	---	---	---	---	---	21
	04/14/04	---	---	---	---	---	---	---	---	---	25
	05/06/04	---	---	---	---	---	---	---	---	---	26
	06/22/04	---	---	---	---	---	---	---	---	---	25
	07/14/04	---	---	---	---	---	---	---	---	---	25
	08/10/04	---	---	---	---	---	---	---	---	---	31
	09/08/04	---	---	---	---	---	---	---	---	---	26

* Sample may have been switched with Well 233

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 232 (Cont)	10/26/04	---	---	---	---	---	---	---	---	---	15
8S/2W-11J3	11/18/04	---	---	---	---	---	---	---	---	---	26
	12/07/04	---	---	---	---	---	---	---	---	---	16
	01/10/05	---	---	---	---	---	---	---	---	---	20
	02/14/05	---	---	---	---	---	---	---	---	---	14
	03/11/05	---	---	---	---	---	---	---	---	---	11
	04/13/05	---	---	---	---	---	---	---	---	---	25
	06/08/05	---	---	---	---	---	---	---	---	---	24
	07/12/05	---	---	---	---	---	---	---	---	---	22
	08/02/05	---	---	---	---	---	---	---	---	---	18
	09/20/05	---	---	---	---	---	---	---	---	---	19
	10/18/05	---	---	---	---	---	---	---	---	---	18
	11/08/05	---	---	---	---	---	---	---	---	---	18
	12/06/05	---	---	---	---	---	---	---	---	---	19
	01/04/06	---	---	---	---	---	---	---	---	---	15
	02/14/06	---	---	---	---	---	---	---	---	---	18
	03/13/06	---	---	---	---	---	---	---	---	---	8.3
	04/18/06	---	---	---	---	---	---	---	---	---	12
	05/12/06	---	---	---	---	---	---	---	---	---	15
	06/22/06	---	---	---	---	---	---	---	---	---	11
	07/19/06	---	---	---	---	---	---	---	---	---	13
	08/15/06	---	---	---	---	---	---	---	---	---	14
	11/02/06	---	---	---	---	---	---	---	---	---	15
	01/10/07	---	---	---	---	---	---	---	---	---	13
	02/07/07	---	---	---	---	---	---	---	---	---	15
	03/14/07	---	---	---	---	---	---	---	---	---	15
	04/17/07	---	---	---	---	---	---	---	---	---	14
	05/01/07	---	---	---	---	---	---	---	---	---	13
	06/01/07	---	---	---	---	---	---	---	---	---	11
	07/05/07	---	---	---	---	---	---	---	---	---	12
	08/14/07	---	---	---	---	---	---	---	---	---	14
	10/03/07	---	---	---	---	---	---	---	---	---	13
	12/05/07	---	---	---	---	---	---	---	---	---	12
	01/08/08	---	---	---	---	---	---	---	---	---	11
	02/13/08	---	---	---	---	---	---	---	---	---	6.9
	03/04/08	---	---	---	---	---	---	---	---	---	9.7
	03/07/08	---	610	---	---	---	---	---	---	---	---
	04/08/08	---	---	---	---	---	---	---	---	---	13
	05/07/08	---	---	---	---	---	---	---	---	---	12
	07/10/08	---	580	---	---	---	---	---	---	---	---
	07/28/08	---	---	---	---	---	---	---	---	---	12
	08/12/08	---	---	---	---	---	---	---	---	---	13

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 232 (Cont)	12/03/08	---	---	---	---	---	---	---	---	---	14
8S/2W-11J3	01/13/09	---	660	---	---	---	---	---	---	---	14
	02/05/09	---	---	---	---	---	---	---	---	---	13
	03/04/09	---	---	---	---	---	---	---	---	---	12
	04/02/09	---	580	---	---	---	---	---	---	---	13
	05/11/09	---	---	---	---	---	---	---	---	---	11
	06/02/09	---	---	---	---	---	---	---	---	---	11
	07/13/09	---	580	---	---	---	---	---	---	---	12
	08/05/09	---	---	---	---	---	---	---	---	---	12
No. 233 (Old 112)	06/15/88	900	535	71	21	100	5	96	136	247	4
8S/2W-12K2	03/27/91	1020	580	66	19	114	5	95	140	247	12
	03/03/94	740	425	50	14	75	4	71	100	186	2
	04/27/95	---	---	---	---	---	---	---	---	---	6
	03/27/97	880	510	57	15	100	4	81	120	220	4
	01/04/99	---	---	---	---	---	---	---	---	---	5
	02/03/99	---	---	---	---	---	---	---	---	---	4
	04/08/99	---	---	---	---	---	---	---	---	---	4
	06/03/99	---	---	---	---	---	---	---	---	---	4
	07/20/99	---	---	---	---	---	---	---	---	---	5
	08/11/99	---	---	---	---	---	---	---	---	---	4
	09/07/99	---	---	---	---	---	---	---	---	---	4
	10/21/99	---	---	---	---	---	---	---	---	---	5
	11/03/99	---	---	---	---	---	---	---	---	---	4
	04/11/00	970	570	64	18	110	4	85	150	230	4
	10/06/00	---	---	---	---	---	---	---	---	---	3
	10/10/01	---	---	---	---	---	---	---	---	---	4
	08/06/02	---	---	---	---	---	---	---	---	---	26*
	01/13/03	---	---	---	---	---	---	---	---	---	1 as N
	07/07/03	---	---	---	---	---	---	---	---	---	2.7
	07/13/04	---	---	---	---	---	---	---	---	---	3
	07/12/05	---	---	---	---	---	---	---	---	---	2.8
	04/04/06	960	600	75	20	87	4.5	93	180	180	7.3
	08/04/06	---	---	---	---	---	---	---	---	---	11
	08/14/07	---	---	---	---	---	---	---	---	---	8.1
	08/13/08	---	530	---	---	---	---	---	---	---	6.1
	02/05/09	---	570	---	---	---	---	---	---	---	---
	04/02/09	960	580	70	20	88	4.7	100	160	200	6.8
	05/11/09	---	610	---	---	---	---	---	---	---	---
	08/04/09	---	570	---	---	---	---	---	---	---	5

* Sample might have been switched with Well 232

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 234 (Old 114)	03/31/88	840	480	54	15	100	4	61	109	241	18
8S/2W-11P	03/27/91	1020	605	69	19	114	5	77	138	256	37
	06/20/95	---	---	---	---	---	---	---	---	---	11
	09/26/96	---	---	---	---	---	---	---	---	---	9
	02/04/97	---	---	---	---	---	---	---	---	---	12
	04/25/97	840	500	56	15	95	4	77	120	230	8
	01/19/99	---	---	---	---	---	---	---	---	---	12
	02/12/99	---	---	---	---	---	---	---	---	---	16
	04/21/99	---	---	---	---	---	---	---	---	---	15
	06/03/99	---	---	---	---	---	---	---	---	---	16
	07/27/99	---	---	---	---	---	---	---	---	---	18
	08/19/99	---	---	---	---	---	---	---	---	---	17
	09/21/99	---	---	---	---	---	---	---	---	---	16
	10/26/99	---	---	---	---	---	---	---	---	---	13
	04/13/00	900	550	64	18	10	4	70	150	220	13
	07/06/00	---	---	---	---	---	---	---	---	---	12
	07/12/01	---	---	---	---	---	---	---	---	---	7
	08/02/01	---	---	---	---	---	---	---	---	---	<2
	11/20/02	---	---	---	---	---	---	---	---	---	3
	12/11/02	850	520	62	17	80	3.7	74	170	170	4
	11/04/03	---	---	---	---	---	---	---	---	---	10
	11/05/04	---	---	---	---	---	---	---	---	---	10
	11/03/05	---	---	---	---	---	---	---	---	---	12
	12/06/05	890	620	70	19	89	4.1	85	180	200	12
	11/08/06	---	---	---	---	---	---	---	---	---	14
	11/16/07	---	---	---	---	---	---	---	---	---	16
	08/12/08	---	610	---	---	---	---	---	---	---	---
	11/06/08	---	570	---	---	---	---	---	---	---	20
	12/03/08	960	660	83	21	89	4.9	87	160	230	20
	02/05/09	---	590	---	---	---	---	---	---	---	---
	05/07/09	---	620	---	---	---	---	---	---	---	---
	08/04/09	---	590	---	---	---	---	---	---	---	---
No. 235 (Old 137)	06/24/88	460	310	40	10	41	2	58	10	140	15
8S/3W-1Q1	06/20/90	420	230	22	4	56	2	50	6	128	18
	06/10/93	370	235	15	2	65	2	51	9	113	17
	07/16/96	410	230	16	2	60	1	48	8.9	110	20
	06/09/97	---	---	---	---	---	---	---	---	---	17
	06/03/99	390	240	13	1	63	1	46	6.7	98	17

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 235 (Old 137)	06/24/88	460	310	40	10	41	2	58	10	140	15
8S/3W-1Q1	06/20/90	420	230	22	4	56	2	50	6	128	18
	06/10/93	370	235	15	2	65	2	51	9	113	17
	07/16/96	410	230	16	2	60	1	48	8.9	110	20
	06/09/97	---	---	---	---	---	---	---	---	---	17
	06/03/99	390	240	13	1	63	1	46	6.7	98	17
	11/03/99	---	---	---	---	---	---	---	---	---	16
	11/09/00	---	---	---	---	---	---	---	---	---	15
	11/20/01	---	---	---	---	---	---	---	---	---	13
	06/11/02	380	210	10	<1	62	1.2	48	7.2	100	16
	11/05/02	---	---	---	---	---	---	---	---	---	17
	11/18/03	---	---	---	---	---	---	---	---	---	11
	11/18/05	---	---	---	---	---	---	---	---	---	18
	06/22/05	380	230	9.4	<1	68	1.1	49	7.3	96	16
	11/08/05	---	---	---	---	---	---	---	---	---	17
	11/14/06	---	---	---	---	---	---	---	---	---	16
	06/11/08	400	210	11	1	72	1.4	48	8.4	100	15
	07/07/08	---	200	---	---	---	---	---	---	---	---
	01/13/09	---	260	---	---	---	---	---	---	---	---
	04/07/09	---	210	---	---	---	---	---	---	---	---
	07/13/09	---	200	---	---	---	---	---	---	---	---
No. 301	07/29/92	500	290	20	6	80	1	45	56	143	<1
7S/3W-18Q1	02/27/97	580	350	45	16	48	2	49	54	200	4
	08/15/97	---	---	---	---	---	---	---	---	---	6
	12/27/00	570	360	49	15	53	2	55	57	180	7
	02/22/02	---	---	---	---	---	---	---	---	---	<2
	05/14/02	550	340	---	---	---	---	57	50	---	3
	12/11/02	580	350	---	---	---	---	---	---	---	2.5
No. 302	04/11/88	690	360	36	6	100	1	77	65	192	<1
7S/3W-18H	05/15/91	760	425	58	9	87	2	83	72	220	<1
	05/14/92	---	270	12	2	90	<1	48	48	---	---
	05/05/94	870	530	69	16	84	2	110	88	238	<1
	05/16/95	---	---	---	---	---	---	---	---	---	<1
	07/16/96	530	320	---	---	---	---	60	54	---	2
	05/13/97	560	500	73	14	94	2	110	86	240	<2
	07/27/99	---	---	---	---	---	---	---	---	---	<2

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 302 (Cont)	05/17/00	520	320	11	1	99	<1	51	50	130	<2
7S/3W-18H	06/13/00	520	310	---	---	---	---	---	---	---	<2
	07/11/00	---	---	---	---	---	---	---	---	---	<2
	12/20/01	790	500	---	---	---	---	110	140	---	<2
	12/11/02	870	510	---	---	---	---	---	---	---	ND
	06/19/03	620	370	22	3.8	95	<1	77	63	140	<2
	03/17/04	830	510	---	---	---	---	110	85	---	<2
	06/22/04	---	---	---	---	---	---	---	---	---	<2
	09/21/04	900	550	---	---	---	---	110	82	---	<2
No. 309	08/15/90	690	370	19	3	119	2	140	25	73	5
7S/3W-27H	04/11/91	---	---	---	---	---	---	---	---	---	<.001
	09/25/91	730	365	19	2	122	2	150	27	82	5
	08/11/94	730	430	20	2	120	2	160	30	73	5
	02/16/95	---	---	---	---	---	---	---	---	---	18
	07/16/97	---	---	---	---	---	---	---	---	---	1.1 as N
	07/23/97	---	---	---	---	---	---	---	---	---	1.2 as N
	08/20/97	---	---	---	---	---	---	---	---	---	1.1 as N
	09/03/97	---	---	---	---	---	---	---	---	---	1.1 as N
	09/18/97	---	---	---	---	---	---	---	---	---	1.1 as N
	10/03/97	790	520	21	2	130	2	170	33	85	6
	08/06/98	---	---	---	---	---	---	---	---	---	6
	09/16/98	---	460	---	---	---	---	---	---	---	1.4 as N
	07/20/99	---	---	---	---	---	---	---	---	---	6
	05/10/00	---	450	20	2	130	<1	---	---	85	---
	07/06/00	---	---	---	---	---	---	---	---	---	6
	08/02/00	740	450	21	2	140	1	180	38	87	7
	07/19/01	---	---	---	---	---	---	---	---	---	7
	11/19/02	---	---	---	---	---	---	---	---	---	5
	01/13/03	---	---	---	---	---	---	---	---	---	1.1 as N
	08/20/03	880	490	21	2.1	140	1.5	190	33	83	5

ND - None Detected

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 309 (Cont)	01/07/04	---	---	---	---	---	---	---	---	---	6
7S/3W-27H	11/11/05	---	---	---	---	---	---	---	---	---	6
	01/04/06	---	---	---	---	---	---	---	---	---	5.4
	12/07/06	870	470	21	1.9	140	2	190	36	84	5.4
	01/10/07	---	---	---	---	---	---	---	---	---	5.3
	01/08/08	---	---	---	---	---	---	---	---	---	5.4
	08/12/08	---	470	---	---	---	---	---	---	---	---
	01/06/09	---	---	---	---	---	---	---	---	---	6.7
	02/03/09	---	450	---	---	---	---	---	---	---	---
	04/01/09	---	---	25	2.9	---	---	---	---	---	---
	05/11/09	---	460	---	---	---	---	---	---	---	---
	08/04/09	---	450	---	---	---	---	---	---	---	---

TABLE D-5

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Pechanga Indian Reservation											
8S/2W-28M03	08/26/99	562	319	38	13	52	0.77	68	15	---	2.59 as N
	08/12/03	534	344	40.7	14.7	53.5	0.86	58.9	14.1	---	4.21 as N
	08/19/04	708	440	61.4	22.5	51	0.93	87.6	52	---	6.16 as N
	08/02/05	746	459	69.7	26.9	44.3	1.01	87.8	61.8	---	5.09 as N
	08/02/06	678	413	55.9	21	42.6	0.85	74.9	43.1	153	8.25 as N
	09/04/07	663	392	53.7	19.5	51.1	0.92	70.1	32.1	158	8.32 as N
8S/2W-28M05	09/01/09	457	253	10.7	0.483	77.7	0.53	65.6	17.4	91	0.08 as N
8S/2W-28Q02	10/05/89	629	378	48	19	49	0.7	76	14	169	4.2 as N
	07/26/90	613	383	48	18	47	0.6	75	12	171	3.9 as N
	07/18/91	618	379	49	18	49	0.7	83	14	172	3.0 as N
	07/28/93	620	400	51	20	47	0.7	63	15	174	9.6 as N
	08/17/94	641	396	51	21	50	0.8	60	17	179	11.0 as N
	08/31/95	653	396	53	21	48	0.7	60	19	184	12.0 as N
	08/28/96	---	---	---	---	---	---	---	---	---	11.0 as N
	08/12/97	614	411	47	19	47	0.7	63	15	176	8.9 as N
	08/19/98	625	402	47	20	47	0.7	60	14	---	9.85 as N
	08/21/02	598	394	47	19	46	0.7	64	15	---	8.5 as N
	08/12/03	604	405	48.8	19.8	47.8	0.69	69.1	14	---	7.1 as N
	08/18/04	615	386	51.6	20.2	45.6	0.86	78.8	16.5	---	4.03 as N
	08/02/05	822	514	76.8	30.2	54	0.84	93.7	30.9	---	14.7 as N

* - Alkalinity as CaC03

TABLE D-5 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-28R01	08/03/89	495	286	41	4.0	60	0.9	37	13	177	1.1 as N
	07/26/90	525	296	48	4.8	54	1.0	45	14	191	1.5 as N
	07/17/91	462	261	31	3.2	66	0.8	44	12	155	.8 as N
	07/27/93	445	269	44	4.4	43	0.5	28	14	170	1.9 as N
	08/15/94	421	232	32	3.3	55	0.9	28	11	156	1.5 as N
	08/30/95	375	200	21	2.2	55	0.6	31	11	129	.7 as N
	08/27/96	---	---	---	---	---	---	---	---	---	1.5 as N
	08/13/97	398	241	20	2.1	59	0.62	37	11	130	.572 as N
	08/20/98	481	282	36	3.9	60	0.85	38	14	167	1.1 as N
	08/25/99	446	252	28	3.1	59	0.66	41	12	---	.758 as N
	08/22/00	456	265	29	3.3	61	0.73	39	14	---	.759 as N
	08/21/01	522	320	51	5.9	48	1.0	42	16	---	1.73 as N
	08/21/02	457	284	33	3.7	61	0.87	41	13	---	1.09 as N
	08/12/03	518	330	55	6.5	50.4	1.08	39.7	14.3	---	1.94 as N
	08/18/04	516	317	56.8	6.2	47.9	1.4	42.6	14.2	---	1.64 as N
	08/03/05	541	333	60.5	6.5	45.3	1.2	40.2	14.1	---	2.23 as N
	09/10/08	480	278	37.2	4.67	62.4	1.14	41.2	11.4	160	---
	08/04/09	543	329	50	5.49	55.5	1.12	38.7	18.4	194	1.78 as N
8S/2W-29A01	08/02/89	346	207	31	11	24	0.4	18	7.0	131	2.0 as N
	07/24/90	354	193	32	11	25	0.4	24	6.7	133	2.0 as N
	07/18/91	361	194	32	10	26	0.4	25	6.0	134	1.8 as N
	08/15/94	363	216	33	12	25	0.5	24	7.7	132	2.6 as N
	08/31/95	363	208	32	11	23	0.4	21	8.1	137	2.6 as N
	08/28/96	---	---	---	---	---	---	---	---	---	2.9 as N
	08/12/97	368	238	32	12	24	0.44	22	7.4	138	3.05 as N
	08/19/98	411	246	36	11	31	0.45	25	8.2	153	2.94 as N
	08/25/99	375	222	33	12	23	0.39	20	6.7	---	3.81 as N
	08/22/00	374	237	33	12	24	0.42	18	7.3	---	3.48 as N
	08/21/01	374	236	34	12	24	0.46	20	7.3	---	3.56 as N
	08/02/05	382	243	38.7	11.6	27.1	0.53	27.6	7.7	---	2.79 as N
8S/2W-29A2	08/02/06	392	242	36.2	10.9	26.6	0.43	29.4	7.94	139	2.64 as N
	08/04/09	394	245	29.8	11.3	32.2	0.64	34.5	7.38	133	0.81 as N

* - Alkalinity as CaC03

TABLE D-5 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-29B02	03/01/90	456	257	5.5	0.14	89	0.8	66	22	100	---
	03/06/90	456	256	5.9	0.13	90	0.7	66	20	99	<0.1 as N
8S/2W-29B03	03/06/90	478	275	14	1.9	84	0.8	65	16	123	<0.1 as N
8S/2W-29B05	03/02/90	397	229	29	9.5	43	1.2	35	4.9	141	1.8 as N
8S/2W-29B06	03/02/90	406	259	34	11	38	0.8	38	10	143	---
	03/06/90	427	240	32	11	40	1.0	40	8.1	148	1.2 as N
8S/2W-29B07	03/07/90	396	230	8.6	2.5	71	0.9	51	11	102	<0.1 as N
	08/16/90	371	199	8.4	1.8	69	0.8	50	14	106	<0.1 as N
8S/2W-29B08	03/07/90	464	272	31	9.4	52	1.2	58	12	134	0.45 as N
	08/16/90	458	261	34	9.1	48	1.1	59	17	135	0.4 as N
8S/2W-29B09	03/07/90	343	210	21	9.2	39	1.0	24	6.7	131	1.3 as N
	08/17/90	317	197	26	10	26	1.1	22	3.4	130	1.6 as N
8S/2W-29B10	08/19/98	367	223	12	0.64	75	0.62	50	10	121	<.05 as N
	08/26/99	393	219	12	0.72	68	0.56	46	11	---	<.05 as N
	08/22/00	393	228	12	0.76	69	0.58	43	11	---	<.05 as N
	08/21/01	398	231	11	0.62	72	0.57	49	15	---	.04 as N
	08/12/03	387	239	11.3	0.65	75.1	0.57	47.2	18.4	---	2.41as N
	08/18/04	390	232	11.2	0.64	72.6	0.64	48	20.8	---	<.06 as N
	08/02/05	404	242	12.5	0.67	69.9	0.65	47.2	23.2	---	<.06 as N
	08/03/06	381	222	12.3	0.77	62.8	0.54	40.3	17.3	110	<.06 as N
	09/04/07	430	237	12.1	0.70	78.3	0.65	47.2	27.5	107	<.06 as N
	09/15/08	420	242	11.2	0.664	77.3	0.59	45.3	29.6	106	E.03 as N
	08/04/09	381	217	12.1	0.76	66	0.64	39.9	23.7	108	E.03 as N
8S/2W-29B11	08/02/06	483	285	30.1	7.84	51.5	0.93	57.1	11.8	138	1.44 as N
	08/04/09	497	281	33	8.51	51	0.98	52.6	16.6	140	2.33 as N

* - Alkalinity as CaC03
E - estimated

TABLE D-5 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-29F3	08/03/06	378	251	21.9	7.67	38.9	1.9	47.2	10.4	104	0.46 as N
8S/2W-29J02	08/26/99	565	329	39	15	47	1.6	66	14	---	2.67 as N
	08/22/00	562	337	39	15	47	1.5	65	14	---	2.70 as N
	08/21/01	574	351	40	15	50	1.6	70	15	---	2.63 as N
	08/21/02	554	345	41	16	50	1.8	68	14	---	2.93 as N
	08/12/03	592	372	45.4	16.6	54.2	1.65	78.2	15.4	---	2.41 as N
	08/19/04	598	362	48.8	16.9	---	1.88	80	17	---	3.06 as N
8S/2W-29J03	08/02/06	532	337	40.3	13.2	43.1	1.34	44.8	17.5	152	8.48 as N
8S/2W-34B04	10/05/89	617	371	51	8.2	67	1	58	30	192	.47 as N
	07/26/90	605	341	50	8	65	1	61	31	194	.50 as N
	07/18/91	564	339	46	7.4	67	1	53	27	185	.87 as N
	07/27/93	267	170	18	2.8	34	0.5	14	9.7	96	1.10 as N
8S/2W-35D01	08/03/89	660	358	43	5.5	87	1.2	78	35	169	.35 as N
	07/26/90	669	384	41	4.9	92	1.5	82	36	176	.40 as N
	07/17/91	641	371	40	4.4	98	1.7	81	36	175	.39 as N
	07/27/93	638	374	49	5.9	79	1.8	71	27	199	.34 as N
	08/16/94	601	334	30	3.2	95	1.5	71	29	163	.16 as N
	08/30/95	587	322	33	4	81	1.5	68	25	178	.11 as N
	08/27/96	596	352	28	3.3	92	1.4	72	29	167	.10 as N

* - Alkalinity as CaC03

TABLE D-5 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Cahuilla Indian Reservation											
7S/2E14M01	12/14/83	1220	708	130	40	45	11	53	390	98	0.04 as N
7S/2E-23H01	05/18/06	428	288	39.6	5.7	33.7	3.08	31	14	---	8.26 as N
7S/2E-23Q01	05/18/06	245	160	15.6	2.55	26.6	2.45	29.5	5.4	---	1.07 as N
7S/2E-26B03	07/11/07	296	197	23.7	3.04	31	2.94	33.9	7.64	76	1.79 as N
7S/2E-33N1	08/02/89	355	206	16	2.1	53	3.5	48	15	78	.73 as N
7S/2E-36J01	02/03/84	---	252	43	4.4	36	4.8	32	5.4	---	3.40 as N
7S-3E-14P03	08/10/05	1080	741	113	42.4	70	9.7	66.8	296	---	.15 as N
7S-3E-20J05	08/23/07	753	466	49.4	7.09	89.2	3.19	87.9	83.6	110	6.88 as N
7S/3E-21L01	05/27/53	750	---	66	20	70		67	76	---	---
	08/02/89	1050	675	90	19	100	3.5	84	190	216	3.1 as N
	08/01/90	1020	610	87	18	100	3.4	85	180	217	3.0 as N
	07/17/91	995	636	93	18	100	3.7	95	180	206	2.5 as N
	08/23/07	1040	677	96.1	20.2	90.9	3.67	96.2	169	190	3.42 as N
7S/3E-31L02	02/03/84	---	184	23	4.8	24	2.9	24	0	---	2.0 as N
7S/3E-31N01	07/27/84	684	412	69	12	37	---	75	12	---	---
7S/3E-34E01	07/07/76	---	---	25	4.6	21	4.2	26	7.3	---	4.0 as N
	09/22/77	---	---	25	4.9	23	4.4	25	6.9	---	---
	07/19/78	---	---	26	5.1	22	4.5	24	6.5	---	3.7 as N
	06/28/79	---	190	26	5	22	4.3	24	6	---	---
	07/02/80	---	---	26	4.9	23	4.7	28	6.9	---	3.7 as N
	07/08/81	309	---	27	5	23	4.7	26	7.7	81	4.1 as N
	06/29/82	311	---	27	5.3	27	4.9	27	10	88	4.0 as N
	08/10/83	306	---	27	5	23	4.8	29	7.7	90	3.8 as N
	08/21/84	319	---	30	5.3	24	4.3	29	7.2	92	3.7 as N
	08/01/85	321	---	28	5.2	24	4.6	29	7.0	86	3.5 as N

* - Alkalinity as CaC03

TABLE D-5 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Cahuilla Indian Reservation (Continued)											
7S/3E-34E01	08/14/87	332	207	29	5.6	25	4.8	28	8.0	96	3.5 as N
(Cont)	07/20/89	338	204	30	5.6	26	5.0	29	7.0	98	3.3 as N
	07/31/91	337	109	31	5.5	25	4.5	31	6.3	99	3.5 as N
	07/16/91	335	209	31	5.9	26	4.7	32	6.3	99	3.5 as N
8S/2E-4P01	01/21/86	1870	---	190	54	64	7.9	480	13	136	4.0 as N
	05/18/06	794	441	59.8	19.3	44.1	4.44	101	10.4	---	5.45 as N
8S/3E-2A01	02/05/86	591	---	54	11	43	3.2	93	21	103	3.4 as N
8S/3E-2D01	07/08/81	293	---	17	2.2	39	1.7	30	8.8	68	2.5 as N
	07/24/85	279	---	11	1.2	42	1.5	28	8	71	2.1 as N
8S/3E-2E01	12/07/50	---	---	30	10	53	---	50	14	---	---
	11/15/51	---	---	38	8	43	---	50	6	---	---
	05/27/76	---	---	39	9.4	32	2.2	49	12		4.9 as N
	09/22/77	---	280	39	9.6	33	2.6	42	8.4	---	---
	07/19/78	---	---	42	10	36	2.4	57	13		5.7 as N
	06/28/79	---	284	40	9	32	2.8	42	9	---	---
	07/02/80	---	---	34	6.5	22	2.4	27	7.4	---	0
	07/08/81	296	---	33	4.8	19	1.9	36	1	61	2.0as N
	06/29/82	494	---	43	9.7	41	3	54	14	127	5.7 as N
	07/26/83	427	---	40	9.6	32	3	42	9.7	131	4.8 as N
	08/21/84	428	---	42	9.3	32	2.9	39	9.6	129	4.7 as N
	08/13/87	428	276	39	9.4	32	3.2	37	9.6	129	4.6 as N
	08/10/05	424	283	42.4	10.2	33.6	3.4	39.9	9.14	---	4.88 as N
8S/3E-2K01	09/22/77	---	---	43	10	48	3.2	65	18	---	---
	07/19/78	---	---	42	9.8	48	3.4	68	17	---	3.7 as N
	06/28/79	---	342	46	10	46	3.1	69	19	---	---
	07/02/80	---	---	64	12	92	2.7	140	48	---	4.1 as N
	06/29/82	454	---	41	10	38	3.7	46	13	129	3.6 as N
	08/10/83	435	---	39	9.5	32	3.6	43	13	133	3.6 as N
	08/21/84	561	---	50	11	48	3.1	68	27	139	4.0 as N
	08/01/85	472	---	41	9.7	34	3.4	48	15	125	3.7 as N
	08/13/87	451	282	40	9.9	31	3.4	41	16	133	3.6 as N
	07/20/89	531	323	46	11	41	3.4	60	22	136	3.6 as N
	08/01/90	508	310	46	11	38	3.3	60	19	134	3.8 as N
	07/16/91	522	306	50	10	39	3.3	61	21	139	3.7 as N

* - Alkalinity as CaC03

TABLE D-6

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-26C1)	10/60	1060	639	66.5	24.0	116.0	4.5	160	110.0	264.0	trace
(Bldg 220001)	06/62	1190	718	60.0	33.2	123.0	3.8	190	124.0	232.0	1.4
	07/64	1217	734	79.2	27.8	144.0	1.6	180	150.0	248.9	---
	05/65	1485	896	75.2	30.3	158.0	2.4	180	120.0	253.8	0
	01/66	---	808	76.8	33.2	157.0	3.4	170	180.0	292.8	0.62
	06/66	---	684	75.2	26.8	112.0	2.4	128	148.0	263.5	3.9
	01/67	---	856	81.6	26.3	138.0	3.5	162	140.0	310.0	3
	08/67	---	880	99.2	38.1	156.0	3.6	160	230.0	322.1	5.3
	02/68	---	768	65.6	25.4	156.0	3.4	160	164.0	236.7	0
	04/69	---	852	66.0	32.0	162.0	3.2	166	210.0	249.0	0
	11/69	---	844	87.0	31.0	140.0	3.6	164	180.0	262.0	0
	07/70	---	672	99.0	32.0	139.0	3.0	158	205.0	259.0	2.7
	12/70	1180	712	83.0	28.0	138.0	3.0	166	170.0	266.0	0
	09/71	1062	640	83.0	27.0	128.0	2.8	136	175.0	278.0	0.4
	05/72	1130	681	56.0	24.0	140.0	2.8	136	165.0	220.0	0
	10/72	1165	703	64.0	27.0	159.0	3.6	132	180.0	293.0	1.8
	10/73	1140	688	72.0	27.0	131.0	3.8	144	190.0	200.0	0.3 as N
	02/76	1140	688	70.4	28.3	143.0	3.1	132	182.0	273.3	1.8 as N
	09/76	1100	663	67.0	25.0	152.0	2.5	152	131.0	327.0	2.8 as N
	03/77	1080	651	67.0	28.0	173.0	3.1	128	160.0	254.0	4.4 as N
	10/78	1150	694	70.0	25.0	120.0	3.5	139	145.0	253.8	<1 as N
	06/79	1100	663	72.0	27.3	125.0	3.0	134	142.0	258.6	<1 as N
	10/80	1200	693	78.8	23.7	136.0	3.3	172	136.0	273.3	0.2 as N
	04/81	1160	737	82.4	22.4	126.0	3.6	140	134.0	268.4	<0.5 as N
	11/81	1300	863	97.6	31.5	169.0	2.2	204	209.0	248.9	0.8 as N
	11/81	950	573	74.0	18.3	120.0	2.1	144	130.0	224.5	0.3 as N
	05/82	1100	663	80.8	26.6	140.0	1.5	181	138.0	268.4	<0.5 as N
	03/83	1000	603	84.0	20.5	144.0	3.2	152	143.0	273.3	<0.5 as N
	05/84	1150	694	80.0	27.6	126.0	3.1	133	150.0	283.0	0.2 as N
	06/85	1100	680	89.0	26.0	140.0	3.0	150	64.0	440.0	<0.4
	09/85	1242	724	78.0	28.0	122.0	6.0	154	149.1	244.4	<0.4
	05/86	1387	750	85.2	29.1	130.7	4.3	166	130.8	242.6	<1
	06/89	1302	734	78.1	23.0	85.9	---	136	145.0	212.0	<0.4
	01/91	1271	---	81.0	36.1	152.0	---	166	---	---	<0.04
	06/91	1290	752	99.0	32.4	133.0	---	167	136.0	237.0	<0.4
	03/92	1210	792	91.0	29.8	146.0	---	159	135.0	279.0	<0.4

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-26C1	06/93	1290	764	68.3	27.5	149.0	---	168	130.0	265.0	<0.4
(Bldg 220001)	03/94	1210	783	100.0	37.1	100.0	---	145	167.0	---	2.2
(Continued)	08/94	1160	741	87.5	35.5	96.1	---	141	187.0	---	4.23
	06/95	1330	806	97.7	37.4	142.0	---	207	166.0	---	<0.04
	01/96	1300	764	91.0	33.0	140.0	---	177	142.0	363.0	<0.0
	06/96	1300	751	93.0	30.0	130.0	---	164	156.0	252.0	<0.0
	06/97	1215	758	88.0	29.0	130.0	<2.0	151	148.0	292.0	<2 as N
	12/97	1200	690	81.0	29.0	140.0	3.0	155	150.0	250.0	ND
	04/98	1200	790	83.0	31.0	101.0	3.0	165	156.0	240.0	ND
	06/98	1230	714	85.0	30.0	136.0	3.0	163	158.0	293.0	ND
	02/99	1250	731	84.0	29.0	127.0	3.0	160	140.0	281.0	ND
	04/99	1220	769	88.0	30.0	127.0	3.0	168	160.0	317.0	ND
	05/01	1300	794	98.0	36.0	130.0	3.0	173	179.0	317.0	ND
10S/4W-18M5	06/89	1156	688	74.6	24.4	67.9	---	130	138.0	197.0	8.9
(Bldg 230073)	01/90	1120	630	86.4	32.3	101.0	---	156	166.0	210.0	<0.05
(Previously	04/90	1160	720	98.8	34.8	107.0	---	152	146.0	218.0	1.4
reported as	01/91	1202	---	84.1	40.5	117.0	---	162	153.0	---	<0.04
10S/4W-18M4)	06/91	1180	736	102.0	37.1	106.0	---	163	138.0	197.0	<0.4
	03/94	1020	658	69.6	27.8	104.0	---	135	140.0	---	0.89
	08/94	1110	684	81.4	32.2	178.0	---	144	157.0	---	<0.44
	06/95	1170	679	95.3	35.2	113.0	---	145	116.0	---	13.8
	06/96	1100	682	86.0	32.0	95.0	---	155	261.0	210.0	<0.0
	02/97	1180	640	79.0	32.0	110.0	---	142	162.0	190.0	<2 as N
	06/97	1117	709	85.0	33.0	110.0	<5.0	150	164.0	223.0	<2 as N
	12/97	1100	700	82.0	33.0	110.0	3.0	141	157.0	220.0	ND
	03/98	1100	710	83.0	33.0	100.0	3.0	182	158.0	150.0	ND
	06/98	1200	720	85.0	34.0	119.0	4.0	159	154.0	281.0	ND
	02/99	1020	613	70.0	30.0	85.0	4.0	130	85.0	179.0	8
	05/00	1020	709	81.0	33.0	94.0	4.0	146	149.0	220.0	ND
	08/00	1160	728	83.0	33.0	89.0	4.0	161	178.0	232.0	ND
	02/01	1200	736	85.0	35.0	116.0	4.0	164	180.0	244.0	0.7
	04/01	1200	606	85.0	34.0	112.0	4.0	154	177.0	232.0	ND
	09/01	1250	761	90.0	37.0	115.0	4.0	166	188.0	232.0	ND

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-18M5	11/01	1290	737	91.0	37.0	118.0	3.0	181	207.0	256.0	0
(Bldg 23073)	02/02	1260	781	89.0	36.0	123.0	4.6	170	189.0	255.0	1.3
Previously	04/02	1250	755	90.0	37.0	116.0	4.1	175	195.0	200.0	1
reported as	05/02	1290	750	92.0	38.0	110.0	4.0	157	194.0	180.0	0.6
10S/4W-18M4	07/02	1260	753	90.0	37.0	114.0	4.0	171	196.0	200.0	0
	01/03	1350	816	96.0	40.0	131.0	4.6	160	201.0	193.0	0
	04/03	1210	738	95.0	27.0	118.0	3.9	175	210.0	192.0	0
	10/03	1290	752	91.0	37.0	134.0	5.0	167	193.0	199.0	0
	01/04	1230	717	93.0	38.0	111.0	6.0	159	194.0	173.0	0
	04/04	1280	722	82.0	36.0	112.0	6.0	168	213.0	180.0	2.2
	07/04	1080	739	88.0	37.0	92.0	7.0	156	198.0	190.0	0
	11/04	1230	563	91.0	38.0	124.0	4.8	172	215.0	175.0	0
	01/05	1240	687	96.0	39.0	124.0	4.0	172	215.0	190.0	0
	04/07	1240	770	98.0	40.0	100.0	3.8	160	220.0	240.0	0
	04/08	1370	908	100	42	110	3.7	180	240	234	<2
	04/09	1300	800	97	39	120	3.7	140	200	220	8.7
10S/5W-23J1	05/56	1090	685	61.5	24.3	142.0	---	142	110.0	293.0	0.06
(Bldg 230001)	12/56	1060	666	67.0	27.0	96.0	---	124	85.0	274.0	---
	12/57	---	780	66.3	23.9	159.0	---	138	155.0	308.0	10.6
	05/59	1100	691	75.2	25.3	112.0	---	136	152.0	297.7	---
	01/60	1120	704	72.7	27.3	116.5	---	112	144.0	291.0	---
	10/60	1045	657	63.2	21.4	99.0	3.6	140	112.0	242.0	0
	05/61	1280	770	76.0	36.5	136.0	3.0	124	195.0	299.6	0
	05/62	1133	712	68.8	30.3	136.0	2.0	128	175.0	275.7	---
	01/63	1111	698	72.0	35.1	127.0	2.8	128	199.0	268.4	---
	06/63	1108	696	78.4	25.4	118.0	2.9	148	130.0	258.6	0 as N
	07/64	1165	732	74.4	27.8	128.0	1.2	139	160.0	268.4	---
	05/65	1130	710	80.0	26.4	145.0	2.1	148	120.0	268.4	0.14
	01/66	---	736	88.0	18.1	142.0	2.8	124	155.0	263.5	1.8
	06/66	---	736	75.2	29.3	138.0	2.7	145	175.0	295.2	4.8
	01/67	---	744	76.8	25.9	118.0	3.0	136	125.0	287.9	2.2
	08/67	---	680	70.4	28.3	128.0	2.3	140	100.0	292.8	8.4
	02/68	---	660	48.0	19.5	130.0	2.8	124	119.0	234.0	6.1
	04/69	---	708	70.0	28.0	126.0	2.5	128	170.0	278.0	0

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23J1	11/69	---	684	73.0	28.0	126.0	2.8	138	165.0	273.0	0
(Bldg 230001)	05/70	---	716	74.0	25.0	122.0	0.1	134	170.0	210.0	4.4
(Continued)	12/70	1090	385	78.0	25.0	126.0	2.6	142	170.0	250.0	3.1
	09/71	1025	644	75.0	38.0	120.0	2.7	124	190.0	229.0	0.9
	05/72	1050	660	75.0	21.0	124.0	2.3	124	155.0	244.0	2.2
	10/73	1140	716	74.0	22.0	128.0	2.8	136	160.0	220.0	0.5 as N
	06/74	1060	680	74.0	13.0	131.0	2.9	158	138.0	220.0	0.01 as N
	02/76	1050	660	73.6	25.4	136.0	2.9	119	170.0	248.9	2.0 as N
	09/76	1100	691	58.0	32.0	146.0	2.6	140	148.0	321.8	2.6 as N
	03/77	1080	679	69.0	29.0	110.0	3.0	128	155.0	259.0	4.3 as N
	01/78	1100	691	70.0	23.0	147.0	3.0	140	135.0	259.0	4.4 as N
	10/78	1150	723	74.0	22.0	120.0	2.9	134	149.0	248.9	<1 as N
	04/79	1000	628	70.4	22.4	118.0	2.6	122	138.0	239.1	<1 as N
	10/80	1150	745	74.0	22.5	128.0	3.0	152	138.0	239.1	0.2 as N
	05/81	1020	580	67.2	17.3	116.0	3.1	132	111.0	205.0	<0.5 as N
	03/83	900	599	65.6	19.5	129.0	2.8	136	129.0	234.2	<0.5 as N
	12/83	1000	628	72.4	22.4	127.0	2.6	140	150.0	249.0	<0.1 as N
	05/84	1100	691	78.8	25.9	120.0	2.8	130	150.0	254.0	0.2 as N
	06/85	1100	691	59.0	26.0	130.0	3.0	140	70.0	440.0	3.5
	09/85	1203	705	66.0	26.0	110.0	6.0	150	144.0	226.6	<0.4
	06/89	1139	662	71.5	21.7	80.8	---	117	128.0	209.0	<0.4
	01/90	1150	632	90.6	32.4	102.0	---	160	170.0	214.0	<0.5
	01/91	1112	---	73.7	32.0	128.0	---	136	136.0	---	<0.04
	06/91	1090	662	87.4	29.7	117.0	---	140	121.0	204.0	<0.4
	03/92	1080	644	74.2	25.8	133.0	---	127	118.0	282.0	1.3
	03/93	1210	674	72.8	24.5	117.0	---	127	124.0	261.0	<0.4
	06/93	1090	670	63.9	25.7	119.0	---	117	128.0	237.0	<0.4
	03/94	1120	683	73.9	27.0	121.0	---	141	130.0	---	<0.4
	08/94	1160	707	78.9	28.2	129.0	---	139	153.0	---	<0.44
	06/95	1160	742	88.2	28.8	131.0	---	165	147.0	---	<0.04
	01/96	1300	690	79.0	29.0	140.0	---	147	131.0	292.0	<0.0
	06/96	1020	674	82.0	29.0	120.0	---	134	129.0	204.0	<0.0
	02/97	1100	650	74.0	27.0	150.0	---	126	172.0	245.0	<2 as N
	03/97	1073	630	77.0	28.0	130.0	---	142	134.0	254.0	<2 as N
	02/99	1180	647	75.0	27.0	125.0	3.0	150	130.0	272.0	ND
	04/99	1240	722	81.0	30.0	124.0	3.0	157	150.0	293.0	ND
	08/99	1180	735	79.0	29.0	120.0	3.0	190	183.0	281.0	ND

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23J1	12/99	1190	699	83.0	30.0	118.0	3.0	100	158.0	278.0	ND
(Bldg 230001)	02/00	1110	723	81.0	30.0	116.0	3.0	90	163.0	293.0	ND
(Continued)	05/00	1070	714	81.0	29.0	115.0	3.0	170	152.0	273.0	ND
	08/00	1200	735	80.0	29.0	117.0	3.0	150	118.0	275.0	ND
	02/01	1230	730	84.0	31.0	132.0	ND	158	158.0	293.0	ND
	04/01	1190	636	81.0	30.0	123.0	3.0	146	148.0	287.0	ND
	09/01	1300	751	88.0	32.0	132.0	3.0	155	160.0	293.0	ND
	10/01	1380	757	88.0	33.0	133.0	3.0	152	159.0	311.0	ND
	02/02	1220	724	86.0	31.0	124.0	2.6	146	156.0	293.0	ND
	04/02	1210	726	89.0	32.0	124.0	2.8	151	162.0	240.0	100 as N
	07/02	1280	735	85.0	31.0	129.0	3.1	155	165.0	236.0	ND
	10/02	1300	701	87.0	31.0	141.0	2.9	157	170.0	257.0	ND
	01/03	1260	760	88.0	32.0	139.0	3.5	146	162.0	239.0	ND
	02/03	---	---	68.0	32.0	139.0	3.5	---	---	---	---
	04/03	1200	708	87.0	32.0	127.0	2.8	158	175.0	245.0	ND
	10/03	1210	696	82.0	30.0	144.0	3.0	167	177.0	232.0	0 as N
	01/04	1170	678	87.0	31.0	121.0	4.0	151	175.0	227.0	0 as N
	04/04	1270	697	82.0	31.0	120.0	4.0	155	171.0	250.0	0 as N
	07/04	1030	702	87.0	31.0	98.0	5.0	138	151.0	245.0	0 as N
	10/04	1230	879	89.0	31.0	102.0	5.0	158	176.0	0.0	0 as N
	02/05	1170	704	88.0	31.0	134.0	3.1	157	171.0	235.0	0 as N
	04/05	1220	755	88.0	30.0	121.0	2.7	132	167.0	213.0	0 as N
	07/05	1190	725	83.0	29.0	117.0	2.8	153	ND	206.0	0 as N
	04/07	1200	708	89.0	32.0	120.0	2.6	150	170.0	270.0	0
	04/08	1210	718	90	32	100	2.5	150	170	274	<2
	04/09	1200	720	90	32	110	2.6	130	160	250	<2
10S/4W-18E3	06/89	1166	758	80.5	28.1	67.4	---	132	157	198.0	9.5
(Bldg 230093)	01/90	1230	748	97.4	39.7	106.0	---	178	179	226.0	<0.05
	04/90	1190	733	99.6	37.5	112.0	---	159	156	207.0	2.5
	06/91	1130	680	97.6	37.6	100.0	---	139	142	166.0	2.7
	02/94	1180	731	83.3	35.5	104.0	---	142	159	---	11.1
	08/94	1150	725	84.3	35.2	102.0	---	147	164	---	1
	06/95	932	636	75.4	29.1	86.6	---	102	140	---	14
	06/96	1117	710	92.0	36.0	93.0	---	180	297	206.0	<0.0
	02/97	1100	686	89.0	38.0	110.0	---	157	166	220.0	<2 as N

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-18E3	03/97	1116	673	87.0	36.0	110.0	---	147	113	213.0	<2 as N
(Bldg 230093)	06/97	1131	779	90.0	37.0	99.0	<5.0	151	177	199.0	<2 as N
(Continued)	09/98	1160	727	83.0	36.0	90.0	3.0	160	181	232.0	ND
	10/99	1200	325	88.0	39.0	117.0	4.0	130	180	268.0	ND
	02/00	1100	739	84.0	37.0	100.0	4.0	130	180	281.0	ND
	05/00	1030	717	80.0	35.0	96.0	4.0	168	183	229.0	2
	02/01	1360	798	97.0	44.0	111.0	4.0	184	212	244.0	ND
	04/01	1310	728	94.0	42.0	114.0	4.0	168	208	232.0	ND
	09/01	1330	791	96.0	42.0	115.0	4.0	173	209	224.0	1
	03/02	1320	778	102.0	44.0	123.0	4.4	196	229	242.0	1
	04/02	1300	808	101.0	44.0	117.0	4.0	183	220	200.0	1.1
	07/02	1390	778	96.0	42.0	114.0	3.7	180	214	209.0	ND
	10/02	1360	763	97.0	41.0	126.0	4.0	180	207	214.0	ND
	01/03	1290	749	96.0	40.0	116.0	3.7	172	200	200.0	ND
	04/03	1210	783	99.0	42.0	129.0	3.9	176	229	191.0	1.3
	10/03	1320	775	97.0	41.0	126.0	5.0	168	231	174.0	0
	01/04	1270	763	101.0	42.0	106.0	6.0	162	220	180.0	0
	04/04	1320	781	96.0	43.0	105.0	6.0	179	250	195.0	0
	07/04	1370	784	100.0	43.0	89.0	6.0	169	219	203.0	0
	10/04	1300	857	99.0	42.0	88.0	6.0	188	245	210.0	0
	01/05	1270	760	99.0	42.0	115.0	4.3	170	234	185.0	2.7
	07/05	1120	724	89.0	36.0	91.0	3.5	133	ND	203.0	0 as N
	11/05	1230	815	101.0	40.0	113.0	4.1	153	213	174.0	0 as N
	04/06	1350	832	110.0	44.0	120.0	3.8	180	250	220.0	0 as N
	04/07	1298	806	100.0	45.0	110.0	3.7	180	247	230.0	0
	04/08	1270	816	92	40	100	3.4	150	220	202	4.7
	04/09	1300	840	100	43	120	3.8	150	220	230	<2
10S/4W-7R2	06/89	1281	765	76.5	25.1	82.4	---	149	153	209.0	10.3
(Bldg 260003)	04/89	1270	788	104.0	36.5	126.0	---	173	161	215.0	2.6
	06/91	1400	836	111.0	41.1	130.0	---	195	155	215.0	0.04
	02/94	1260	738	83.3	32.0	131.0	---	169	155	---	<0.04
	08/94	1260	738	84.3	33.7	129.0	---	166	149	---	<0.44
	06/95	1290	897	93.6	35.2	129.0	---	202	164	---	0.69

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7R2	02/97	1200	720	84.0	36.0	130.0	---	150	152	240	<1 as N
(Bldg 260003)	03/97	1143	708	83.0	35.0	130.0	---	152	137	240	<2 as N
(Continued)	06/97	1227	831	94.0	34.0	120.0	<5.0	185	147	247	<2 as N
	12/97	1200	700	84.0	36.0	120.0	3.0	150	173	240	ND
	12/97	1200	700	84.0	36.0	120.0	3.0	150	173	240	ND
	03/98	1200	780	85.0	36.0	110.0	3.0	187	162	180	ND
	06/98	1190	734	83.0	35.0	110.0	3.0	160	167	275	ND
	02/99	1160	663	76.0	32.0	102.0	3.0	150	150	214	ND
	08/99	1120	727	76.0	33.0	99.0	3.0	156	230	281	ND
	10/99	1130	660	78.0	33.0	120.0	3.0	110	160	262	ND
	02/00	1030	592	79.0	35.0	95.9	3.0	120	160	244	ND
	05/00	1010	699	76.0	33.0	96.0	3.0	129	127	229	ND
	08/00	1140	720	77.0	33.0	87.0	3.0	ND	157	232	ND
	12/02	1120	617	73.0	32.0	102.0	3.6	132	164	174	0.4
	01/03	1150	689	76.0	34.0	113.0	3.6	135	165	185	ND
	04/03	1190	717	82.0	37.0	122.0	4.0	164	182	209	ND
	05/03	1190	---	---	---	---	---	156	182	---	---
	10/03	1250	737	81.0	37.0	130.0	5.0	163	201	192	0
	01/04	1240	694	86.0	39.0	107.0	6.0	153	182	185	0
	04/04	1320	750	84.0	40.0	108.0	6.0	170	210	220	0
	07/04	1100	761	92.0	41.0	88.0	7.0	172	204	205	0
	10/04	1280	893	93.0	41.0	88.0	6.0	179	222	ND	0
	02/05	1270	839	99.0	44.0	121.0	5.2	180	215	198	0
	04/05	1300	880	98.0	41.0	109.0	3.8	158	216	183	0 as N
	07/05	1380	870	101.0	43.0	109.0	4.0	430	540	176	0 as N
	11/05	1310	865	104.0	43.0	115.0	3.8	164	221	181	0 as N
	04/06	1220	810	100.0	43.0	110.0	3.8	170	240	206	0 as N
	04/07	1400	856	99.0	44.0	110.0	3.6	170	250	210	0
	04/08	1290	888	91	39	100	3.4	160	230	207	2.6
10S/4W-7R3	04/09	1300	830	100	45	110	4.5	170	240	220	<2
(Bldg 260002)											

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7H2	08/56	1060	882	78.0	30.0	112.0	---	150	82	326.0	---
(Bldg 260071)	01/60	820	500	55.2	14.7	85.0	---	76	98	224.0	---
	10/60	1300	793	74.5	20.5	126.0	4.3	182	116	320.0	---
	05/61	1390	840	100.0	29.2	170.0	3.3	170	135	362.0	---
	05/62	1220	744	70.4	39.0	142.0	2.4	184	86	312.3	---
	01/63	1300	740	65.6	26.4	162.0	2.4	166	153	259.0	0.7
	07/63	1100	671	64.0	25.4	118.0	2.7	148	97	280.6	0.0 as N
	01/64	1020	622	70.4	33.2	117.0	2.7	172	98	302.6	3.3
	07/64	1400	854	83.2	27.3	134.0	1.4	164	98	322.1	---
	04/65	1490	909	97.6	23.4	152.0	4.7	196	110	346.5	0.9
	01/66	---	832	102.0	28.0	166.0	3.1	194	88	414.8	6.6
	06/66	---	768	86.4	26.3	150.0	3.1	184	110	331.8	6.9
	01/67	---	768	72.0	29.3	128.0	3.1	174	72	324.5	6.9
	08/67	---	608	57.6	24.4	116.0	2.4	132	70	251.3	10.2
	02/68	---	572	67.2	17.6	105.0	2.4	118	94	251.0	0
	09/68	---	636	74.0	19.0	112.0	3.0	144	96	268.0	0.4
	04/69	---	820	72.0	33.0	138.0	2.8	180	140	285.0	0.9
	11/69	---	604	66.0	24.0	116.0	2.8	140	110	259.0	1.8
	05/70	---	640	65.0	26.0	115.0	2.4	142	120	183.0	3.1
	09/71	1075	656	77.0	24.0	120.0	2.8	144	125	273.0	1.3
	05/72	1000	610	46.0	24.0	117.0	2.4	140	130	141.0	0
	10/72	1110	677	88.0	26.0	105.0	3.6	144	126	283.0	3.5
	10/73	1120	683	75.0	23.0	118.0	2.7 *	132	130	200.0	0.6 as N
	06/74	1210	712	72.0	19.0	150.0	3.1	208	112	195.0	0.01 as N
	01/75	850	519	61.0	21.0	93.0	2.4	102	95	212.0	2.3 as N
	02/76	1200	732	91.2	20.5	126.0	3.2	176	130	244.0	2.6 as N
	09/76	1200	732	48.0	29.0	180.0	2.4	192	123	336.7	4.2 as N
	03/77	1400	854	94.0	33.0	158.0	2.8	216	140	342.0	2.8 as N
	01/78	1000	610	66.0	23.0	100.0	2.7	128	123	205.0	4.4 as N
	10/78	1300	793	82.0	31.0	134.0	2.7	160	157	258.6	<1 as N
	04/79	1200	732	84.8	28.3	144.0	3.1	164	116	312.3	<1 as N
	01/80	1450	885	93.0	30.0	163.0	3.0	196	200	273.0	<1 as N
	10/80	1050	591	70.4	21.7	104.0	3.7	140	125	219.6	2.0 as N

* Reported as 27

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7H2	05/81	1000	645	72.4	21.7	105.0	3.5	128	123	209.8	<0.5 as N
(Bldg 260071)	05/82	1330	811	100.8	35.9	176.0	1.6	269	198	263.5	<0.5 as N
(Continued)	03/83	890	669	77.2	23.7	95.0	3.4	132	136	209.8	0.65 as N
	12/83	1000	610	70.4	23.7	123.0	2.6	136	150	224.0	0.5 as N
	05/84	1100	671	77.2	24.6	116.0	2.7	133	155	244.0	0.2 as N
	09/84	1300	650	6.6	29.0	120.0	2.6	200	170	250.0	12
	11/84	1100	671	81.6	23.4	124.0	2.7	149	175	249.0	1.2 as N
	05/86	1592	994	104.7	39.7	167.3	4.4	232	167	301.8	<1 as N
	06/89	1137	826	79.1	28.5	85.5	---	157	158	246.0	12.6
	01/90	1290	772	96.3	38.6	116.0	---	184	179	252.0	0.9/1.2
	04/90	1320	817	109.0	42.1	128.0	---	177	167	249.0	5.4
	01/91	401	---	87.3	44.4	103.1	---	205	179	---	1.07
	03/93	1500	824	92.6	33.1	136.0	---	194	154	277.0	1.8
	03/94	1370	827	103.0	36.4	135.0	---	163	145	---	0.9
	08/94	1270	762	91.1	35.5	129.0	---	162	172	---	5.64
	06/95	1260	771	100.0	35.8	127.0	---	197	178	---	2.8
	06/96	1300	751	96.0	36.0	120.0	---	162	174	247.0	1.1
	02/97	1300	830	100.0	41.0	150.0	---	186	161	186.0	<2 as N
	06/97	1323	831	94.0	36.0	140.0	<5.0	158	149	271.0	2 as N
	12/97	1200	670	91.0	36.0	120.0	3.0	150	169	220.0	ND
	12/97	1200	710	87.0	35.0	120.0	2.0	152	182	220.0	1.5
	03/98	1200	810	89.0	36.0	120.0	3.0	201	168	240.0	ND
	06/98	1390	830	91.0	36.0	140.0	2.0	185	150	366.0	ND
	02/99	1130	663	75.0	31.0	106.0	3.0	150	150	238.0	5
	05/99	1170	711	75.0	32.0	85.0	4.0	ND	180	268.0	ND
	08/99	1040	692	74.0	30.0	94.0	2.0	100	400	207.0	ND
	10/99	1210	757	86.0	35.0	120.0	3.0	154	100	295.0	3
	08/00	1290	766	83.0	33.0	89.0	2.0	184	150	323.0	ND
	02/01	1140	707	85.0	35.0	107.0	2.0	152	179	232.0	4.9
	04/01	1190	718	88.0	37.0	112.0	3.0	153	193	218.0	5
	09/01	1200	729	89.0	38.0	106.0	3.0	158	192	201.0	4.6
	11/01	1210	693	90.0	38.0	106.0	3.0	169	209	214.0	5.4
	02/02	1190	726	94.0	39.0	106.0	2.7	147	184	218.0	5.9
	04/02	1190	724	91.0	38.0	107.0	2.9	153	204	173.0	6.6
	07/02	1200	755	88.0	37.0	107.0	3.1	162	201	180.0	6

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7H2	10/02	1250	722	91.0	38.0	99.0	2.6	150	197	177	6.2
(Bldg 260071)	01/03	1260	781	95.0	39.0	119.0	3.2	144	204	169	4.5
(Continued)	04/03	1310	776	93.0	38.0	125.0	3.0	178	217	185	4.1
	04/04	1660	890	112.0	47.0	143.0	4.0	208	162	370	ND
	07/04	1460	785	98.0	38.0	109.0	4.0	186	191	275	3.4
	05/06	1380	870	100.0	41.0	110.0	2.3	180	240	210	3.0
	04/07	1300	812	99.0	41.0	110.0	2.5	160	230	220	5.2
	04/09	1300	830	100	43	110	2.9	170	260	190	4.7
10S/4W-7A2	05/56	920	651	59.0	22.0	100.0	---	104	94	213.0	---
(Bldg 260073)	05/59	---	745	52.8	16.5	60.3	---	84	41	207.4	---
	01/60	---	840	51.2	17.6	95.0	---	98	92	210.0	---
	10/60	870	566	62.0	23.0	80.0	4.2	110	104	234.0	0
	05/61	1180	710	72.0	34.0	114.0	3.3	104	150	227.0	---
	05/62	797	518	63.2	23.4	75.0	2.0	100	96	214.7	---
	01/63	1195	730	64.0	24.9	157.0	3.1	162	183	220.0	0
	07/63	574	610	57.6	19.5	85.0	2.7	102	100	244.0	0.3 as N
	01/64	760	494	59.2	19.3	82.0	3.3	100	85	253.7	0.5 as N
	07/64	980	637	64.0	21.5	94.0	1.4	100	95	241.6	---
	04/65	1230	800	73.3	22.5	106.0	4.5	120	110	248.9	1.3
	01/66	---	448	---	---	86.0	2.5	82	75	190.3	9.7
	06/66	---	540	60.8	21.0	81.0	2.5	102	95	222.0	9.1
	01/67	---	544	60.8	19.5	88.0	2.9	106	69	229.4	6.9
	08/67	---	504	54.4	20.0	79.0	2.1	96	58	214.7	8
	02/68	---	456	60.8	17.6	86.0	2.7	94	78	222.0	0
	09/68	---	600	67.0	18.0	90.0	3.0	110	96	232.0	0
	04/69	---	428	46.0	18.0	73.0	20.0	76	90	183.0	3.1
	11/69	---	476	59.0	18.0	88.0	2.7	98	110	198.0	0.9
	05/70	---	416	54.0	18.0	79.0	2.6	92	90	151.0	2.9
	12/70	780	507	64.0	16.0	89.0	2.7	100	90	222.0	10.1
	05/72	990	644	77.0	24.0	86.0	2.8	116	135	207.0	0
	10/72	965	627	77.0	27.0	94.0	2.9	104	145	239.0	5.3
	10/73	960	624	72.0	19.0	105.0	2.8	112	140	195.0	0.9 as N
	06/74	950	548	68.0	19.0	101.0	3.1	138	102	207.0	0.35 as N
	01/75	840	546	58.0	22.0	87.0	2.7	98	95	217.0	2.2 as N

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7A2	02/76	820	533	68.8	20.5	76.0	3.0	106	88	214.7	2.2 as N
(Bldg 260073)	09/76	900	585	48.0	45.0	98.0	2.3	116	112	258.6	3.0 as N
(Continued)	03/77	900	585	70.0	23.0	76.0	2.8	123	113	195.0	2.6 as N
	01/78	950	618	64.0	24.0	100.0	2.7	124	108	200.0	4.3 as N
	10/78	1050	683	74.0	20.0	80.0	3.0	113	128	205.0	<1 as N
	04/79	950	618	65.6	19.5	98.0	3.1	109	118	190.3	<1 as N
	01/80	1000	650	67.0	23.0	99.0	3.1	128	111	187.0	<1 as N
	10/80	900	546	67.2	20.5	86.0	3.4	108	86	205.0	2.3 as N
	05/81	810	585	57.2	14.4	83.0	3.4	92	84	180.6	0.7 as N
	11/81	800	451	57.2	16.3	85.0	2.0	92	110	185.4	0.5 as N
	05/82	930	605	68.8	21.5	97.0	1.6	115	96	205.0	<0.5 as N
	03/83	900	663	78.8	23.7	95.0	3.4	132	135	209.8	0.7 as N
	09/84	1000	530	51.0	23.0	80.0	2.9	110	110	200.0	4.2
	11/84	850	553	67.2	28.3	73.0	2.9	111	137	190.0	1.7 as N
	09/85	1007	593	66.0	26.0	64.0	5.8	124	139	180.6	6
	05/86	1051	623	72.6	26.5	79.5	3.5	131	124	153.6	8.8
	06/89	1073	688	72.1	23.9	59.6	---	120	140	184	15.9
	01/89	1080	572	91.2	34.2	80.2	---	151	178	174	1.4
	04/90	1130	718	111.0	42.1	91.0	---	148	167	175	9.1
	06/91	1190	718	113.0	40.3	93.8	---	173	180	160	7.5
	03/93	1370	708	86.9	32.8	93.3	---	147	93.3	200	4.9
	03/94	1210	783	100.0	37.1	100.0	---	145	167	---	2.2
	08/94	1160	741	87.5	35.5	96.1	---	141	184	---	4.23
	06/95	1200	788	99.4	37.5	101.0	---	173	200	---	2.9
	06/96	1129	739	91.0	37.0	90.0	---	188	312	206	<0.0
	02/97	1100	690	82.0	35.0	140.0	---	127	131	180	<2 as N
	03/97	1109	695	91.0	39.0	93.0	---	137	191	166	2.2 as N
	06/97	1096	749	89.0	36.0	90.0	<5.0	138	178	187	2 as N
	12/97	1100	690	84.0	36.0	83.0	4.0	140	181	160	<.2 as N
	05/99	1050	648	78.0	32.0	111.0	3.0	171	0	207	ND
	08/99	1040	696	78.0	33.0	84.0	4.0	120	390	146	ND
	10/99	1070	663	78.0	34.0	90.0	4.0	132	120	195	6 as N
	02/00	1010	559	83.0	36.0	82.0	4.0	140	190	220	4 as N
	05/00	972	688	80.0	34.0	79.0	4.0	144	167	190	4 as N

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7A2	02/01	1200	753	92.0	40.0	100.0	3.0	164	212	195	ND
(Bldg 260073)	04/01	1210	736	91.0	40.0	103.0	5.0	159	217	183	4.2
(Continued)	09/01	1200	741	93.0	41.0	98.0	4.0	153	202	183	7.6
	11/01	1220	750	92.0	41.0	106.0	4.0	170	228	189	8.0
	02/02	1230	769	99.0	43.0	101.0	4.2	173	218	195	7.9
	04/02	1260	793	101.0	45.0	102.0	4.5	170	229	160	8.5
	07/02	1350	784	98.0	43.0	103.0	4.3	183	239	159	4.8
	10/02	1370	788	102.0	45.0	104.0	4.3	175	241	167	3.4
	01/03	1330	825	108.0	45.0	121.0	5.4	180	231	168	2.4
	04/03	1260	721	90.0	40.0	102.0	4.3	170	228	153	9.9
	10/03	1340	791	94.0	41.0	121.0	6.0	180	268	144	3
	01/04	1390	800	99.0	46.0	105.0	7.0	173	264	136	4.1
	04/04	1270	739	86.0	42.0	98.0	6.0	160	252	160	5.1
	07/04	1390	764	97.0	45.0	87.0	7.0	176	262	163	3.7
	10/04	1290	943	95.0	44.0	84.0	7.0	178	267	0	3.6
	01/05	1030	610	76.0	35.0	93.0	3.8	136	194	155	6.9
	04/05	1060	630	77.0	34.0	82.0	3.2	125	174	139	2.71
	07/05	1120	750	81.0	35.0	84.0	3.4	129	ND	129	0 as N
	11/05	1170	790	94.7	41.2	97.9	3.7	138	199	156	7.53
	04/06	1140	704	91.0	39.0	98.0	4.5	150	220	180	7.3
	04/07	1200	716	97	44	97	3.7	160	240	190	4.2
	04/08	1270	900	98	45	97	3.8	180	260	170	14
	04/09	1200	780	94	42	100	3.7	130	230	180	22
10S/5W-23G3	06/91	1160	684	83.4	28.3	125.0	---	145	124	223	<0.04
(Bldg 33926)	03/92	1060	674	75.9	24.1	127.0	---	139	111	269	<0.4
	03/93	1182	584	67.8	21.1	110.0	---	135	101	274	<0.4
	06/93	1020	623	60.5	22.4	116.0	---	125	107	225	<0.4
	03/94	1120	665	80.0	25.0	122.0	---	129	117	---	1.8
	08/94	1150	699	78.7	26.4	125.0	---	141	118	---	<0.44
	06/95	1060	673	75.9	23.1	118.0	---	158	114	---	<0.04
	01/96	1200	619	71.0	24.0	120.0	---	139	107	262	<0.0
	07/96	---	---	---	---	---	---	---	---	---	<0.0

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23K2	06/89	1207	698	75.6	22.8	84.0	---	138	137	231	<0.4
(Bldg 330924)	04/89	1240	728	100.0	32.9	129.0	---	158	148	245	1.3
	01/91	1193	---	80.6	35.2	131.0	---	21.3	146	---	<0.04
	06/91	1160	676	88.1	29.6	118.0	---	141	129	224	<0.04
	03/92	1130	705	76.7	26.0	126.0	---	149	125	279	<0.4
	06/92	1130	717	66.8	26.7	124.0	---	146	140	232	<0.4
	03/93	1285	331	72.1	23.8	115.0	---	131	122	273	<0.4
	02/97	1200	780	89.0	32.0	130.0	---	166	165	250	<2 as N
	03/97	1230	700	94.0	34.0	140.0	---	187	162	264	<2 as N
	06/97	1231	778	91.0	31.0	130.0	<2.0	171	165	264	<2 as N
	12/97	1200	710	82.0	30.0	130.0	2.0	156	162	230	ND
	03/98	1200	710	82.0	30.0	110.0	2.0	191	146	240	ND
	06/98	1170	658	79.0	28.0	123.0	2.0	157	151	293	ND
	02/99	1170	698	75.0	27.0	123.0	3.0	160	130	259	ND
	04/99	1210	667	76.0	27.0	118.0	3.0	148	140	268	ND
	08/99	1140	714	79.0	27.0	116.0	3.0	180	165	268	ND
	10/99	1150	721	80.0	28.0	131.0	3.0	110	150	281	ND
	02/00	1050	619	82.0	28.0	108.0	3.0	100	140	293	ND
	05/00	1060	716	80.0	29.0	112.0	3.0	173	141	268	ND
	08/00	1210	722	82.0	29.0	105.0	3.0	162	156	268	ND
	04/01	1210	705	85.0	30.0	130.0	3.0	163	157	281	ND
	09/01	1190	672	81.0	30.0	125.0	3.0	152	149	275	ND
	10/01	1200	680	81.0	29.0	143.0	3.0	162	159	281	ND
	02/02	1160	675	80.0	29.0	129.0	3.5	143	152	268	ND
	04/02	1180	682	84.0	31.0	124.0	2.9	151	155	230	ND
	07/02	1210	706	80.0	29.0	127.0	2.9	156	156	221	ND
	10/02	1210	669	83.0	30.0	122.0	2.9	151	162	206	8
	01/03	1320	801	97.0	34.0	140.0	2.8	154	180	245	ND
	04/03	1330	743	89.0	32.0	133.0	2.8	165	183	234	ND
	10/03	1210	712	87.0	31.0	135.0	4.0	155	177	204	ND
	04/04	1320	713	85.0	32.0	121.0	5.0	165	167	228	ND
	07/04	1070	703	89.0	32.0	101.0	5.0	147	173	230	ND
	10/04	1230	806	91.0	33.0	102.0	5.0	166	183	ND	ND
	02/05	1310	837	104.0	37.0	136.0	4.2	175	191	253	0 as N
	07/05	1170	750	83.0	29.0	114.0	2.7	139	ND	210	ND
	11/05	1260	750	91.9	29.6	119.0	3.1	144	171	225	ND
	04/06	1220	774	92.0	32.0	120.0	2.8	160	180	284	ND
	04/07	1010	706	86.0	29.0	120.0	2.7	150	170	260	0
	04/08	1270	792	91	30	110	2.6	160	190	175	<2
	04/09	1300	800	100	34	120	2.7	160	200	260	<2

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-13R2	01/90	1030	540	*96.0	26.6	94.8	---	141	130	200	0.7
(Bldg 230063)	06/91	1150	702	98.7	32.0	109.0	---	149	125	288	1.3
	06/93	1130	705	72.0	28.4	107.0	---	140	139	262	0.9
	03/94	1020	658	69.6	27.8	104.0	---	135	140	---	0.89
	06/95	1140	636	92.5	30.7	115.0	---	149	151	---	14.2
	06/96	1103	680	91.0	31.0	100.0	---	148	251	233	<0.0
	06/97	1082	708	85.0	29.0	110.0	<5.0	135	145	244	<2 as N
	12/97	1000	640	81.0	28.0	100.0	2.0	119	128	250	ND
	03/98	1100	620	85.0	31.0	110.0	2.0	161	144	220	ND
	06/98	1100	680	83.0	30.0	109.0	3.0	137	140	275	0.68
	09/98	1160	662	81.0	28.0	90.0	3.0	144	90	256	ND
	04/01	1100	612	83.0	29.0	106.0	3.0	131	146	238	3.5
	09/01	1150	679	89.0	31.0	103.0	2.0	142	156	241	3.2
	11/01	1130	658	87.0	30.0	104.0	2.0	148	169	262	3.4
	02/02	1120	674	85.0	30.0	112.0	3.2	140	160	257	3.1
	04/02	1120	682	89.0	32.0	106.0	2.7	142	167	205	2.8
	07/02	1150	676	83.0	30.0	111.0	2.7	145	64	205	2.3
	10/02	1220	711	87.0	31.0	110.0	2.7	149	175	203	ND
	01/03	1210	713	91.0	33.0	106.0	2.7	138	165	197	2
	05/03	1230	728	93.0	33.0	112.0	2.9	155	183	181	2.2
	10/03	1190	741	93.0	33.0	123.0	3.0	188	212	179	0 as N
	04/04	1270	701	87.0	32.0	103.0	4.0	163	186	220	ND
	07/04	1270	701	220.0	32.0	103.0	4.0	163	186	220	0 as N

ND - None Detected
* - Reported as .96

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7D1	03/99	1280	765	91.0	34.0	127.0	2.0	190	160	272	ND
(Previously	06/99	1080	706	76.0	31.0	88.0	2.2	163	118	220	ND
reported as	08/99	1080	690	76.0	32.0	93.0	3.0	160	191	244	ND
10S/4W-7A3)	10/99	1070	660	76.0	32.0	100.0	3.0	131	120	232	4
(Bldg 260072)	05/00	1010	702	79.0	34.0	94.0	3.0	177	164	254	ND
	08/00	1170	732	84.0	36.0	89.0	3.0	155	188	201	5
	02/01	1230	753	89.0	39.0	113.0	2.0	170	198	220	2.7
	04/01	1230	726	89.0	39.0	115.0	4.0	160	191	243	2.9
	09/01	1210	735	89.0	39.0	107.0	4.0	153	185	217	5.3
	11/01	1240	725	89.0	39.0	117.0	3.0	168	205	220	5.6
	02/02	1250	765	97.0	43.0	109.0	3.4	155	198	234	4.7
	04/02	1290	790	98.0	44.0	109.0	3.4	158	208	200	3.9
	07/02	1320	809	96.0	43.0	117.0	3.7	182	217	200	ND
	10/02	1380	787	99.0	43.0	113.0	3.7	170	216	203	2.8
	01/03	1370	810	101.0	44.0	134.0	4.0	155	194	217	ND
	04/03	1440	789	93.0	40.0	125.0	3.6	177	205	216	2.1
	10/03	1370	820	91.0	40.0	130.0	4.0	175	235	180	4.3
	01/04	1350	747	97.0	42.0	114.0	6.0	168	226	184	2.1
	04/04	1400	766	92.0	42.0	112.0	6.0	162	228	198	2
	07/04	1410	784	98.0	43.0	92.0	6.0	171	231	200	3.8
	11/04	1290	831	100.0	43.0	134.0	4.2	176	224	203	ND
	01/05	1310	804	102.0	44.0	125.0	3.7	184	241	200	2.7
	04/05	1100	690	78.0	34.0	84.0	3.2	128	177	162	2.6
	07/05	1160	716	84.0	35.0	96.0	3.0	136	ND	166	0 as N
	11/05	1180	785	92.5	40.4	97.1	3.8	138	202	174	5.93 as N
	04/06	1280	786	98.0	43.0	110.0	3.3	160	220	233	7.1
	04/07	1400	784	98.0	43.0	110.0	3.4	165	230	230	5
	04/08	1230	840	88	40	98	3.4	160	250	169	7.1
	11/09	---	---	---	---	---	---	---	---	---	<2

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23G4	06/99	1070	668	69.0	23.0	106.0	1.7	163	144	305	ND
(Bldg 330925)	08/99	1090	657	72.0	25.0	115.0	2.0	180	153	317	ND
	10/99	1150	716	79.0	27.0	140.0	2.0	120	140	305	ND
	02/00	956	522	67.0	23.0	117.0	2.0	90	120	268	ND
	05/00	1040	686	77.0	27.0	116.0	2.0	181	141	307	ND
	08/00	1180	722	80.0	28.0	105.0	2.0	155	143	232	ND
	02/01	1100	706	73.0	25.0	125.0	2.0	149	164	268	ND
	04/01	1170	701	81.0	29.0	128.0	2.0	154	149	282	ND
	09/01	1180	671	80.0	28.0	126.0	2.0	149	142	271	ND
	10/01	1180	678	81.0	28.0	132.0	2.0	161	156	281	ND
	02/02	1170	685	80.0	28.0	134.0	2.8	143	144	279	ND
	04/02	1200	711	87.0	31.0	127.0	2.3	150	204	235	ND
	07/02	1180	730	83.0	29.0	130.0	2.5	158	151	230	ND
	10/02	1180	649	78.0	27.0	115.0	2.1	135	138	217	ND
	01/03	1210	740	87.0	30.0	129.0	2.2	145	154	225	ND
	04/03	1200	681	79.0	27.0	128.0	2.5	150	152	215	ND
	10/03	1160	647	80.0	27.0	136.0	3.0	152	155	216	ND
	04/04	1140	604	66.0	24.0	117.0	3.0	147	133	215	ND
	08/04	1180	657	68.0	24.0	99.0	4.0	140	114	245	ND
	10/04	1170	712	85.0	29.0	97.0	5.0	160	172	ND	ND
	02/05	1070	661	84.0	29.0	125.0	3.3	154	148	185	ND
	07/05	1050	655	72.0	23.0	118.0	2.0	127	ND	202	ND
	11/05	1080	665	75.9	23.2	121.0	2.0	135	125	227	ND
	05/06	1110	650	71.0	24.0	120.0	1.9	140	130	217	ND
	04/07	950	632	72.0	25.0	120.0	1.9	140	130	260	0
	04/08	1150	672	73	25	120	1.8	150	130	250	<2
	04/09	1100	670	76	26	120	2.1	150	140	250	<2
10S/5W-23K3	06/99	1150	700	75.0	27.0	106.0	2.2	163	155	317	ND
(Bldg 330923)	08/99	1170	722	79.0	28.0	114.0	3.0	330	161	342	ND
	10/99	1170	723	78.0	28.0	140.0	3.0	120	140	293	ND
	02/00	1120	712	83.0	30.0	117.0	3.0	120	157	293	ND
	02/01	1240	758	85.0	31.0	136.0	3.0	167	152	305	ND
	04/01	1220	735	85.0	31.0	135.0	3.0	162	154	293	ND
	09/01	1240	682	81.0	29.0	132.0	3.0	162	144	281	ND

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23K3	10/01	1330	746	87.0	32.0	134.0	3.0	166	156	293	ND
(Bldg 330923)	02/02	1190	720	83.0	29.0	140.0	3.5	150	155	281	ND
(Continued)	04/02	1210	691	82.0	29.0	127.0	2.7	145	142	231	ND
	07/02	1230	738	81.0	29.0	134.0	3.1	167	151	240	ND
	10/02	1270	716	85.0	30.0	137.0	2.9	150	162	221	ND
	01/03	1340	826	100.0	35.0	141.0	2.6	156	185	252	0.4
	04/03	1350	733	85.0	30.0	129.0	2.6	162	171	235	ND
	10/03	887	800	84.0	30.0	141.0	3.0	160	173	224	ND
	02/04	1250	698	83.0	29.0	120.0	4.0	154	172	233	ND
	04/04	1240	706	78.0	28.0	121.0	4.0	163	170	220	ND
	07/04	1040	729	84.0	30.0	99.0	5.0	158	169	240	ND
	10/04	1180	857	86.0	30.0	97.0	5.0	159	172	235	ND
	02/05	1160	685	87.0	31.0	125.0	3.7	159	168	210	ND
	04/05	1230	760	91.0	30.0	122.0	2.6	149	148	213	ND
	07/05	1170	755	83.0	29.0	115.0	2.6	135	ND	210	ND
	11/05	1230	735	92.8	29.5	123.0	3.0	141	165	332	ND
	04/06	1190	720	89.0	31.0	120.0	2.7	160	170	233	ND
	04/07	1010	718	87.0	30.0	120.0	2.6	160	170	250	0
	04/08	1250	754	91	32	110	2.5	160	180	184	ND
	04/09	1200	760	92	33	120	2.7	160	180	250	<2
10S/5W-26C3	09/01	1410	819	101.0	38.0	138.0	3.0	173	175	296	ND
(Bldg 220002)	10/01	1370	814	104.0	38.0	131.0	3.0	199	198	317	ND
	02/02	1380	834	99.0	36.0	128.0	3.0	172	183	318	ND
	04/02	1370	808	104.0	39.0	124.0	3.2	180	184	258	ND
	07/02	1450	829	101.0	37.0	137.0	3.3	187	193	260	ND
	10/02	1400	793	98.0	35.0	143.0	3.4	179	195	248	ND
	01/03	1300	806	94.0	33.0	144.0	2.0	163	180	235	ND
	04/03	1290	759	94.0	33.0	137.0	3.1	182	198	230	ND

ND - None Detected

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-26C3	04/03	1290	759	94.0	32.0	137.0	3.1	182	198	230	ND
(Bldg 220002)	10/03	1340	761	90.0	31.0	146.0	4.0	162	188	210	ND
(Continued)	01/04	1320	743	94.0	32.0	124.0	5.0	182	212	203	ND
	04/04	1350	731	90.0	32.0	127.0	5.0	184	197	235	ND
	07/04	1100	773	91.0	32.0	98.0	5.0	167	197	215	ND
	10/04	1290	826	93.0	32.0	106.0	5.0	187	185	ND	ND
	02/05	1260	735	101.0	35.0	127.0	3.7	175	188	215	ND
	04/05	1300	760	98.0	33.0	122.0	2.8	160	184	200	ND
	07/05	1450	1260	97.0	33.0	119.0	2.9	154	ND	200	ND
	11/05	1240	795	99.0	32.0	122.0	2.9	159	169	202	ND
	06/06	1300	796	95.0	34.0	140.0	2.9	180	170	250	ND
	04/07	1080	764	91.0	31.0	130.0	2.9	190	190	250	0
	04/08	1260	694	80	29	140	2.7	180	150	286	<2

ND - None Detected

TABLE D-12

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY USGS ON CAHUILLA CREEK

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Cahuilla Creek	02/28/05	644	446	41.90	11.20	76.90	10.10	---	---	---	.23 @N
Cahuilla Creek Below Highway 371	02/28/05	476	337	34.20	10.10	51.90	3.69	36.9	---	---	.64 @N
Unnamed Tributary to Cahuilla Creek	02/14/05	783	529	64.00	17.50	80.70	8.94	35.2	---	---	3.05@N

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX E.1

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS CALENDAR YEAR 2009

September 2010

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

JANUARY 2009 - ABOVE NORMAL YEAR

										CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE				
						WR-34 Make-Up Discharge		Climatic Credits Earned /2						
DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	MWD	MWD			Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	cfs	AF	AF
1	10.0	11				9.9	19.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
2	10.0	11				9.8	19.4	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
3	10.0	11				9.6	19.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
4	10.0	11				9.6	19.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
5	9.8	11				9.6	19.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
6	9.8	11				9.6	19.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
7	9.8	11				9.6	19.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
8	9.9	11				9.5	18.9	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
9	10.0	10				9.7	19.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
10	11.0	11				10.1	20.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
11	10.0	10	10.8	10.6	0.2	9.9	19.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
12	10.0	10	10.7	10.6	0.1	10.0	19.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
13	11.0	11	10.7	10.6	0.1	10.1	20.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
14	9.8	10	10.6	10.6	0.0	10.7	21.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
15	11.0	11	10.6	10.6	0.0	11.6	23.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
16	11.0	11	10.6	10.6	0.0	11.8	23.4	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
17	11.0	11	10.6	10.6	0.0	11.9	23.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
18	11.0	12	10.7	10.6	0.1	11.9	23.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
19	11.0	12	10.9	10.6	0.3	11.9	23.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
20	9.8	10	10.8	10.6	0.2	11.2	22.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
21	9.8	10	10.8	10.6	0.2	10.8	21.5	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
22	10.0	11	10.9	10.6	0.3	11.4	22.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
23	10.0	11	10.9	10.6	0.3	11.4	22.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
24	9.9	10	10.9	10.6	0.3	10.8	21.4 *	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
25	11.0	11	10.9	10.6	0.3	10.2	20.2 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
26	10.0	11	10.9	10.6	0.3	10.2	20.2 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
27	10.0	11	10.9	10.6	0.3	10.2	20.2 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
28	10.0	10	10.7	10.6	0.1	10.2	20.2 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
29	11.0	11	10.6	10.6	0.0	10.2	20.2 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
30	11.0	11	10.7	10.6	0.1	10.2	20.2 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
31	11.0	11	10.8	10.6	0.2	10.2	20.2 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
TOTAL SFD	319.6	335.0	226.0	222.6	3.4	323.7		0.0		195.3		0.0		
TOTAL AF	633.9	664.5	448.3	441.5	6.7	642.1	642.1		0.0		387.4		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.
1 - Minimum Flow Maintenance Requirement equals 11.5 cfs less 0.9 cfs CAP Credit less 0 Climatic Credit.
2 - Climatic Credits equal the WR-34 Discharge less the Actual Flow Maintenance Requirement which is the flow indicated in Section 5 of the CWRMA less applicable credits, but not less than 3.0 cfs.
No Climatic Credits can be earned during an Above Normal Year.
3 - Art. 17 - Camp Pendleton rights to groundwater equal the Flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs.
Input to groundwater account shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.
* 10.5 AF supplied from WR-34, 7.6 AF supplied from potable connection to WR-34 outlet pipe, and 3.33 from System River Meter on Murrieta Creek because of MWD operational shutdown.
** 14 AF supplied from potable connection to WR-34 outlet pipe, and 6.15 AF from System River Meter on Murrieta Creek because of MWD operational shutdown.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

FEBRUARY 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge MWD	WR-34 Make-Up Discharge MWD	Climatic Credits Earned /2	Climatic Credits Earned /2	CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE: Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	cfs	AF	AF
1	11.0	11	10.8	10.6	0.2	10.2	20.2 *	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
2	11.0	11	10.8	10.6	0.2	10.2	20.2 *	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
3	11.0	11	10.9	10.6	0.3	10.2	20.2 *	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
4	11.0	11	10.9	10.6	0.3	10.4	20.7 **	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
5	11.0	11	10.9	10.6	0.3	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
6	99.0	99	19.7	10.6	9.1	3.5	7.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
7	262.0	262	44.9	10.6	34.3	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
8	101.0	101	53.9	10.6	43.3	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
9	214.0	214	74.2	10.6	63.6	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
10	86.0	86	81.7	10.6	71.1	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
11	25.0	25	83.1	10.6	72.5	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
12	9.0	9.0	82.9	10.6	72.3	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
13	13.0	13	83.1	10.6	72.5	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
14	101.0	101	92.1	10.6	81.5	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
15	19.0	19	92.9	10.6	82.3	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
16	453.0	453	128.3	10.6	117.7	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
17	274.0	274	129.5	10.6	118.9	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
18	73.0	73	126.7	10.6	116.1	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
19	30.0	30	108.3	10.6	97.7	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
20	15.0	15	101.2	10.6	90.6	0.0	0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
21	11.0	11	99.8	10.6	89.2	1.9	3.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
22	11.0	11	100.0	10.6	89.4	5.3	10.5	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
23	11.0	11	99.8	10.6	89.2	6.7	13.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
24	11.0	11	90.8	10.6	80.2	7.5	14.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
25	10.0	10	89.9	10.6	79.3	7.9	15.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
26	11.0	11	45.7	10.6	35.1	9.1	18.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
27	10.0	10	19.3	10.6	8.7	9.4	18.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
28	11.0	11	13.1	10.6	2.5	9.7	19.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
29	---	---	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL SFD	1,915.0	1,915.0	1,915.2	296.8	1,618.4	112.8		0.0		176.4		0.0		
TOTAL AF	3,798.3	3,798.3	3,798.7	588.7	3,210.0	223.7	223.7		0.0		349.9		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Minimum Flow Maintenance Requirement equals 11.5 cfs less 0.9 cfs CAP Credit less 0 Climatic Credit.

2 - Climatic Credits equal the WR-34 Discharge less the Actual Flow Maintenance Requirement which is the flow indicated in Section 5 of the CWRMA less applicable credits, but not less than 3.0 cfs. No Climatic Credits can be earned during an Above Normal Year.

3 - Art. 17 - Camp Pendleton rights to groundwater equal the Flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to groundwater account shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

* 14 AF supplied from potable connection to WR-34 outlet pipe, and 6.15 from system River Meter on Murrieta Creek because of MWD operational shutdown.

** 11.4 AF supplied from WR-34, 6.4 AF supplied from potable connection to WR-34 outlet pipe, and 2.86 AF supplied from System River Meter because of MWD operational shutdown

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

MARCH 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge MWD	WR-34 Make-Up Discharge MWD	Climatic Credits Earned /2	Climatic Credits Earned /2	CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE: Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	cfs	AF	AF
1	11.0	11	11.2	10.6	0.6	9.9	19.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
2	10.0	10	10.7	10.6	0.1	9.9	19.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
3	11.0	11	10.7	10.6	0.1	10.1	20.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
4	11.0	11	10.7	10.6	0.1	10.2	20.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
5	11.0	11	10.7	10.6	0.1	10.2	20.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
6	11.0	11	10.7	10.6	0.1	10.2	20.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
7	10.0	10	10.7	10.6	0.1	10.2	20.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
8	11.0	11	10.7	10.6	0.1	10.6	21.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
9	11.0	11	10.8	10.6	0.2	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
10	11.0	11	10.8	10.6	0.2	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
11	11.0	11	10.8	10.6	0.2	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
12	11.0	11	10.9	10.6	0.3	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
13	11.0	11	10.9	10.6	0.3	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
14	11.0	11	10.9	10.6	0.3	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
15	11.0	11	10.9	10.6	0.3	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
16	11.0	11	10.9	10.6	0.3	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
17	11.0	11	11.0	10.6	0.4	10.7	21.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
18	11.0	11	11.0	10.6	0.4	10.7	21.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
19	10.0	10	10.9	10.6	0.3	10.6	21.1	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
20	10.0	10	10.8	10.6	0.2	10.6	21.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
21	10.0	10	10.7	10.6	0.1	10.6	21.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
22	11.0	11	10.7	10.6	0.1	10.7	21.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
23	11.0	11	10.7	10.6	0.1	10.7	21.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
24	10.0	10	10.6	10.6	0.0	10.8	21.4	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
25	11.0	11	10.6	10.6	0.0	10.9	21.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
26	11.0	11	10.6	10.6	0.0	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
27	11.0	11	10.6	10.6	0.0	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
28	11.0	11	10.6	10.6	0.0	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
29	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
30	11.0	11	10.8	10.6	0.2	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
31	11.0	11	10.9	10.6	0.3	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
TOTAL SFD	335.0	335.0	334.2	328.6	5.6	330.9		0.0		195.3		0.0		
TOTAL AF	664.5	664.5	662.9	651.8	11.1	656.3	656.3		0.0		387.4		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Minimum Flow Maintenance Requirement equals 11.5 cfs less 0.9 cfs CAP Credit less 0 Climatic Credit.

2 - Climatic Credits equal the WR-34 Discharge less the Actual Flow Maintenance Requirement which is the flow indicated in Section 5 of the CWRMA less applicable credits, but not less than 3.0 cfs. No Climatic Credits can be earned during an Above Normal Year.

3 - Art. 17 - Camp Pendleton rights to groundwater equal the Flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to groundwater account shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

APRIL 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge MWD	WR-34 Make-Up Discharge MWD	Climatic Credits Earned /2	Climatic Credits Earned /2	CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	cfs	AF	AF
1	11.0	11	10.9	10.6	0.3	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
2	11.0	11	10.9	10.6	0.3	10.8	21.5	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
3	11.0	11	11.0	10.6	0.4	10.7	21.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
4	10.0	10	10.9	10.6	0.3	10.7	21.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
5	10.0	10	10.8	10.6	0.2	10.7	21.2	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
6	10.0	10	10.7	10.6	0.1	10.8	21.5	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
7	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
8	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
9	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
10	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
11	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
12	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
13	11.0	11	10.7	10.6	0.1	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
14	11.0	11	10.8	10.6	0.2	11.0	21.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
15	11.0	11	10.9	10.6	0.3	10.9	21.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
16	11.0	11	11.0	10.6	0.4	10.8	21.4	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
17	11.0	11	11.0	10.6	0.4	10.6	21.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
18	11.0	11	11.0	10.6	0.4	10.5	20.9	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
19	11.0	11	11.0	10.6	0.4	10.5	20.9	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
20	11.0	11	11.0	10.6	0.4	10.5	20.8	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
21	11.0	11	11.0	10.6	0.4	10.4	20.6	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
22	11.0	11	11.0	10.6	0.4	10.3	20.5	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
23	11.0	11	11.0	10.6	0.4	10.3	20.5	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
24	12.0	12	11.1	10.6	0.5	10.3	20.4	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
25	11.0	11	11.1	10.6	0.5	10.0	19.9	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
26	11.0	11	11.1	10.6	0.5	9.9	19.7	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
27	11.0	11	11.1	10.6	0.5	9.8	19.4	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
28	11.0	11	11.1	10.6	0.5	9.7	19.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
29	11.0	11	11.1	10.6	0.5	9.7	19.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
30	8.2	8.2	10.8	10.6	0.2	7.2	14.3	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0
31	—	—	—		—	—	—	—	—	—	—	—	—	—
TOTAL SFD	325.2	325.2	327.2	318.0	9.2	314.3		0.0		189.0		0.0		
TOTAL AF	645.0	645.0	649.0	630.7	18.3	623.4	623.4		0.0		374.9		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Minimum Flow Maintenance Requirement equals 11.5 cfs less 0.9 cfs CAP Credit less 0 Climatic Credit.

2 - Climatic Credits equal the WR-34 Discharge less the Actual Flow Maintenance Requirement which is the flow indicated in Section 5 of the CWRMA less applicable credits, but not less than 3.0 cfs. No Climatic Credits can be earned during an Above Normal Year.

3 - Art. 17 - Camp Pendleton rights to groundwater equal the Flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to groundwater account shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED
COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

MAY 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge MWD	WR-34 Make-Up Discharge MWD		Climatic Credits Earned /2		CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE: Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF		cfs	AF	cfs	AF	cfs	AF	AF
1	5.6	5.6				5.2	10.3		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
2	5.7	5.7				5.3	10.6		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
3	6.3	6.3				5.8	11.5	*	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
4	7.8	7.8				6.5	12.9	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
5	5.8	5.5				5.0	10.0	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
6	4.5	4.1				3.7	7.4	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
7	3.2	3.2				2.9	5.8	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
8	3.0	3.0				2.7	5.4	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
9	3.1	3.1				2.8	5.6	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
10	3.1	3.1				2.8	5.6	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
11	3.0	3.0	4.5	3.0	1.5	2.8	5.6	**	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
12	2.9	2.9	4.2	3.0	1.2	2.8	5.5	***	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
13	2.9	2.9	3.9	3.0	0.9	3.3	6.6		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
14	3.1	3.1	3.4	3.0	0.4	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
15	3.1	3.1	3.2	3.0	0.2	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
16	3.1	3.1	3.1	3.0	0.1	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
17	3.1	3.1	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
18	3.1	3.1	3.1	3.0	0.1	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
19	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
20	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
21	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
22	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
23	3.0	3.0	3.1	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
24	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
25	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
26	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
27	3.1	3.1	3.0	3.0	0.0	3.5	7.0	****	0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
28	3.0	3.0	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
29	3.2	3.2	3.0	3.0	0.0	3.5	6.9		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
30	3.2	3.2	3.1	3.0	0.0	3.0	6.0		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
31	3.9	4.0	3.2	3.0	0.2	4.3	8.5		0.0	0.0	0.2	0.4	0.0	0.0	5,000.0
TOTAL SFD	112.8	112.2	67.8	63.0	4.8	114.8				0.0	6.2		0.0		
TOTAL AF	223.7	222.5	134.4	125.0	9.4	227.8	227.8		0.0			12.3		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Minimum flow maintenance reuirement was reduced to 5.7 for the first 4 days of May and then to 3.0 cfs at request of USMC Camp Pendleton to assist in data collection.

2 - Art. 7(b) not applicable for months of May through December.

3 - Art. 17 - Camp Pendleton rights to groundwater equal the Flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to groundwater account shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

* 7.4 AF supplied from WR-34 and 4.1 AF supplied from potable connection to WR-34 outlet pipe because of MWD shutdown on San Diego Pipeline #5.

** Water supplied from potable connection to WR-34 outlet pipe because of MWD shutdown on San Diego Pipeline #5.

*** 2.1 AF supplied from WR-34 and 3.4 AF supplied from potable connection to WR-34 outlet pipe because of MWD shutdown on San Diego Pipeline #5.

**** 5.5 AF supplied from WR-34 and 1.5 AF from potable connection to WR-34 outlet pipe.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

JUNE 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge MWD	WR-34 Make-Up Discharge MWD	Climatic Credits Earned /2	Climatic Credits Earned /2		CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE Input	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF		cfs	AF	cfs	AF	AF
1	11.0	12				11.4	22.6	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
2	11.0	12				11.4	22.6	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
3	11.0	12				11.4	22.6	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
4	11.0	11				11.6	23.0	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
5	12.0	12				12.1	24.0	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
6	12.0	12				12.2	24.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
7	11.0	11				12.0	23.8	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
8	11.0	11				11.9	23.6	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
9	11.0	11				11.9	23.6	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
10	12.0	12				12.1	24.0	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
11	12.0	12	11.6	11.5	0.1	12.2	24.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
12	12.0	12	11.6	11.5	0.1	12.2	24.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
13	12.0	12	11.6	11.5	0.1	12.0	23.8	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
14	11.0	11	11.6	11.5	0.1	11.7	23.3	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
15	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
16	12.0	12	11.5	11.5	0.0	12.0	23.9	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
17	11.0	11	11.5	11.5	0.0	11.8	23.5	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
18	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
19	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
20	12.0	12	11.5	11.5	0.0	12.1	24.0	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
21	12.0	12	11.5	11.5	0.0	12.3	24.4	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
22	12.0	12	11.5	11.5	0.0	12.3	24.4	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
23	12.0	12	11.5	11.5	0.0	12.3	24.4	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
24	11.0	11	11.5	11.5	0.0	11.8	23.5	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
25	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
26	12.0	12	11.5	11.5	0.0	12.3	24.3	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
27	11.0	11	11.5	11.5	0.0	11.9	23.6	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
28	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
29	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
30	12.0	12	11.5	11.5	0.0	12.3	24.4	0.0	0.0		0.0	0.0	0.0	0.0	5,000.0
31	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL SFD	343.0	346.0	230.4	230.0	0.4	357.5			0.0		0.0		0.0		
TOTAL AF	680.3	686.3	457.0	456.2	0.8	709.1	709.1	0.0		0.0		0.0		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.
1 - Flow was increased to 11.5 at the request of Camp Pendleton to make up for reduced flows during May.
2 - Art. 7(b) not applicable for months of May through December.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

JULY 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge		Climatic Credits Earned /2		CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE				
						MWD	MWD			Input	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	cfs	AF	AF
1	12.0	12				12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
2	12.0	12				12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
3	12.0	12				12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
4	12.0	12				12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
5	12.0	12				12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
6	12.0	12				12.5	24.7	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
7	11.0	11				11.9	23.6	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
8	11.0	11				11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
9	11.0	11				11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
10	11.0	11				11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
11	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
12	12.0	12	11.5	11.5	0.0	12.4	24.5	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
13	12.0	12	11.5	11.5	0.0	12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
14	12.0	12	11.5	11.5	0.0	12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
15	12.0	12	11.5	11.5	0.0	12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
16	12.0	12	11.5	11.5	0.0	12.5	24.8	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
17	11.0	11	11.5	11.5	0.0	11.8	23.4	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
18	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
19	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
20	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
21	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
22	12.0	12	11.5	11.5	0.0	12.4	24.6	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
23	12.0	12	11.5	11.5	0.0	12.6	25.0	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
24	12.0	12	11.5	11.5	0.0	12.6	25.0	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
25	12.0	12	11.5	11.5	0.0	12.6	25.0	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
26	12.0	12	11.5	11.5	0.0	12.6	25.0	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
27	11.0	11	11.5	11.5	0.0	11.9	23.6	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
28	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
29	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
30	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
31	11.0	11	11.5	11.5	0.0	11.7	23.2	0.0	0.0	0.0	0.0	0.0	0.0	5,000.0
TOTAL SFD	357.0	357.0	241.5	241.5	0.0	376.1			0.0	0.0		0.0		
TOTAL AF	708.1	708.1	479.0	479.0	0.0	746.0	746.0	0.0			0.0		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.
1 - Flow was increased to 11.5 at the request of Camp Pendleton to make up for reduced flows during May.
2 - Art. 7(b) not applicable for months of May through December.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

AUGUST 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge		Climatic Credits Earned /2		CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE				
						MWD	MWD			Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	cfs	AF	AF
1	8.3	7.7				8.5	16.9	0.0	0.0	1.1	2.2	0.0	0.0	5,000.0
2	7.3	6.3				7.3	14.5	0.0	0.0	1.1	2.2	0.0	0.0	5,000.0
3	7.5	6.4				7.5	14.8	0.0	0.0	1.1	2.2	0.0	0.0	5,000.0
4	7.5	6.5				7.6	15.0	0.0	0.0	1.1	2.2	0.0	0.0	5,000.0
5	7.6	6.6				7.7	15.2	0.0	0.0	1.1	2.2	0.0	0.0	5,000.0
6	4.7	4.7				4.8	9.6	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
7	3.1	3.1				3.5	6.9	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
8	3.0	3.0				3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
9	3.1	3.1				3.5	6.9	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
10	3.2	3.2				3.5	6.9	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
11	3.3	3.3	4.6	3.0	1.6	3.1	6.1	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
12	3.0	3.0	4.3	3.0	1.3	3.4	6.8	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
13	3.1	3.1	4.0	3.0	1.0	3.5	6.9	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
14	3.1	3.1	3.6	3.0	0.6	3.4	6.8	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
15	3.0	3.0	3.3	3.0	0.3	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
16	3.0	3.0	3.1	3.0	0.1	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
17	3.0	3.0	3.1	3.0	0.1	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
18	3.0	3.0	3.1	3.0	0.1	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
19	3.2	3.0	3.1	3.0	0.1	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
20	3.2	3.0	3.1	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
21	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
22	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
23	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
24	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
25	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
26	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
27	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
28	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
29	3.2	3.0	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
30	3.1	2.9	3.0	3.0	0.0	3.4	6.7	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
31	3.2	3.0	3.0	3.0	0.0	3.4	6.8	0.0	0.0	4.6	9.1	0.0	0.0	5,000.0
TOTAL SFD	121.3	114.0	68.2	63.0	5.2	128.1			0.0	125.1		0.0		
TOTAL AF	240.6	226.1	135.2	125.0	10.2	254.0	254.0				248.1		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Flow was decreased for the first four days to 6.5 cfs at the request of Camp Pendleton to make up for reduced flows during May and to reduce CAP credit accumulation. For the balance of the month the flow was reduced to 3.0 cfs.

2 - Art. 7(b) not applicable for months of May through December.

3 - Foregone make-up water credited to groundwater account but cumulative balance did not increase due to account balance maximum of 5,000 AF.

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS

SANTA MARGARITA RIVER NEAR TEMECULA

SEPTEMBER 2009 - ABOVE NORMAL YEAR

											CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE				
DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge MWD	WR-34 Make-Up Discharge MWD	Climatic Credits Earned /2	Climatic Credits Earned /2		Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF		cfs	AF	cfs	AF	AF
1	3.4	3.2				3.5	6.9	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
2	3.3	3.1				3.3	6.6	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
3	3.2	3.2				3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
4	2.9	2.9				3.0	6.0	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
5	3.0	3.0				3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
6	3.0	3.0				3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
7	3.0	3.0				3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
8	3.0	3.0				3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
9	3.0	3.0				3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
10	3.0	3.0				3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
11	3.0	3.0	3.0	3.0	0.0	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
12	3.0	3.0	3.0	3.0	0.0	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
13	3.0	3.0	3.0	3.0	(0.0)	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
14	2.9	2.9	3.0	3.0	(0.0)	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
15	3.0	3.0	3.0	3.0	(0.0)	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
16	2.9	2.9	3.0	3.0	(0.0)	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
17	3.0	3.0	3.0	3.0	(0.0)	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
18	2.9	2.9	3.0	3.0	(0.0)	3.1	6.1	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
19	3.0	3.0	3.0	3.0	(0.0)	3.1	6.2	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
20	3.0	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
21	3.0	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
22	3.0	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
23	2.8	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
24	2.8	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
25	2.8	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
26	2.8	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
27	2.8	3.0	3.0	3.0	(0.0)	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
28	2.8	3.0	3.0	3.0	0.0	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
29	2.8	3.0	3.0	3.0	0.0	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
30	2.8	3.0	3.0	3.0	0.0	3.2	6.3	0.0	0.0		4.4	8.7	0.0	0.0	5,000.0
31	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL SFD	88.9	90.1	59.7	60.0	(0.3)	94.1			0.0		132.0		0.0		
TOTAL AF	176.3	178.7	118.5	119.0	(0.6)	186.7	186.7	0.0		0.0		261.8		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.

1 - Flow was decreased at the request of Camp Pendleton to 3.0 cfs to make up for reduced flows during May and to reduce CAP credit accumulation.

2 - Art. 7(b) not applicable for months of May through December.

3 - Foregone make-up water credited to groundwater account but cumulative balance did not increase due to account balance maximum of 5,000 AF.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

OCTOBER 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge cfs	USGS Daily Website Discharge cfs	10-Day Moving Average of Website Discharge cfs	Minimum Flow Maintenance Requirement /1 cfs	Moving Average Less Required Flow cfs	WR-34 Make-Up Discharge MWD cfs	WR-34 Make-Up Discharge MWD AF	Climatic Credits Earned /2 cfs	Climatic Credits Earned /2 AF	CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE: Input /3 cfs	Input AF	Output cfs	Output AF	Cumulative GW Account Balance AF
1	2.8	3.0				3.2	6.3	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
2	2.8	2.8				3.2	6.3	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
3	3.0	3.0				3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
4	3.0	3.0				3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
5	3.0	3.0				3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
6	3.0	3.0				3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
7	3.1	3.1				3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
8	3.1	3.1				3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
9	3.0	3.0				3.3	6.6	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
10	3.0	3.0				3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
11	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
12	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
13	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
14	3.1	3.1	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
15	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
16	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
17	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
18	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
19	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
20	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
21	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
22	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
23	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
24	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
25	3.0	3.0	3.0	3.0	0.0	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
26	2.9	2.9	3.0	3.0	(0.0)	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
27	2.9	2.9	3.0	3.0	(0.0)	3.3	6.5	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
28	3.0	3.0	3.0	3.0	(0.0)	3.3	6.6	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
29	3.0	3.0	3.0	3.0	(0.0)	3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
30	3.0	3.0	3.0	3.0	(0.0)	3.4	6.7	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
31	3.2	3.2	3.0	3.0	0.0	3.1	6.2 *	0.0	0.0	4.7	9.3	0.0	0.0	5,000.0
TOTAL SFD	92.9	93.1	63.1	63.0	0.1	102.1			0.0	145.7		0.0		
TOTAL AF	184.3	184.7	125.2	125.0	0.2	202.6	202.6	0.0		0.0	289.0		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.
1 - Flow was decreased at the request of Camp Pendleton to 3.0 cfs to make up for reduced flows during May and to reduce CAP credit accumulation.
2 - Art. 7(b) not applicable for months of May through December.
3 - Foregone make-up water credited to groundwater account but cumulative balance did not increase due to account balance maximum of 5,000 AF.
* 3.7 AF supplied by WR-34 and 2.5 AF from potable connection to WR-34 Outlet Pipe.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

NOVEMBER 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge MWD	WR-34 Make-Up Discharge MWD		Climatic Credits Earned /2		CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF		cfs	AF	cfs	AF	cfs	AF	AF
1	3.0	3.0				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
2	3.1	3.1				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
3	3.1	3.1				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
4	3.0	3.0				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
5	3.0	3.0				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
6	3.0	3.0				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
7	3.0	3.0				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
8	3.0	3.0				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
9	3.0	3.0				2.9	5.9	*	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
10	3.0	3.0				3.3	6.5	**	0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
11	3.0	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
12	3.0	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
13	3.0	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
14	3.0	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
15	3.0	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
16	2.9	2.9	3.0	3.0	(0.0)	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
17	3.1	3.0	3.0	3.0	(0.0)	3.3	6.6		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
18	3.3	3.1	3.0	3.0	0.0	3.4	6.7		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
19	3.2	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
20	3.2	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
21	3.2	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
22	3.2	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
23	3.2	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
24	3.2	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
25	3.2	3.0	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
26	3.1	2.9	3.0	3.0	0.0	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
27	3.2	3.0	3.0	3.0	0.0	3.3	6.6		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
28	3.3	3.1	3.0	3.0	0.0	3.2	6.4		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
29	3.1	2.9	3.0	3.0	(0.0)	3.2	6.3		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
30	3.2	3.0	3.0	3.0	(0.0)	3.3	6.5		0.0	0.0	5.8	11.5	0.0	0.0	5,000.0
31	---	---	---	---	---	---	---				---	---	---	---	---
TOTAL SFD	92.8	90.1	60.0	60.0	0.0	95.4				0.0	174.0		0.0		
TOTAL AF	184.1	178.7	119.0	119.0	0.0	189.3	189.3		0.0		0.0	345.1		0.0	

Monthly totals are rounded to the nearest tenth of an acre foot.
1 - Flow was decreased at the request of Camp Pendleton to 3.0 cfs to make up for reduced flows during May and to reduce CAP credit accumulation.
2 - Art. 7(b) not applicable for months of May through December.
3 - Foregone make-up water credited to groundwater account but cumulative balance did not increase due to account balance maximum of 5,000 AF.
* - Water supplied from potable connection to WR-34 Outlet Pipe due to EMWD Shutdown on San Diego Pipeline #5.
** - 4.1 AF supplied from potable connection to WR-34 outlet pipe and 2.4 AF from WR-34 due to EMWD Shutdown on San Diego Pipeline #5.

APPENDIX E.1

SANTA MARGARITA RIVER WATERSHED

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS
SANTA MARGARITA RIVER NEAR TEMECULA

DECEMBER 2009 - ABOVE NORMAL YEAR

DAY	USGS Official Discharge	USGS Daily Website Discharge	10-Day Moving Average of Website Discharge	Minimum Flow Maintenance Requirement /1	Moving Average Less Required Flow	WR-34 Make-Up Discharge		Climatic Credits Earned /2		CAMP PENDLETON GROUNDWATER ACCOUNT BALANCE				
						MWD	MWD			Input /3	Input	Output	Output	Cumulative GW Account Balance
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	cfs	AF	AF
1	3.5	3.4				3.6	7.1	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
2	3.5	3.5				3.5	6.9	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
3	3.3	3.3				3.4	6.7	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
4	3.3	3.3				3.4	6.7	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
5	3.3	3.3				3.3	6.6	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
6	3.3	3.3				3.3	6.6	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
7	435.0	435				1.5	3.0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
8	96.0	96				0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
9	15.0	15				0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
10	5.8	5.8				0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
11	1.1	1.1	57.0	3.3	53.7	0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
12	306.0	306	87.2	3.3	83.9	0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
13	479.0	479	134.8	3.3	131.5	0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
14	44.0	44	138.9	3.3	135.6	0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
15	10.0	10	139.5	3.3	136.2	0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
16	2.5	2.5	139.4	3.3	136.1	0.0	0	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
17	3.4	3.4	96.3	3.3	93.0	2.4	4.7	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
18	4.1	4.1	87.1	3.3	83.8	3.4	6.8	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
19	3.5	3.5	85.9	3.3	82.6	2.9	5.8	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
20	3.3	3.3	85.7	3.3	82.4	2.8	5.5	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
21	3.3	3.3	85.9	3.3	82.6	2.7	5.3	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
22	3.1	3.1	55.6	3.3	52.3	2.8	5.5	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
23	3.4	3.4	8.1	3.3	4.8	3.2	6.4	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
24	3.4	3.4	4.0	3.3	0.7	3.2	6.4	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
25	3.3	3.3	3.3	3.3	0.0	3.2	6.3	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
26	3.4	3.4	3.4	3.3	0.1	3.2	6.3	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
27	3.3	3.3	3.4	3.3	0.1	3.1	6.2	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
28	3.4	3.4	3.3	3.3	0.0	3.1	6.2	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
29	3.3	3.3	3.3	3.3	0.0	3.1	6.1	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
30	3.2	3.2	3.3	3.3	0.0	3.1	6.1	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
31	3.5	3.7	3.4	3.3	0.1	3.3	6.5	0.0	0.0	7.1	14.1	0.0	0.0	5,000.0
TOTAL SFD	1,465.5	1,465.6	1,228.8	69.3	1,159.5	67.4				220.1				
TOTAL AF	2,906.8	2,907.0	2,437.3	137.5	2,299.9	133.7	133.7	0.0			436.6			

Monthly totals are rounded to the nearest tenth of an acre foot.
1 - Flow was decreased at the request of Camp Pendleton to 3.3 cfs to make up for reduced flows during May and to reduce CAP credit accumulation.
2 - Art. 7(b) not applicable for months of May through December.
3 - Foregone make-up water credited to groundwater account but cumulative balance did not increase due to account balance maximum of 5,000 AF.

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX E.2

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

PALA PARK GROUNDWATER MONITORING WELL

September 2010

Site Description
Pala Park Groundwater Monitoring Well
(8S/2W-19A1-6)

LOCATION: Latitude 33° 28' 19.67", longitude 117° 07' 06.86" (NAD83) in Riverside County, California. Wells are located off Temecula Lane just south of Pala Community Park in Temecula, California.

SITE INFORMATION: Land-surface altitude is 1017 feet above mean sea level (NGVD29) from 24000 scale topographic map.

INSTRUMENTATION: In_Situ transducers, In_Situ barometer, with a Design Analysis logger and GOES transmitter. Water levels are logged at 15-minute intervals. A 12-volt rechargeable battery provides power.

WATER-LEVEL RECORD: The period of record for intermittent and daily water-level measurements is listed below.

State well number	USGS station number	Intermittent water-level	Daily water-level
8S/2W-19A1	332819117070601	09/30/2006 to present	12/27/2006 to present
8S/2W-19A2	332819117070602	09/30/2006 to present	12/27/2006 to present
8S/2W-19A3	332819117070603	09/30/2006 to present	12/27/2006 to present
8S/2W-19A4	332819117070604	09/30/2006 to present	12/27/2006 to present
8S/2W-19A5	332819117070605	09/30/2006 to present	12/27/2006 to present
8S/2W-19A6	332819117070606		

WATER-LEVEL MEASUREMENTS: Water levels are measured manually each month by means of a calibrated electric tape. Electric tape is used to avoid entangling the sensor and cable. Correction factors (comparison to a steel tape) are applied when necessary. Water-level corrections, for example to compensate for gage height, are calculated after each measurement and applied to the recorded values. In the annual data report daily values are reported as the measurement at 1200 hours in feet below land surface.

MEASURING POINT: Measuring point #1 is at an even level with the top of the vault. Measuring point #2 is a black mark on the top of the PVC casing.

TOPOGRAPHIC MAP: USGS Pechanga, California, 7.5 minute series.

WELL SUMMARY INFORMATION:

State well number	USGS station number	Hole depth (ft)	Perforation depth (ft)	Casing size and type	Date drilled
8S/2W-19A1	332819117070601	1499	1430-1470	3" PVC	9/30/06
8S/2W-19A2	332819117070602	1499	1110-1130	2" PVC	9/30/06
8S/2W-19A3	332819117070603	1499	750-770	2" PVC	9/30/06
8S/2W-19A4	332819117070604	1499	380-400	2" PVC	9/30/06
8S/2W-19A5	332819117070605	1499	120-140	2" PVC	9/30/06
8S/2W-19A6	332819117070606	1499	15-35	2" PVC	9/30/06

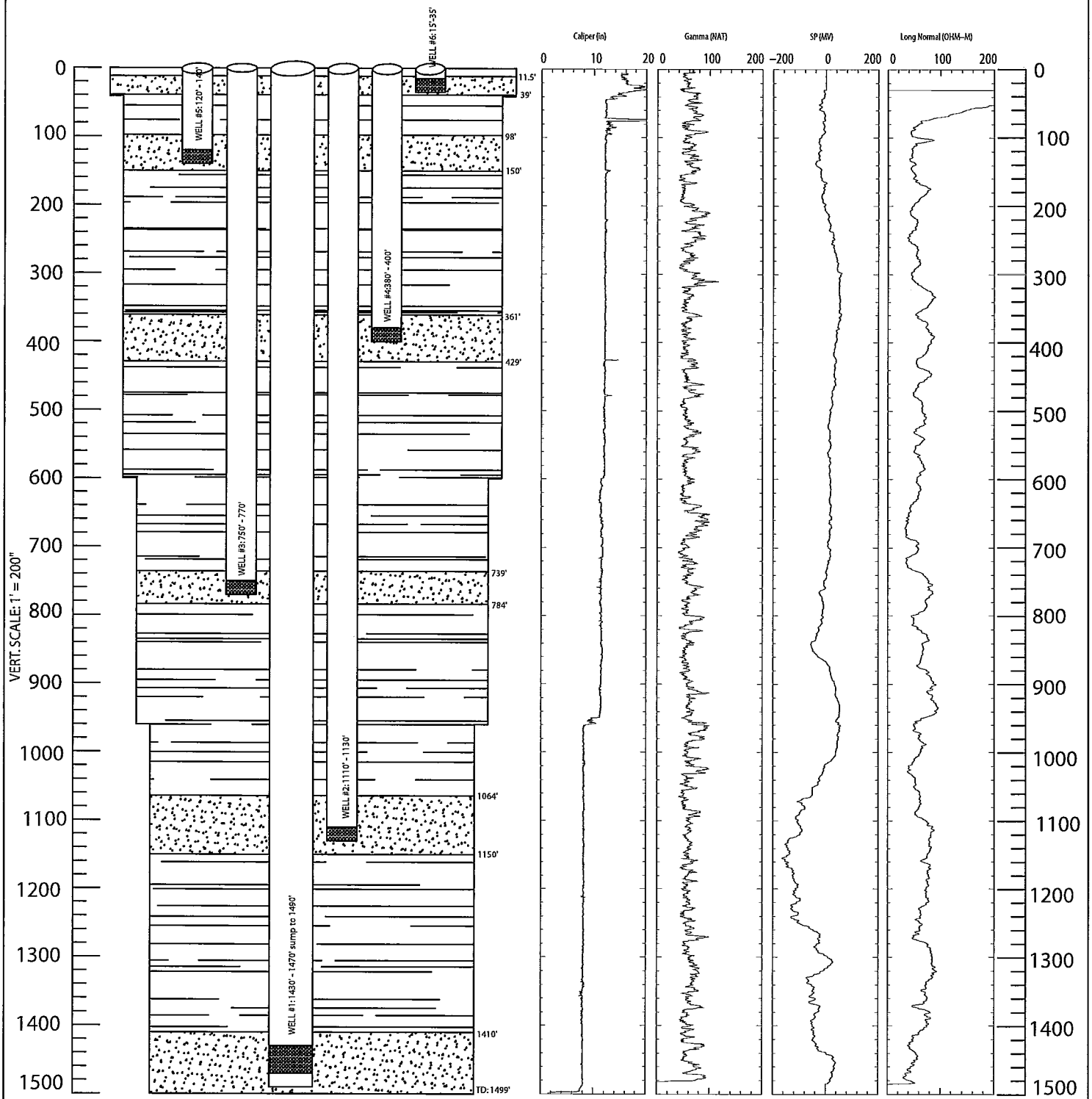
ROAD LOG: Key intersection is the intersection of CA-79 and Interstate Highway 15. Directions given are from Interstate Highway 15 North.

Mileage	Description
0.0	From I-15 North take the CA-79 South exit onto a local road toward Temecula / Indio.
0.3	Turn right on CA-79 South.
1.0	Turn right on Pechanga Parkway.
1.7	Turn left on Muirfield Dr.
1.9	Turn right on Canterfield Dr.
1.9	Turn right on Temecula Ln. Vault is located at end of Temecula Ln in a dirt/gravel lot adjacent to the parking lot for Pala Park. Vault is accessible from parking lot.

ADDITIONAL INFORMATION:

Additional information for Pala Park Groundwater Monitoring Well can be found in Santa Margarita River Watershed 2007 Annual Watermaster Report including geophysical logs; core, shaker, and sieve lithological logs; and well completion reports. Information can also be found at the following web site: http://ca.water.usgs.gov/temecula/.

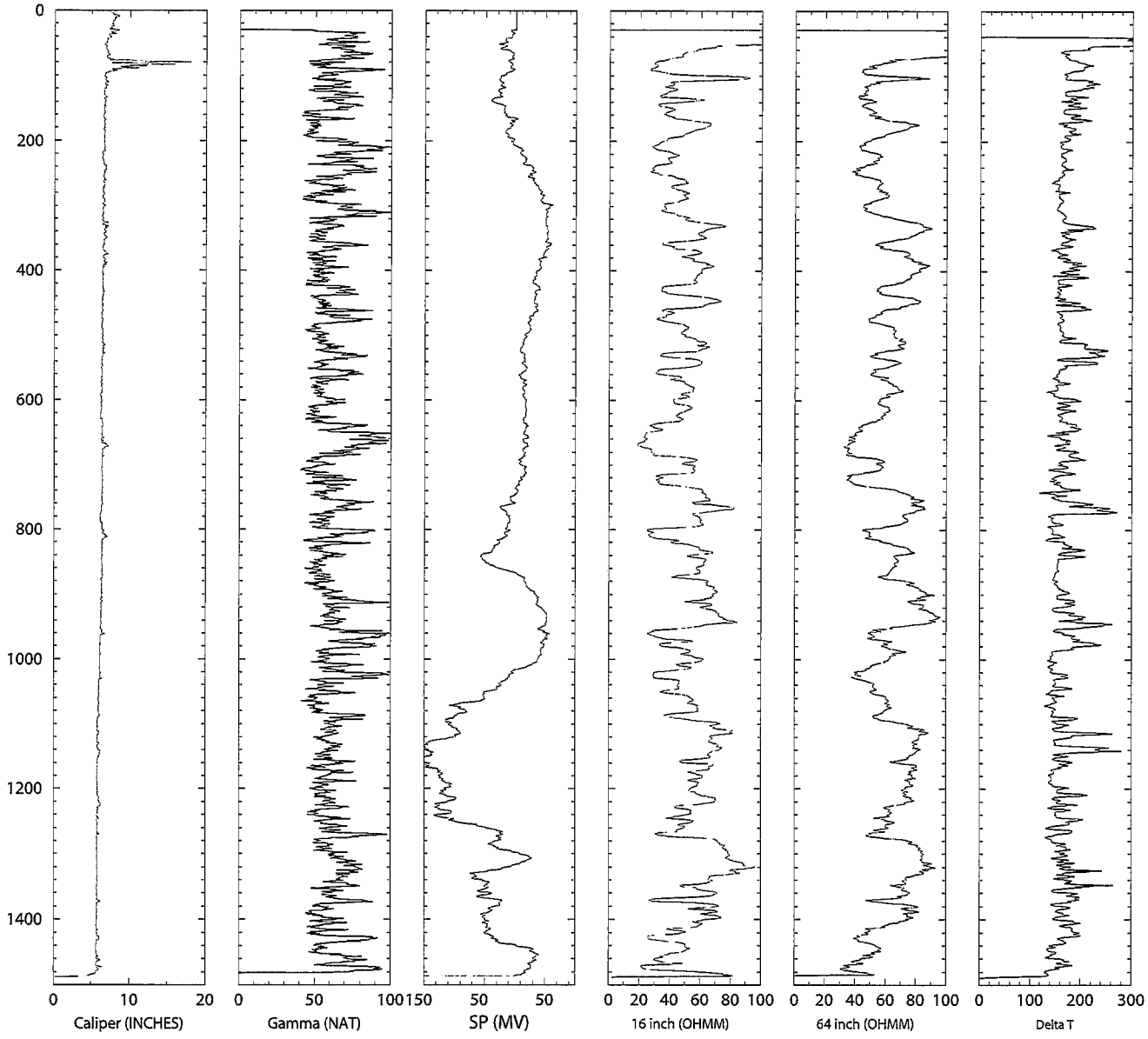
SITE I.D.:	3328191170706 01-06	COMPLETION DATE:	9/30/06
STATION NAME:	08S/02W-19A 01-06	TOTAL DEPTH:	1499'
USGS SITE:	TMPP- Temecula Pala Park	WELL FINISH:	VAULT
OWNER:	Rancho California Water Agency		

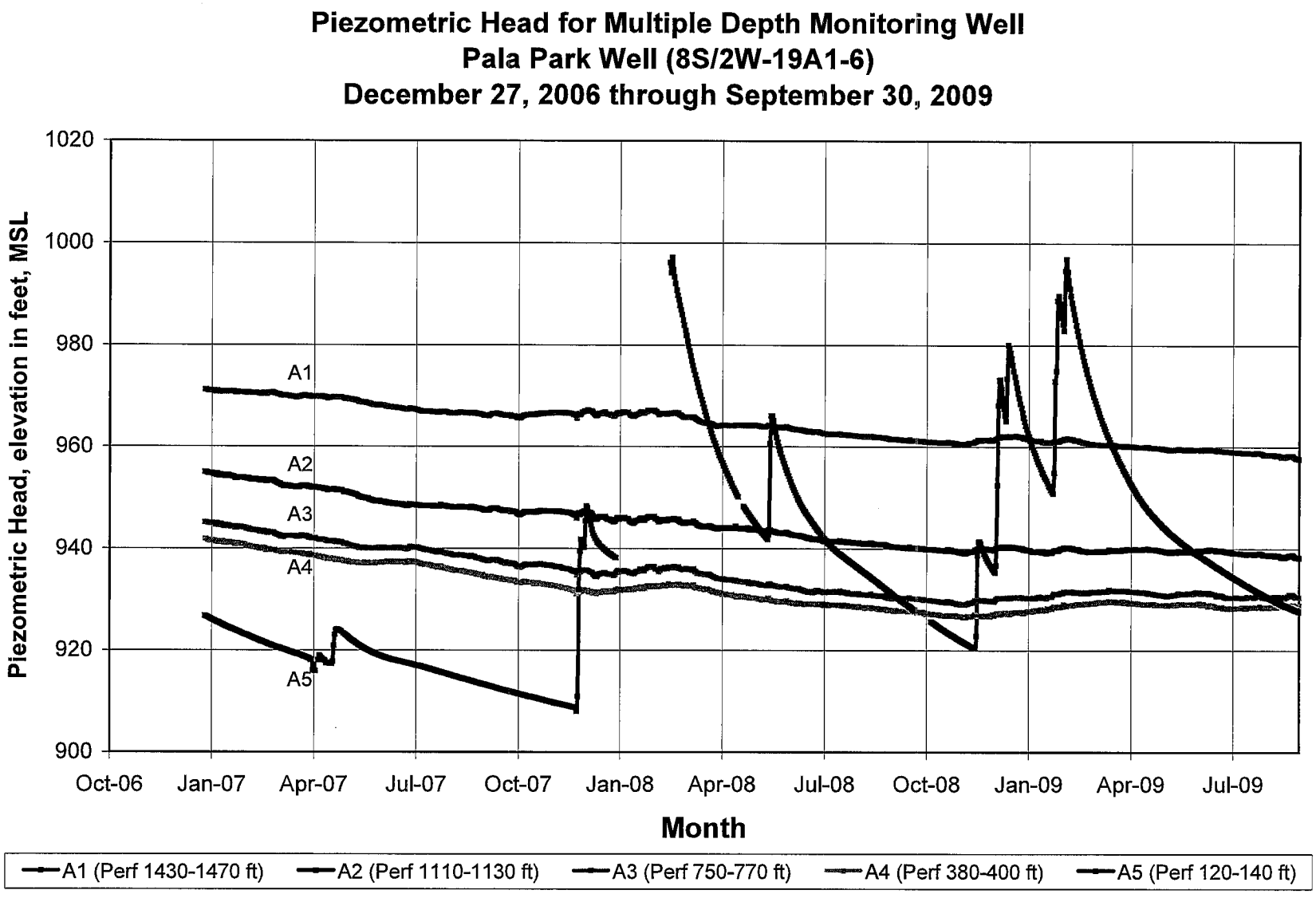


DRILL TYPE:	HYDRAULIC MUD ROTARY	DRILLER:	USGS WESTERN REGION CREW
CASING TYPE:	SCHD. 80 PVC 20' SEC.	SCREEN TYPE:	SCHD. 80 1.5"x0.02"SLOTS
GROUT:	PUREGOLD GROUT @ 30% SOLIDS	SAND:	RMC LONESTAR #3
BOREHOLE DIA:	15": 0'- 41'; 12.25": 41'-600'; 10.5": 600'-960'; 8.5": 960'-1499'		

TMPP

Pacific Surveys Logs



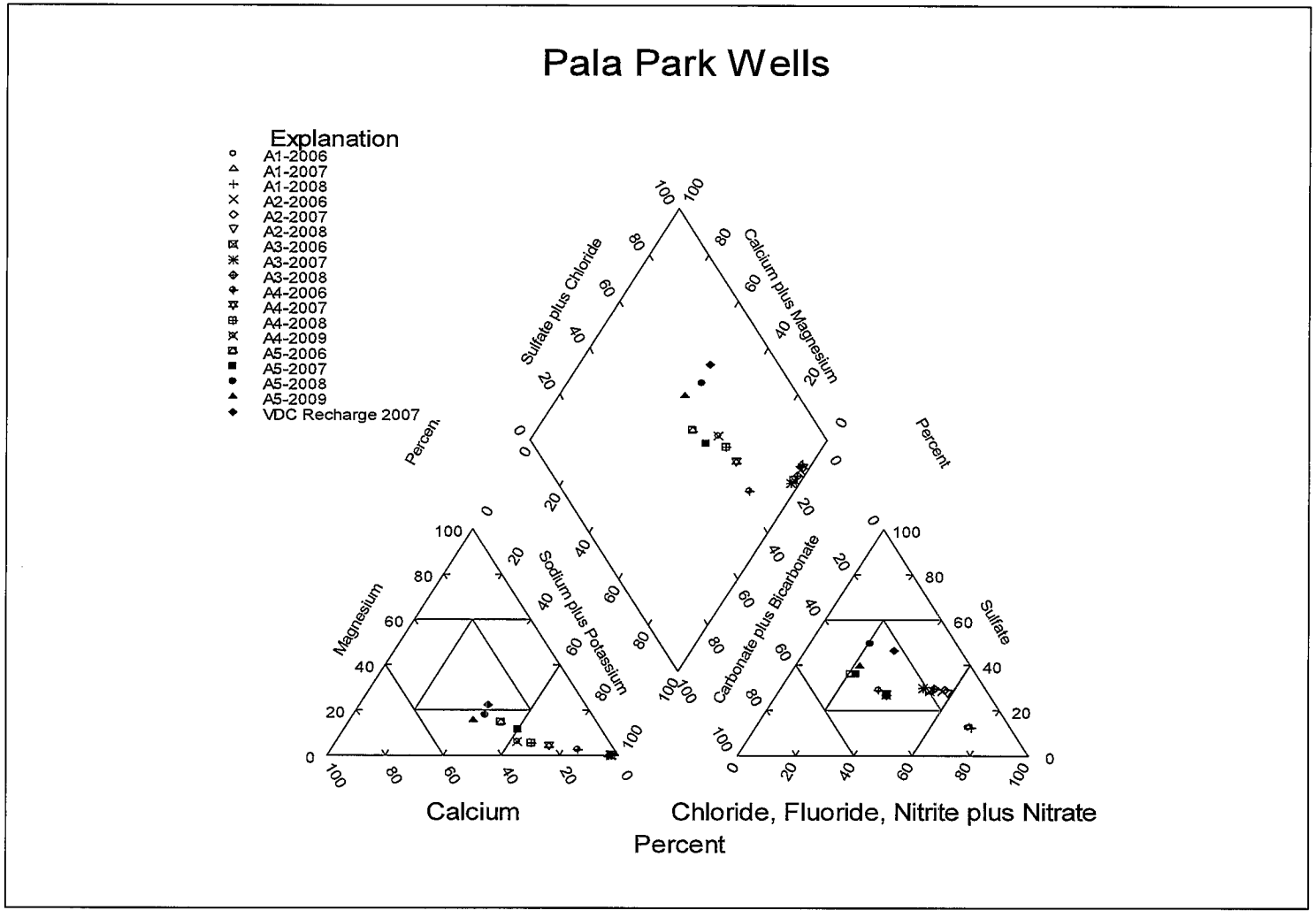

Piezometric Head for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
December 27, 2006 through September 30, 2009
Piezometric Head, elevation in feet, MSL
1020
1000
980
960
940
920
900
A1
A2
A3
A4
A5
Oct-06
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Month
A1 (Perf 1430-1470 ft)
A2 (Perf 1110-1130 ft)
A3 (Perf 750-770 ft)
A4 (Perf 380-400 ft)
A5 (Perf 120-140 ft)

End-of Month Piezometric Head for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
(elevation in feet, MSL)

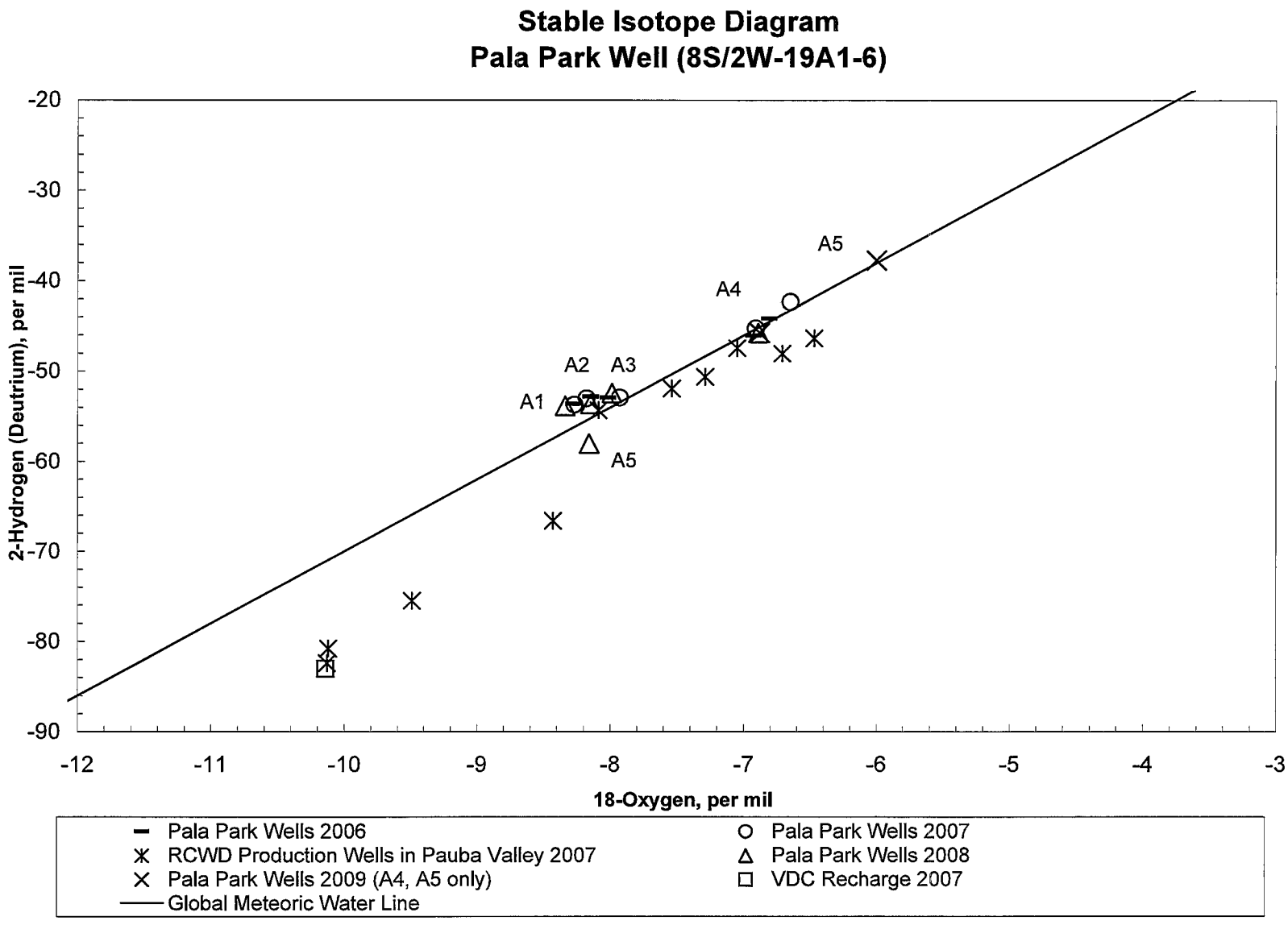
October 2006 through September 2009

Month	Well A1	Well A2	Well A3	Well A4	Well A5
Oct 06	---	---	---	---	---
Nov	---	---	---	---	---
Dec	970.97	954.73	944.95	941.54	926.31
Jan 07	970.65	953.83	944.07	940.76	923.21
Feb	970.44	953.11	942.93	939.65	920.77
Mar	969.80	952.02	942.11	938.73	918.47
Apr	969.60	951.37	941.13	937.61	923.65
May	968.13	949.31	940.04	937.16	919.28
Jun	967.32	948.40	940.02	937.29	917.41
Jul	966.80	948.38	939.25	936.23	915.60
Aug	966.44	947.88	938.13	934.93	913.66
Sep	966.15	947.37	937.16	933.84	911.87
Oct	966.47	947.27	936.82	932.97	910.16
Nov	965.56	945.91	934.77	931.17	907.93
Dec	966.19	945.53	934.87	931.51	938.87
Jan 08	966.58	945.57	935.68	932.18	---
Feb	966.64	945.74	936.34	932.92	990.70
Mar	964.54	944.35	934.79	931.71	963.22
Apr	964.15	943.91	933.45	930.56	948.24
May	963.78	943.12	932.52	929.58	960.88
Jun	962.96	942.00	931.55	929.03	945.64
Jul	962.35	941.37	931.37	928.83	938.27
Aug	961.88	940.86	930.74	928.18	933.20
Sep	961.24	940.12	930.21	927.64	928.37
Oct	960.73	939.62	929.45	926.74	923.70
Nov	961.37	940.01	929.91	926.84	941.33
Dec	962.17	940.36	930.44	927.41	976.14
Jan 09	960.88	939.14	930.34	928.01	953.31
Feb	961.24	939.84	931.38	929.02	982.94
Mar	960.34	939.64	931.76	929.53	960.46
Apr	959.98	939.92	931.39	929.10	948.52
May	959.61	939.56	931.25	929.11	941.61
Jun	959.46	939.83	931.20	928.82	937.06
Jul	958.83	938.98	930.43	928.39	932.94
Aug	958.24	938.57	930.50	928.68	929.33
Sep	957.20	937.87	930.43	928.81	926.62

Tri-Linear Diagram



Source: USGS California Water Science Center, see following website for more information: http://ca.water.usgs.gov/temecula.



Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
November 2006

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		11/8/2006	11/2/2006	11/1/2006	11/6/2006	11/8/2006
3	Sampling depth, feet						
10	Temperature, water, degrees Celsius		22.3	20.5	21.4	22.9	20.8
28	Agency analyzing sample, code		80020	80020	80020	80020	80020
59	Flow rate, instantaneous, gallons per minute						
95	Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius		665	821	750	831	687
191	Hydrogen ion, water, unfiltered, calculated, milligrams per liter		M	M	M	M	0.00002
300	Dissolved oxygen, water, unfiltered, milligrams per liter		0.40	0.29	0.30	0.53	6.2
400	pH, water, unfiltered, field, standard units		9.4	9.7	9.4	8.6	7.8
403	pH, water, unfiltered, laboratory, standard units		9.5	9.7	9.4	8.6	8
602	Total nitrogen, water, filtered, milligrams per liter				0.14 E	0.14 E	2.7
607	Organic nitrogen, water, filtered, milligrams per liter			0.08	0.04 E	0.05 E	
608	Ammonia, water, filtered, milligrams per liter as nitrogen		0.028	0.041	0.046	0.041	< 0.020
613	Nitrite, water, filtered, milligrams per liter as nitrogen	1 (a)		0.010	0.011	0.008	0.004
618	Nitrate, water, filtered, milligrams per liter as nitrogen				0.04 E	0.04 E	2.59
623	Ammonia plus organic nitrogen, water, filtered, milligrams per liter as nitrogen			0.12	0.09 E	0.09 E	0.13
631	Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen			< 0.06	0.05 E	0.05 E	2.60
660	Orthophosphate, water, filtered, milligrams per liter			2.41	3.33	1.88	0.741
666	Phosphorus, water, filtered, milligrams per liter			1.02	1.32	0.67	0.33
671	Orthophosphate, water, filtered, milligrams per liter as phosphorus			0.785	1.08	0.614	0.242
900	Hardness, water, milligrams per liter as calcium carbonate		8	9	8	57	160
904	Noncarb hardness, water filtered field, milligrams per liter as calcium carbonate						
915	Calcium, water, filtered, milligrams per liter		3.14	3.32	2.62	18.7	44.9
925	Magnesium, water, filtered, milligrams per liter		0.106	0.058	0.288	2.45	12.1
930	Sodium, water, filtered, milligrams per liter		127	152	138	145	81.4
931	Sodium adsorption ratio, water, number		19	23	22	8.4	2.8
932	Sodium fraction of cations, water, percent in equivalents of major cations		97	97	97	84	52
935	Potassium, water, filtered, milligrams per liter		0.62	0.96	1.26	2.39	2.10
940	Chloride, water, filtered, milligrams per liter	600	138	131	112	87.1	40.1
945	Sulfate, water, filtered, milligrams per liter	600	34.1	95.3	84.7	102	110
950	Fluoride, water, filtered, milligrams per liter	2 (b)	4.56	4.18	1.09	0.38	0.42
955	Silica, water, filtered, milligrams per liter		17.3	19.0	14.6	17.2	28.3
1000	Arsenic, water, filtered, micrograms per liter	10 (c)	25.7	20.4	17.1	6.0	2.4
1005	Barium, water, filtered, micrograms per liter	1000 (d)	2.9	2.6	2.3	10.4	31.9
1010	Beryllium, micrograms per liter	4 (e)					
1020	Boron, water, filtered, micrograms per liter		128	138	97	120	150
1025	Cadmium, micrograms per liter	5 (f)					
1030	Chromium, micrograms per liter	50 (g)					
1035	Cobalt, micrograms per liter						
1040	Copper, micrograms per liter	1000 (h)					
1046	Iron, water, filtered, micrograms per liter	300	< 6	3 E	3 E	< 6	< 6
1049	Lead, micrograms per liter						
1056	Manganese, water, filtered, micrograms per liter	50	0.5 E	0.7	1.6	7.6	1.7
1057	Thallium, micrograms per liter	2 (i)					
1060	Molybdenum, micrograms per liter						
1065	Nickel, micrograms per liter	100 (j)					
1075	Silver, micrograms per liter	100 (k)					
1080	Strontium, water, filtered, micrograms per liter		23.0	16.8	17.8	161	202
1085	Vanadium, micrograms per liter						
1090	Zinc, micrograms per liter	5000 (l)					
1095	Antimony, micrograms per liter	6 (m)					
1106	Aluminum, water, filtered, micrograms per liter	1000 (n)	95.3	127	82.4	54.3	4.1
1130	Lithium, water, filtered, micrograms per liter		4	5	4	7	6
1145	Selenium, micrograms per liter	50 (o)					
4022	Terbuthylazine, water, filtered, recoverable, micrograms per liter					< 0.01	< 0.01

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
November 2006

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		11/8/2006	11/2/2006	11/1/2006	11/6/2006	11/8/2006
4025	Hexazinone, water, filtered, recoverable, micrograms per liter					< 0.026	< 0.026
4029	Bromacil, water, filtered, recoverable, micrograms per liter						
4035	Simazine, water, filtered, recoverable, micrograms per liter					< 0.006	0.036
4036	Prometryn, water, filtered, recoverable, micrograms per liter					< 0.006	< 0.006
4037	Prometon, water, filtered, recoverable, micrograms per liter					< 0.01	< 0.01
4040	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, micrograms per liter					< 0.014	< 0.014
4095	Fonofos, water, filtered, recoverable, micrograms per liter					< 0.006	< 0.006
7000	Tritium, water, unfiltered, picocuries per liter		-0.19	0.35	0.45	0.58	11.14
22703	Uranium, natural, micrograms per liter						
29801	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, laboratory, milligrams per liter as calcium carbonate		50	65	74	165	168
30217	Dibromomethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
32101	Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
32102	Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.08	< 0.08
32103	1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
32104	Tribromomethane, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
32105	Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
32106	Trichloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	0.03 E
34010	Toluene, water, unfiltered, recoverable, micrograms per liter	150				< 0.02	< 0.02
34030	Benzene, water, unfiltered, recoverable, micrograms per liter	1				< 0.02	< 0.02
34215	Acrylonitrile, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
34221	Anthracene, water, filtered, recoverable, micrograms per liter						
34248	Benzo[a]pyrene, water, filtered, recoverable, micrograms per liter	0.2 (p)					
34288	Tribromomethane, water, filtered, recoverable, micrograms per liter						
34301	Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	70				< 0.02	< 0.02
34311	Chloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
34371	Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	300				< 0.02	< 0.02
34377	Fluoranthene, water, filtered, recoverable, micrograms per liter						
34396	Hexachloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
34409	Isophorone, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34413	Bromomethane, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
34418	Chloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
34423	Dichloromethane, water, unfiltered, recoverable, micrograms per liter	5				< 0.04	< 0.04
34443	Naphthalene, water, filtered, recoverable, micrograms per liter						
34462	Phenanthrene, water, filtered, recoverable, micrograms per liter						
34466	Phenol, water, filtered, recoverable, micrograms per liter						
34470	Pyrene, water, filtered, recoverable, micrograms per liter						
34475	Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	5				< 0.04	< 0.04
34476	Tetrachloroethene, water, filtered, recoverable, micrograms per liter						
34488	Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	150				< 0.08	< 0.08
34496	1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	5				< 0.06	< 0.06
34501	1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6				< 0.02	< 0.02
34506	1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	200				< 0.04	< 0.04
34511	1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	5				< 0.04	< 0.04
34516	1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	1				< 0.10	< 0.10
34536	1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	600				< 0.04	< 0.04
34541	1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	5				< 0.02	< 0.02
34546	trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	10				< 0.02	< 0.02
34551	1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5				< 0.1	< 0.1
34566	1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
34571	1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5				< 0.04	< 0.04
34572	1,4-Dichlorobenzene, water, filtered, recoverable, micrograms per liter						
34668	Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter					< 0.14	< 0.14
34696	Naphthalene, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
34699	trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.1	< 0.1

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
November 2006

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		11/8/2006	11/2/2006	11/1/2006	11/6/2006	11/8/2006
34704	cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.06	< 0.06
38454	Dicrotophos, water, filtered, recoverable, micrograms per liter					< 0.08	< 0.08
38775	Dichlorvos, water, filtered, recoverable, micrograms per liter					< 0.01	< 0.01
38933	Chlorpyrifos, water, filtered, recoverable, micrograms per liter					< 0.005	< 0.005
39086	Alkalinity, water, filtered, incremental titration, field, milligrams per liter as calcium carbonate			61			
39175	Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.1	< 0.1
39180	Trichloroethene, water, unfiltered, recoverable, micrograms per liter	5				< 0.02	< 0.02
39381	Dieldrin, water, filtered, recoverable, micrograms per liter					< 0.009	< 0.009
39415	Metolachlor, water, filtered, recoverable, micrograms per liter					< 0.010	< 0.010
39532	Malathion, water, filtered, recoverable, micrograms per liter					< 0.016	< 0.016
39572	Diazinon, water, filtered, recoverable, micrograms per liter					< 0.005	< 0.005
39632	Atrazine, water, filtered, recoverable, micrograms per liter					< 0.007	< 0.007
39702	Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
46342	Alachlor, water, filtered, recoverable, micrograms per liter					< 0.005	< 0.005
49260	Acetochlor, water, filtered, recoverable, micrograms per liter					< 0.006	< 0.006
49295	1-Naphthol, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.09	< 0.09
49933	C-14, water, filtered, percent modern			17.27	13.56	63.16	
49934	C-14, counting error, water, filtered, percent modern						
49991	Methyl acrylate, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
49999	1,2,3,4-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
50000	1,2,3,5-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
50002	Bromoethene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
50004	tert-Butyl ethyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
50005	Methyl tert-pentyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
50305	Caffeine, water, filtered, recoverable, micrograms per liter						
50359	Metalaxyl, water, filtered, recoverable, micrograms per liter						
61209	Perchlorate, water, unfiltered, recoverable, micrograms per liter	6					
61585	Cyfluthrin, water, filtered, recoverable, micrograms per liter					< 0.053	< 0.053
61586	Cypermethrin, water, filtered, recoverable, micrograms per liter					< 0.046	< 0.046
61591	Fenamiphos, water, filtered, recoverable, micrograms per liter					< 0.03	< 0.03
61593	Iprodione, water, filtered, recoverable, micrograms per liter					< 0.026	< 0.026
61594	Isofenphos, water, filtered, recoverable, micrograms per liter					< 0.011	< 0.011
61596	Metalaxyl, water, filtered, recoverable, micrograms per liter					< 0.007	< 0.007
61598	Methidathion, water, filtered, recoverable, micrograms per liter					< 0.009	< 0.009
61599	Myclobutanil, water, filtered, recoverable, micrograms per liter					< 0.033	< 0.033
61601	Phosmet, water, filtered, recoverable, micrograms per liter					< 0.008	< 0.008
61610	Tribuphos, water, filtered, recoverable, micrograms per liter					< 0.035	< 0.035
61618	2-Chloro-2',6'-diethylacetanilide, water, filtered, recoverable, micrograms per liter					< 0.006	< 0.006
61620	2-Ethyl-6-methylaniline, water, filtered, recoverable, micrograms per liter					< 0.01	< 0.01
61625	3,4-Dichloroaniline, water, filtered, recoverable, micrograms per liter					< 0.004	< 0.004
61633	4-Chloro-2-methylphenol, water, filtered, recoverable, micrograms per liter					< 0.005	< 0.005
61635	Azinphos-methyl oxygen analog, water, filtered, recoverable, micrograms per liter					< 0.04	< 0.04
61636	Chlorpyrifos oxygen analog, water, filtered, recoverable, micrograms per liter					< 0.06	< 0.06
61644	Ethion monoxon, water, filtered, recoverable, micrograms per liter					< 0.02	< 0.02
61645	Fenamiphos sulfone, water, filtered, recoverable, micrograms per liter					< 0.053	< 0.053
61646	Fenamiphos sulfoxide, water, filtered, recoverable, micrograms per liter					< 0.04	< 0.04
61652	Malaoxon, water, filtered, recoverable, micrograms per liter					< 0.039	< 0.039
61664	Methyl paraoxon, water, filtered, recoverable, micrograms per liter					< 0.02	< 0.02
61666	Phorate oxygen analog, water, filtered, recoverable, micrograms per liter					< 0.03	< 0.03
61668	Phosmet oxygen analog, water, filtered, recoverable, micrograms per liter					< 0.05	< 0.05
61674	Terbufos oxygen analog sulfone, water, filtered, recoverable, micrograms per liter					< 0.04	< 0.04
61705	Diethoxyoctylphenol, water, filtered, recoverable, micrograms per liter						
61706	Monoethoxyoctylphenol, water, filtered, recoverable, micrograms per liter						
62005	Cotinine, water, filtered, recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
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Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		11/8/2006	11/2/2006	11/1/2006	11/6/2006	11/8/2006
62054	1-Methylnaphthalene, water, filtered, recoverable, micrograms per liter						
62055	2,6-Dimethylnaphthalene, water, filtered, recoverable, micrograms per liter						
62056	2-Methylnaphthalene, water, filtered, recoverable, micrograms per liter						
62057	3-beta-Coprostanol, water, filtered, recoverable, micrograms per liter						
62058	3-Methyl-1H-indole, water, filtered, recoverable, micrograms per liter						
62059	3-tert-Butyl-4-hydroxyanisole, water, filtered, recoverable, micrograms per liter						
62060	4-Cumylphenol, water, filtered, recoverable, micrograms per liter						
62061	4-Octylphenol, water, filtered, recoverable, micrograms per liter						
62062	4-tert-Octylphenol, water, filtered, recoverable, micrograms per liter						
62063	5-Methyl-1H-benzotriazole, water, filtered, recoverable, micrograms per liter						
62064	Acetophenone, water, filtered, recoverable, micrograms per liter						
62065	Acetyl hexamethyl tetrahydro naphthalene, water, filtered, recoverable, micrograms per liter						
62066	9,10-Anthraquinone, water, filtered, recoverable, micrograms per liter						
62067	Benzophenone, water, filtered, recoverable, micrograms per liter						
62068	beta-Sitosterol, water, filtered, recoverable, micrograms per liter						
62070	Camphor, water, filtered, recoverable, micrograms per liter						
62071	Carbazole, water, filtered, recoverable, micrograms per liter						
62072	Cholesterol, water, filtered, recoverable, micrograms per liter						
62073	D-Limonene, water, filtered, recoverable, micrograms per liter						
62075	Hexahydrohexamethyl cyclopentabenzopyran, water, filtered, recoverable, micrograms per liter						
62076	Indole, water, filtered, recoverable, micrograms per liter						
62077	Isoborneol, water, filtered, recoverable, micrograms per liter						
62078	Isopropylbenzene, water, filtered, recoverable, micrograms per liter						
62079	Isoquinoline, water, filtered, recoverable, micrograms per liter						
62080	Menthol, water, filtered, recoverable, micrograms per liter						
62081	Methyl salicylate, water, filtered, recoverable, micrograms per liter						
62082	DEET, water, filtered, recoverable, micrograms per liter						
62083	Diethoxynonylphenol, water, filtered, recoverable, micrograms per liter						
62084	p-Cresol, water, filtered, recoverable, micrograms per liter						
62085	4-Nonylphenol, water, filtered, recoverable, micrograms per liter						
62086	beta-Stigmastanol, water, filtered, recoverable, micrograms per liter						
62087	Tris(2-chloroethyl) phosphate, water, filtered, recoverable, micrograms per liter						
62088	Tris(dichloroisopropyl) phosphate, water, filtered, recoverable, micrograms per liter						
62089	Tributyl phosphate, water, filtered, recoverable, micrograms per liter						
62090	Triclosan, water, filtered, recoverable, micrograms per liter						
62091	Triethyl citrate, water, filtered, recoverable, micrograms per liter						
62092	Triphenyl phosphate, water, filtered, recoverable, micrograms per liter						
62093	Tris(2-butoxyethyl) phosphate, water, filtered, recoverable, micrograms per liter						
62166	Fipronil, water, filtered, recoverable, micrograms per liter					< 0.016	< 0.016
62167	Fipronil sulfide, water, filtered, recoverable, micrograms per liter					< 0.013	< 0.013
62168	Fipronil sulfone, water, filtered, recoverable, micrograms per liter					< 0.024	< 0.024
62169	Desulfinylfipronil amide, water, filtered, recoverable, micrograms per liter					< 0.029	0.008 E
62170	Desulfinylfipronil, water, filtered, recoverable, micrograms per liter					< 0.012	< 0.012
62854	Total nitrogen, (NH3+NO2+NO3+Organic), filtered, milligrams per liter						
63790	Perchlorate, water, filtered, recoverable, micrograms per liter	6					
70300	Residue on evaporation, dried at 180 degrees Celsius, water, filtered, milligrams per liter	1500	360	473	416	493	433
70301	Residue, water, filtered, sum of constituents, milligrams per liter		356 E	446 E	404 E	477 E	433
70303	Residue, water, filtered, tons per acre-foot						
71846	Ammonia, water, filtered, milligrams per liter as NH4		0.04	0.05	0.06	0.05	
71851	Nitrate, water, filtered, milligrams per liter	45 (g)			0.184 E	0.174 E	11.5
71856	Nitrite, water, filtered, milligrams per liter			0.032	0.038	0.025	0.012
71865	Iodide, water, filtered, milligrams per liter		0.310	0.517	0.390	0.025	0.003
71870	Bromide, water, filtered, milligrams per liter		0.31	0.42	0.37	0.28	0.06
72019	Depth to water level, feet below land surface		46.61	60.97	70.00	73.36	83.74

Source: USGS California Water Science Center.

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Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		11/8/2006	11/2/2006	11/1/2006	11/6/2006	11/8/2006
73547	trans-1,4-Dichloro-2-butene, water, unfiltered, recoverable, micrograms per liter					< 0.6	< 0.6
73570	Ethyl methacrylate, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
75985	Tritium 2-sigma combined uncertainty, water, unfiltered, picocuries per liter		0.58	0.58	0.58	0.58	0.70
76002	Rn-222, 2-sigma combined uncertainty, water, unfiltered, picocuries per liter						
77041	Carbon disulfide, water, unfiltered, micrograms per liter					0.10	< 0.06
77093	cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6				< 0.02	< 0.02
77103	n-Butyl methyl ketone, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
77128	Styrene, water, unfiltered, recoverable, micrograms per liter	100				< 0.04	< 0.04
77135	o-Xylene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77168	1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77170	2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
77173	1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77220	2-Ethyltoluene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77221	1,2,3-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77222	1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77223	Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77224	n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77226	1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77275	2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77277	4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77297	Bromochloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
77342	n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77350	sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77353	tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
77356	4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
77424	Iodomethane, water, unfiltered, recoverable, micrograms per liter					< 0.40	< 0.40
77443	1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.12	< 0.12
77562	1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77613	1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77651	1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0.05				< 0.04	< 0.04
77652	1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
78032	Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
78109	3-Chloropropene, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
78133	Isobutyl methyl ketone, water, unfiltered, recoverable, micrograms per liter					< 0.2	< 0.2
81552	Acetone, water, unfiltered, recoverable, micrograms per liter					< 6	< 6
81555	Bromobenzene, water, unfiltered, recoverable, micrograms per liter					< 0.02	< 0.02
81576	Diethyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
81577	Diisopropyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
81593	Methyl acrylonitrile, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
81595	Ethyl methyl ketone, water, unfiltered, recoverable, micrograms per liter					< 1.6	< 1.6
81597	Methyl methacrylate, water, unfiltered, recoverable, micrograms per liter					< 0.2	< 0.2
81607	Tetrahydrofuran, water, unfiltered, recoverable, micrograms per liter					< 1	< 1
82081	C-13/C-12 ratio, water, unfiltered, per mil			-16.29	-16.37	-10.71	
82082	Deuterium/Protium ratio, water, unfiltered, per mil		-53.60	-52.80	-52.90	-46.00	-44.10
82085	Oxygen-18/Oxygen-16 ratio, water, unfiltered, per mil		-8.28	-8.15	-8.02	-6.93	-6.81
82303	Rn-222, water, unfiltered, picocuries per liter						
82346	Ethion, water, filtered, recoverable, micrograms per liter					< 0.016	< 0.016
82625	1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.5	< 0.5
82630	Metribuzin, water, filtered, recoverable, micrograms per liter					< 0.012	< 0.012
82660	2,6-Diethylaniline, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.006	< 0.006
82661	Trifluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.009	< 0.009
82662	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.006	< 0.006
82664	Phorate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.02	< 0.02
82667	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.008	< 0.008

Source: USGS California Water Science Center.

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Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		11/8/2006	11/2/2006	11/1/2006	11/6/2006	11/8/2006
82670	Tebuthiuron, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.02	< 0.02
82673	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.01	< 0.01
82675	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.01	< 0.01
82676	Propyzamide, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.004	< 0.004
82680	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.06	< 0.06
82682	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.003	< 0.003
82683	Pendimethalin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.02	< 0.02
82686	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.08	< 0.08
82687	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 0.01	< 0.01
85795	m-Xylene plus p-xylene, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
90095	Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius		647	820	727	810	674
90851	Triholomehtanes, water, unfiltered, calcd, micrograms per liter						M
99583	Bisphenol A-d3, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99584	Caffeine-13C, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99585	Decafluorobiphenyl, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99586	Fluoranthene-d10, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99832	1,2-Dichloroethane-d4, surrogate, Schedule 2090, water, unfiltered, percent recovery					126	136
99833	Toluene-d8, surrogate, Schedule 2090, water, unfiltered, percent recovery					89.8	92.5
99834	1-Bromo-4-fluorobenzene, surrogate, VOC schedules, water, unfiltered, percent recovery					62.5	62.3
99994	Diazinon-d10, surrogate, Schedule 2003, water, filtered, percent recovery					120	119
99995	alpha-HCH-d6, surrogate, Schedule 2003, water, filtered, percent recovery					93.5	99.1

Notes: U.S. EPA STORET numbers for MCLs correspond to the same as the USGS NWIS data parameter number except as follows:

(a) MCL shown for U.S EPA STORET No. 620.
(b) MCL shown for U.S. EPASTORET No. 951.
(c) MCL shown for U.S. EPA STORET No. 1002.
(d) MCL shown for U.S. EPA STORET No. 1007.
(e) MCL shown for U.S. EPA STORET No. 1012.
(f) MCL shown for U.S. EPA STORET No. 1027.
(g) MCL shown for U.S. EPA STORET No. 1034.
(h) MCL shown for U.S. EPA STORET No. 1042.
(i) MCL shown for U.S. EPA STORET No. 1059.
(j) MCL shown for U.S EPA STORET No. 1067.
(k) MCL shown for U.S. EPASTORET No. 1077.
(l) MCL shown for U.S. EPA STORET No. 1092.
(m) MCL shown for U.S. EPA STORET No. 1097.
(n) MCL shown for U.S. EPA STORET No. 1105.
(o) MCL shown for U.S. EPA STORET No. 1147.
(p) MCL shown for U.S. EPA STORET No. 34247.
(q) MCL shown for U.S. EPA STORET No. 71850.

Code--Data parameter number used in USGS National Water Information System (NWIS).
E--Estimated.
M--Presence verifed but not quantified.
MCL--Maximum Contaminant Level reported by California DHS (May 25, 2007 Database) for U.S. EPA STORET number.
V--Biased results from contamination.

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
September 2007

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		9/27/2007	9/20/2007	9/25/2007	9/25/2007	9/20/2007
3	Sampling depth, feet						
10	Temperature, water, degrees Celsius		25.5	21.0	21.1	21.1	21.0
28	Agency analyzing sample, code		80020	80020	80020	80020	80020
59	Flow rate, instantaneous, gallons per minute						
95	Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius		653	789	786	686	685
191	Hydrogen ion, water, unfiltered, calculated, milligrams per liter		M	M	M	0.00001	0.00001
300	Dissolved oxygen, water, unfiltered, milligrams per liter		< 0.2	< 0.2	0.1	0.1	5.7
400	pH, water, unfiltered, field, standard units		9.5	9.4	9.1	8.3	7.9
403	pH, water, unfiltered, laboratory, standard units		9.6	9.4	9.2	8.3	7.9
602	Total nitrogen, water, filtered, milligrams per liter						
607	Organic nitrogen, water, filtered, milligrams per liter						
608	Ammonia, water, filtered, milligrams per liter as nitrogen		0.026	0.021	0.051	0.031	< 0.020
613	Nitrite, water, filtered, milligrams per liter as nitrogen	1 (a)	< 0.002	< 0.002	< 0.002	< 0.002	0.002
618	Nitrate, water, filtered, milligrams per liter as nitrogen						2.12
623	Ammonia plus organic nitrogen, water, filtered, milligrams per liter as nitrogen						
631	Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen		< 0.06	< 0.06	< 0.06	< 0.06	2.12
660	Orthophosphate, water, filtered, milligrams per liter		0.066	1.41	6.03	1.02	3.07
666	Phosphorus, water, filtered, milligrams per liter						
671	Orthophosphate, water, filtered, milligrams per liter as phosphorus		0.021	0.459	1.97	0.332	1.00
900	Hardness, water, milligrams per liter as calcium carbonate		10	8	10	89	130
904	Noncarb hardness, water filtered field, milligrams per liter as calcium carbonate						
915	Calcium, water, filtered, milligrams per liter		3.87	2.87	3.64	29.5	38.0
925	Magnesium, water, filtered, milligrams per liter		0.029	0.078	0.337	3.56	9.29
930	Sodium, water, filtered, milligrams per liter		132	151	169	116	90.7
931	Sodium adsorption ratio, water, number		18	24	23	5.3	3.4
932	Sodium fraction of cations, water, percent in equivalents of major cations		97	97	97	73	59
935	Potassium, water, filtered, milligrams per liter		0.33	0.76	1.39	2.32	2.58
940	Chloride, water, filtered, milligrams per liter	600	133	131	121	80.8	44.1
945	Sulfate, water, filtered, milligrams per liter	600	33.3	95.2	101	79.9	108
950	Fluoride, water, filtered, milligrams per liter	2 (b)	4.42	3.44	0.92	0.28	0.31
955	Silica, water, filtered, milligrams per liter		18.2	17.6	14.8	17.7	24.3
1000	Arsenic, water, filtered, micrograms per liter	10 (c)	31.3	18.7	13.1	4.5	4.0
1005	Barium, water, filtered, micrograms per liter	1000 (d)	4	3	3	14	22
1010	Beryllium, micrograms per liter	4 (e)	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
1020	Boron, water, filtered, micrograms per liter		102	158	147	153	143
1025	Cadmium, micrograms per liter	5 (f)	0.35	0.49	0.31	0.03 E	0.02 E
1030	Chromium, micrograms per liter	50 (g)	0.09 E	0.31	0.2	0.21	1.10
1035	Cobalt, micrograms per liter		< 0.04	< 0.04	0.04 E	0.03 E	0.08
1040	Copper, micrograms per liter	1000 (h)	< 0.4	0.22 E	0.70	0.87	1.70
1046	Iron, water, filtered, micrograms per liter	300	3 E	< 6	10	4 E	< 6
1049	Lead, micrograms per liter		< 0.12	< 0.12	0.08 E	< 0.12	< 0.12
1056	Manganese, water, filtered, micrograms per liter	50	0.4	0.9	2.8	12.4	0.7
1057	Thallium, micrograms per liter	2 (i)	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
1060	Molybdenum, micrograms per liter		208	251	208	11.5	6.8
1065	Nickel, micrograms per liter	100 (j)	0.07	0.19	0.46	0.26	0.73
1075	Silver, micrograms per liter	100 (k)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1080	Strontium, water, filtered, micrograms per liter		28.1	17.3	20.3	257	201
1085	Vanadium, micrograms per liter		78.6	32.2	7.3	1.1	21.5
1090	Zinc, micrograms per liter	5000 (l)	< 0.6	0.70	0.70	1.0	2.8
1095	Antimony, micrograms per liter	6 (m)	0.06 E	0.11	0.17	0.04 E	0.07
1106	Aluminum, water, filtered, micrograms per liter	1000 (n)	43.1	100	139	27.0	3.3
1130	Lithium, water, filtered, micrograms per liter		2.0	4.0	2.7	6.8	5.1
1145	Selenium, micrograms per liter	50 (o)	< 0.08	0.08	0.09	0.05 E	7.5
4022	Terbuthylazine, water, filtered, recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
September 2007

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		9/27/2007	9/20/2007	9/25/2007	9/25/2007	9/20/2007
4025	Hexazinone, water, filtered, recoverable, micrograms per liter						
4029	Bromacil, water, filtered, recoverable, micrograms per liter						
4035	Simazine, water, filtered, recoverable, micrograms per liter						
4036	Prometryn, water, filtered, recoverable, micrograms per liter						
4037	Prometon, water, filtered, recoverable, micrograms per liter						
4040	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, micrograms per liter						
4095	Fonofos, water, filtered, recoverable, micrograms per liter						
7000	Tritium, water, unfiltered, picocuries per liter		0.6	0.3	-0.6	0.3	8.3
22703	Uranium, natural, micrograms per liter		0.06	0.13	0.43	2.17	2.16
29801	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, laboratory, milligrams per liter as calcium carbonate		46	58	92	132	158
30217	Dibromomethane, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
32101	Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
32102	Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0.5	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
32103	1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
32104	Tribromomethane, water, unfiltered, recoverable, micrograms per liter		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
32105	Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
32106	Trichloromethane, water, unfiltered, recoverable, micrograms per liter		< 0.02	< 0.04	< 0.04	< 0.04	0.04 V
34010	Toluene, water, unfiltered, recoverable, micrograms per liter	150	< 0.02	0.02 V	0.04 E	< 0.02	< 0.02
34030	Benzene, water, unfiltered, recoverable, micrograms per liter	1	< 0.02	0.03 E	0.02 E	< 0.02	< 0.02
34215	Acrylonitrile, water, unfiltered, recoverable, micrograms per liter		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
34221	Anthracene, water, filtered, recoverable, micrograms per liter						
34248	Benzo[a]pyrene, water, filtered, recoverable, micrograms per liter	0.2 (p)					
34288	Tribromomethane, water, filtered, recoverable, micrograms per liter						
34301	Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	70	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
34311	Chloroethane, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	0.1 E	< 0.1	< 0.1
34371	Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	300	< 0.04	< 0.02	< 0.02	< 0.02	< 0.02
34377	Fluoranthene, water, filtered, recoverable, micrograms per liter						
34396	Hexachloroethane, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
34409	Isophorone, water, filtered, recoverable, micrograms per liter						
34413	Bromomethane, water, unfiltered, recoverable, micrograms per liter		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
34418	Chloromethane, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	0.6 E	< 0.1	< 0.1
34423	Dichloromethane, water, unfiltered, recoverable, micrograms per liter	5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
34443	Naphthalene, water, filtered, recoverable, micrograms per liter						
34462	Phenanthrene, water, filtered, recoverable, micrograms per liter						
34466	Phenol, water, filtered, recoverable, micrograms per liter						
34470	Pyrene, water, filtered, recoverable, micrograms per liter						
34475	Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
34476	Tetrachloroethene, water, filtered, recoverable, micrograms per liter						
34488	Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	150	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
34496	1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	5	< 0.04	< 0.06	< 0.06	< 0.06	< 0.06
34501	1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
34506	1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	200	< 0.02	< 0.04	< 0.04	< 0.04	< 0.04
34511	1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	5	< 0.06	< 0.04	< 0.04	< 0.04	< 0.04
34516	1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
34536	1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	600	< 0.02	< 0.04	< 0.04	< 0.04	< 0.04
34541	1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
34546	trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
34551	1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
34566	1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
34571	1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5	< 0.02	< 0.04	< 0.04	< 0.04	< 0.04
34572	1,4-Dichlorobenzene, water, filtered, recoverable, micrograms per liter						
34668	Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter		< 0.14	< 0.14	< 0.14	< 0.14	< 0.14
34696	Naphthalene, water, unfiltered, recoverable, micrograms per liter		< 0.2	< 0.4	< 0.4	< 0.4	< 0.4
34699	trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
September 2007

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		9/27/2007	9/20/2007	9/25/2007	9/25/2007	9/20/2007
34704	cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5	< 0.10	< 0.06	< 0.06	< 0.06	< 0.06
38454	Dicrotophos, water, filtered, recoverable, micrograms per liter						
38775	Dichlorvos, water, filtered, recoverable, micrograms per liter						
38933	Chlorpyrifos, water, filtered, recoverable, micrograms per liter						
39086	Alkalinity, water, filtered, incremental titration, field, milligrams per liter as calcium carbonate						
39175	Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
39180	Trichloroethene, water, unfiltered, recoverable, micrograms per liter	5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
39381	Dieldrin, water, filtered, recoverable, micrograms per liter						
39415	Metolachlor, water, filtered, recoverable, micrograms per liter						
39532	Malathion, water, filtered, recoverable, micrograms per liter						
39572	Diazinon, water, filtered, recoverable, micrograms per liter						
39632	Atrazine, water, filtered, recoverable, micrograms per liter						
39702	Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
46342	Alachlor, water, filtered, recoverable, micrograms per liter						
49260	Acetochlor, water, filtered, recoverable, micrograms per liter						
49295	1-Naphthol, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
49933	C-14, water, filtered, percent modern		3.44		17.52	67.68	88.09
49934	C-14, counting error, water, filtered, percent modern		0.12		0.22	0.31	0.37
49991	Methyl acrylate, water, unfiltered, recoverable, micrograms per liter		< 0.6	< 0.4	< 0.4	< 0.4	< 0.4
49999	1,2,3,4-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
50000	1,2,3,5-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
50002	Bromoethene, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
50004	tert-Butyl ethyl ether, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
50005	Methyl tert-pentyl ether, water, unfiltered, recoverable, micrograms per liter		< 0.06	< 0.04	< 0.04	< 0.04	< 0.04
50305	Caffeine, water, filtered, recoverable, micrograms per liter						
50359	Metalaxyl, water, filtered, recoverable, micrograms per liter						
61209	Perchlorate, water, unfiltered, recoverable, micrograms per liter	6	< 0.5	< 0.5	< 1	< 1	< 0.5
61585	Cyfluthrin, water, filtered, recoverable, micrograms per liter						
61586	Cypermethrin, water, filtered, recoverable, micrograms per liter						
61591	Fenamiphos, water, filtered, recoverable, micrograms per liter						
61593	Iprodione, water, filtered, recoverable, micrograms per liter						
61594	Isofenphos, water, filtered, recoverable, micrograms per liter						
61596	Metalaxyl, water, filtered, recoverable, micrograms per liter						
61598	Methidathion, water, filtered, recoverable, micrograms per liter						
61599	Myclobutanil, water, filtered, recoverable, micrograms per liter						
61601	Phosmet, water, filtered, recoverable, micrograms per liter						
61610	Tribuphos, water, filtered, recoverable, micrograms per liter						
61618	2-Chloro-2',6'-diethylacetanilide, water, filtered, recoverable, micrograms per liter						
61620	2-Ethyl-6-methylaniline, water, filtered, recoverable, micrograms per liter						
61625	3,4-Dichloroaniline, water, filtered, recoverable, micrograms per liter						
61633	4-Chloro-2-methylphenol, water, filtered, recoverable, micrograms per liter						
61635	Azinphos-methyl oxygen analog, water, filtered, recoverable, micrograms per liter						
61636	Chlorpyrifos oxygen analog, water, filtered, recoverable, micrograms per liter						
61644	Ethion monoxon, water, filtered, recoverable, micrograms per liter						
61645	Fenamiphos sulfone, water, filtered, recoverable, micrograms per liter						
61646	Fenamiphos sulfoxide, water, filtered, recoverable, micrograms per liter						
61652	Malaoxon, water, filtered, recoverable, micrograms per liter						
61664	Methyl paraoxon, water, filtered, recoverable, micrograms per liter						
61666	Phorate oxygen analog, water, filtered, recoverable, micrograms per liter						
61668	Phosmet oxygen analog, water, filtered, recoverable, micrograms per liter						
61674	Terbufos oxygen analog sulfone, water, filtered, recoverable, micrograms per liter						
61705	Diethoxyoctylphenol, water, filtered, recoverable, micrograms per liter						
61706	Monoethoxyoctylphenol, water, filtered, recoverable, micrograms per liter						
62005	Cotinine, water, filtered, recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
September 2007

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		9/27/2007	9/20/2007	9/25/2007	9/25/2007	9/20/2007
62054	1-Methylnaphthalene, water, filtered, recoverable, micrograms per liter						
62055	2,6-Dimethylnaphthalene, water, filtered, recoverable, micrograms per liter						
62056	2-Methylnaphthalene, water, filtered, recoverable, micrograms per liter						
62057	3-beta-Coprostanol, water, filtered, recoverable, micrograms per liter						
62058	3-Methyl-1H-indole, water, filtered, recoverable, micrograms per liter						
62059	3-tert-Butyl-4-hydroxyanisole, water, filtered, recoverable, micrograms per liter						
62060	4-Cumylphenol, water, filtered, recoverable, micrograms per liter						
62061	4-Octylphenol, water, filtered, recoverable, micrograms per liter						
62062	4-tert-Octylphenol, water, filtered, recoverable, micrograms per liter						
62063	5-Methyl-1H-benzotriazole, water, filtered, recoverable, micrograms per liter						
62064	Acetophenone, water, filtered, recoverable, micrograms per liter						
62065	Acetyl hexamethyl tetrahydro naphthalene, water, filtered, recoverable, micrograms per liter						
62066	9,10-Anthraquinone, water, filtered, recoverable, micrograms per liter						
62067	Benzophenone, water, filtered, recoverable, micrograms per liter						
62068	beta-Sitosterol, water, filtered, recoverable, micrograms per liter						
62070	Camphor, water, filtered, recoverable, micrograms per liter						
62071	Carbazole, water, filtered, recoverable, micrograms per liter						
62072	Cholesterol, water, filtered, recoverable, micrograms per liter						
62073	D-Limonene, water, filtered, recoverable, micrograms per liter						
62075	Hexahydrohexamethyl cyclopentabenzopyran, water, filtered, recoverable, micrograms per liter						
62076	Indole, water, filtered, recoverable, micrograms per liter						
62077	Isoborneol, water, filtered, recoverable, micrograms per liter						
62078	Isopropylbenzene, water, filtered, recoverable, micrograms per liter						
62079	Isoquinoline, water, filtered, recoverable, micrograms per liter						
62080	Menthol, water, filtered, recoverable, micrograms per liter						
62081	Methyl salicylate, water, filtered, recoverable, micrograms per liter						
62082	DEET, water, filtered, recoverable, micrograms per liter						
62083	Diethoxynonylphenol, water, filtered, recoverable, micrograms per liter						
62084	p-Cresol, water, filtered, recoverable, micrograms per liter						
62085	4-Nonylphenol, water, filtered, recoverable, micrograms per liter						
62086	beta-Stigmastanol, water, filtered, recoverable, micrograms per liter						
62087	Tris(2-chloroethyl) phosphate, water, filtered, recoverable, micrograms per liter						
62088	Tris(dichloroisopropyl) phosphate, water, filtered, recoverable, micrograms per liter						
62089	Tributyl phosphate, water, filtered, recoverable, micrograms per liter						
62090	Triclosan, water, filtered, recoverable, micrograms per liter						
62091	Triethyl citrate, water, filtered, recoverable, micrograms per liter						
62092	Triphenyl phosphate, water, filtered, recoverable, micrograms per liter						
62093	Tris(2-butoxyethyl) phosphate, water, filtered, recoverable, micrograms per liter						
62166	Fipronil, water, filtered, recoverable, micrograms per liter						
62167	Fipronil sulfide, water, filtered, recoverable, micrograms per liter						
62168	Fipronil sulfone, water, filtered, recoverable, micrograms per liter						
62169	Desulfinylfipronil amide, water, filtered, recoverable, micrograms per liter						
62170	Desulfinylfipronil, water, filtered, recoverable, micrograms per liter						
62854	Total nitrogen, (NH3+NO2+NO3+Organic), filtered, milligrams per liter		0.04 E	0.06	0.11	0.04 E	2.21
63790	Perchlorate, water, filtered, recoverable, micrograms per liter	6	< 0.1	0.7	0.26	< 0.1	0.23
70300	Residue on evaporation, dried at 180 degrees Celsius, water, filtered, milligrams per liter	1500	358	460	471	397	429
70301	Residue, water, filtered, sum of constituents, milligrams per liter		354 E	439 E	475 E	410 E	425 E
70303	Residue, water, filtered, tons per acre-foot						
71846	Ammonia, water, filtered, milligrams per liter as NH4		0.03	0.03	0.07	0.04	
71851	Nitrate, water, filtered, milligrams per liter	45 (q)					9.37
71856	Nitrite, water, filtered, milligrams per liter						0.008
71865	Iodide, water, filtered, milligrams per liter						
71870	Bromide, water, filtered, milligrams per liter		0.31	0.40	0.36	0.26	0.12
72019	Depth to water level, feet below land surface						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
September 2007

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		9/27/2007	9/20/2007	9/25/2007	9/25/2007	9/20/2007
73547	trans-1,4-Dichloro-2-butene, water, unfiltered, recoverable, micrograms per liter		< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
73570	Ethyl methacrylate, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
75985	Tritium 2-sigma combined uncertainty, water, unfiltered, picocuries per liter		1.0	1.0	1.0	1.0	1.0
76002	Rn-222, 2-sigma combined uncertainty, water, unfiltered, picocuries per liter		20	21	18	19	21
77041	Carbon disulfide, water, unfiltered, micrograms per liter		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
77093	cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
77103	n-Butyl methyl ketone, water, unfiltered, recoverable, micrograms per liter		< 0.6	< 0.4	< 0.4	< 0.4	< 0.4
77128	Styrene, water, unfiltered, recoverable, micrograms per liter	100	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77135	o-Xylene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77168	1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77170	2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
77173	1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
77220	2-Ethyltoluene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77221	1,2,3-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
77222	1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.04	0.02 E	0.02 E	< 0.04	0.03 E
77223	Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77224	n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77226	1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77275	2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77277	4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77297	Bromochloromethane, water, unfiltered, recoverable, micrograms per liter		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
77342	n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
77350	sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77353	tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter		< 0.06	< 0.08	< 0.08	< 0.08	< 0.08
77356	4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
77424	Iodomethane, water, unfiltered, recoverable, micrograms per liter		< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
77443	1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter		< 0.12	< 0.12	< 0.12	< 0.12	< 0.12
77562	1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77613	1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
77651	1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0.05	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
77652	1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
78032	Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
78109	3-Chloropropene, water, unfiltered, recoverable, micrograms per liter		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
78133	Isobutyl methyl ketone, water, unfiltered, recoverable, micrograms per liter		< 0.4	< 0.2	< 0.2	< 0.2	< 0.2
81552	Acetone, water, unfiltered, recoverable, micrograms per liter		< 4	< 6	< 6	< 6	< 6
81555	Bromobenzene, water, unfiltered, recoverable, micrograms per liter		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
81576	Diethyl ether, water, unfiltered, recoverable, micrograms per liter		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
81577	Diisopropyl ether, water, unfiltered, recoverable, micrograms per liter		< 0.06	< 0.06	< 0.77	< 0.06	< 0.06
81593	Methyl acrylonitrile, water, unfiltered, recoverable, micrograms per liter		< 0.2	< 0.4	< 0.4	< 0.4	< 0.4
81595	Ethyl methyl ketone, water, unfiltered, recoverable, micrograms per liter		< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
81597	Methyl methacrylate, water, unfiltered, recoverable, micrograms per liter		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
81607	Tetrahydrofuran, water, unfiltered, recoverable, micrograms per liter		< 1	< 1	< 1	< 1	< 1
82081	C-13/C-12 ratio, water, unfiltered, per mil		-19.11		-14.90	-14.87	-15.57
82082	Deuterium/Protium ratio, water, unfiltered, per mil		-53.70	-53.00	-52.90	-45.20	-42.30
82085	Oxygen-18/Oxygen-16 ratio, water, unfiltered, per mil		-8.27	-8.18	-7.93	-6.91	-6.65
82303	Rn-222, water, unfiltered, picocuries per liter		320	270	200	210	280
82346	Ethion, water, filtered, recoverable, micrograms per liter						
82625	1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
82630	Metribuzin, water, filtered, recoverable, micrograms per liter						
82660	2,6-Diethylaniline, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82661	Trifluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82662	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82664	Phorate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82667	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
September 2007

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		9/27/2007	9/20/2007	9/25/2007	9/25/2007	9/20/2007
82670	Tebuthiuron, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82673	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82675	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82676	Propyzamide, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82680	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82682	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82683	Pendimethalin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82686	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82687	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
85795	m-Xylene plus p-xylene, water, unfiltered, recoverable, micrograms per liter		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
90095	Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius		667	794	805	694	686
90851	Triholomehtanes, water, unfiltered, calcd, micrograms per liter						M
99583	Bisphenol A-d3, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99584	Caffeine-13C, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99585	Decafluorobiphenyl, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99586	Fluoranthene-d10, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99832	1,2-Dichloroethane-d4, surrogate, Schedule 2090, water, unfiltered, percent recovery		127	130	134	133	131
99833	Toluene-d8, surrogate, Schedule 2090, water, unfiltered, percent recovery		93.6	95.0	96.8	97.6	93.6
99834	1-Bromo-4-fluorobenzene, surrogate, VOC schedules, water, unfiltered, percent recovery		71.0	72.1	73.4	73.9	73.8
99994	Diazinon-d10, surrogate, Schedule 2003, water, filtered, percent recovery						
99995	alpha-HCH-d6, surrogate, Schedule 2003, water, filtered, percent recovery						

Notes: U.S. EPA STORET numbers for MCLs correspond to the same as the USGS NWIS data parameter number except as follows:

(a) MCL shown for U.S EPA STORET No. 620.
(b) MCL shown for U.S. EPASTORET No. 951.
(c) MCL shown for U.S. EPA STORET No. 1002.
(d) MCL shown for U.S. EPA STORET No. 1007.
(e) MCL shown for U.S. EPA STORET No. 1012.
(f) MCL shown for U.S. EPA STORET No. 1027.
(g) MCL shown for U.S. EPA STORET No. 1034.
(h) MCL shown for U.S. EPA STORET No. 1042.
(i) MCL shown for U.S. EPA STORET No. 1059.
(j) MCL shown for U.S EPA STORET No. 1067.
(k) MCL shown for U.S. EPASTORET No. 1077.
(l) MCL shown for U.S. EPA STORET No. 1092.
(m) MCL shown for U.S. EPA STORET No. 1097.
(n) MCL shown for U.S. EPA STORET No. 1105.
(o) MCL shown for U.S. EPA STORET No. 1147.
(p) MCL shown for U.S. EPA STORET No. 34247.
(q) MCL shown for U.S. EPA STORET No. 71850.

Code--Data parameter number used in USGS National Water Information System (NWIS).
E--Estimated.
M--Presence verifed but not quantified.
MCL--Maximum Contaminant Level reported by California DHS (May 25, 2007 Database) for U.S. EPA STORET number.
V--Biased results from contamination.

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
April 2008

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		4/22/2008	4/23/2008	4/23/2008	4/23/2008	4/23/2008
3	Sampling depth, feet						
10	Temperature, water, degrees Celsius		22.4	24.9	24.4	22.5	20.1
28	Agency analyzing sample, code		80020	80020	80020	80020	80020
59	Flow rate, instantaneous, gallons per minute						
95	Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius		656	772	756	670	642
191	Hydrogen ion, water, unfiltered, calculated, milligrams per liter		M	M	M	0.00001	0.00003 E
300	Dissolved oxygen, water, unfiltered, milligrams per liter						
400	pH, water, unfiltered, field, standard units		9.2	9.3	9.3	8.1	7.6
403	pH, water, unfiltered, laboratory, standard units		9.6	9.5	9.3	8.2	7.7
602	Total nitrogen, water, filtered, milligrams per liter						2.5 E
607	Organic nitrogen, water, filtered, milligrams per liter				0.05 E		
608	Ammonia, water, filtered, milligrams per liter as nitrogen		0.027	0.029	0.045	0.023	< 0.020
613	Nitrite, water, filtered, milligrams per liter as nitrogen	1 (a)	< 0.002	< 0.002	0.002 E	< 0.002	< 0.002
618	Nitrate, water, filtered, milligrams per liter as nitrogen						
623	Ammonia plus organic nitrogen, water, filtered, milligrams per liter as nitrogen		< 0.14	< 0.14	0.09 E	< 0.14	0.08 E
631	Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen		< 0.04	< 0.04	< 0.04	< 0.04	2.41
660	Orthophosphate, water, filtered, milligrams per liter		0.044	0.771	1.78	1.29	0.533
666	Phosphorus, water, filtered, milligrams per liter		< 0.04	0.24	0.56	0.41	0.17
671	Orthophosphate, water, filtered, milligrams per liter as phosphorus		0.014	0.251	0.579	0.420	0.174
900	Hardness, water, milligrams per liter as calcium carbonate		9 E	7	7	100	160
904	Noncarb hardness, water filtered field, milligrams per liter as calcium carbonate						61
915	Calcium, water, filtered, milligrams per liter		3.48	2.60	2.58	33.0	44.2
925	Magnesium, water, filtered, milligrams per liter		0.014 E	0.079	0.180	4.13	13.1
930	Sodium, water, filtered, milligrams per liter		119	144	141	94.0	61.8
931	Sodium adsorption ratio, water, number		18 E	24	23	4.1	2.1
932	Sodium fraction of cations, water, percent in equivalents of major cations		97 E	98	97	67	45
935	Potassium, water, filtered, milligrams per liter		0.33	0.72	0.99	2.17	1.99
940	Chloride, water, filtered, milligrams per liter	600	140	130	118	79.8	36.9
945	Sulfate, water, filtered, milligrams per liter	600	33.3	86.5	90.5	76.4	141
950	Fluoride, water, filtered, milligrams per liter	2 (b)	4.62	3.39	0.94	0.29	0.39
955	Silica, water, filtered, milligrams per liter		19.3	18.4	14.1	18.1	28.6
1000	Arsenic, water, filtered, micrograms per liter	10 (c)	31.2	19.3	13.1	4.7	1.1
1005	Barium, water, filtered, micrograms per liter	1000 (d)	4.7	4.0	2.3	14.9	40.8
1010	Beryllium, micrograms per liter	4 (e)					
1020	Boron, water, filtered, micrograms per liter		125	130	91	98	120
1025	Cadmium, micrograms per liter	5 (f)					
1030	Chromium, micrograms per liter	50 (g)					
1035	Cobalt, micrograms per liter						
1040	Copper, micrograms per liter	1000 (h)					
1046	Iron, water, filtered, micrograms per liter	300	< 8	9	< 8	5 E	< 8
1049	Lead, micrograms per liter						
1056	Manganese, water, filtered, micrograms per liter	50	0.4	1.5	1.0	16.4	0.5
1057	Thallium, micrograms per liter	2 (i)					
1060	Molybdenum, micrograms per liter						
1065	Nickel, micrograms per liter	100 (j)					
1075	Silver, micrograms per liter	100 (k)					
1080	Strontium, water, filtered, micrograms per liter		27.3	18.1	19.4	299	226
1085	Vanadium, micrograms per liter						
1090	Zinc, micrograms per liter	5000 (l)					
1095	Antimony, micrograms per liter	6 (m)					
1106	Aluminum, water, filtered, micrograms per liter	1000 (n)	35.6	115	87.8	10.8	1.4 E
1130	Lithium, water, filtered, micrograms per liter		5	5	4	8	6
1145	Selenium, micrograms per liter	50 (o)					
4022	Terbuthylazine, water, filtered, recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
April 2008

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		4/22/2008	4/23/2008	4/23/2008	4/23/2008	4/23/2008
4025	Hexazinone, water, filtered, recoverable, micrograms per liter						
4029	Bromacil, water, filtered, recoverable, micrograms per liter					< 0.4	< 0.4
4035	Simazine, water, filtered, recoverable, micrograms per liter						
4036	Prometryn, water, filtered, recoverable, micrograms per liter						
4037	Prometon, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
4040	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, micrograms per liter						
4095	Fonofos, water, filtered, recoverable, micrograms per liter						
7000	Tritium, water, unfiltered, picocuries per liter		-0.35	-0.13	0.32	0.26	10.78
22703	Uranium, natural, micrograms per liter						
29801	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, laboratory, milligrams per liter as calcium carbonate		46	56	68	129	108
30217	Dibromomethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
32101	Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
32102	Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.08	< 0.08
32103	1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
32104	Tribromomethane, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
32105	Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
32106	Trichloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.02	0.04 E
34010	Toluene, water, unfiltered, recoverable, micrograms per liter	150				< 0.02	< 0.02
34030	Benzene, water, unfiltered, recoverable, micrograms per liter	1				< 0.02	< 0.02
34215	Acrylonitrile, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
34221	Anthracene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34248	Benzo[a]pyrene, water, filtered, recoverable, micrograms per liter	0.2 (p)				< 0.1	< 0.1
34288	Tribromomethane, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34301	Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	70				< 0.02	< 0.02
34311	Chloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
34371	Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	300				< 0.04	< 0.04
34377	Fluoranthene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34396	Hexachloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
34409	Isophorone, water, filtered, recoverable, micrograms per liter					M	M
34413	Bromomethane, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
34418	Chloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
34423	Dichloromethane, water, unfiltered, recoverable, micrograms per liter	5				< 0.04	< 0.04
34443	Naphthalene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34462	Phenanthrene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34466	Phenol, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
34470	Pyrene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34475	Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	5				< 0.04	< 0.04
34476	Tetrachloroethene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34488	Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	150				< 0.08	< 0.08
34496	1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	5				< 0.04	< 0.04
34501	1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6				< 0.02	< 0.02
34506	1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	200				< 0.02	< 0.02
34511	1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	5				< 0.06	< 0.06
34516	1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	1				< 0.10	< 0.10
34536	1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	600				< 0.02	< 0.02
34541	1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	5				< 0.02	< 0.02
34546	trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	10				< 0.02	< 0.02
34551	1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5				< 0.1	< 0.1
34566	1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
34571	1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5				< 0.02	< 0.02
34572	1,4-Dichlorobenzene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
34668	Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter					< 0.14	< 0.14
34696	Naphthalene, water, unfiltered, recoverable, micrograms per liter					< 0.2	< 0.2
34699	trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.10	< 0.10

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
April 2008

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		4/22/2008	4/23/2008	4/23/2008	4/23/2008	4/23/2008
34704	cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.10	< 0.10
38454	Dicrotophos, water, filtered, recoverable, micrograms per liter						
38775	Dichlorvos, water, filtered, recoverable, micrograms per liter						
38933	Chlorpyrifos, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
39086	Alkalinity, water, filtered, incremental titration, field, milligrams per liter as calcium carbonate		43	52	68	122	104
39175	Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0.5				< 0.1	< 0.1
39180	Trichloroethene, water, unfiltered, recoverable, micrograms per liter	5				< 0.02	< 0.02
39381	Dieldrin, water, filtered, recoverable, micrograms per liter						
39415	Metolachlor, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
39532	Malathion, water, filtered, recoverable, micrograms per liter						
39572	Diazinon, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
39632	Atrazine, water, filtered, recoverable, micrograms per liter						
39702	Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
46342	Alachlor, water, filtered, recoverable, micrograms per liter						
49260	Acetochlor, water, filtered, recoverable, micrograms per liter						
49295	1-Naphthol, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
49933	C-14, water, filtered, percent modern		2.91	14.29		69.32	88.12
49934	C-14, counting error, water, filtered, percent modern		0.11	0.21		0.35	0.41
49991	Methyl acrylate, water, unfiltered, recoverable, micrograms per liter					< 0.6	< 0.6
49999	1,2,3,4-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
50000	1,2,3,5-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
50002	Bromoethene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
50004	tert-Butyl ethyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
50005	Methyl tert-pentyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
50305	Caffeine, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
50359	Metalaxyl, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
61209	Perchlorate, water, unfiltered, recoverable, micrograms per liter	6					
61585	Cyfluthrin, water, filtered, recoverable, micrograms per liter						
61586	Cypermethrin, water, filtered, recoverable, micrograms per liter						
61591	Fenamiphos, water, filtered, recoverable, micrograms per liter						
61593	Iprodione, water, filtered, recoverable, micrograms per liter						
61594	Isofenphos, water, filtered, recoverable, micrograms per liter						
61596	Metalaxyl, water, filtered, recoverable, micrograms per liter						
61598	Methidathion, water, filtered, recoverable, micrograms per liter						
61599	Myclobutanil, water, filtered, recoverable, micrograms per liter						
61601	Phosmet, water, filtered, recoverable, micrograms per liter						
61610	Tribuphos, water, filtered, recoverable, micrograms per liter						
61618	2-Chloro-2',6'-diethylacetanilide, water, filtered, recoverable, micrograms per liter						
61620	2-Ethyl-6-methylaniline, water, filtered, recoverable, micrograms per liter						
61625	3,4-Dichloroaniline, water, filtered, recoverable, micrograms per liter						
61633	4-Chloro-2-methylphenol, water, filtered, recoverable, micrograms per liter						
61635	Azinphos-methyl oxygen analog, water, filtered, recoverable, micrograms per liter						
61636	Chlorpyrifos oxygen analog, water, filtered, recoverable, micrograms per liter						
61644	Ethion monoxon, water, filtered, recoverable, micrograms per liter						
61645	Fenamiphos sulfone, water, filtered, recoverable, micrograms per liter						
61646	Fenamiphos sulfoxide, water, filtered, recoverable, micrograms per liter						
61652	Malaoxon, water, filtered, recoverable, micrograms per liter						
61664	Methyl paraoxon, water, filtered, recoverable, micrograms per liter						
61666	Phorate oxygen analog, water, filtered, recoverable, micrograms per liter						
61668	Phosmet oxygen analog, water, filtered, recoverable, micrograms per liter						
61674	Terbufos oxygen analog sulfone, water, filtered, recoverable, micrograms per liter						
61705	Diethoxyoctylphenol, water, filtered, recoverable, micrograms per liter					< 1	< 1
61706	Monoethoxyoctylphenol, water, filtered, recoverable, micrograms per liter					< 1	< 1
62005	Cotinine, water, filtered, recoverable, micrograms per liter					< 0.400	< 0.400

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
April 2008

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		4/22/2008	4/23/2008	4/23/2008	4/23/2008	4/23/2008
62054	1-Methylnaphthalene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62055	2,6-Dimethylnaphthalene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62056	2-Methylnaphthalene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62057	3-beta-Coprostanol, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62058	3-Methyl-1H-indole, water, filtered, recoverable, micrograms per liter					< 0.08	< 0.08
62059	3-tert-Butyl-4-hydroxyanisole, water, filtered, recoverable, micrograms per liter					< 0.6	< 0.6
62060	4-Cumylphenol, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62061	4-Octylphenol, water, filtered, recoverable, micrograms per liter					< 0.16	< 0.16
62062	4-tert-Octylphenol, water, filtered, recoverable, micrograms per liter					< 1	< 1
62063	5-Methyl-1H-benzotriazole, water, filtered, recoverable, micrograms per liter					< 0.08	< 0.08
62064	Acetophenone, water, filtered, recoverable, micrograms per liter					< 0.4	< 0.4
62065	Acetyl hexamethyl tetrahydro naphthalene, water, filtered, recoverable, micrograms per liter						
62066	9,10-Anthraquinone, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
62067	Benzophenone, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62068	beta-Sitosterol, water, filtered, recoverable, micrograms per liter					< 2	< 2
62070	Camphor, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62071	Carbazole, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62072	Cholesterol, water, filtered, recoverable, micrograms per liter					< 1	< 1
62073	D-Limonene, water, filtered, recoverable, micrograms per liter					< 0.04	< 0.04
62075	Hexahydrohexamethyl cyclopentabenzopyran, water, filtered, recoverable, micrograms per liter					< 0.5	< 0.5
62076	Indole, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62077	Isoborneol, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62078	Isopropylbenzene, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62079	Isoquinoline, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
62080	Menthol, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
62081	Methyl salicylate, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62082	DEET, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62083	Diethoxynonylphenol, water, filtered, recoverable, micrograms per liter					< 5	< 5
62084	p-Cresol, water, filtered, recoverable, micrograms per liter					< 0.18	< 0.18
62085	4-Nonylphenol, water, filtered, recoverable, micrograms per liter					< 1	< 1
62086	beta-Stigmastanol, water, filtered, recoverable, micrograms per liter					< 1	< 1
62087	Tris(2-chloroethyl) phosphate, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62088	Tris(dichloroisopropyl) phosphate, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62089	Tributyl phosphate, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
62090	Triclosan, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
62091	Triethyl citrate, water, filtered, recoverable, micrograms per liter					< 0.2	< 0.2
62092	Triphenyl phosphate, water, filtered, recoverable, micrograms per liter					< 0.1	< 0.1
62093	Tris(2-butoxyethyl) phosphate, water, filtered, recoverable, micrograms per liter					< 0.4	< 0.4
62166	Fipronil, water, filtered, recoverable, micrograms per liter						
62167	Fipronil sulfide, water, filtered, recoverable, micrograms per liter						
62168	Fipronil sulfone, water, filtered, recoverable, micrograms per liter						
62169	Desulfinylfipronil amide, water, filtered, recoverable, micrograms per liter						
62170	Desulfinylfipronil, water, filtered, recoverable, micrograms per liter						
62854	Total nitrogen, (NH3+NO2+NO3+Organic), filtered, milligrams per liter						
63790	Perchlorate, water, filtered, recoverable, micrograms per liter	6					
70300	Residue on evaporation, dried at 180 degrees Celsius, water, filtered, milligrams per liter	1500	356	437	430	407	429
70301	Residue, water, filtered, sum of constituents, milligrams per liter		347 E	419	412 E	383 E	402 E
70303	Residue, water, filtered, tons per acre-foot						
71846	Ammonia, water, filtered, milligrams per liter as NH4		0.04	0.04	0.06	0.03	
71851	Nitrate, water, filtered, milligrams per liter	45 (g)					
71856	Nitrite, water, filtered, milligrams per liter				0.006 E		
71865	Iodide, water, filtered, milligrams per liter		0.399	0.666	0.489	0.025	0.005
71870	Bromide, water, filtered, milligrams per liter		0.33	0.40	0.38	0.27	0.06
72019	Depth to water level, feet below land surface		53.42	72.96	83.30	86.32	66.09

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
April 2008

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		4/22/2008	4/23/2008	4/23/2008	4/23/2008	4/23/2008
73547	trans-1,4-Dichloro-2-butene, water, unfiltered, recoverable, micrograms per liter					< 0.6	< 0.6
73570	Ethyl methacrylate, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
75985	Tritium 2-sigma combined uncertainty, water, unfiltered, picocuries per liter		0.58	0.58	0.58	0.58	0.64
76002	Rn-222, 2-sigma combined uncertainty, water, unfiltered, picocuries per liter						
77041	Carbon disulfide, water, unfiltered, micrograms per liter					< 0.06	< 0.06
77093	cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6				< 0.02	< 0.02
77103	n-Butyl methyl ketone, water, unfiltered, recoverable, micrograms per liter					< 0.6	< 0.6
77128	Styrene, water, unfiltered, recoverable, micrograms per liter	100				< 0.04	< 0.04
77135	o-Xylene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77168	1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77170	2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
77173	1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77220	2-Ethyltoluene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77221	1,2,3-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77222	1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77223	Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77224	n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77226	1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77275	2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77277	4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77297	Bromochloromethane, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
77342	n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77350	sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77353	tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
77356	4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
77424	Iodomethane, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
77443	1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.12	< 0.12
77562	1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
77613	1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
77651	1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0.05				< 0.04	< 0.04
77652	1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter					< 0.04	< 0.04
78032	Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
78109	3-Chloropropene, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
78133	Isobutyl methyl ketone, water, unfiltered, recoverable, micrograms per liter					< 0.4	< 0.4
81552	Acetone, water, unfiltered, recoverable, micrograms per liter					< 4	< 4
81555	Bromobenzene, water, unfiltered, recoverable, micrograms per liter					< 0.02	< 0.02
81576	Diethyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.1	< 0.1
81577	Diisopropyl ether, water, unfiltered, recoverable, micrograms per liter					< 0.06	< 0.06
81593	Methyl acrylonitrile, water, unfiltered, recoverable, micrograms per liter					< 0.2	< 0.2
81595	Ethyl methyl ketone, water, unfiltered, recoverable, micrograms per liter					< 1.6	< 1.6
81597	Methyl methacrylate, water, unfiltered, recoverable, micrograms per liter					< 0.2	< 0.2
81607	Tetrahydrofuran, water, unfiltered, recoverable, micrograms per liter					< 1	< 1
82081	C-13/C-12 ratio, water, unfiltered, per mil		-19.70	-16.90		-14.89	-16.88
82082	Deuterium/Protium ratio, water, unfiltered, per mil		-53.80	-53.60	-52.40	-45.70	-58.00
82085	Oxygen-18/Oxygen-16 ratio, water, unfiltered, per mil		-8.34	-8.15	-7.99	-6.89	-8.16
82303	Rn-222, water, unfiltered, picocuries per liter						
82346	Ethion, water, filtered, recoverable, micrograms per liter						
82625	1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter					< 0.5	< 0.5
82630	Metribuzin, water, filtered, recoverable, micrograms per liter						
82660	2,6-Diethylaniline, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82661	Trifluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82662	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82664	Phorate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82667	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
April 2008

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date		4/22/2008	4/23/2008	4/23/2008	4/23/2008	4/23/2008
82670	Tebuthiuron, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82673	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82675	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82676	Propyzamide, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82680	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter					< 1	< 1
82682	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82683	Pendimethalin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82686	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82687	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
85795	m-Xylene plus p-xylene, water, unfiltered, recoverable, micrograms per liter					< 0.08	< 0.08
90095	Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius		645	757	732	668	631
90851	Triholomehtanes, water, unfiltered, calcd, micrograms per liter						M
99583	Bisphenol A-d3, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99584	Caffeine-13C, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99585	Decafluorobiphenyl, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99586	Fluoranthene-d10, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99832	1,2-Dichloroethane-d4, surrogate, Schedule 2090, water, unfiltered, percent recovery					129	130
99833	Toluene-d8, surrogate, Schedule 2090, water, unfiltered, percent recovery					90.9	91.5
99834	1-Bromo-4-fluorobenzene, surrogate, VOC schedules, water, unfiltered, percent recovery					78.9	75.6
99994	Diazinon-d10, surrogate, Schedule 2003, water, filtered, percent recovery						
99995	alpha-HCH-d6, surrogate, Schedule 2003, water, filtered, percent recovery						

Notes: U.S. EPA STORET numbers for MCLs correspond to the same as the USGS NWIS data parameter number except as follows:

(a) MCL shown for U.S EPA STORET No. 620.
(b) MCL shown for U.S. EPASTORET No. 951.
(c) MCL shown for U.S. EPA STORET No. 1002.
(d) MCL shown for U.S. EPA STORET No. 1007.
(e) MCL shown for U.S. EPA STORET No. 1012.
(f) MCL shown for U.S. EPA STORET No. 1027.
(g) MCL shown for U.S. EPA STORET No. 1034.
(h) MCL shown for U.S. EPA STORET No. 1042.
(i) MCL shown for U.S. EPA STORET No. 1059.
(j) MCL shown for U.S EPA STORET No. 1067.
(k) MCL shown for U.S. EPASTORET No. 1077.
(l) MCL shown for U.S. EPA STORET No. 1092.
(m) MCL shown for U.S. EPA STORET No. 1097.
(n) MCL shown for U.S. EPA STORET No. 1105.
(o) MCL shown for U.S. EPA STORET No. 1147.
(p) MCL shown for U.S. EPA STORET No. 34247.
(q) MCL shown for U.S. EPA STORET No. 71850.

Code--Data parameter number used in USGS National Water Information System (NWIS).
E--Estimated.
M--Presence verifed but not quantified.
MCL--Maximum Contaminant Level reported by California DHS (May 25, 2007 Database) for U.S. EPA STORET number.
V--Biased results from contamination.

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
August 2009

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date					8/4/2009	8/4/2009
3	Sampling depth, feet						
10	Temperature, water, degrees Celsius					20.8	19
28	Agency analyzing sample, code					80020	80020
59	Flow rate, instantaneous, gallons per minute						
95	Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius					660	601
191	Hydrogen ion, water, unfiltered, calculated, milligrams per liter					0.00001	0.00002
300	Dissolved oxygen, water, unfiltered, milligrams per liter						
400	pH, water, unfiltered, field, standard units					8.1	7.7
403	pH, water, unfiltered, laboratory, standard units					8.2	7.7
453	Bicarbonate, water, filtered, incremental titration, field, milligrams per liter					151	148
602	Total nitrogen, water, filtered, milligrams per liter						2.9 E
607	Organic nitrogen, water, filtered, milligrams per liter						0.07 E
608	Ammonia, water, filtered, milligrams per liter as nitrogen					0.024	0.01 E
613	Nitrite, water, filtered, milligrams per liter as nitrogen	1 (a)				< 0.002	< 0.002
618	Nitrate, water, filtered, milligrams per liter as nitrogen						
623	Ammonia plus organic nitrogen, water, filtered, milligrams per liter as nitrogen					< 0.1	0.08 E
631	Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen					< 0.04	2.86
660	Orthophosphate, water, filtered, milligrams per liter					1.28	0.870
666	Phosphorus, water, filtered, milligrams per liter					0.41	0.29
671	Orthophosphate, water, filtered, milligrams per liter as phosphorus					0.419	0.284
900	Hardness, water, milligrams per liter as calcium carbonate					110	170
904	Noncarb hardness, water filtered field, milligrams per liter as calcium carbonate						44
905	Noncarb hardness, water filtered lab, milligrams per liter as calcium carbonate						38
915	Calcium, water, filtered, milligrams per liter					38.4	48.3
925	Magnesium, water, filtered, milligrams per liter					4.54	10.8
930	Sodium, water, filtered, milligrams per liter					86.2	55.0
931	Sodium adsorption ratio, water, number					3.5	1.9
932	Sodium fraction of cations, water, percent in equivalents of major cations					62	42
935	Potassium, water, filtered, milligrams per liter					1.98	1.86
940	Chloride, water, filtered, milligrams per liter	600				78.5	35.1
945	Sulfate, water, filtered, milligrams per liter	600				76.3	103
950	Fluoride, water, filtered, milligrams per liter	2 (b)				0.23	0.21
955	Silica, water, filtered, milligrams per liter					18.5	26.6
1000	Arsenic, water, filtered, micrograms per liter	10 (c)				4.7	1.4
1005	Barium, water, filtered, micrograms per liter	1000 (d)				21.0	49.7
1010	Beryllium, micrograms per liter	4 (e)					
1020	Boron, water, filtered, micrograms per liter					105	128
1025	Cadmium, micrograms per liter	5 (f)					
1030	Chromium, micrograms per liter	50 (g)					
1035	Cobalt, micrograms per liter						
1040	Copper, micrograms per liter	1000 (h)					
1046	Iron, water, filtered, micrograms per liter	300				5	< 4
1049	Lead, micrograms per liter						
1056	Manganese, water, filtered, micrograms per liter	50				20.3	< 0.2
1057	Thallium, micrograms per liter	2 (i)					
1060	Molybdenum, micrograms per liter						
1065	Nickel, micrograms per liter	100 (j)					
1075	Silver, micrograms per liter	100 (k)					
1080	Strontium, water, filtered, micrograms per liter					343	257
1085	Vanadium, micrograms per liter						
1090	Zinc, micrograms per liter	5000 (l)					
1095	Antimony, micrograms per liter	6 (m)					
1106	Aluminum, water, filtered, micrograms per liter	1000 (n)				6.6	< 4
1130	Lithium, water, filtered, micrograms per liter					7	7

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
August 2009

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date					8/4/2009	8/4/2009
1145	Selenium, micrograms per liter	50 (o)					
4022	Terbuthylazine, water, filtered, recoverable, micrograms per liter						
4025	Hexazinone, water, filtered, recoverable, micrograms per liter						
4029	Bromacil, water, filtered, recoverable, micrograms per liter						
4035	Simazine, water, filtered, recoverable, micrograms per liter						
4036	Prometryn, water, filtered, recoverable, micrograms per liter						
4037	Prometon, water, filtered, recoverable, micrograms per liter						
4040	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, micrograms per liter						
4095	Fonofos, water, filtered, recoverable, micrograms per liter						
7000	Tritium, water, unfiltered, picocuries per liter						
22703	Uranium, natural, micrograms per liter						
29801	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, laboratory, milligrams per liter as calcium carbonate					129	127
30217	Dibromomethane, water, unfiltered, recoverable, micrograms per liter						
32101	Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter						
32102	Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0.5					
32103	1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter						
32104	Tribromomethane, water, unfiltered, recoverable, micrograms per liter						
32105	Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter						
32106	Trichloromethane, water, unfiltered, recoverable, micrograms per liter						
34010	Toluene, water, unfiltered, recoverable, micrograms per liter	150					
34030	Benzene, water, unfiltered, recoverable, micrograms per liter	1					
34215	Acrylonitrile, water, unfiltered, recoverable, micrograms per liter						
34221	Anthracene, water, filtered, recoverable, micrograms per liter						
34248	Benzo[a]pyrene, water, filtered, recoverable, micrograms per liter	0.2 (p)					
34288	Tribromomethane, water, filtered, recoverable, micrograms per liter						
34301	Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	70					
34311	Chloroethane, water, unfiltered, recoverable, micrograms per liter						
34371	Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	300					
34377	Fluoranthene, water, filtered, recoverable, micrograms per liter						
34396	Hexachloroethane, water, unfiltered, recoverable, micrograms per liter						
34409	Isophorone, water, filtered, recoverable, micrograms per liter						
34413	Bromomethane, water, unfiltered, recoverable, micrograms per liter						
34418	Chloromethane, water, unfiltered, recoverable, micrograms per liter						
34423	Dichloromethane, water, unfiltered, recoverable, micrograms per liter	5					
34443	Naphthalene, water, filtered, recoverable, micrograms per liter						
34462	Phenanthrene, water, filtered, recoverable, micrograms per liter						
34466	Phenol, water, filtered, recoverable, micrograms per liter						
34470	Pyrene, water, filtered, recoverable, micrograms per liter						
34475	Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	5					
34476	Tetrachloroethene, water, filtered, recoverable, micrograms per liter						
34488	Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	150					
34496	1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	5					
34501	1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6					
34506	1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	200					
34511	1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	5					
34516	1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	1					
34536	1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	600					
34541	1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	5					
34546	trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	10					
34551	1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5					
34566	1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter						
34571	1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5					
34572	1,4-Dichlorobenzene, water, filtered, recoverable, micrograms per liter						
34668	Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
August 2009

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date					8/4/2009	8/4/2009
34696	Naphthalene, water, unfiltered, recoverable, micrograms per liter						
34699	trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5					
34704	cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5					
38454	Dicrotophos, water, filtered, recoverable, micrograms per liter						
38775	Dichlorvos, water, filtered, recoverable, micrograms per liter						
38933	Chlorpyrifos, water, filtered, recoverable, micrograms per liter						
39086	Alkalinity, water, filtered, incremental titration, field, milligrams per liter as calcium carbonate					124	121
39175	Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0.5					
39180	Trichloroethene, water, unfiltered, recoverable, micrograms per liter	5					
39381	Dieldrin, water, filtered, recoverable, micrograms per liter						
39415	Metolachlor, water, filtered, recoverable, micrograms per liter						
39532	Malathion, water, filtered, recoverable, micrograms per liter						
39572	Diazinon, water, filtered, recoverable, micrograms per liter						
39632	Atrazine, water, filtered, recoverable, micrograms per liter						
39702	Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter						
46342	Alachlor, water, filtered, recoverable, micrograms per liter						
49260	Acetochlor, water, filtered, recoverable, micrograms per liter						
49295	1-Naphthol, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
49933	C-14, water, filtered, percent modern						
49934	C-14, counting error, water, filtered, percent modern						
49991	Methyl acrylate, water, unfiltered, recoverable, micrograms per liter						
49999	1,2,3,4-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter						
50000	1,2,3,5-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter						
50002	Bromoethene, water, unfiltered, recoverable, micrograms per liter						
50004	tert-Butyl ethyl ether, water, unfiltered, recoverable, micrograms per liter						
50005	Methyl tert-pentyl ether, water, unfiltered, recoverable, micrograms per liter						
50305	Caffeine, water, filtered, recoverable, micrograms per liter						
50359	Metalaxyl, water, filtered, recoverable, micrograms per liter						
61209	Perchlorate, water, unfiltered, recoverable, micrograms per liter	6					
61585	Cyfluthrin, water, filtered, recoverable, micrograms per liter						
61586	Cypermethrin, water, filtered, recoverable, micrograms per liter						
61591	Fenamiphos, water, filtered, recoverable, micrograms per liter						
61593	Iprodione, water, filtered, recoverable, micrograms per liter						
61594	Isofenphos, water, filtered, recoverable, micrograms per liter						
61596	Metalaxyl, water, filtered, recoverable, micrograms per liter						
61598	Methidathion, water, filtered, recoverable, micrograms per liter						
61599	Myclobutanil, water, filtered, recoverable, micrograms per liter						
61601	Phosmet, water, filtered, recoverable, micrograms per liter						
61610	Tribuphos, water, filtered, recoverable, micrograms per liter						
61618	2-Chloro-2',6'-diethylacetanilide, water, filtered, recoverable, micrograms per liter						
61620	2-Ethyl-6-methylaniline, water, filtered, recoverable, micrograms per liter						
61625	3,4-Dichloroaniline, water, filtered, recoverable, micrograms per liter						
61633	4-Chloro-2-methylphenol, water, filtered, recoverable, micrograms per liter						
61635	Azinphos-methyl oxygen analog, water, filtered, recoverable, micrograms per liter						
61636	Chlorpyrifos oxygen analog, water, filtered, recoverable, micrograms per liter						
61644	Ethion monoxon, water, filtered, recoverable, micrograms per liter						
61645	Fenamiphos sulfone, water, filtered, recoverable, micrograms per liter						
61646	Fenamiphos sulfoxide, water, filtered, recoverable, micrograms per liter						
61652	Malaoxon, water, filtered, recoverable, micrograms per liter						
61664	Methyl paraoxon, water, filtered, recoverable, micrograms per liter						
61666	Phorate oxygen analog, water, filtered, recoverable, micrograms per liter						
61668	Phosmet oxygen analog, water, filtered, recoverable, micrograms per liter						
61674	Terbufos oxygen analog sulfone, water, filtered, recoverable, micrograms per liter						
61705	Diethoxyoctylphenol, water, filtered, recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
August 2009

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date					8/4/2009	8/4/2009
61706	Monoethoxyoctylphenol, water, filtered, recoverable, micrograms per liter						
62005	Cotinine, water, filtered, recoverable, micrograms per liter						
62054	1-Methylnaphthalene, water, filtered, recoverable, micrograms per liter						
62055	2,6-Dimethylnaphthalene, water, filtered, recoverable, micrograms per liter						
62056	2-Methylnaphthalene, water, filtered, recoverable, micrograms per liter						
62057	3-beta-Coprostanol, water, filtered, recoverable, micrograms per liter						
62058	3-Methyl-1H-indole, water, filtered, recoverable, micrograms per liter						
62059	3-tert-Butyl-4-hydroxyanisole, water, filtered, recoverable, micrograms per liter						
62060	4-Cumylphenol, water, filtered, recoverable, micrograms per liter						
62061	4-Octylphenol, water, filtered, recoverable, micrograms per liter						
62062	4-tert-Octylphenol, water, filtered, recoverable, micrograms per liter						
62063	5-Methyl-1H-benzotriazole, water, filtered, recoverable, micrograms per liter						
62064	Acetophenone, water, filtered, recoverable, micrograms per liter						
62065	Acetyl hexamethyl tetrahydro naphthalene, water, filtered, recoverable, micrograms per liter						
62066	9,10-Anthraquinone, water, filtered, recoverable, micrograms per liter						
62067	Benzophenone, water, filtered, recoverable, micrograms per liter						
62068	beta-Sitosterol, water, filtered, recoverable, micrograms per liter						
62070	Camphor, water, filtered, recoverable, micrograms per liter						
62071	Carbazole, water, filtered, recoverable, micrograms per liter						
62072	Cholesterol, water, filtered, recoverable, micrograms per liter						
62073	D-Limonene, water, filtered, recoverable, micrograms per liter						
62075	Hexahydrohexamethyl cyclopentabenzopyran, water, filtered, recoverable, micrograms per liter						
62076	Indole, water, filtered, recoverable, micrograms per liter						
62077	Isoborneol, water, filtered, recoverable, micrograms per liter						
62078	Isopropylbenzene, water, filtered, recoverable, micrograms per liter						
62079	Isoquinoline, water, filtered, recoverable, micrograms per liter						
62080	Menthol, water, filtered, recoverable, micrograms per liter						
62081	Methyl salicylate, water, filtered, recoverable, micrograms per liter						
62082	DEET, water, filtered, recoverable, micrograms per liter						
62083	Diethoxynonylphenol, water, filtered, recoverable, micrograms per liter						
62084	p-Cresol, water, filtered, recoverable, micrograms per liter						
62085	4-Nonylphenol, water, filtered, recoverable, micrograms per liter						
62086	beta-Stigmastanol, water, filtered, recoverable, micrograms per liter						
62087	Tris(2-chloroethyl) phosphate, water, filtered, recoverable, micrograms per liter						
62088	Tris(dichloroisopropyl) phosphate, water, filtered, recoverable, micrograms per liter						
62089	Tributyl phosphate, water, filtered, recoverable, micrograms per liter						
62090	Triclosan, water, filtered, recoverable, micrograms per liter						
62091	Triethyl citrate, water, filtered, recoverable, micrograms per liter						
62092	Triphenyl phosphate, water, filtered, recoverable, micrograms per liter						
62093	Tris(2-butoxyethyl) phosphate, water, filtered, recoverable, micrograms per liter						
62166	Fipronil, water, filtered, recoverable, micrograms per liter						
62167	Fipronil sulfide, water, filtered, recoverable, micrograms per liter						
62168	Fipronil sulfone, water, filtered, recoverable, micrograms per liter						
62169	Desulfinylfipronil amide, water, filtered, recoverable, micrograms per liter						
62170	Desulfinylfipronil, water, filtered, recoverable, micrograms per liter						
62854	Total nitrogen, (NH3+NO2+NO3+Organic), filtered, milligrams per liter						
63790	Perchlorate, water, filtered, recoverable, micrograms per liter	6					
70300	Residue on evaporation, dried at 180 degrees Celsius, water, filtered, milligrams per liter	1500				389	396
70301	Residue, water, filtered, sum of constituents, milligrams per liter					381	368 E
70303	Residue, water, filtered, tons per acre-foot						
71846	Ammonia, water, filtered, milligrams per liter as NH4					0.03	0.01 E
71851	Nitrate, water, filtered, milligrams per liter	45 (q)					
71856	Nitrite, water, filtered, milligrams per liter						
71865	Iodide, water, filtered, milligrams per liter					0.035	0.004

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
August 2009

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date					8/4/2009	8/4/2009
71870	Bromide, water, filtered, milligrams per liter					0.27	0.06
72019	Depth to water level, feet below land surface						
73547	trans-1,4-Dichloro-2-butene, water, unfiltered, recoverable, micrograms per liter						
73570	Ethyl methacrylate, water, unfiltered, recoverable, micrograms per liter						
75985	Tritium 2-sigma combined uncertainty, water, unfiltered, picocuries per liter						
76002	Rn-222, 2-sigma combined uncertainty, water, unfiltered, picocuries per liter						
77041	Carbon disulfide, water, unfiltered, micrograms per liter						
77093	cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6					
77103	n-Butyl methyl ketone, water, unfiltered, recoverable, micrograms per liter						
77128	Styrene, water, unfiltered, recoverable, micrograms per liter	100					
77135	o-Xylene, water, unfiltered, recoverable, micrograms per liter						
77168	1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter						
77170	2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter						
77173	1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter						
77220	2-Ethyltoluene, water, unfiltered, recoverable, micrograms per liter						
77221	1,2,3-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter						
77222	1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter						
77223	Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter						
77224	n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter						
77226	1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter						
77275	2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter						
77277	4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter						
77297	Bromochloromethane, water, unfiltered, recoverable, micrograms per liter						
77342	n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter						
77350	sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter						
77353	tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter						
77356	4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter						
77424	Iodomethane, water, unfiltered, recoverable, micrograms per liter						
77443	1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter						
77562	1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter						
77613	1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter						
77651	1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0.05					
77652	1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter						
78032	Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter						
78109	3-Chloropropene, water, unfiltered, recoverable, micrograms per liter						
78133	Isobutyl methyl ketone, water, unfiltered, recoverable, micrograms per liter						
81552	Acetone, water, unfiltered, recoverable, micrograms per liter						
81555	Bromobenzene, water, unfiltered, recoverable, micrograms per liter						
81576	Diethyl ether, water, unfiltered, recoverable, micrograms per liter						
81577	Diisopropyl ether, water, unfiltered, recoverable, micrograms per liter						
81593	Methyl acrylonitrile, water, unfiltered, recoverable, micrograms per liter						
81595	Ethyl methyl ketone, water, unfiltered, recoverable, micrograms per liter						
81597	Methyl methacrylate, water, unfiltered, recoverable, micrograms per liter						
81607	Tetrahydrofuran, water, unfiltered, recoverable, micrograms per liter						
82081	C-13/C-12 ratio, water, unfiltered, per mil						
82082	Deuterium/Protium ratio, water, unfiltered, per mil					-45.30	-37.70
82085	Oxygen-18/Oxygen-16 ratio, water, unfiltered, per mil					-6.88	-6.00
82303	Rn-222, water, unfiltered, picocuries per liter						
82346	Ethion, water, filtered, recoverable, micrograms per liter						
82625	1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter						
82630	Metribuzin, water, filtered, recoverable, micrograms per liter						
82660	2,6-Diethylaniline, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82661	Trifluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82662	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Pala Park Well (8S/2W-19A1-6)
August 2009

Code	Parameter	MCL	Well A1	Well A2	Well A3	Well A4	Well A5
	Sampling date					8/4/2009	8/4/2009
82664	Phorate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82667	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82670	Tebuthiuron, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82673	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82675	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82676	Propyzamide, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82680	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82682	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82683	Pendimethalin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82686	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
82687	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter						
85795	m-Xylene plus p-xylene, water, unfiltered, recoverable, micrograms per liter						
90095	Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius					676	611
90851	Triholomehtanes, water, unfiltered, calcd, micrograms per liter						
99583	Bisphenol A-d3, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99584	Caffeine-13C, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99585	Decafluorobiphenyl, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99586	Fluoranthene-d10, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery						
99832	1,2-Dichloroethane-d4, surrogate, Schedule 2090, water, unfiltered, percent recovery						
99833	Toluene-d8, surrogate, Schedule 2090, water, unfiltered, percent recovery						
99834	1-Bromo-4-fluorobenzene, surrogate, VOC schedules, water, unfiltered, percent recovery						
99994	Diazinon-d10, surrogate, Schedule 2003, water, filtered, percent recovery						
99995	alpha-HCH-d6, surrogate, Schedule 2003, water, filtered, percent recovery						

Notes: U.S. EPA STORET numbers for MCLs correspond to the same as the USGS NWIS data parameter number except as follows:

(a) MCL shown for U.S EPA STORET No. 620.
(b) MCL shown for U.S. EPASTORET No. 951.
(c) MCL shown for U.S. EPA STORET No. 1002.
(d) MCL shown for U.S. EPA STORET No. 1007.
(e) MCL shown for U.S. EPA STORET No. 1012.
(f) MCL shown for U.S. EPA STORET No. 1027.
(g) MCL shown for U.S. EPA STORET No. 1034.
(h) MCL shown for U.S. EPA STORET No. 1042.
(i) MCL shown for U.S. EPA STORET No. 1059.
(j) MCL shown for U.S EPA STORET No. 1067.
(k) MCL shown for U.S. EPASTORET No. 1077.
(l) MCL shown for U.S. EPA STORET No. 1092.
(m) MCL shown for U.S. EPA STORET No. 1097.
(n) MCL shown for U.S. EPA STORET No. 1105.
(o) MCL shown for U.S. EPA STORET No. 1147.
(p) MCL shown for U.S. EPA STORET No. 34247.
(q) MCL shown for U.S. EPA STORET No. 71850.

Code--Data parameter number used in USGS National Water Information System (NWIS).
E--Estimated.
M--Presence verifed but not quantified.
MCL--Maximum Contaminant Level reported by California DHS (May 25, 2007 Database) for U.S. EPA STORET number.
V--Biased results from contamination.

Source: USGS California Water Science Center.

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX E.3

COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

WOLF VALLEY GROUNDWATER MONITORING WELL

September 2010

Site Description
Wolf Valley Groundwater Monitoring Well
(8S/2W-20J1-2)

LOCATION: Latitude 33° 27' 47", longitude 117° 06' 11", in Riverside County, California. Well is located in a residential neighborhood along the north side of Wolf Valley Road approximately 130 feet northeast of the intersection with Nightingale Road.

SITE INFORMATION: Land-surface altitude is 1076.23 feet above mean sea level from 24000 scale topographic map.

INSTRUMENTATION: None

WATER-LEVEL RECORD:

State well number	USGS station number	Intermittent water-level	Daily water-level
8S/2W-20J1	332747117061101	03/05/1990 to present	no data
8S/2W-20J2	332747117061102	03/05/1990 to present	no data

WATER-LEVEL MEASUREMENTS: Water levels are measured manually each month by means of a calibrated electric tape. Electric tape is used to avoid entangling the sensor and cable. Correction factors (comparison to a steel tape) are applied when necessary. Water-level corrections, for example to compensate for gage height, are calculated after each measurement and applied to the recorded values.

MEASURING POINT: The measuring point of water levels measured manually is from the top of the PVC casing.

TOPOGRAPHIC MAP: USGS Pechanga, California, 7.5 minute series.

WELL SUMMARY INFORMATION:

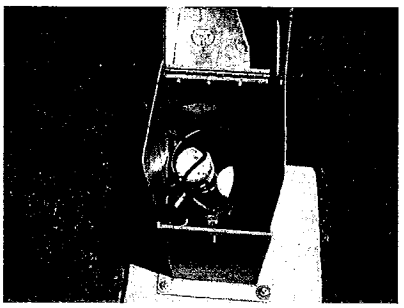
State well number	USGS station number	Hole depth (ft)	Perforation depth (ft)	Casing size and type	Date drilled
8S/2W-20J1	332747117061101	590	555-575	2" PVC	2/17/1900
8S/2W-20J2	332747117061102	590	160-180	2" PVC	2/18/1990

ADDITIONAL INFORMATION:

Additional information can be found at the following web site: http://ca.water.usgs.gov/temecula/.

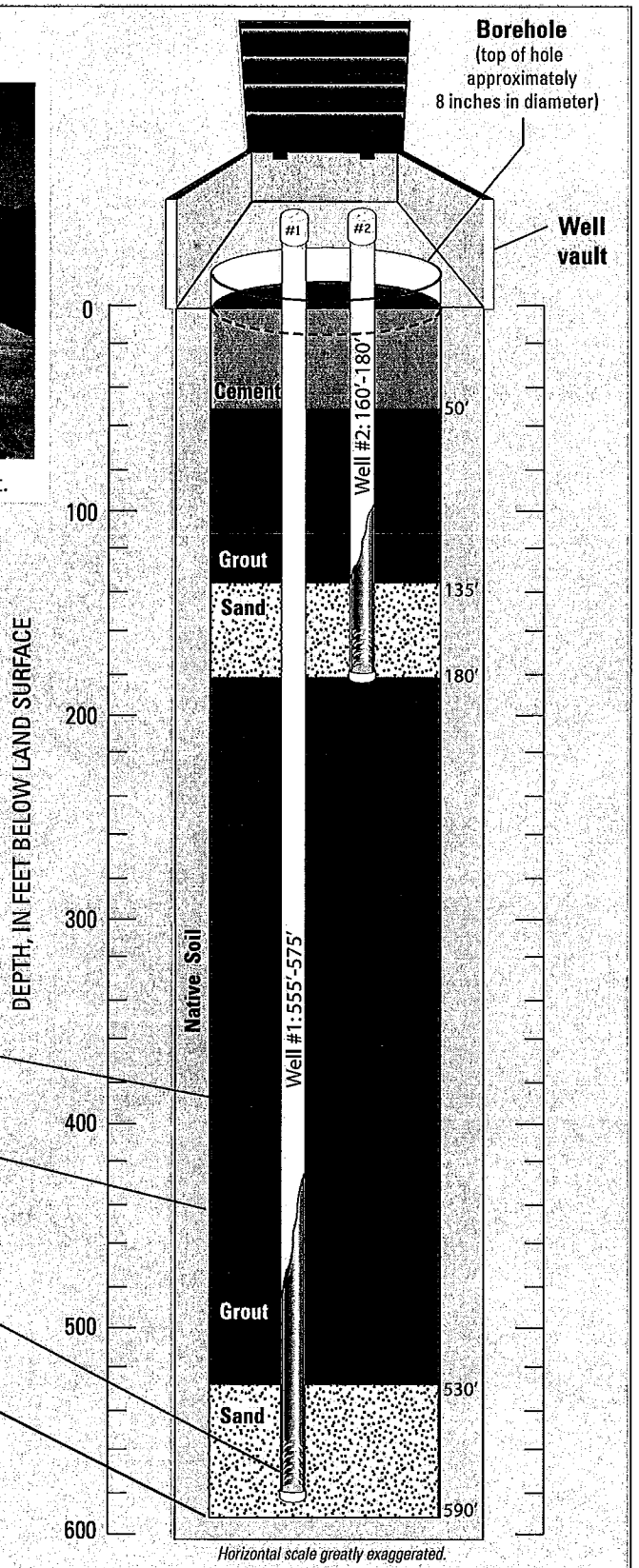
WELL CONSTRUCTION
MONITOTING WELLS VW5-20J1 and 2VW5-0J2

View of vault located in grass, looking West.



View of wells inside vault.

Drill method: hydraulic mud rotary

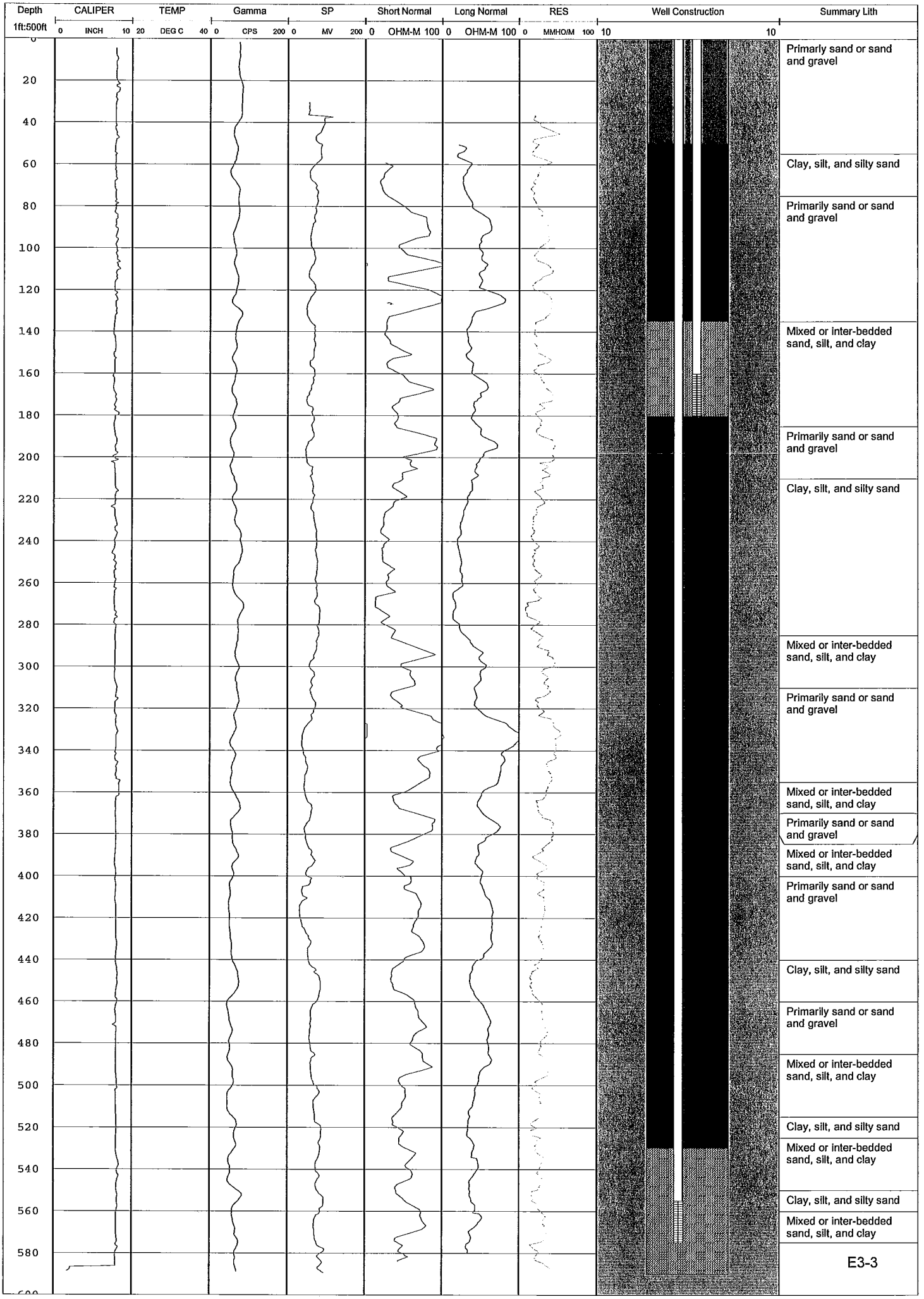


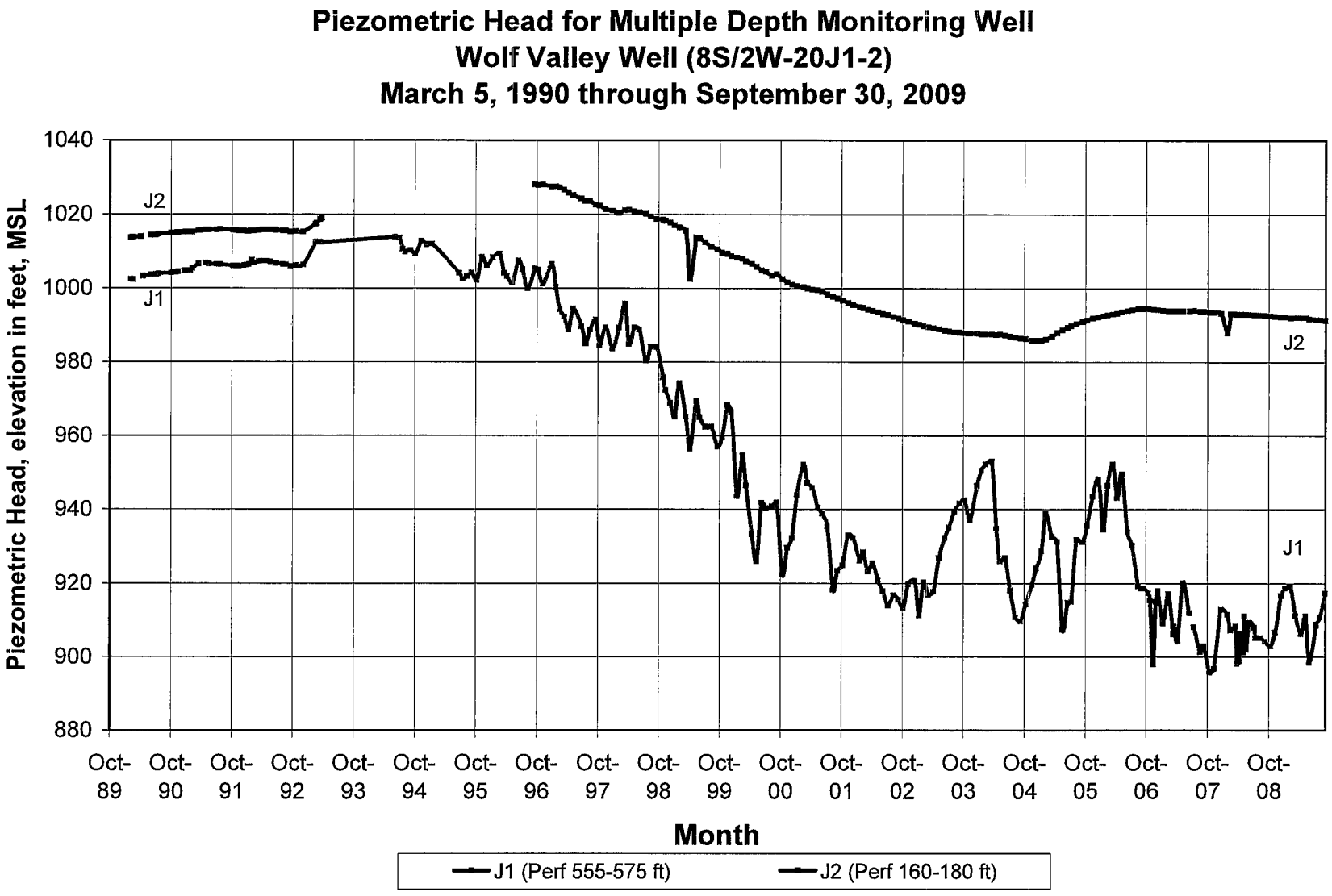
Well casing
(2 inches in diameter)

Borehole
(bottom of hole approximately 8 inches in diameter)

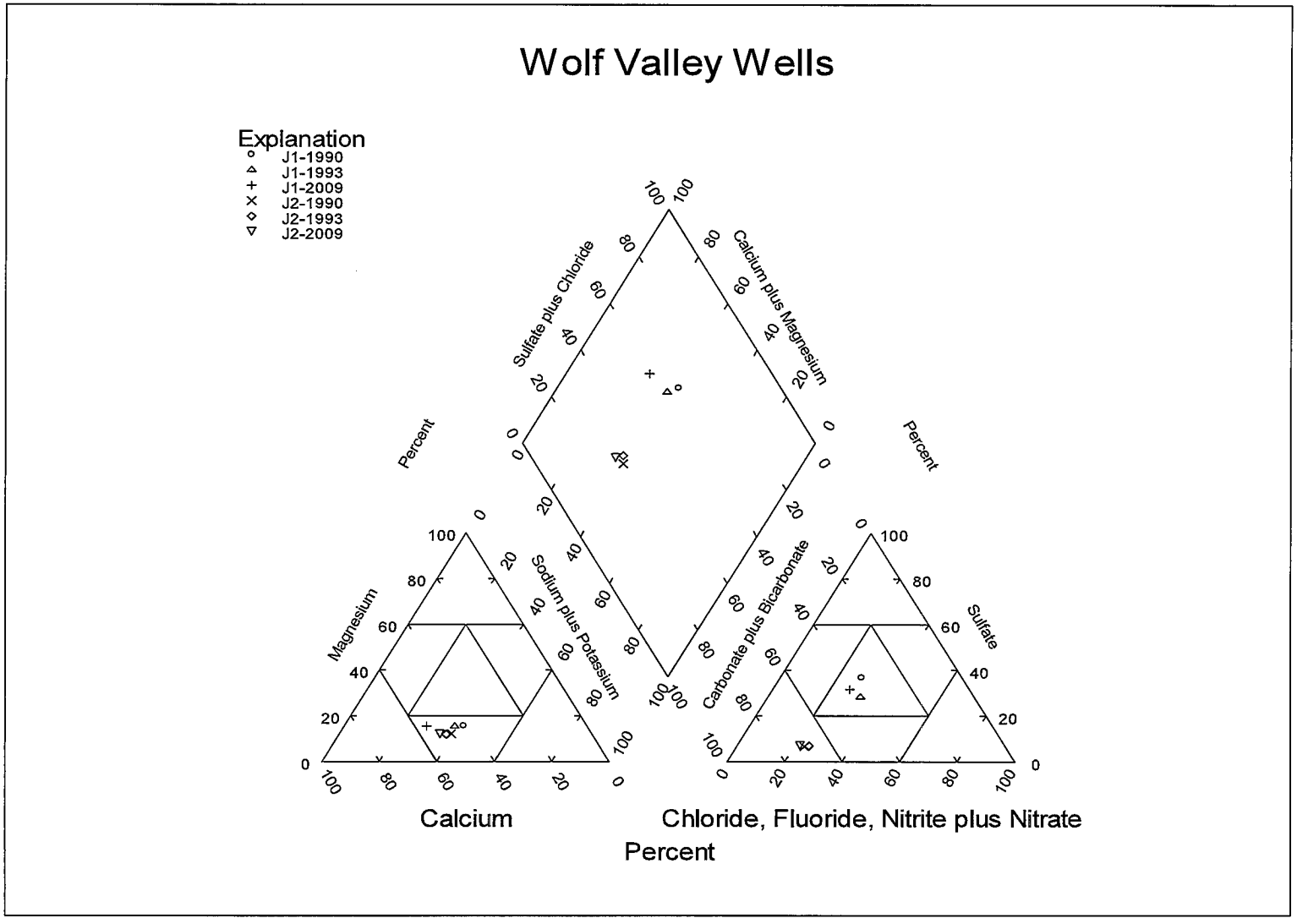
Well screen
(0.020 x 1.5 inch slots)

Total Depth: 590 feet


Depth
1ft:500ft
CALIPER
0 INCH 10
TEMP
20 DEG C 40
Gamma
0 CPS 200
SP
0 MV 200
Short Normal
0 OHM-M 100
Long Normal
0 OHM-M 100
RES
0 MMHO/M 100
Well Construction
10
10
Summary Lith
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
Primarly sand or sand and gravel
Clay, silt, and silty sand
Primarily sand or sand and gravel
Mixed or inter-bedded sand, silt, and clay
Primarily sand or sand and gravel
Clay, silt, and silty sand
Mixed or inter-bedded sand, silt, and clay
Primarily sand or sand and gravel
Mixed or inter-bedded sand, silt, and clay
Primarily sand or sand and gravel
Mixed or inter-bedded sand, silt, and clay
Primarily sand or sand and gravel
Clay, silt, and silty sand
Primarily sand or sand and gravel
Mixed or inter-bedded sand, silt, and clay
Clay, silt, and silty sand
Mixed or inter-bedded sand, silt, and clay
Clay, silt, and silty sand
Mixed or inter-bedded sand, silt, and clay
E3-3

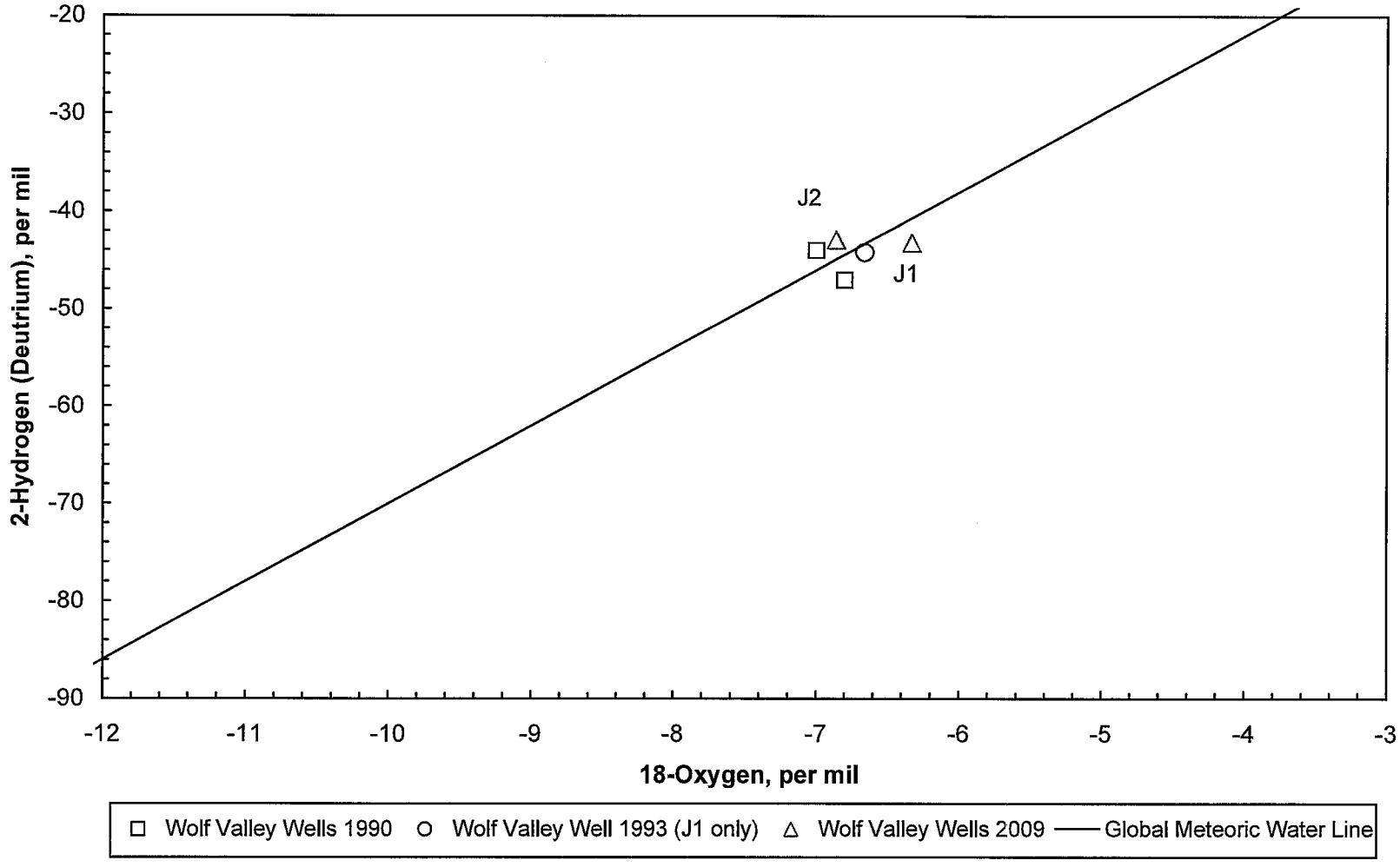

Piezometric Head for Multiple Depth Monitoring Well
Wolf Valley Well (8S/2W-20J1-2)
March 5, 1990 through September 30, 2009
Piezometric Head, elevation in feet, MSL
1040
1020
1000
980
960
940
920
900
880
J2
J1
J2
J1
Oct-89
Oct-90
Oct-91
Oct-92
Oct-93
Oct-94
Oct-95
Oct-96
Oct-97
Oct-98
Oct-99
Oct-00
Oct-01
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Month
J1 (Perf 555-575 ft)
J2 (Perf 160-180 ft)

Tri-Linear Diagram



Source: USGS California Water Science Center, see following website for more information: http://ca.water.usgs.gov/temecula.

Stable Isotope Diagram
Wolf Valley Well (8S/2W-20J1-2)



Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Wolf Valley Well (8S/2W-20J1-2)

Code	Parameter	MCL	Well J1			Well J2		
	Sampling date		8/15/1990	12/20/1993	8/4/2009	8/15/1990	12/20/1993	8/4/2009
3	Sampling depth, feet							
10	Temperature, water, degrees Celsius		20.5	20	21.8	19	19	20.8
28	Agency analyzing sample, code		80020	80020	80020	80020	80020	80020
59	Flow rate, instantaneous, gallons per minute							
95	Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius		1150	863	898		400	423
191	Hydrogen ion, water, unfiltered, calculated, milligrams per liter		0.00002	0.00002		0.00003	0.00003	
300	Dissolved oxygen, water, unfiltered, milligrams per liter							
400	pH, water, unfiltered, field, standard units		7.8	7.8	7.5	7.6	7.6	7.5
403	pH, water, unfiltered, laboratory, standard units		8.1	7.7	7.6	8.6	7.6	7.5
405	Carbon dioxide, water, unfiltered, milligrams per liter		7.2			7.7		
453	Bicarbonate, water, filtered, incremental titration, field, milligrams per liter				253			193
602	Total nitrogen, water, filtered, milligrams per liter		1.5			1.7		
607	Organic nitrogen, water, filtered, milligrams per liter							
608	Ammonia, water, filtered, milligrams per liter as nitrogen		< 0.01	< 0.01	< 0.020	< 0.01	< 0.01	0.012 E
613	Nitrite, water, filtered, milligrams per liter as nitrogen	1 (a)		< 0.01	< 0.002		< 0.01	< 0.002
618	Nitrate, water, filtered, milligrams per liter as nitrogen							
623	Ammonia plus organic nitrogen, water, filtered, milligrams per liter as nitrogen		0.2		< 0.01	0.5		< 0.01
631	Nitrate plus nitrite, water, filtered, milligrams per liter as nitrogen		1.3	3.6	3.42	1.2	1.2	1.58
660	Orthophosphate, water, filtered, milligrams per liter		0.123	0.092		0.675	0.307	
666	Phosphorus, water, filtered, milligrams per liter		0.04		0.03 E	0.23		0.09
671	Orthophosphate, water, filtered, milligrams per liter as phosphorus		0.04	0.03	0.029	0.22	0.1	0.096
900	Hardness, water, milligrams per liter as calcium carbonate		340	270		130	130	
904	Noncarb hardness, water filtered field, milligrams per liter as calcium carbonate		110	71				
905	Noncarb hardness, water filtered lab, milligrams per liter as calcium carbonate							
915	Calcium, water, filtered, milligrams per liter		100	80	102	42	42	43.5
925	Magnesium, water, filtered, milligrams per liter		22	16	17.1	6.3	6	6.02
930	Sodium, water, filtered, milligrams per liter		110	76	59.2	38	35	32.6
931	Sodium adsorption ratio, water, number		2.6	2		1.4	1.3	
932	Sodium fraction of cations, water, percent in equivalents of major cations		41	38		39	37	
935	Potassium, water, filtered, milligrams per liter		2.3	1.4	1.51	0.8	0.8	0.84
940	Chloride, water, filtered, milligrams per liter	600	110	86	71.9	27	29	24.4
945	Sulfate, water, filtered, milligrams per liter	600	200	112	129	12	12	13.0
950	Fluoride, water, filtered, milligrams per liter	2 (b)	0.5		0.08 E	0.7		0.28
955	Silica, water, filtered, milligrams per liter		25	23	29.0	28	25	28.3
1000	Arsenic, water, filtered, micrograms per liter	10 (c)		2	1.2		1	1.0
1005	Barium, water, filtered, micrograms per liter	1000 (d)		61	65.9		40	42.8
1010	Beryllium, micrograms per liter	4 (e)		< 0.5			< 0.5	
1020	Boron, water, filtered, micrograms per liter		110	70	59	60	50	37
1025	Cadmium, micrograms per liter	5 (f)		< 1			< 1	
1030	Chromium, micrograms per liter	50 (g)		< 5			< 5	
1035	Cobalt, micrograms per liter			< 3			< 3	
1040	Copper, micrograms per liter	1000 (h)		< 10			< 10	
1046	Iron, water, filtered, micrograms per liter	300	< 3	< 3	2 E	< 3	< 3	< 4
1049	Lead, micrograms per liter			< 10			< 10	
1056	Manganese, water, filtered, micrograms per liter	50	51	5	< 0.2	< 1	< 1	0.2 E
1057	Thallium, micrograms per liter	2 (i)						
1060	Molybdenum, micrograms per liter			< 10			< 10	
1065	Nickel, micrograms per liter	100 (j)		< 10			< 10	
1075	Silver, micrograms per liter	100 (k)		1			< 1	
1080	Strontium, water, filtered, micrograms per liter			310	479		170	175
1085	Vanadium, micrograms per liter			18			15	
1090	Zinc, micrograms per liter	5000 (l)		< 3			4	
1095	Antimony, micrograms per liter	6 (m)						
1106	Aluminum, water, filtered, micrograms per liter	1000 (n)			< 4.0			< 4.0
1130	Lithium, water, filtered, micrograms per liter			7	8		5	5

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Wolf Valley Well (8S/2W-20J1-2)

Code	Parameter	MCL	Well J1			Well J2		
	Sampling date		8/15/1990	12/20/1993	8/4/2009	8/15/1990	12/20/1993	8/4/2009
1145	Selenium, micrograms per liter	50 (o)		< 1			< 1	
4022	Terbuthylazine, water, filtered, recoverable, micrograms per liter							
4025	Hexazinone, water, filtered, recoverable, micrograms per liter							
4029	Bromacil, water, filtered, recoverable, micrograms per liter							
4035	Simazine, water, filtered, recoverable, micrograms per liter							
4036	Prometryn, water, filtered, recoverable, micrograms per liter							
4037	Prometon, water, filtered, recoverable, micrograms per liter							
4040	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, micrograms per liter							
4095	Fonofos, water, filtered, recoverable, micrograms per liter							
7000	Tritium, water, unfiltered, picocuries per liter				4.0			5.5
22703	Uranium, natural, micrograms per liter							
29801	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, lab, milligrams per liter as calcium carbonate				215			163
30217	Dibromomethane, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
32101	Bromodichloromethane, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
32102	Tetrachloromethane, water, unfiltered, recoverable, micrograms per liter	0.5			< 0.06			< 0.06
32103	1,2-Dichloroethane, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
32104	Tribromomethane, water, unfiltered, recoverable, micrograms per liter				< 0.10			< 0.10
32105	Dibromochloromethane, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
32106	Trichloromethane, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
34010	Toluene, water, unfiltered, recoverable, micrograms per liter	150			< 0.02			< 0.02
34030	Benzene, water, unfiltered, recoverable, micrograms per liter	1			< 0.02			< 0.02
34215	Acrylonitrile, water, unfiltered, recoverable, micrograms per liter				< 0.4			< 0.4
34221	Anthracene, water, filtered, recoverable, micrograms per liter							
34248	Benzo[a]pyrene, water, filtered, recoverable, micrograms per liter	0.2 (p)						
34288	Tribromomethane, water, filtered, recoverable, micrograms per liter							
34301	Chlorobenzene, water, unfiltered, recoverable, micrograms per liter	70			< 0.02			< 0.02
34311	Chloroethane, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
34371	Ethylbenzene, water, unfiltered, recoverable, micrograms per liter	300			< 0.04			< 0.04
34377	Fluoranthene, water, filtered, recoverable, micrograms per liter							
34396	Hexachloroethane, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
34409	Isophorone, water, filtered, recoverable, micrograms per liter							
34413	Bromomethane, water, unfiltered, recoverable, micrograms per liter				< 0.4			< 0.4
34418	Chloromethane, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
34423	Dichloromethane, water, unfiltered, recoverable, micrograms per liter	5			< 0.04			< 0.04
34443	Naphthalene, water, filtered, recoverable, micrograms per liter							
34462	Phenanthrene, water, filtered, recoverable, micrograms per liter							
34466	Phenol, water, filtered, recoverable, micrograms per liter							
34470	Pyrene, water, filtered, recoverable, micrograms per liter							
34475	Tetrachloroethene, water, unfiltered, recoverable, micrograms per liter	5			< 0.04			< 0.04
34476	Tetrachloroethene, water, filtered, recoverable, micrograms per liter							
34488	Trichlorofluoromethane, water, unfiltered, recoverable, micrograms per liter	150			0.05 E			0.15
34496	1,1-Dichloroethane, water, unfiltered, recoverable, micrograms per liter	5			< 0.04			< 0.04
34501	1,1-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6			< 0.02			< 0.02
34506	1,1,1-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	200			< 0.02			< 0.02
34511	1,1,2-Trichloroethane, water, unfiltered, recoverable, micrograms per liter	5			< 0.06			< 0.06
34516	1,1,2,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter	1			< 0.10			< 0.10
34536	1,2-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	600			< 0.02			< 0.02
34541	1,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter	5			< 0.02			< 0.02
34546	trans-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	10			< 0.02			< 0.02
34551	1,2,4-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5			< 0.04			< 0.04
34566	1,3-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter				< 0.02			< 0.02
34571	1,4-Dichlorobenzene, water, unfiltered, recoverable, micrograms per liter	5			< 0.02			< 0.02
34572	1,4-Dichlorobenzene, water, filtered, recoverable, micrograms per liter							
34668	Dichlorodifluoromethane, water, unfiltered, recoverable, micrograms per liter				< 0.10			< 0.10
34696	Naphthalene, water, unfiltered, recoverable, micrograms per liter				< 0.2			< 0.2

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Wolf Valley Well (8S/2W-20J1-2)

Code	Parameter	MCL	Well J1			Well J2		
	Sampling date		8/15/1990	12/20/1993	8/4/2009	8/15/1990	12/20/1993	8/4/2009
34699	trans-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5			< 0.10			< 0.10
34704	cis-1,3-Dichloropropene, water, unfiltered, recoverable, micrograms per liter	0.5			< 0.10			< 0.10
38454	Dicrotophos, water, filtered, recoverable, micrograms per liter							
38775	Dichlorvos, water, filtered, recoverable, micrograms per liter							
38933	Chlorpyrifos, water, filtered, recoverable, micrograms per liter							
39036	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, laboratory, milligrams per liter as calcium carbonate		240	200		160	150	
39086	Alkalinity, water, filtered, incremental titration, field, milligrams per liter as calcium carbonate				207			158
39175	Vinyl chloride, water, unfiltered, recoverable, micrograms per liter	0.5			< 0.1			< 0.1
39180	Trichloroethene, water, unfiltered, recoverable, micrograms per liter	5			< 0.02			< 0.02
39381	Dieldrin, water, filtered, recoverable, micrograms per liter							
39415	Metolachlor, water, filtered, recoverable, micrograms per liter							
39532	Malathion, water, filtered, recoverable, micrograms per liter							
39572	Diazinon, water, filtered, recoverable, micrograms per liter							
39632	Atrazine, water, filtered, recoverable, micrograms per liter							
39702	Hexachlorobutadiene, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
46342	Alachlor, water, filtered, recoverable, micrograms per liter							
49260	Acetochlor, water, filtered, recoverable, micrograms per liter							
49295	1-Naphthol, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
49933	C-14, water, filtered, percent modern				96.47			103.4
49934	C-14, counting error, water, filtered, percent modern				0.320			0.360
49991	Methyl acrylate, water, unfiltered, recoverable, micrograms per liter				< 0.6			< 0.6
49999	1,2,3,4-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
50000	1,2,3,5-Tetramethylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
50002	Bromoethene, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
50004	tert-Butyl ethyl ether, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
50005	Methyl tert-pentyl ether, water, unfiltered, recoverable, micrograms per liter				< 0.06			< 0.06
50305	Caffeine, water, filtered, recoverable, micrograms per liter							
50359	Metalaxyl, water, filtered, recoverable, micrograms per liter							
61209	Perchlorate, water, unfiltered, recoverable, micrograms per liter	6						
61585	Cyfluthrin, water, filtered, recoverable, micrograms per liter							
61586	Cypermethrin, water, filtered, recoverable, micrograms per liter							
61591	Fenamiphos, water, filtered, recoverable, micrograms per liter							
61593	Iprodione, water, filtered, recoverable, micrograms per liter							
61594	Isofenphos, water, filtered, recoverable, micrograms per liter							
61596	Metalaxyl, water, filtered, recoverable, micrograms per liter							
61598	Methidathion, water, filtered, recoverable, micrograms per liter							
61599	Myclobutanil, water, filtered, recoverable, micrograms per liter							
61601	Phosmet, water, filtered, recoverable, micrograms per liter							
61610	Tribuphos, water, filtered, recoverable, micrograms per liter							
61618	2-Chloro-2',6'-diethylacetanilide, water, filtered, recoverable, micrograms per liter							
61620	2-Ethyl-6-methylaniline, water, filtered, recoverable, micrograms per liter							
61625	3,4-Dichloroaniline, water, filtered, recoverable, micrograms per liter							
61633	4-Chloro-2-methylphenol, water, filtered, recoverable, micrograms per liter							
61635	Azinphos-methyl oxygen analog, water, filtered, recoverable, micrograms per liter							
61636	Chlorpyrifos oxygen analog, water, filtered, recoverable, micrograms per liter							
61644	Ethion monoxon, water, filtered, recoverable, micrograms per liter							
61645	Fenamiphos sulfone, water, filtered, recoverable, micrograms per liter							
61646	Fenamiphos sulfoxide, water, filtered, recoverable, micrograms per liter							
61652	Malaoxon, water, filtered, recoverable, micrograms per liter							
61664	Methyl paraoxon, water, filtered, recoverable, micrograms per liter							
61666	Phorate oxygen analog, water, filtered, recoverable, micrograms per liter							
61668	Phosmet oxygen analog, water, filtered, recoverable, micrograms per liter							
61674	Terbufos oxygen analog sulfone, water, filtered, recoverable, micrograms per liter							
61705	Diethoxyoctylphenol, water, filtered, recoverable, micrograms per liter							
61706	Monoethoxyoctylphenol, water, filtered, recoverable, micrograms per liter							

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Wolf Valley Well (8S/2W-20J1-2)

Code	Parameter	MCL	Well J1			Well J2		
	Sampling date		8/15/1990	12/20/1993	8/4/2009	8/15/1990	12/20/1993	8/4/2009
62005	Cotinine, water, filtered, recoverable, micrograms per liter							
62054	1-Methylnaphthalene, water, filtered, recoverable, micrograms per liter							
62055	2,6-Dimethylnaphthalene, water, filtered, recoverable, micrograms per liter							
62056	2-Methylnaphthalene, water, filtered, recoverable, micrograms per liter							
62057	3-beta-Coprostanol, water, filtered, recoverable, micrograms per liter							
62058	3-Methyl-1H-indole, water, filtered, recoverable, micrograms per liter							
62059	3-tert-Butyl-4-hydroxyanisole, water, filtered, recoverable, micrograms per liter							
62060	4-Cumylphenol, water, filtered, recoverable, micrograms per liter							
62061	4-Octylphenol, water, filtered, recoverable, micrograms per liter							
62062	4-tert-Octylphenol, water, filtered, recoverable, micrograms per liter							
62063	5-Methyl-1H-benzotriazole, water, filtered, recoverable, micrograms per liter							
62064	Acetophenone, water, filtered, recoverable, micrograms per liter							
62065	Acetyl hexamethyl tetrahydro naphthalene, water, filtered, recoverable, micrograms per liter							
62066	9,10-Anthraquinone, water, filtered, recoverable, micrograms per liter							
62067	Benzophenone, water, filtered, recoverable, micrograms per liter							
62068	beta-Sitosterol, water, filtered, recoverable, micrograms per liter							
62070	Camphor, water, filtered, recoverable, micrograms per liter							
62071	Carbazole, water, filtered, recoverable, micrograms per liter							
62072	Cholesterol, water, filtered, recoverable, micrograms per liter							
62073	D-Limonene, water, filtered, recoverable, micrograms per liter							
62075	Hexahydrohexamethyl cyclopentabenzopyran, water, filtered, recoverable, micrograms per liter							
62076	Indole, water, filtered, recoverable, micrograms per liter							
62077	Isoborneol, water, filtered, recoverable, micrograms per liter							
62078	Isopropylbenzene, water, filtered, recoverable, micrograms per liter							
62079	Isoquinoline, water, filtered, recoverable, micrograms per liter							
62080	Menthol, water, filtered, recoverable, micrograms per liter							
62081	Methyl salicylate, water, filtered, recoverable, micrograms per liter							
62082	DEET, water, filtered, recoverable, micrograms per liter							
62083	Diethoxynonylphenol, water, filtered, recoverable, micrograms per liter							
62084	p-Cresol, water, filtered, recoverable, micrograms per liter							
62085	4-Nonylphenol, water, filtered, recoverable, micrograms per liter							
62086	beta-Stigmastanol, water, filtered, recoverable, micrograms per liter							
62087	Tris(2-chloroethyl) phosphate, water, filtered, recoverable, micrograms per liter							
62088	Tris(dichloroisopropyl) phosphate, water, filtered, recoverable, micrograms per liter							
62089	Tributyl phosphate, water, filtered, recoverable, micrograms per liter							
62090	Triclosan, water, filtered, recoverable, micrograms per liter							
62091	Triethyl citrate, water, filtered, recoverable, micrograms per liter							
62092	Triphenyl phosphate, water, filtered, recoverable, micrograms per liter							
62093	Tris(2-butoxyethyl) phosphate, water, filtered, recoverable, micrograms per liter							
62166	Fipronil, water, filtered, recoverable, micrograms per liter							
62167	Fipronil sulfide, water, filtered, recoverable, micrograms per liter							
62168	Fipronil sulfone, water, filtered, recoverable, micrograms per liter							
62169	Desulfinylfipronil amide, water, filtered, recoverable, micrograms per liter							
62170	Desulfinylfipronil, water, filtered, recoverable, micrograms per liter							
62854	Total nitrogen, (NH3+NO2+NO3+Organic), filtered, milligrams per liter							
63790	Perchlorate, water, filtered, recoverable, micrograms per liter	6						
70300	Residue on evaporation, dried at 180 degrees Celsius, water, filtered, milligrams per liter	1500	596		531	216		265
70301	Residue, water, filtered, sum of constituents, milligrams per liter		717	528		255	247	
70303	Residue, water, filtered, tons per acre-foot							
71846	Ammonia, water, filtered, milligrams per liter as NH4							
71851	Nitrate, water, filtered, milligrams per liter	45 (q)						
71856	Nitrite, water, filtered, milligrams per liter							
71865	Iodide, water, filtered, milligrams per liter				0.003			0.001 E
71870	Bromide, water, filtered, milligrams per liter				0.36			0.09
72019	Depth to water level, feet below land surface		72.28			61.65		

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Wolf Valley Well (8S/2W-20J1-2)

Code	Parameter	MCL	Well J1			Well J2		
	Sampling date		8/15/1990	12/20/1993	8/4/2009	8/15/1990	12/20/1993	8/4/2009
73547	trans-1,4-Dichloro-2-butene, water, unfiltered, recoverable, micrograms per liter				< 0.4			< 0.4
73570	Ethyl methacrylate, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
75985	Tritium 2-sigma combined uncertainty, water, unfiltered, picocuries per liter							
76002	Rn-222, 2-sigma combined uncertainty, water, unfiltered, picocuries per liter							
77041	Carbon disulfide, water, unfiltered, micrograms per liter				< 0.04			< 0.04
77093	cis-1,2-Dichloroethene, water, unfiltered, recoverable, micrograms per liter	6			< 0.02			< 0.02
77103	n-Butyl methyl ketone, water, unfiltered, recoverable, micrograms per liter				< 0.6			< 0.6
77128	Styrene, water, unfiltered, recoverable, micrograms per liter	100			< 0.04			< 0.04
77135	o-Xylene, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
77168	1,1-Dichloropropene, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
77170	2,2-Dichloropropane, water, unfiltered, recoverable, micrograms per liter				< 0.06			< 0.06
77173	1,3-Dichloropropane, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
77220	2-Ethyltoluene, water, unfiltered, recoverable, micrograms per liter				< 0.02			< 0.02
77221	1,2,3-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
77222	1,2,4-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
77223	Isopropylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
77224	n-Propylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
77226	1,3,5-Trimethylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
77275	2-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter				< 0.02			< 0.02
77277	4-Chlorotoluene, water, unfiltered, recoverable, micrograms per liter				< 0.02			< 0.02
77297	Bromochloromethane, water, unfiltered, recoverable, micrograms per liter				< 0.06			< 0.06
77342	n-Butylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
77350	sec-Butylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.02			< 0.02
77353	tert-Butylbenzene, water, unfiltered, recoverable, micrograms per liter				< 0.06			< 0.06
77356	4-Isopropyltoluene, water, unfiltered, recoverable, micrograms per liter				< 0.06			< 0.06
77424	Iodomethane, water, unfiltered, recoverable, micrograms per liter				< 0.80			< 0.80
77443	1,2,3-Trichloropropane, water, unfiltered, recoverable, micrograms per liter				< 0.12			< 0.12
77562	1,1,1,2-Tetrachloroethane, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
77613	1,2,3-Trichlorobenzene, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
77651	1,2-Dibromoethane, water, unfiltered, recoverable, micrograms per liter	0.05			< 0.04			< 0.04
77652	1,1,2-Trichloro-1,2,2-trifluoroethane, water, unfiltered, recoverable, micrograms per liter				< 0.04			< 0.04
78032	Methyl tert-butyl ether, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
78109	3-Chloropropene, water, unfiltered, recoverable, micrograms per liter				< 0.08			< 0.08
78133	Isobutyl methyl ketone, water, unfiltered, recoverable, micrograms per liter				< 0.4			< 0.4
81552	Acetone, water, unfiltered, recoverable, micrograms per liter				< 4			< 4
81555	Bromobenzene, water, unfiltered, recoverable, micrograms per liter				< 0.02			< 0.02
81576	Diethyl ether, water, unfiltered, recoverable, micrograms per liter				< 0.1			< 0.1
81577	Diisopropyl ether, water, unfiltered, recoverable, micrograms per liter				< 0.06			< 0.06
81593	Methyl acrylonitrile, water, unfiltered, recoverable, micrograms per liter				< 0.2			< 0.2
81595	Ethyl methyl ketone, water, unfiltered, recoverable, micrograms per liter				< 1.6			< 1.6
81597	Methyl methacrylate, water, unfiltered, recoverable, micrograms per liter				< 0.2			< 0.2
81607	Tetrahydrofuran, water, unfiltered, recoverable, micrograms per liter				< 1			< 1
82081	C-13/C-12 ratio, water, unfiltered, per mil				-15.29			-14.99
82082	Deuterium/Protium ratio, water, unfiltered, per mil		-47	-44.2	-43.20	-44		-42.90
82085	Oxygen-18/Oxygen-16 ratio, water, unfiltered, per mil		-6.8	-6.66	-6.33	-7		-6.86
82303	Rn-222, water, unfiltered, picocuries per liter							
82346	Ethion, water, filtered, recoverable, micrograms per liter							
82625	1,2-Dibromo-3-chloropropane, water, unfiltered, recoverable, micrograms per liter				< 1.0			< 1.0
82630	Metribuzin, water, filtered, recoverable, micrograms per liter							
82660	2,6-Diethylaniline, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82661	Trifluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82662	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82664	Phorate, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82667	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82670	Tebuthiuron, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							

Source: USGS California Water Science Center.

Water Quality Data for Multiple Depth Monitoring Well
Wolf Valley Well (8S/2W-20J1-2)

Code	Parameter	MCL	Well J1			Well J2		
	Sampling date		8/15/1990	12/20/1993	8/4/2009	8/15/1990	12/20/1993	8/4/2009
82673	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82675	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82676	Propyzamide, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82680	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82682	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82683	Pendimethalin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82686	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
82687	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recoverable, micrograms per liter							
85795	m-Xylene plus p-xylene, water, unfiltered, recoverable, micrograms per liter				< 0.08			< 0.08
90095	Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius		1130	868	911	404	408	433
90851	Triholomehtanes, water, unfiltered, calcd, micrograms per liter							
99583	Bisphenol A-d3, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery							
99584	Caffeine-13C, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery							
99585	Decafluorobiphenyl, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery							
99586	Fluoranthene-d10, surrogate, Schedule/lab code 2033/8033, water, filtered, percent recovery							
99832	1,2-Dichloroethane-d4, surrogate, Schedule 2090, water, unfiltered, percent recovery				131			133
99833	Toluene-d8, surrogate, Schedule 2090, water, unfiltered, percent recovery				86.4			85.7
99834	1-Bromo-4-fluorobenzene, surrogate, VOC schedules, water, unfiltered, percent recovery				85.9			87.2
99994	Diazinon-d10, surrogate, Schedule 2003, water, filtered, percent recovery							
99995	alpha-HCH-d6, surrogate, Schedule 2003, water, filtered, percent recovery							

Notes: U.S. EPA STORET numbers for MCLs correspond to the same as the USGS NWIS data parameter number except as follows:
(a) MCL shown for U.S EPA STORET No. 620.
(b) MCL shown for U.S. EPASTORET No. 951.
(c) MCL shown for U.S. EPA STORET No. 1002.
(d) MCL shown for U.S. EPA STORET No. 1007.
(e) MCL shown for U.S. EPA STORET No. 1012.
(f) MCL shown for U.S. EPA STORET No. 1027.
(g) MCL shown for U.S. EPA STORET No. 1034.
(h) MCL shown for U.S. EPA STORET No. 1042.
(i) MCL shown for U.S. EPA STORET No. 1059.
(j) MCL shown for U.S EPA STORET No. 1067.
(k) MCL shown for U.S. EPASTORET No. 1077.
(l) MCL shown for U.S. EPA STORET No. 1092.
(m) MCL shown for U.S. EPA STORET No. 1097.
(n) MCL shown for U.S. EPA STORET No. 1105.
(o) MCL shown for U.S. EPA STORET No. 1147.
(p) MCL shown for U.S. EPA STORET No. 34247.
(q) MCL shown for U.S. EPA STORET No. 71850.

Code–Data parameter number used in USGS National Water Information System (NWIS).
E–Estimated.
M–Presence verifed but not quantified.
MCL–Maximum Contaminant Level reported by California DHS (May 25, 2007 Database) for U.S. EPA STORET number.
V–Biased results from contamination.

Source: USGS California Water Science Center.

SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 2008-09

APPENDIX F

ANNUAL REPORT ISSUES SUBORDINATED DURING EFFECTIVE PERIOD OF THE COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

September 2010

APPENDIX F

SANTA MARGARITA RIVER WATERSHED

ANNUAL REPORT ISSUES SUBORDINATED DURING EFFECTIVE PERIOD OF THE COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

Introduction

Prior to implementation of the Cooperative Water Resources Management Agreement (CWRMA) entered into by Rancho California Water District (RCWD) and the United States on behalf of Camp Pendleton, there were each year contentions raised by Camp Pendleton with respect to various aspects of the Annual Watermaster Report. These contentions are settled so long as that agreement is in effect. Accordingly, there is no need to raise those particular issues or publish them in the main text of the annual report or in related correspondence.

However, the respective positions on these issues need to be preserved and protected from any finding of waiver, and there is a need to continue to collect related data in the event of need in the future.

Therefore, the applicable textual material in the previous annual reports and related comments and responses have been gathered here for preservation and maintenance of rights, with the understanding that the previous annual exchange of applicable contentions in the process of preparing the annual report is no longer necessary.

Issues Reserved

Section 3, Surface Water Availability and Use: In the absence of CWRMA implementation, Camp Pendleton disputes the method of calculation used in the annual report in Subsection 3.2 (Surface Water Diversions) and Table 3.3 (Surface Water Diversions to Storage) for presentation of the information regarding Vail Lake and further asserts its belief that the Vail Dam impoundment fails to comply with the 1940 Stipulated Judgment.

Section 4, Subsurface Water Availability and Use: In the absence of CWRMA implementation, and with respect to Figure 4.1 (Water Level Elevations – Windmill Well) and to Subsections 4.3 (Water Levels) and 4.4 (Groundwater Storage), Camp Pendleton is concerned about the apparent excessive pumping in the Upper Basin, and further asserts its belief that the lengthy and significant drawdown and concomitant loss in storage adversely affect the water supply for adjacent and downstream users holding senior water rights.

Section 7, Water Production and Use: First, in the absence of CWRMA implementation, and with regard to the local production figures shown in Table 7.1 (Water Production and Use), Camp Pendleton is concerned about the high level of groundwater production from the Upper Basin, a level that Camp Pendleton believes to be substantially greater than the safe yield.

Second, in the absence of CWRMA implementation, and with regard to Footnote 4 of Table 7.1 (distinction between RCWD pumping of older alluvium water and of Vail recovery water), Camp Pendleton has serious reservations as to the accounting system that is being used as well as the legal and technical bases upon which such system has been formulated.

Third, in the absence of CWRMA implementation, and as to the RCWD part of Subsection 7.2 (Water Purveyors), Camp Pendleton has serious reservations as to the accounting system that is being used as well as the legal and technical bases upon which such system has been formulated. These reservations include the following:

1. As to the "Vail Appropriation" part: *Representatives of the United States contend that under the 1940 Stipulated Judgment storage of water in Vail Lake is limited to Rancho California Water District's share of the flood waters of the Santa Margarita River system. However, to date, the parties have not agreed on a definition of "flood waters."*

2. As to the "Division of Local Water" part: *In 1995 well logs and geophysical logs of all Rancho California WD wells were reviewed by representatives of the United States and Rancho California WD to determine the depths of the younger alluvium. There was general agreement between the parties about the depth of the younger alluvium in production wells, except for ten wells shown on Table 7.7 of the 1994-95 report. The remaining disagreements relate to differences about the magnitude of the clay layer needed to define the base of the younger alluvium, the importance of neighboring well logs, and general concepts about overall geologic setting.*

Section 8, Unauthorized Water Use: In the absence of CWRMA implementation, and with respect to water use by RCWD, Camp Pendleton asserts the following:

1. Such use is in violation of the 1940 Stipulated Judgment by reason of, among other things, Vail Lake operations in excess of entitlement and pumping from both younger and older alluvium in excess of entitlement, which contentions RCWD disputes;

2. Rediversion and use of water impounded by Vail Dam are not in accord with terms of Permit 7032;

3. Unauthorized pumping is being done, including pumping from the younger alluvium outside of Pauba Valley without a permit and pumping from the older alluvium in violation of Court adjudications.

Section 9, Threats to Water Supply: In the absence of CWRMA implementation, and with respect to Subsection 9.3 (Potential Overdraft Conditions) and as noted in the foregoing comments to Sections 4 and 7, Camp Pendleton is seriously concerned regarding the apparent excessive pumping in the Upper Basin.

Recommended Ground Water Production

Fiscal Year July 1, 2011 through June 30, 2012

PREPARED FOR:

Rancho California Water District

January 14, 2011

GEOSCIENCE Support Services, Inc., **Ground Water Resources Development**
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GEOSCIENCE

RANCHO CALIFORNIA WATER DISTRICT
RECOMMENDED GROUND WATER PRODUCTION
FISCAL YEAR JULY 1, 2011 THROUGH JUNE 30, 2012

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RANCHO CALIFORNIA WATER DISTRICT
RECOMMENDED GROUND WATER PRODUCTION
FISCAL YEAR JULY 1, 2011 THROUGH JUNE 30, 2012

1.0 EXECUTIVE SUMMARY

The purpose of this yearly audit review is to recommend a ground water production program for the 2011-2012 fiscal year. The current review was performed between October 2010 and December 2010 using the most current data from the prior water year ending in September 30, 2010 and it recommends a ground water production plan for the period from July 1, 2011 through June 30, 2012.

The 2011-2012 fiscal year ground water production recommendations were based primarily on a review of individual well production and historical hydrographs. During the review, ground water level elevations from all production and monitoring wells were considered. Hydrologic subareas and "index wells" representing water level changes in the subarea were used to help formulate a recommendation for production during the 2011-2012 fiscal year. This recommendation also includes input from "Workshops" held between Rancho California Water District (RCWD), GEOSCIENCE and Western Municipal Water District (WMWD) personnel. These workshops included discussions of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, well construction factors, and the projected production from WMWD's wells in 2011 in the northern Murrieta Valley area.

Where water level trends in subarea index wells indicate a decline over several years, lower production values have been recommended. Where water level declines have not occurred, and as other factors permitted, recommended production values have been increased. Total recommended production for the period July 1, 2011 through June 30, 2012 is 39,075 acre-ft.

The recommended production amounts are consistent with RCWD's ground water management plan and were made with consideration given to historical water levels, precipitation, production, and expected natural and artificial recharge. Consideration was also given to the projected production from WMWD's production wells in the northern Murrieta Valley area. As always, in keeping with sound ground water basin management practices, the recommended production should be considered as a guideline only and is subject to revision as additional data become available.

Tables 1 and 2 summarize recommended 2011-2012 fiscal year ground water production. Table 1 shows the production recommendations sorted by hydrologic subunit and Table 2 shows them sorted by RCWD well number. Figure 1 shows both RCWD and WMWD well locations in the Murrieta–Temecula Ground Water Basin. Figure 2 is a general map showing the recommended production for each of the hydrologic subunits. Figures 3 and 4 shows the model-predicted water levels for the Pauba and Temecula index wells in each subarea under the recommended 2011-2012 pumping conditions. Plate 1 summarizes the factors that affected the recommendations for each well.

2.0 METHODOLOGY

A ground water audit (water budget review) of the RCWD was performed between October 2010 and December 2010. The purpose of the audit was to evaluate and recommend ground water production levels for the fiscal year July 1, 2011 to June 30, 2012. The underlying philosophy guiding the audit has been, and continues to be, one of sound basin management. This management involves the operation of the ground water basin within safe yield limits so as not to create permanent overdraft (mining) or other undesirable conditions that could degrade water quality or violate legal restrictions. Determination of the amount of ground water hydrologically, economically, and legally available to the District is an ongoing process of evaluation and review.

2.1 Review of Historical Records of Ground Water Levels and Production

2.1.1 Index Wells, Production Wells and Monitoring Wells

In the well field optimization study (conducted by GEOSCIENCE in April 1993), the RCWD area was divided into small polygonal areas based on geohydrologic relationships and the relative locations of RCWD production wells (see Figure 1). Numbers were assigned to each subarea for identification purposes. An "index well" was chosen for each polygonal subarea. Index wells reflect changes in water levels in each of the production wells within a subarea. Generally, index wells are non-production monitoring wells having several years of historical water level data. When these criteria could not be met, a production well which best reflected water level changes in the subarea was chosen as an index well.

Multiple regression analyses were conducted for each polygonal subarea based on index well monthly water levels, production well monthly water levels, monthly production, and monthly precipitation in the area (Temecula Station). Long-term (January 1981 to September 2010) and

short-term (October 2009 to September 2010) water level changes in each index well were then used to determine the water level trends for the corresponding subarea.

2.1.2 Review of Hydrographs – Water Level Trends

January 1981 to September 2010 was designated as the period for long-term water level trend analysis (see Appendix A); October 2009 to September 2010 was designated as the period for short-term water level trend analysis (see Appendix B). Historical water levels and production were also plotted for the WMWD's wells in the northern Murrieta Valley area (see Appendix C).

The recommended production values for fiscal year 2011-2012 were first estimated based on water level trends and historical production within each subarea. Where water level trends in production wells and index wells indicated a decline over several years, lower production values have been recommended. Where water level declines have not occurred, recommended production values may have been increased contingent on other constraints (e.g., water quality, mechanical or legal).

2.2 "Workshop" with RCWD, WMWD, and GEOSCIENCE Personnel

The purpose of the "Workshop" between RCWD, WMWD, and GEOSCIENCE personnel (held on November 17, 2010) was to discuss initially recommended production levels and specific problems on a well-by-well basis. For each well, the instantaneous yield, static submergence, pump lowering potential, long- and short-term water level trends, water quality, construction, litigation, and air problems were discussed and tabulated. Plate 1 summarizes factors affecting the recommended production for each well. The initial production recommendations were revised based on the well-by-well factors as discussed in the Workshops.

2.3 Verification of Recommended Production Using Ground Water Model

The recommended ground water production was verified using the calibrated surface and ground water model of the Murrieta-Temecula Ground Water Basin. The Murrieta-Temecula Ground Water Basin model simulated the changes in water levels for a two-year period from October 2010 to September 2012 under the recommended 2011-2012 production conditions.

2.3.1 Murrieta-Temecula Ground Water Basin Model

The surface and ground water model of the Murrieta-Temecula Basin was developed by GEOSCIENCE for RCWD, with data provided by, and with cooperation from, RCWD, the U.S. Geological Survey (USGS), the United States Marine Corps - Camp Pendleton Base, and Stetson Engineers, Inc. The USGS model MODFLOW was chosen as it is available in the public domain and is widely accepted as one of the industry standards for ground water flow simulations. The model is a variable-grid finite difference ground water model covering approximately 288 square miles with a variable-grid network consisting of 102 nodes[1] in the north-to-south direction (i-direction) and 127 nodes in the west-to-east direction (j-direction), for a total of 12,954 nodes. Most nodes represent an area of 600 ft (north-south) by 600 ft (east-west). Nodes near the edges of the model are of variable size, ranging up to 5,000 ft.

2.3.2 Model Simulation Run

The model was run for a period of two years from October 2010 through September 2012 using a quarterly stress period. Geohydrologic parameters such as transmissivity, storativity, leakance, fault conductance, and streambed conductance were based on values from the calibrated model.

---

1 A model node is the center of a model grid block and is denoted by an "i,j" value. In the Murrieta-Temecula Ground Water Basin Model, the i-direction increases in a north to south direction and the j-direction increases in a west to east direction.

Natural recharge terms including areal recharge, subsurface inflow, and tributary inflow were based on the average of the model calibration and the verification period (1935-1998).

Results are shown as hydrographs (water level changes over time) of selected wells in the area. Figures 3 and 4 show the model-predicted water levels for the Pauba and Temecula index wells in each subarea under the recommended 2011-2012 pumping conditions and a VDC (Valle De Los Caballos) recharge of 15,500 acre-ft/yr. Of this recharge of 15,500 acre-ft, 11,500 acre-ft will be purchased untreated water and 4,000 acre-ft will be local water (if available) from Vail releases. As shown in these hydrographs, operation of the ground water basin under the recommended 2011-2012 pumping conditions will not create a permanent overdraft condition or degrade water quality. The net withdrawal of ground water from the basin is 27,575 acre-ft (39,075 acre-ft pumping – 11,500 acre-ft artificial recharge of purchased untreated water in upper VDC area).

3.0 RECOMMENDED GROUND WATER PRODUCTION – 2011-2012

3.1 Pumping Schedule for Wolf Valley Wells

3.1.1 Well 211

In order to monitor the aquifer compression/rebound under pumping conditions in the Wolf Valley area, ground water production at Wolf Valley Well 211 was recommenced in July 1994. During the fiscal year 1994-1995, Well 211 produced on odd days between the hours of midnight and 6:00 AM at a pumping rate of approximately 1,500 gallons per minute (gpm) to 2,000 gpm. In fiscal year 1995-1996, an increased pumping schedule was recommended for the Wolf Valley Well 211. Well 211 then produced approximately 1,500 gpm to 2,000 gpm on odd days between midnight and noon. This schedule yielded an annual production of approximately 600 acre-ft from Well 211. In fiscal year 1996-1997, the pumping schedule for Well 211 was identical to its 1995-1996 pumping schedule. In fiscal year 1997-1998, Well 211 produced on odd days between the hours of midnight and 4:00 PM. In fiscal year 1998-1999 Well 211 was pumped at a rate of approximately 1,500 gpm to 2,000 gpm on odd days beginning at midnight and ending after 24 hours. This schedule yielded an annual production of approximately 1,200 acre-ft. For the water years 1999-2000, 2000-2001, and 2001-2002 Well 211 was pumped at a rate of approximately 2,000 gpm on odd days beginning at midnight and continuing for 24 hours. Actual annual production amounts for water years 1999-2000, 2000-2001, and 2001-2002 for Well 211 were approximately 1,628 acre-ft, 1,420 acre-ft and 1,358 acre-ft, respectively.

Well 211 was turned off in December 2002 due to break suction problems. The annual production for fiscal year 2002-2003 was 420 acre-ft. From fiscal years 2003-2004 through 2007-2008, Well 211 produced 0 acre-ft. The annual production for fiscal years 2008-2009 and 2009-2010 were 382 acre-ft and 337 acre-ft, respectively. For the fiscal year 2011-2012, GEOSCIENCE recommends Well 211 produce 500 acre-ft.

3.1.2 Wells 119 and 122

In fiscal year 1996-1997, Well 119 was initially turned on during even days of the month between the hours of 6:00 AM and noon, at a pumping rate of approximately 500 gpm. This schedule yielded a production of approximately 500 acre-ft. Well 122 was left idle in fiscal year 1996-1997. In the fiscal year 1997-1998, an increased annual production of 750 acre-ft and 500 acre-ft was recommended for Wells 119 and 122, respectively. Production for Well 119 was increased in fiscal years 1998-1999 and 1999-2000.

In the fiscal years 2000-2001 through 2009-2010, Well 122 pumped approximately 287 acre-ft, 428 acre-ft, 758 acre-ft, 424 acre-ft, 1,493 acre-ft, 555 acre-ft, 1,338 acre-ft, 1,496 acre-ft, and 986 acre-ft, and 347 acre-ft, respectively. During these ten fiscal years, Well 119 pumped approximately 1,402 acre-ft, 1,023 acre-ft, 1,333 acre-ft, 1,332 acre-ft, 1,306 acre-ft, 1,498 acre-ft, 1,497 acre-ft, 1,588 acre-ft, 1,239 acre-ft, and 377 acre-ft, respectively.

For the 2011-2012 fiscal year, a production of 500 acre-ft for each well (Well 119 and Well 122) is recommended. However, the recommended production should be considered as a guideline only, and is subject to revision as additional data become available.

In order to determine future pumping schedules for wells 119 and 122, the following will be monitored:

1) Water levels in Well 119 and Well 122;
2) Aquifer compression/rebound in Extensometer Well EW-4; and
3) Ground surface changes at survey network located in the Wolf Valley.

3.2 Pumping Schedule for the Southern Murrieta Wells

On April 1, 1992, in order to monitor aquifer compression/rebound under pumping conditions, RCWD reactivated the four southern Murrieta wells (101, 102, 118, and 121). The duration of pumping for the program's first phase was eight hours per day with only two wells operating at the same time. Since the 1995-1996 fiscal year, pumping of the southern Murrieta wells has been according to the program's planned second phase schedule. This second phase schedule pumps two wells at a time for 16 hours per day, every other day. This increased pumping program and the corresponding monitoring program produced data that conclusively showed no occurrence of non-recoverable aquifer compaction. These data also indicate that the compression and rebound of this aquifer is closely related to ground water pumping. Continued monitoring and analysis of these aquifers will prevent the occurrence of future problems.

Actual annual production amounts for fiscal years 2001-2002 through 2009-2010 from these southern Murrieta wells were approximately 483 acre-ft, 1,173 acre-ft, 1,273 acre-ft, 1,685 acre-ft, 1,843 acre-ft, 1,777 acre-ft, 1,700 acre-ft, and 1,500 acre-ft, and 1,270 acre-ft, respectively.

For the fiscal year 2011-2012, the recommended annual production amounts for Wells 101, 102, 118, and 121 are 300 acre-ft, 400 acre-ft, 800 acre-ft, and 0 acre-ft, respectively. In accordance with this schedule, the total annual production from the southern Murrieta wells for the fiscal year 2011-2012 will be approximately 1,500 acre-ft. As always, and in keeping with sound ground water basin management practices, the recommended production should be considered as a guideline only and is subject to revision.

3.3 Pumping Schedule for the Northern Murrieta Wells

In fiscal year 2006-2007, the RCWD wells (135, 144, 145, 146, and 155) in the northern Murrieta valley produced approximately 1,465 acre-ft of water. In fiscal year 2007-2008, these

wells produced 1,323 acre-ft. In fiscal year 2007-2008, Well 156 was activated and pumped 396 acre-ft. The total water produced from the northern Murrieta valley by RCWD wells in fiscal year 2007-2008 was 1,719 acre-ft. During the same period of time, the WMWD wells in the area produced a total of about 410 acre-ft. The total pumping from the RCWD and WMWD in the northern Murrieta area was 2,129 acre-ft in fiscal year 2007-2008. For fiscal year 2008-2009, the total pumping from the RCWD and WMWD in the northern Murrieta area were 2,310 acre-ft and 751 acre-ft, respectively. In fiscal year 2009-2010, the total pumping from the RCWD and WMWD in the northern Murrieta area were 2,173 and 886 acre-ft, respectively.

For fiscal year 2011-2012, the recommended production for RCWD wells 135, 144, 145, 146, 155, and 156 is 100, 400, 700, 50, 50, and 800 acre-ft respectively. The total recommended production for these RCWD wells is approximately 2,100 acre-ft.

3.4 Pumping Schedule for the Upper Pauba Valley Wells

Approximately 14,911 acre-ft of water was recharged in the VDC recharge basin area between July 2009 and June 2010. The VDC recharge for this period consisted of 12,187 acre-ft of imported water and 2,724 acre-ft of Vail Lake releases. For the fiscal year 2011-2012, the proposed recharge is 15,500 acre-ft. Of this proposed recharge, 11,500 acre-ft will be purchased untreated water and 4,000 acre-ft will be local water (if available) from Vail Lake releases. In order to optimize the recharge and recovery operations for the Upper VDC recharge facility, recovery wells 152, 153, 157, and 158 should be turned on. During the fiscal years 2005-2006 through 2009-2010 the total production for these four recovery wells (152, 153, 157, and 158) was approximately 8,685 acre-ft, 8,495 acre-ft, 6,612 acre-ft, 7,386 acre-ft, and 6,400 acre-ft, respectively. For the fiscal year 2011-2012, the total recommended production for these wells is approximately 6,800 acre-ft.

In addition, production from Wells 110, 132, 210, and 233 should be maintained at a high level, creating a “pumping depression”, to maximize VDC recharge capabilities. For the fiscal years

2005-2006 through 2009-2010, the total production for these four Upper Pauba Valley wells was approximately 4,093 acre-ft, 4,368 acre-ft, 4,740 acre-ft, 5,198 acre-ft, and 4,699 acre-ft, respectively. For the fiscal year 2011-2012, the total recommended production for these four Upper Pauba Valley wells is approximately 4,800 acre-ft.

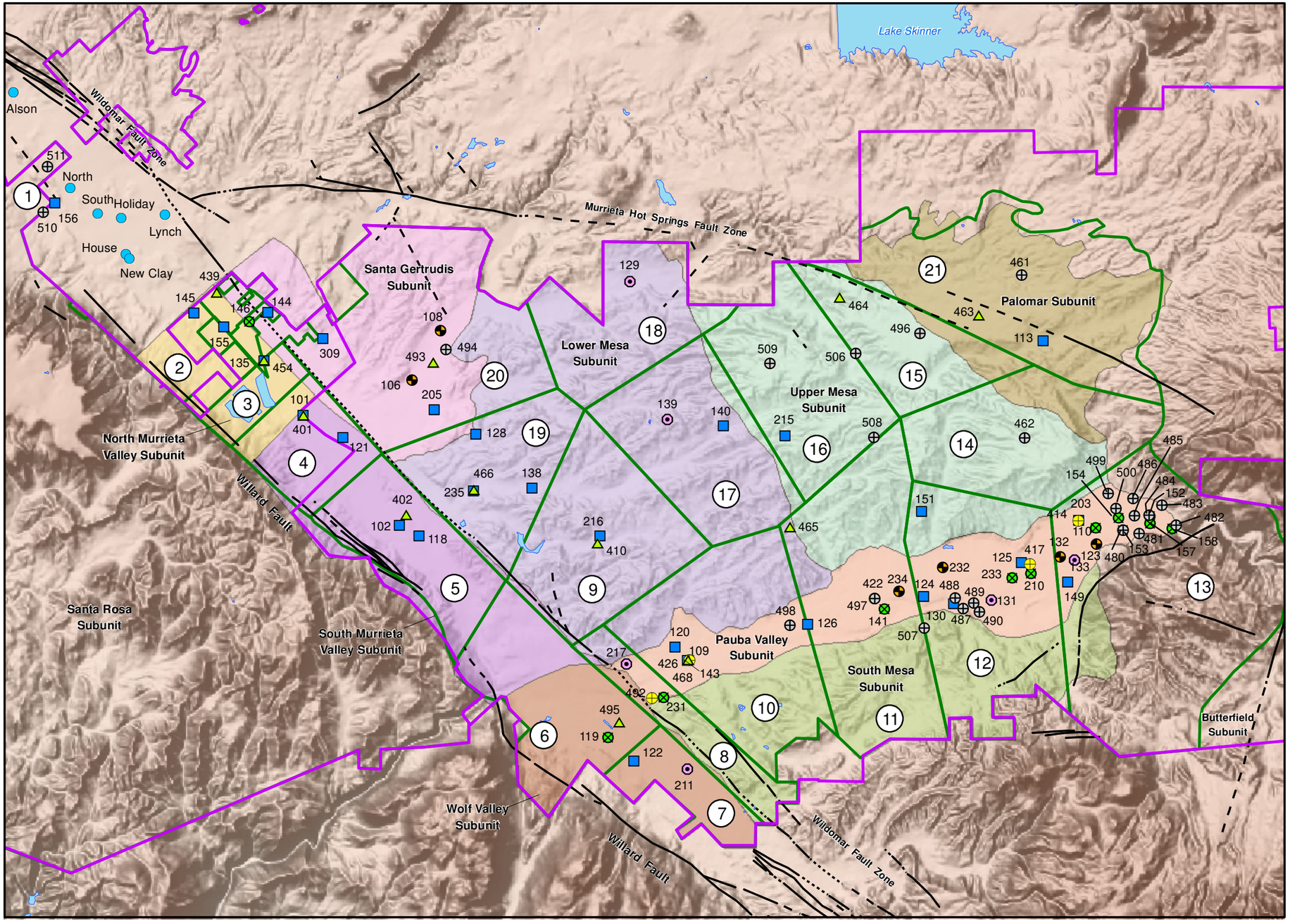
3.5 Recommended Production for Fiscal Year 2011-2012

The final recommended production values for each well during the fiscal year 2011-2012 are shown on Tables 1 and 2 (by Hydrologic Unit and well number, respectively). The locations of the wells are shown on Figure 1. Recommended production amounts are also shown graphically by hydrologic subunit in Figure 2. The total recommended production for the period July 1, 2011 through June 30, 2012 is 39,075 acre-ft. This will be produced from 48 wells.[2] Considering the planned artificial recharge of purchased untreated water in the upper VDC area of 11,500 acre-ft, the net ground water withdrawal from the basin for the 2011–2012 fiscal year will be 27,575 acre-ft.

[2] RCWD has a total of 52 production wells. However, some wells are not intended to be operated during the 2011 - 2012 fiscal year. Refer to Plate 1 for detailed information on each of the wells.

FIGURES

RANCHO CALIFORNIA WATER DISTRICT WELL LOCATIONS



EXPLANATION

Well Classification

- Pauba Aquifer Production Well
- Temecula Aquifer Production Well
- Combined Aquifer Production Well
- Temecula Aquifer Production Well Also Used As Index Well
- Temecula Aquifer Index Well
- Pauba Aquifer Index Well
- Monitoring and Non-Production Well
- Western Municipal Water District Well Location
- 233 Well Designation
- RCWD Boundary
- Fault - Confirmed
- Fault - Approximate
- Fault - Concealed
- Hydrologic Subarea Boundary
- (17) Index Well Subarea Number

Hydrologic Subunit Boundary

- Lower Mesa Subunit
- N. Murrieta Valley Subunit
- Palomar Subunit
- Pauba Valley Subunit
- S. Murrieta Valley Subunit
- Santa Gertrudis Subunit
- South Mesa Subunit
- Upper Mesa Subunit
- Wolf Valley Subunit

14-Jan-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

NORTH

0 1 2 Miles

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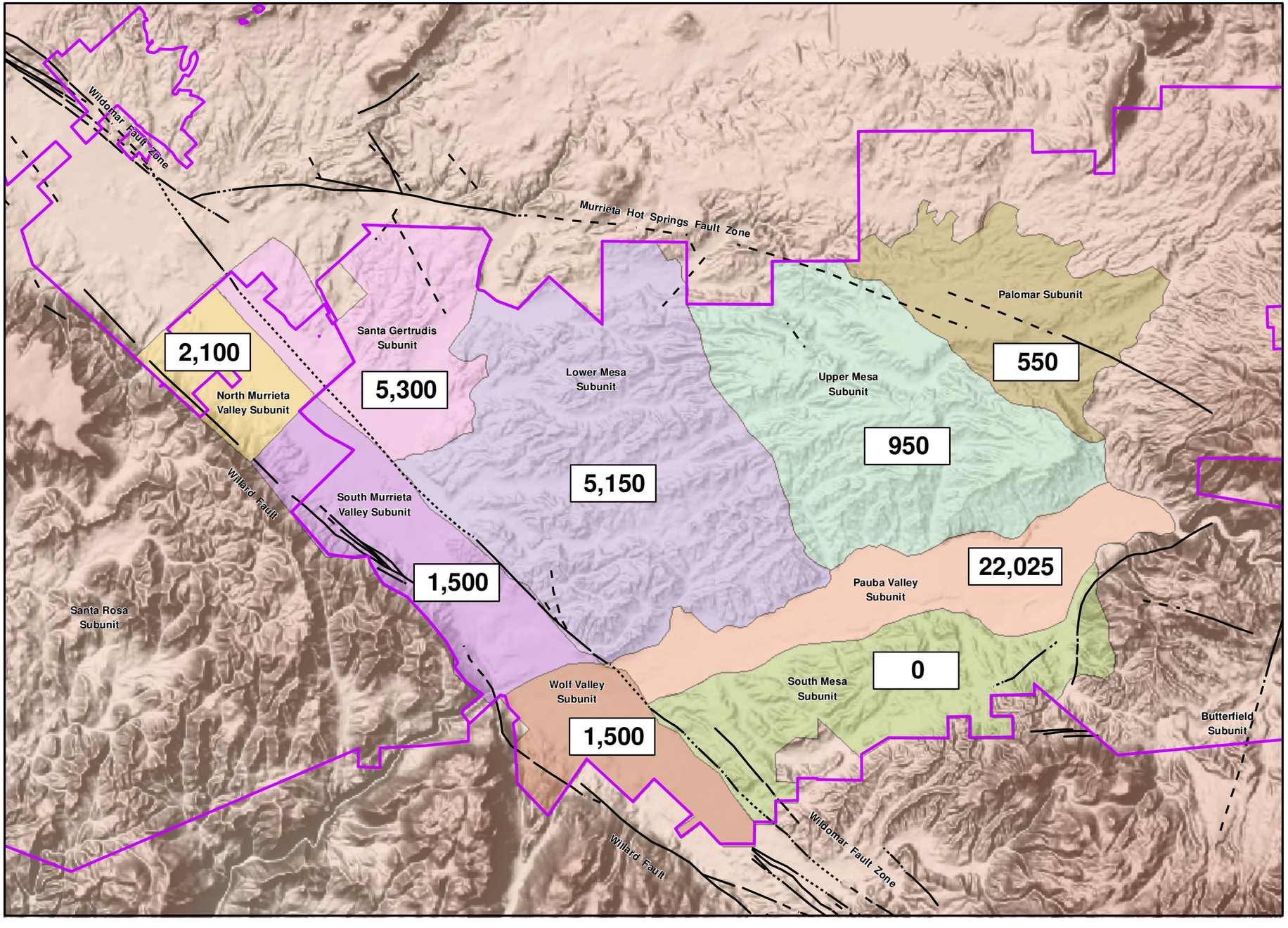
Figure 1

RANCHO CALIFORNIA WATER DISTRICT

RECOMMENDED GROUND WATER PRODUCTION
FISCAL YEAR JULY 1, 2011 THROUGH JUNE 30, 2012

HYDROLOGIC SUBUNITS AND RECOMMENDED 2011 - 2012 PRODUCTION



EXPLANATION

1,500	Recommended 2011 - 2012 Production (acre-ft/yr)
	RCWD Boundary
	Fault - Confirmed
	Fault - Approximate
	Fault - Concealed
	Hydrologic Subarea Boundary

Hydrologic Subunit Boundary

- Lower Mesa Subunit
- N. Murrieta Valley Subunit
- Palomar Subunit
- Pauba Valley Subunit
- S. Murrieta Valley Subunit
- Santa Gertrudis Subunit
- South Mesa Subunit
- Upper Mesa Subunit
- Wolf Valley Subunit

Total Recommended 2011 - 2012 Production = 39,075 acre-ft

14-Jan-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

NORTH

0 1 2 Miles

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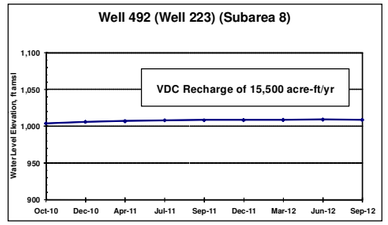
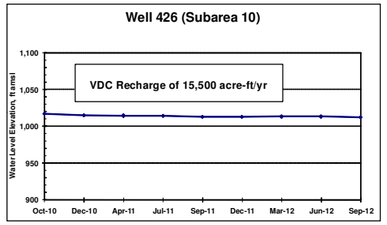
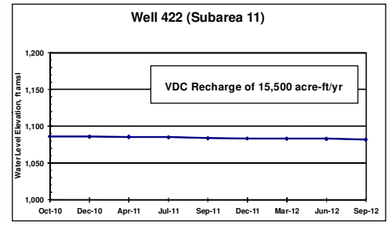
Figure 2

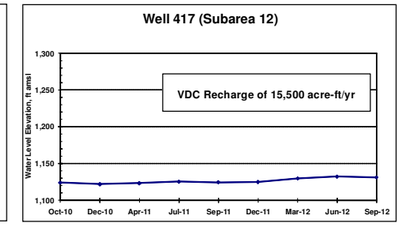
GIS_proj/rcwd_wtr_audit_2011/Fig_2_audit11_hydrounits_1-11.mxd

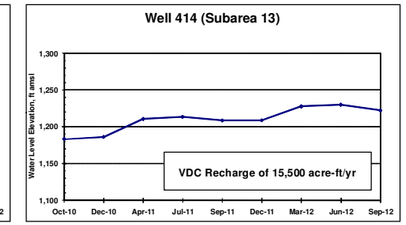
HYDROGRAPHS OF SELECTED PAUBA WELLS - MODEL SIMULATION UNDER RECOMMENDED 2011 - 2012 PUMPING CONDITIONS

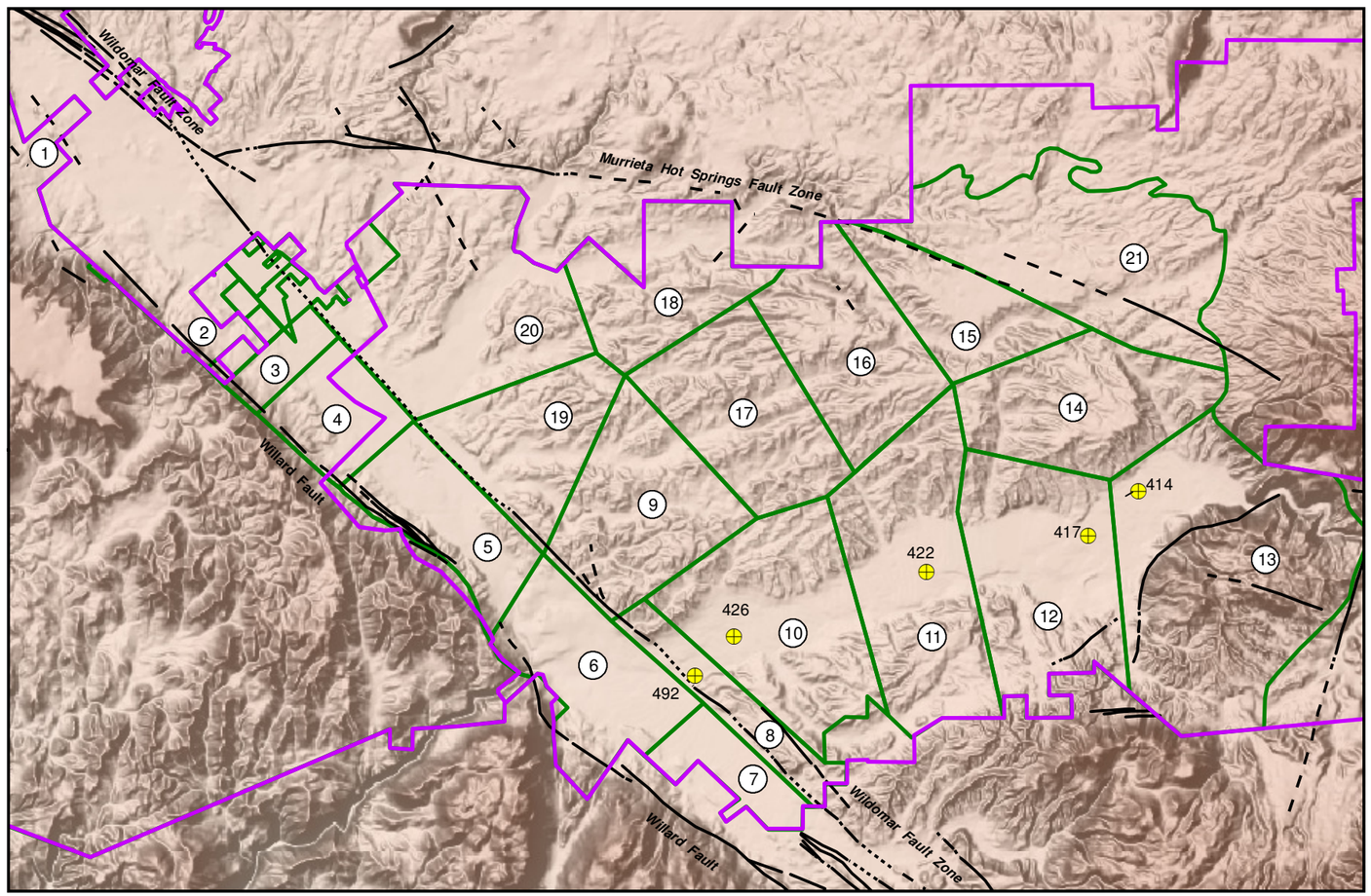












EXPLANATION

- Pauba Aquifer Index Well
- 422 Well Designation
- RCWD Boundary
- Fault - Confirmed
- Fault - Approximate
- Fault - Concealed
- Hydrologic Subarea Boundary
- 17 Index Well Subarea Number

14-Jan-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

NORTH

0 1 2 Miles

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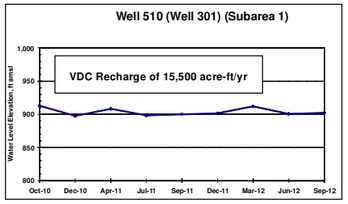
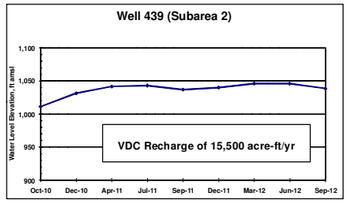
Figure 3

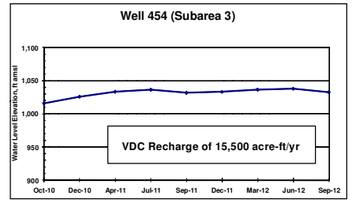
RANCHO CALIFORNIA WATER DISTRICT

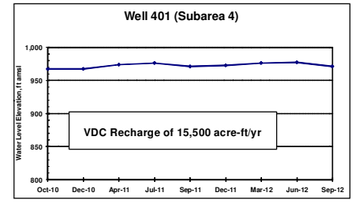
RECOMMENDED GROUND WATER PRODUCTION FISCAL YEAR JULY 1, 2011 THROUGH JUNE 30, 2012

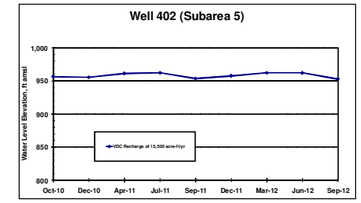
HYDROGRAPHS OF SELECTED TEMECULA WELLS - MODEL SIMULATION UNDER RECOMMENDED 2011 - 2012 PUMPING CONDITIONS

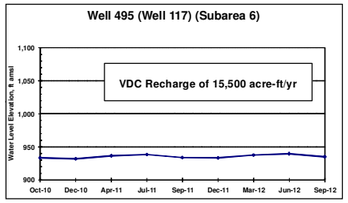


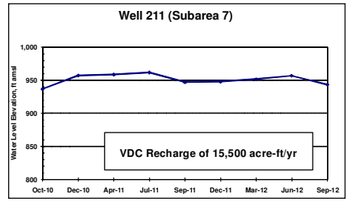


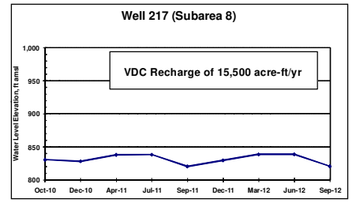


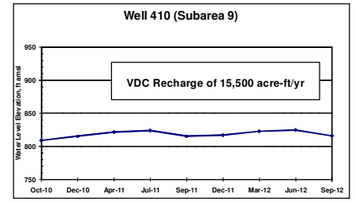


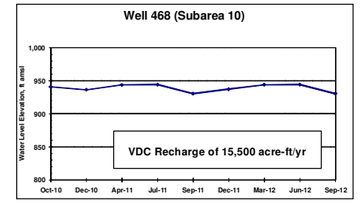


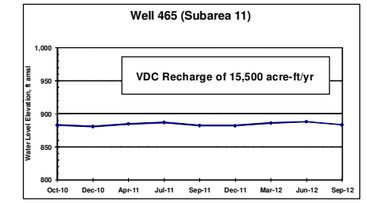


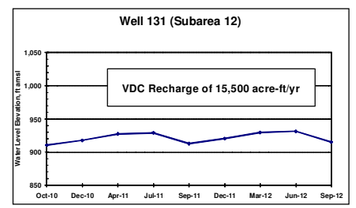


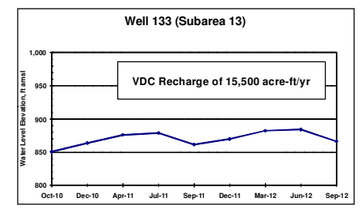


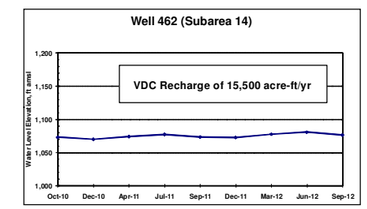


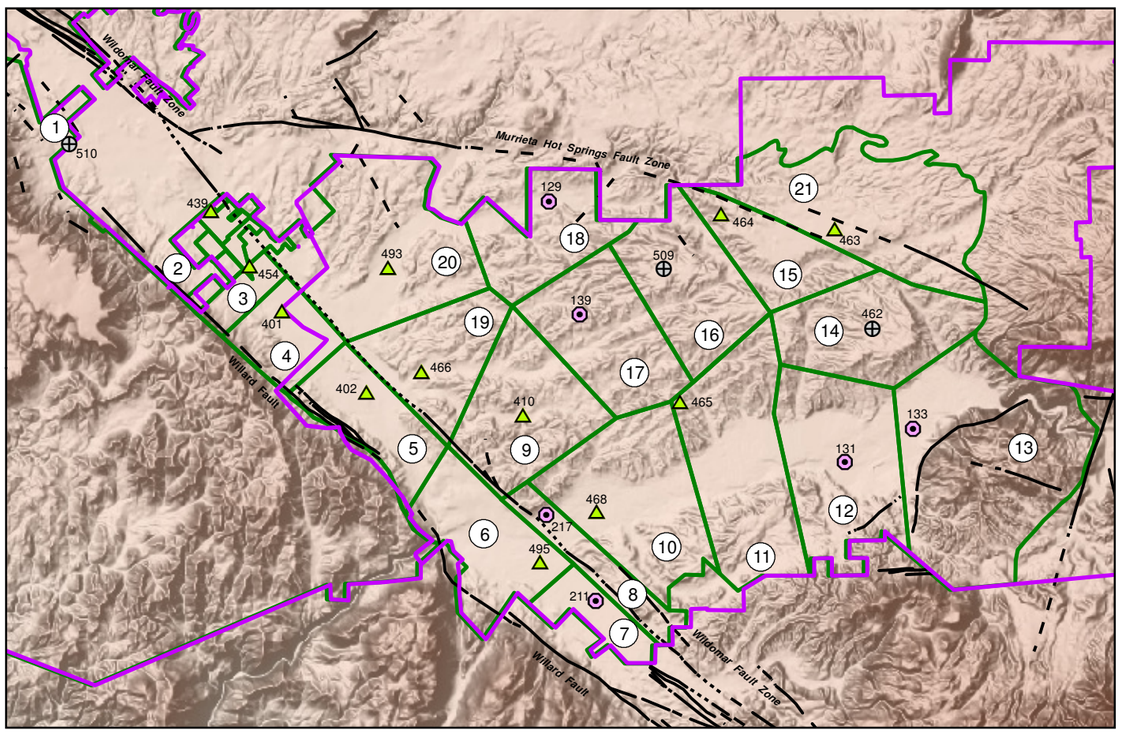


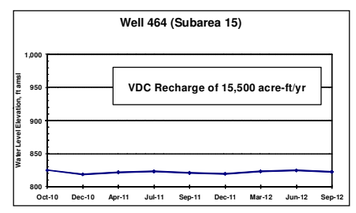


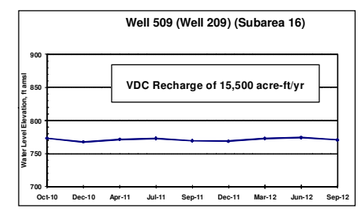


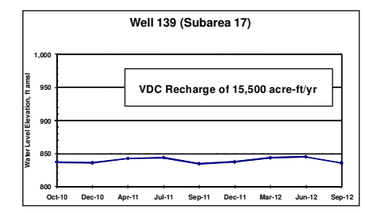


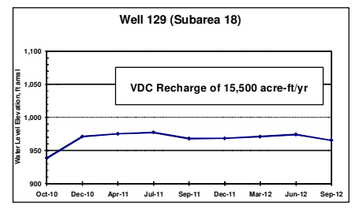


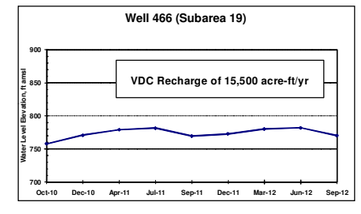


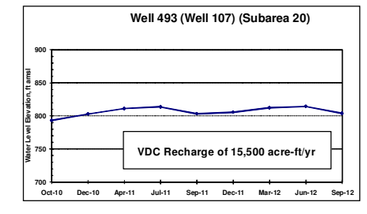


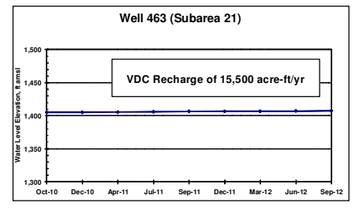












RCWD Boundary

Fault - Confirmed

Fault - Approximate

Fault - Concealed

Hydrologic Subarea Boundary

17 Index Well Subarea Number

131 Well Designation

Temecula Aquifer Production Well Also Used As Index Well

Temecula Aquifer Index Well

Monitoring and Non-Production Well

14-Jan-11

Prepared by: DWB

Map Projection: UTM 1927 (Zone 11)

NORTH

0 1 2 Miles

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Figure 4

GIS_proj/rcwd_wtr_audit_2011/Fig_4_audit11_temecula_hydrog_1-11.mxd

TABLES

Recommended Ground Water Production by Hydrologic Subunit
July 1, 2011 to June 30, 2012

RCWD Well No.	Hydrologic Subunit	Aquifer	July 1, 2011 - June 30, 2012 Recommended Production [Acre-ft]
135	N. Murrieta Valley	Temecula	100
144	N. Murrieta Valley	Temecula	400
145	N. Murrieta Valley	Temecula	700
155	N. Murrieta Valley	Temecula	50
156	N. Murrieta Valley	Temecula	800
		Subtotal	**2,050**
146	N. Murrieta Valley	Pauba	50
		Subtotal	**50**
101	S. Murrieta Valley	Temecula	300
102	S. Murrieta Valley	Temecula	400
118	S. Murrieta Valley	Temecula	800
121	S. Murrieta Valley	Temecula	0
		Subtotal	**1,500**
122	Wolf Valley	Temecula	500
211	Wolf Valley	Temecula	500
		Subtotal	**1,000**
119	Wolf Valley	Pauba	500
		Subtotal	**500**
205	Santa Gertrudis	Temecula	1,500
309	Santa Gertrudis	Temecula	3,000
		Subtotal	**4,500**

Table 1

Recommended Ground Water Production by Hydrologic Subunit
July 1, 2011 to June 30, 2012

RCWD Well No.	Hydrologic Subunit	Aquifer	July 1, 2011 - June 30, 2012 Recommended Production [Acre-ft]
106	Santa Gertrudis	Combined	200
108	Santa Gertrudis	Combined	600
		Subtotal	**800**
128	Lower Mesa	Temecula	0
129	Lower Mesa	Temecula	0
138	Lower Mesa	Temecula	1,600
139	Lower Mesa	Temecula	1,200
140	Lower Mesa	Temecula	1,100
216	Lower Mesa	Temecula	250
235	Lower Mesa	Temecula	1,000
		Subtotal	**5,150**
151	Upper Mesa	Temecula	600
215	Upper Mesa	Temecula	350
		Subtotal	**950**
120	Pauba	Temecula	1,200
124	Pauba	Temecula	300
125	Pauba	Temecula	750
126	Pauba	Temecula	600
130	Pauba	Temecula	750
131	Pauba	Temecula	750
133	Pauba	Temecula	500
143	Pauba	Temecula	700
149	Pauba	Temecula	600
203	Pauba	Temecula	500
217	Pauba	Temecula	900
		Subtotal	**7,550**

Table 1

Recommended Ground Water Production by Hydrologic Subunit
July 1, 2011 to June 30, 2012

RCWD Well No.	Hydrologic Subunit	Aquifer	July 1, 2011 - June 30, 2012 Recommended Production [Acre-ft]
109	Pauba	Pauba	600
110	Pauba	Pauba	1,200
141	Pauba	Pauba	625
152	Pauba	Pauba	1,700
153	Pauba	Pauba	1,500
157	Pauba	Pauba	1,800
158	Pauba	Pauba	1,800
210	Pauba	Pauba	600
231	Pauba	Pauba	0
233	Pauba	Pauba	1,600
		Subtotal	**11,425**
123	Pauba	Combined	150
132	Pauba	Combined	1,400
232	Pauba	Combined	1,200
234	Pauba	Combined	300
		Subtotal	**3,050**
113	Palomar	Temecula	550
		Subtotal	**550**
		Total Recommended Production	**39,075**

Table 1

Recommended Ground Water Production by Well Number
July 1, 2011 to June 30, 2012

RCWD Well No.	Hydrologic Subunit	Aquifer	July 2011 - June 2012 Recommended Production [Acre-ft]
101	S. Murrieta Valley	Temecula	300
102	S. Murrieta Valley	Temecula	400
106	Santa Gertrudis	Combined	200
108	Santa Gertrudis	Combined	600
109	Pauba	Pauba	600
110	Pauba	Pauba	1,200
113	Palomar	Temecula	550
118	S. Murrieta Valley	Temecula	800
119	Wolf Valley	Pauba	500
120	Pauba	Temecula	1,200
121	S. Murrieta Valley	Temecula	0
122	Wolf Valley	Temecula	500
123	Pauba	Combined	150
124	Pauba	Temecula	300
125	Pauba	Temecula	750
126	Pauba	Temecula	600
128	Lower Mesa	Temecula	0
129	Lower Mesa	Temecula	0
130	Pauba	Temecula	750
131	Pauba	Temecula	750
132	Pauba	Combined	1,400
133	Pauba	Temecula	500
135	N. Murrieta Valley	Temecula	100
138	Lower Mesa	Temecula	1,600

Table 2

Recommended Ground Water Production by Well Number
July 1, 2011 to June 30, 2012

RCWD Well No.	Hydrologic Subunit	Aquifer	July 2011 - June 2012 Recommended Production [Acre-ft]
139	Lower Mesa	Temecula	1,200
140	Lower Mesa	Temecula	1,100
141	Pauba	Pauba	625
143	Pauba	Temecula	700
144	N. Murrieta Valley	Temecula	400
145	N. Murrieta Valley	Temecula	700
146	N. Murrieta Valley	Pauba	50
149	Pauba	Temecula	600
151	Upper Mesa	Temecula	600
152	Pauba	Pauba	1,700
153	Pauba	Pauba	1,500
155	N. Murrieta Valley	Temecula	50
156	N. Murrieta Valley	Temecula	800
157	Pauba	Pauba	1,800
158	Pauba	Pauba	1,800
203	Pauba	Temecula	500
205	Santa Gertrudis	Temecula	1,500
210	Pauba	Pauba	600
211	Wolf Valley	Temecula	500
215	Upper Mesa	Temecula	350
216	Lower Mesa	Temecula	250
217	Pauba	Temecula	900
231	Pauba	Pauba	0
232	Pauba	Combined	1,200
233	Pauba	Pauba	1,600
234	Pauba	Combined	300

Table 2

Recommended Ground Water Production by Well Number
July 1, 2011 to June 30, 2012

RCWD Well No.	Hydrologic Subunit	Aquifer	July 2011 - June 2012 Recommended Production [Acre-ft]
235	Lower Mesa	Temecula	1,000
309	Santa Gertrudis	Temecula	3,000
		Total	**39,075**

Table 2

PLATE

Factors Affecting Production Recommendations

[1] Hydrologic Subarea	[2] Aquifer	[3] RCWD Well No.	[4] Hydrologic Subunit	[5] Instantaneous Yield [gpm]	[6] Static Submergence [ft]	[7] Lowering Potential	[8] Well Status: Day Availability	[8] Well Status: Start	[8] Well Status: Stop	[8] Well Status: Air Amounts	[8] Well Status: Comments	[9] Actual Production Jul-09 to Jun-10 [acre-ft]	[10] GEOSCIENCE Recommendation Jul-11 to Jun-12 [acre-ft]	[11] Percent of Total Production from Qyal	[12] Production from Qyal [acre-ft]
1	Temecula	156	N. Murrieta Val.	840	76	Yes	18hrs/day	11:30 AM	11:30 PM	1	-	864	800	-	-
1	Temecula	**301**	N. Murrieta Val.	NA	101	Yes	-	-	-	-	-	-	-	-	-
1	Temecula	302	N. Murrieta Val.	NA	88	Yes	-	-	-	-	-	-	-	-	-
2	Temecula	**439**	N. Murrieta Val.	NA	NA	NA	-	-	-	-	-	-	-	-	-
2	Temecula	145	N. Murrieta Val.	784	282	Yes	Unlimited	-	-	1	-	726	700	-	-
3	Pauba	**146**	N. Murrieta Val.	368	128	Yes	Unlimited	-	-	0	-	53	50	-	-
3	Temecula	**454**	N. Murrieta Val.	NA	NA	NA	-	-	-	-	-	-	-	-	-
3	Temecula	135	N. Murrieta Val.	685	98	Yes	Unlimited	-	-	0	THROTTLED FOR AIR	54	100	-	-
3	Temecula	144	N. Murrieta Val.	580	66	Yes	18hrs/day	11:30 AM	6:00 PM	1	LONG PUMP TO WASTE	461	400	-	-
3	Temecula	155	N. Murrieta Val.	350	225	Yes	Unlimited	-	-	3	RECHARGE AREA	15	50	-	-
4	Temecula	**401**	S. Murrieta Val.	NA	NA	NA	-	-	-	-	-	-	-		-
4	Temecula	101	S. Murrieta Val.	600	135	Yes	OFF	-	-	1	OFF FOR REDESIGN, GOING ELECTRIC	310	300	-	-
4	Temecula	121	S. Murrieta Val.	900	220	Yes	OFF	-	-	2	-	0	0	-	-
5	Temecula	**402**	S. Murrieta Val.	NA	NA	NA	-	-	-	-	-	-	-	-	-
5	Temecula	102	S. Murrieta Val.	1,260	90	Yes	Unlimited	-	-	2	OFF FOR REDESIGN, GOING ELECTRIC	159	400	-	-
5	Temecula	118	S. Murrieta Val.	900	60	Yes	18hrs/day	11:30 AM	6:00 PM	4	HIGH IRON AND MANGANESE	801	800	-	-
6	Temecula	**495 (117)**	Wolf Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
6	Pauba	119	Wolf Valley	2,460	191	Yes	5hrs/day	10:30 PM	5:00 AM	1	LIMITED RUN	377	500	-	-
7	Temecula	**211**	Wolf Valley	1,600	-7	No	5hrs/day	9:30 PM	5:30 AM	3	LIMITED RUN	337	500	-	-
7	Temecula	122	Wolf Valley	2,270	38	Yes	5hrs/day	11:30 PM	6:00 AM	1	LIMITED RUN	347	500	-	-
8	Pauba	**492 (223)**	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
8	Pauba	231	Pauba Valley	740	42	Yes	OFF	-	-	5	-	0	0	-	-
8	Temecula	**217**	Pauba Valley	700	102	Yes	Unlimited	-	-	1	-	929	900	-	-
9	Temecula	**410**	Lower Mesa	NA	NA	NA	-	-	-	-	-	-	-	-	-
9	Temecula	216	Lower Mesa	700	173	Yes	12hrs/day	11:30 AM	11:30 PM	4	-	239	250	-	-
10	Pauba	**426**	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
10	Pauba	109	Pauba Valley	500	4	No	Unlimited	-	-	5	THROTTLED FOR AIR	513	600	84	504
10	Pauba	498 (224)	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
10	Temecula	**468**	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
10	Temecula	120	Pauba Valley	1,500	13	Yes	Unlimited	-	-	5	-	1,312	1,200	-	-
10	Temecula	126	Pauba Valley	1,120	62	Yes	OFF	11:30 AM	6:00 PM	3	HIGH FLOURIDE LEVELS-TEMP OFF 7-28-10	991	600	-	-
10	Temecula	143	Pauba Valley	690	124	Yes	18hrs/day	11:30 AM	6:00 PM	1	-	709	700	-	-
11	Pauba	**422**	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
11	Pauba	141	Pauba Valley	450	90	Yes	Unlimited	-	-	5	-	462	625	-	-
11	(Combined)	234	Pauba Valley	275	61	Yes	Unlimited	-	-	5	-	300	300	74	222
11	Temecula	**465**	South Mesa	NA	NA	NA	-	-	-	-	-	-	-	-	-
11	Temecula	497 (212)	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
12	Pauba	**417**	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
12	Pauba	210	Pauba Valley	580	47	Yes	Unlimited	-	-	5	-	634	600	94	564
12	(Combined)	232	Pauba Valley	700	56	Yes	Unlimited	-	-	5	-	843	1,200	92	1,104
12	Pauba	233	Pauba Valley	1,450	33	Yes	Unlimited	-	-	5	-	1,442	1,600	88	1,408
12	Temecula	**131**	Pauba Valley	1,100	68	Yes	18hrs/day	11:30 AM	6:00 PM	5	-	1,053	750	-	-
12	Temecula	124	Pauba Valley	300	28	Yes	18hrs/day	11:30 AM	6:00 PM	3	FLOW DROPPING OFF	370	300	-	-
12	Temecula	125	Pauba Valley	600	23	Yes	Unlimited	-	-	3	WELL ON LINE 7-27-10	247	750	-	-
12	Temecula	130	Pauba Valley	800	52	Yes	18hrs/day	11:30 AM	6:00 PM	5	THROTTLED FOR AIR	851	750	-	-
12	(Combined)	132	Pauba Valley	1,000	103	Yes	Unlimited	-	-	3	TEMP UNLIMITED	1,311	1,400	82	1,148
12	Temecula	151	Upper Mesa	730	283	Yes	18hrs/day	11:30 AM	6:00 PM	5	BLENDING ISSUE	284	600	-	-
13	Pauba	**414**	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
13	Pauba	110	Pauba Valley	920	78	Yes	Unlimited	-	-	1	-	1,312	1,200	97	1,164
13	Pauba	499 (115)	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
13	Pauba	500 (116)	Pauba Valley	NA	NA	NA	-	-	-	-	-	-	-	-	-
13	Pauba	152	Pauba Valley	1,950	123	Yes	Unlimited	-	-	2	RECHARGE AREA	1,938	1,700	-	-
13	Pauba	153	Pauba Valley	1,350	105	Yes	Unlimited	-	-	3	RECHARGE AREA	1,071	1,500	100	1,500
13	Pauba	157	Pauba Valley	1,100	104	Yes	Unlimited	-	-	2	RECHARGE AREA	1,601	1,800	100	1,800
13	Pauba	158	Pauba Valley	1,000	153	Yes	Unlimited	-	-	3	RECHARGE AREA	1,790	1,800	100	1,800
13	Temecula	**133**	Pauba Valley	790	50	Yes	18hrs/day	11:30 AM	6:00 PM	3	THROTTLED FOR AIR	683	500	-	-
13	(Combined)	123	Pauba Valley	200	214	Yes	18hrs/day	11:30 AM	11:30 PM	5	LOW PRODUCTION	191	150	65	98
13	Temecula	149	Pauba Valley	280	152	Yes	OFF	11:30 AM	6:00 PM	5	PUMP DEAD, BEING REPAIRED 7-19-10	259	600	-	-
13	Temecula	203	Pauba Valley	540	200	Yes	18hrs/day	11:30 AM	6:00 PM	3	-	577	500	-	-
14	Temecula	**462**	Upper Mesa	NA	NA	NA	-	-	-	-	-	-	-	-	-
15	Temecula	**464**	Upper Mesa	NA	NA	NA	-	-	-	-	-	-	-	-	-
15	Temecula	496 (204)	Upper Mesa	NA	NA	NA	-	-	-	-	-	-	-	-	-
16	Temecula	215	Upper Mesa	620	76	Yes	12hrs/day	-	-	3	-	367	350	-	-
17	Temecula	**139**	Lower Mesa	1,230	33	Yes	Unlimited	-	-	3	WELL ONLINE 7-19-10	323	1,200	-	-
17	Temecula	140	Lower Mesa	850	397	Yes	Unlimited	-	-	5	-	1,103	1,100	-	-
18	Temecula	**129**	Lower Mesa	500	61	Yes	OFF	-	-	5	OFF TILL RE-EQUIPPED	0	0	-	-
19	Temecula	**466**	Lower Mesa	NA	NA	NA	-	-	-	-	-	-	-	-	-
19	Temecula	128	Lower Mesa	1,500	5	No	OFF	-	-	5	OFF FOR ARSENIC	0	0	-	-
19	Temecula	138	Lower Mesa	1,930	112	Yes	18hrs/day	11:30 AM	6:00 PM	2	-	1,949	1,600	-	-
19	Temecula	235	Lower Mesa	900	23	Yes	Unlimited	-	-	5	-	812	1,000	-	-
20	(Combined)	**493 (107)**	Santa Gertrudis	NA	NA	NA	-	-	-	-	-	-	-	-	-
20	Temecula	494 (105)	Santa Gertrudis	NA	NA	NA	-	-	-	-	-	-	-	-	-
20	(Combined)	106	Santa Gertrudis	660	322	Yes	Unlimited	-	-	5	RUNS WITH EM-20 ONLY, BLENDING	297	200	-	-
20	(Combined)	108	Santa Gertrudis	765	320	Yes	18hrs/day	11:30 AM	6:00 PM	5	MOTOR REPAIR 7-19-10	698	600	-	-
20	Temecula	205	Santa Gertrudis	1,200	98	Yes	Unlimited	-	-	1	-	1,558	1,500	-	-
20	Temecula	309	Santa Gertrudis	1,900	149	Yes	Unlimited	-	-	1	-	2,669	3,000	-	-
21	Temecula	**463**	Palomar	NA	NA	NA	-	-	-	-	-	-	-	-	-
21	Temecula	113	Palomar	400	123	Yes	Unlimited	-	-	3	30 MIN PUMP TO WASTE	551	550	-	-
											Totals	**36,743**	**39,075**	-	**11,312**

NA - Not Available or Not Applicable

[1] & [4] See Figure 1 for locations

[2] Based on data provided by RCWD

[3] See Figure 1 for locations (Number in bold indicate the index wells for the subareas)

[5] Data provided by RCWD

[6] Distance between the static water level (Jun-10) and the pump bowl

[7] "No" indicates less than ten feet lowering potential

[8] Data provided by RCWD

[9] Data provided by RCWD

[10] GEOSCIENCE recommended production for 2011-2012 fiscal year

[11] Based on hydraulic conductivity and screened interval in Young Alluvium, Pauba and Temecula aquifers

[12] = [10] * ([11] / 100)

GEOSCIENCE

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APPENDIX A

Long-Term Hydrographs and Production – January 1981 to September 2010

APPENDIX A
LONG-TERM HYDROGRAPHS AND PRODUCTION
January 1981 to September 2010

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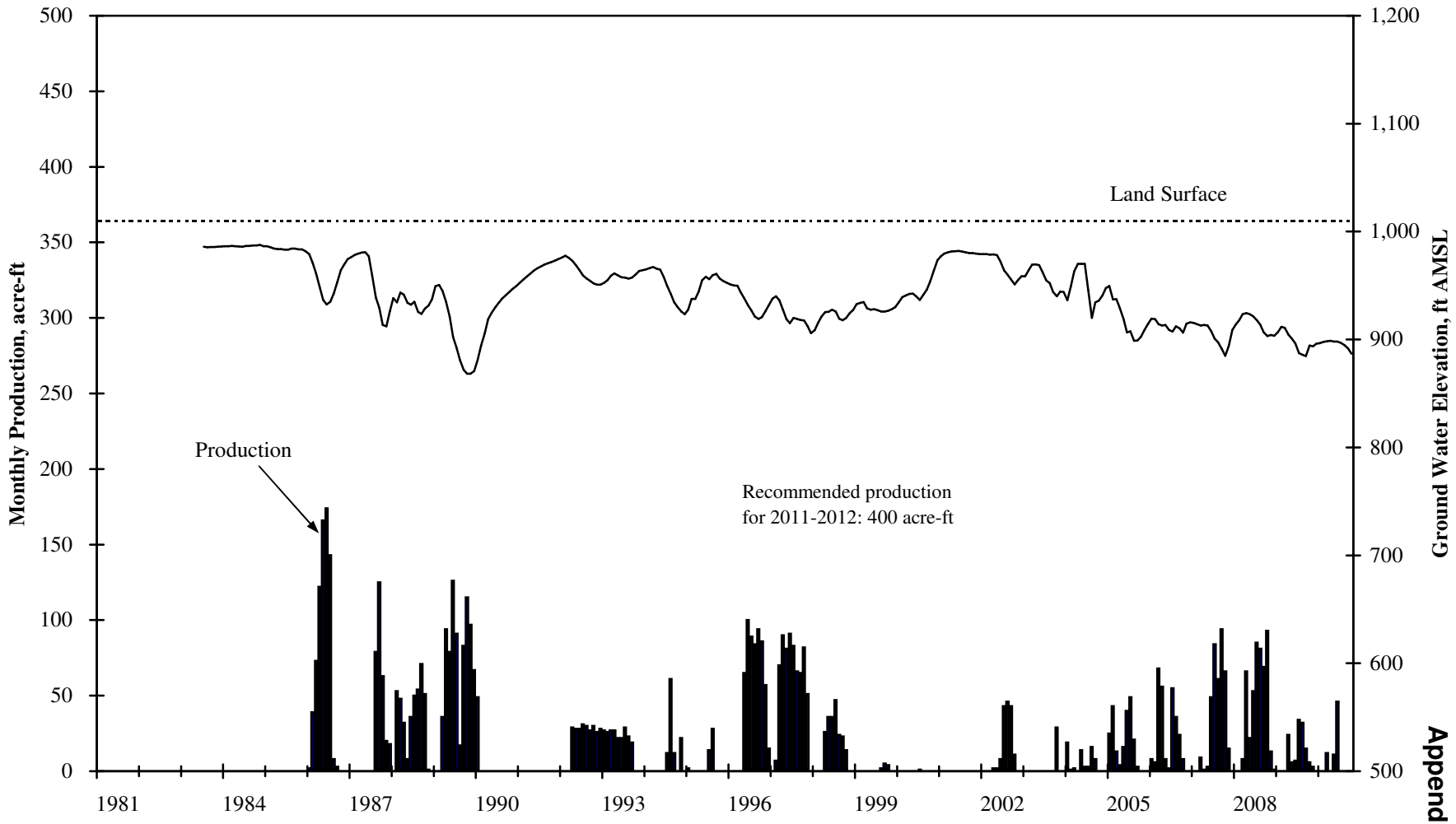

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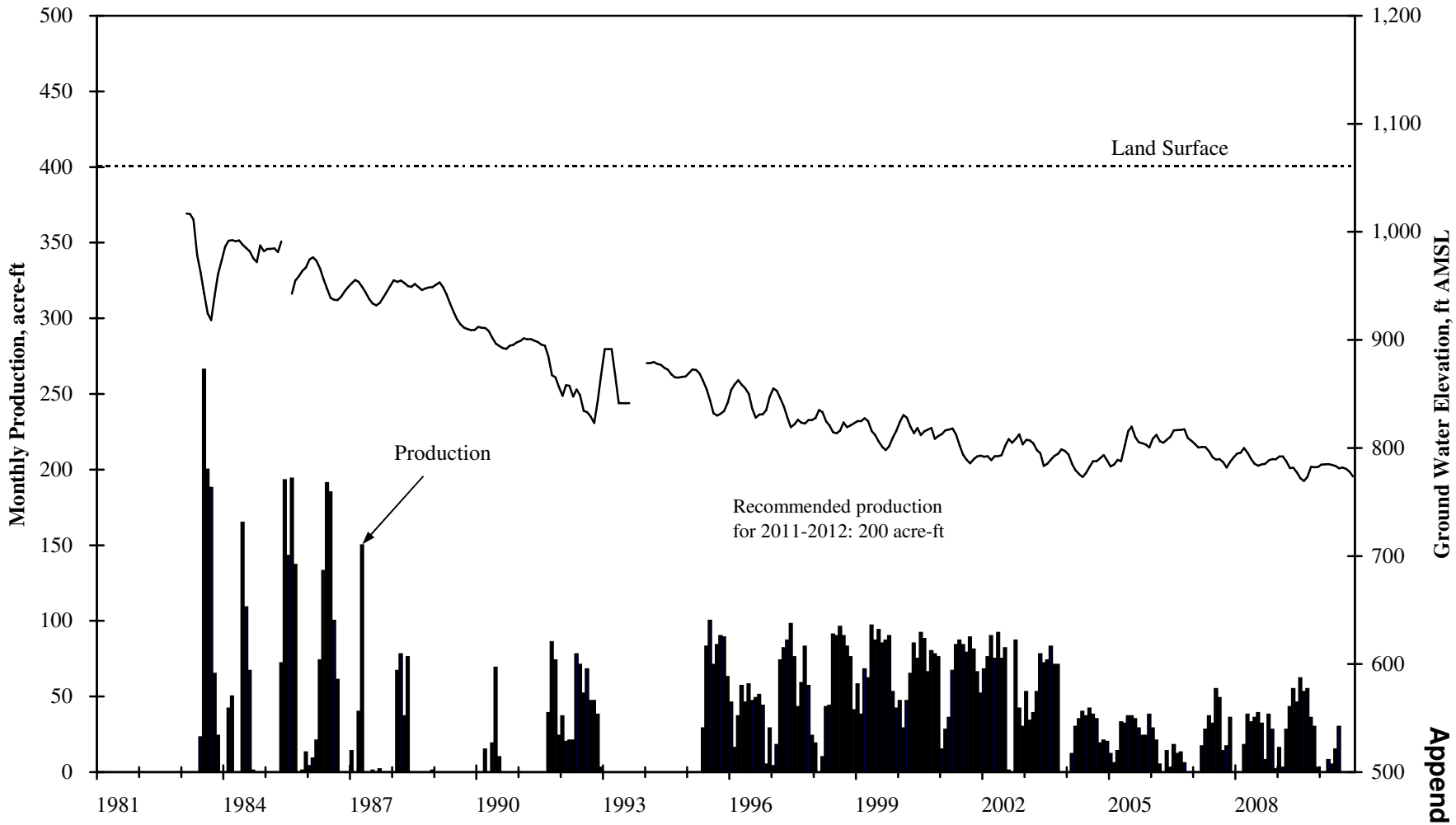
Long-Term Hydrograph and Production - RCWD Well 106



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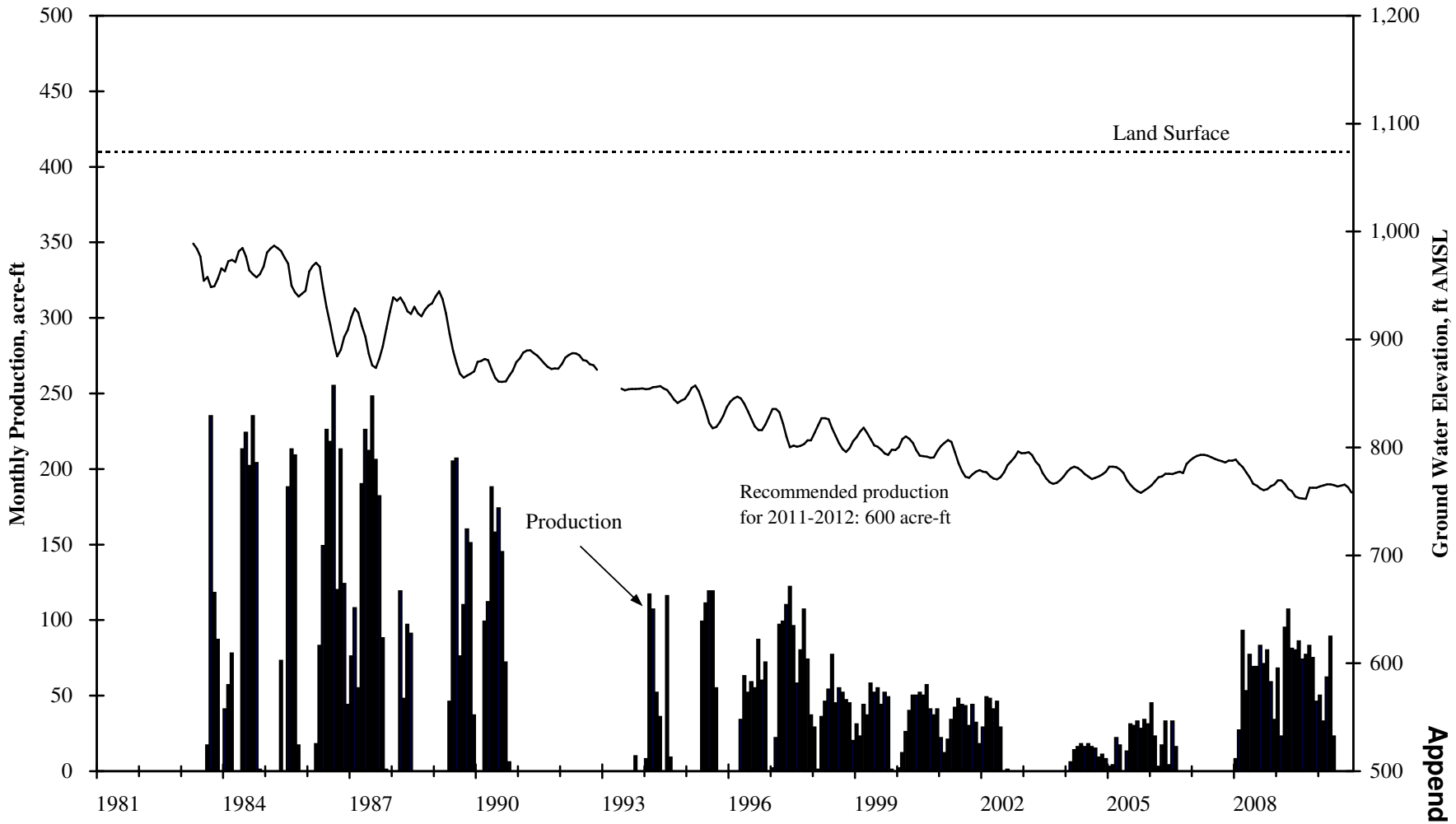
Long-Term Hydrograph and Production - RCWD Well 108



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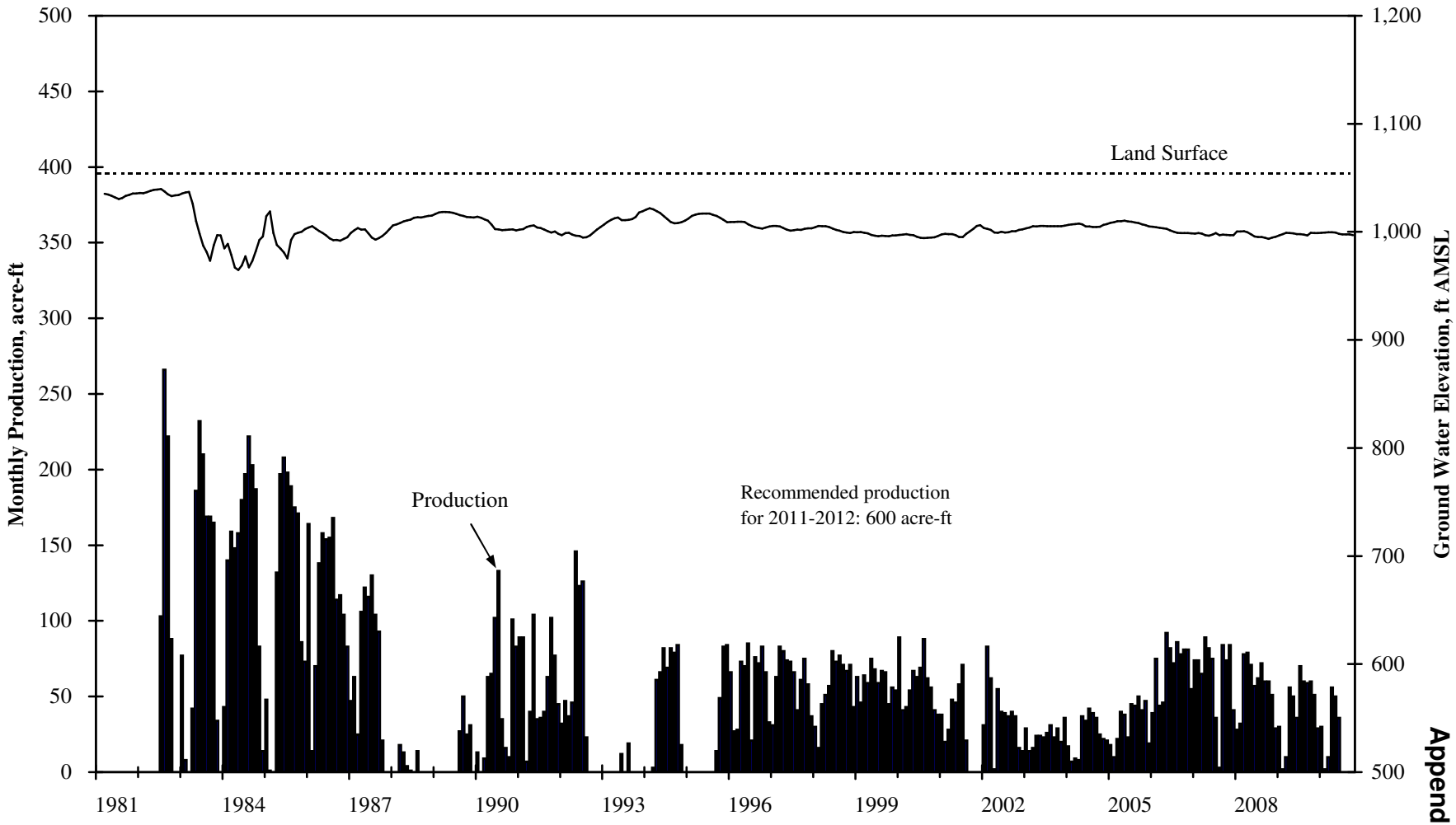
Long-Term Hydrograph and Production - RCWD Well 109



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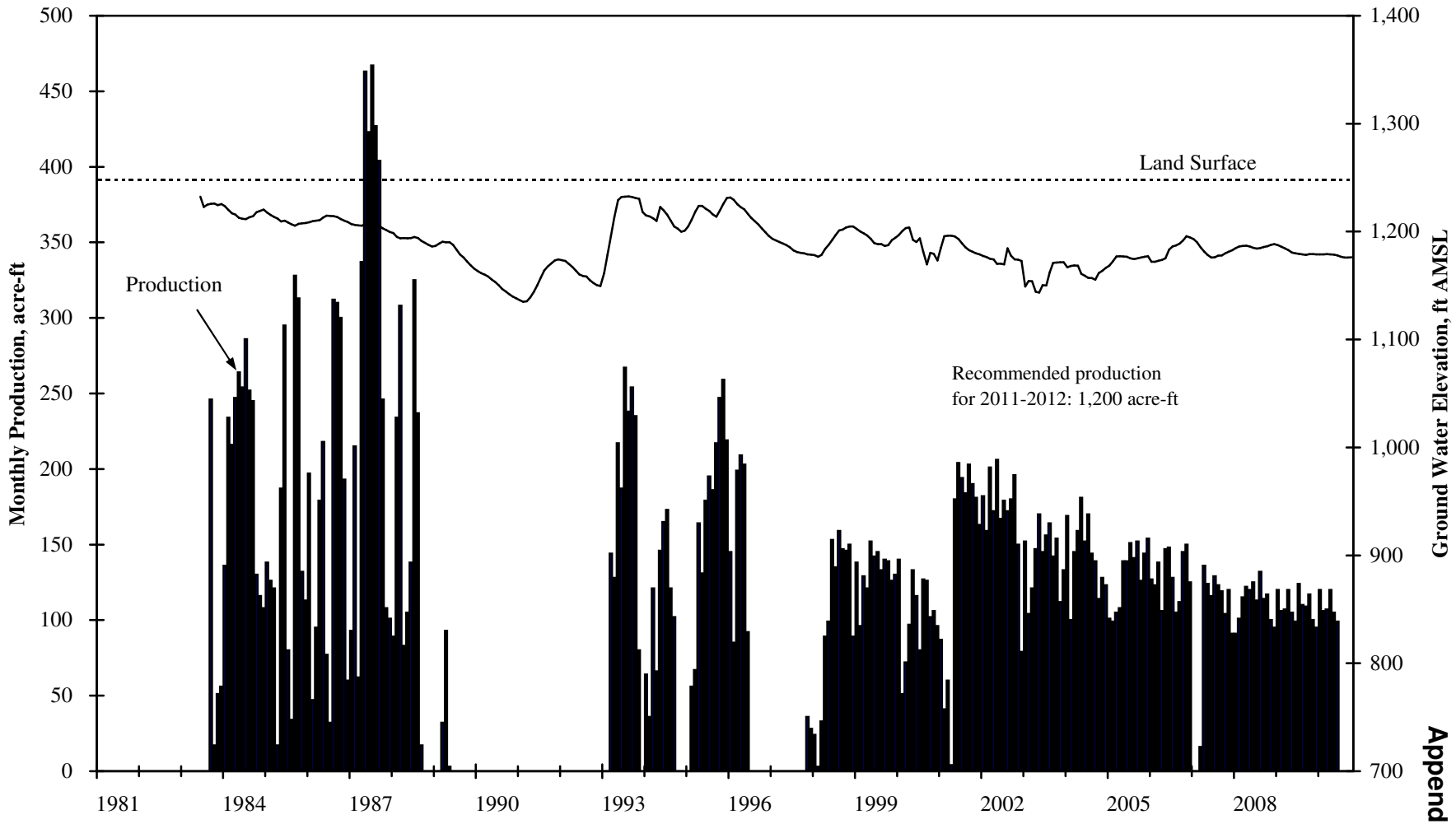
Long-Term Hydrograph and Production - RCWD Well 110



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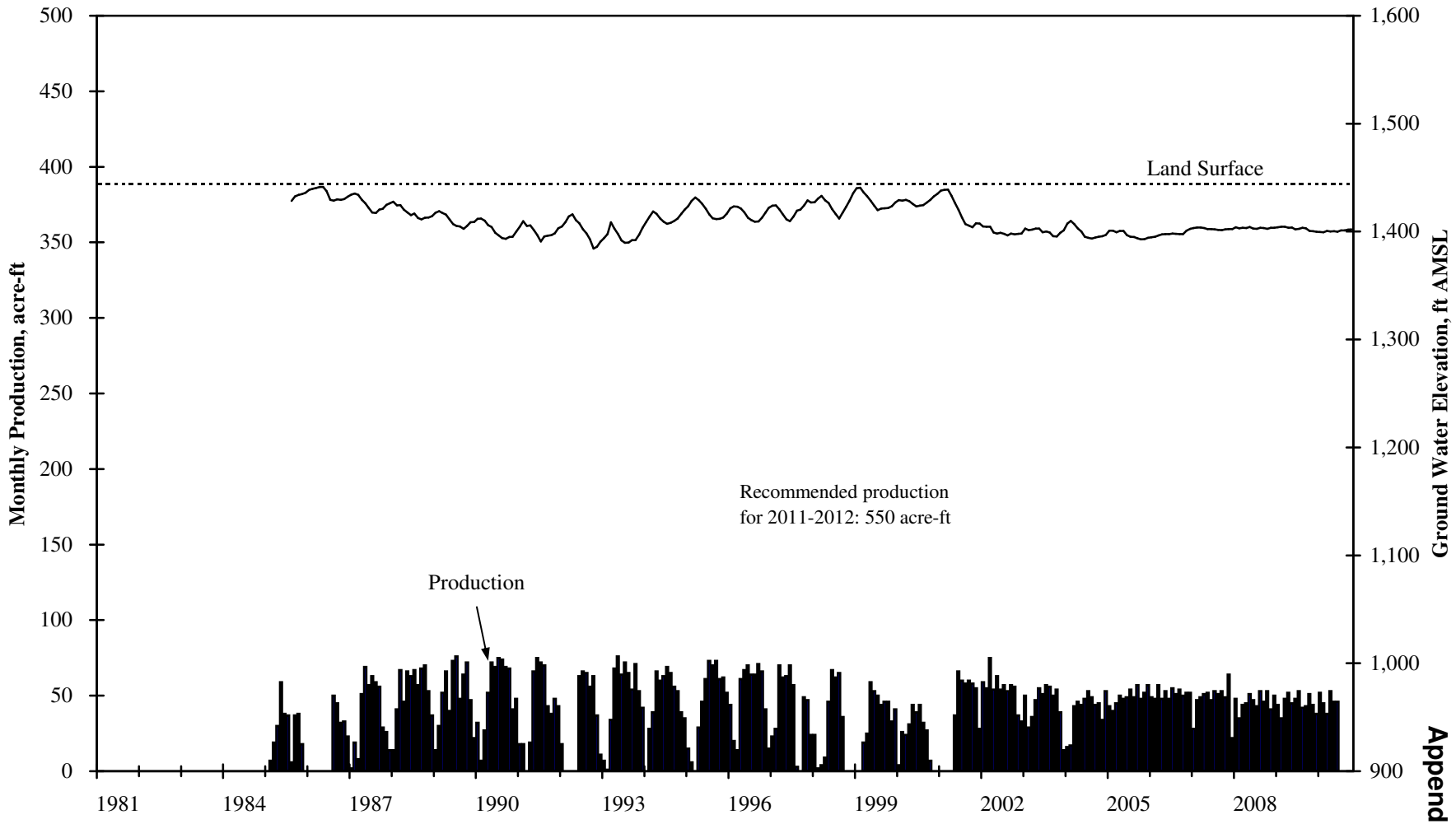
Long-Term Hydrograph and Production - RCWD Well 113



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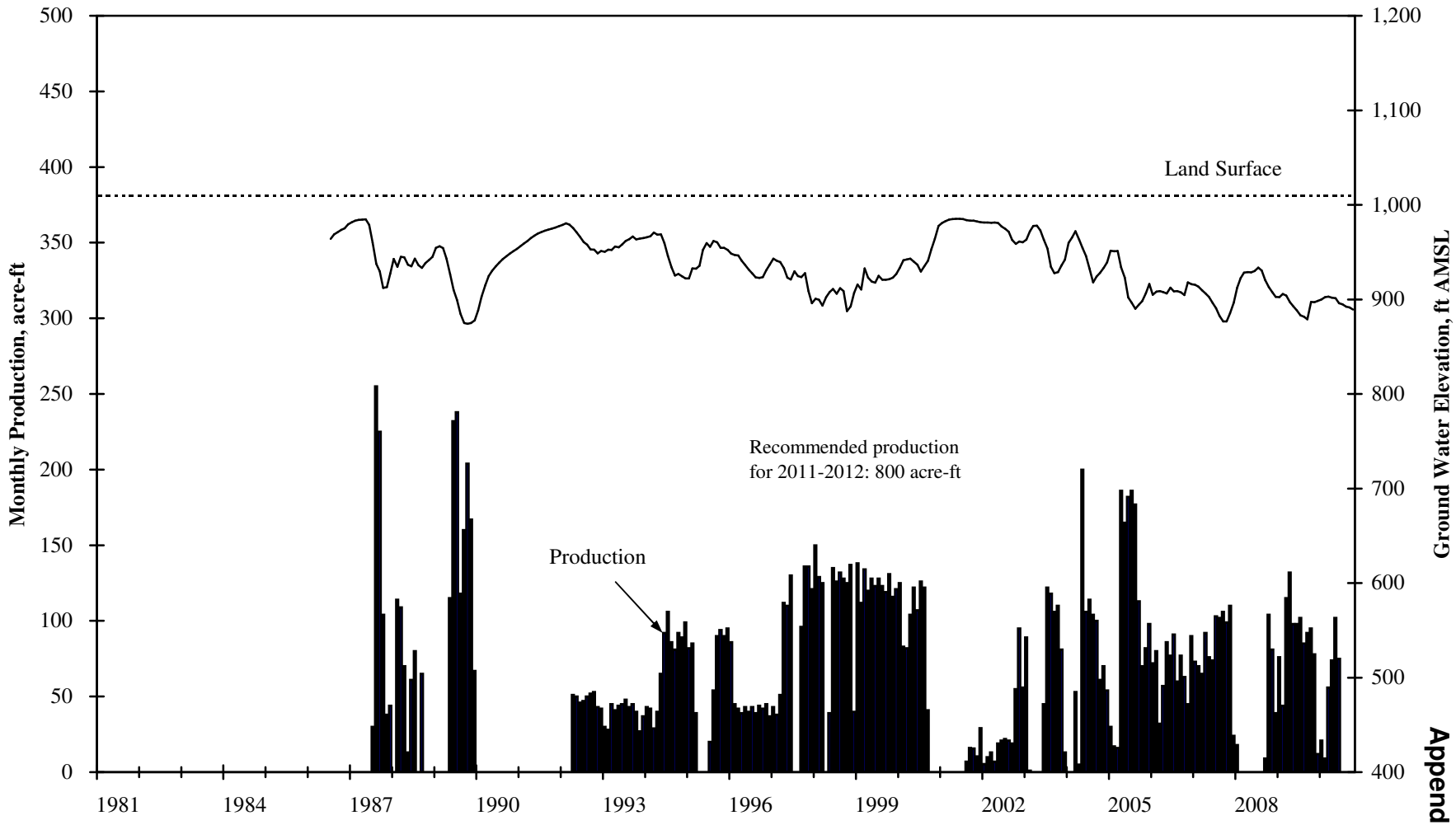
Long-Term Hydrograph and Production - RCWD Well 118



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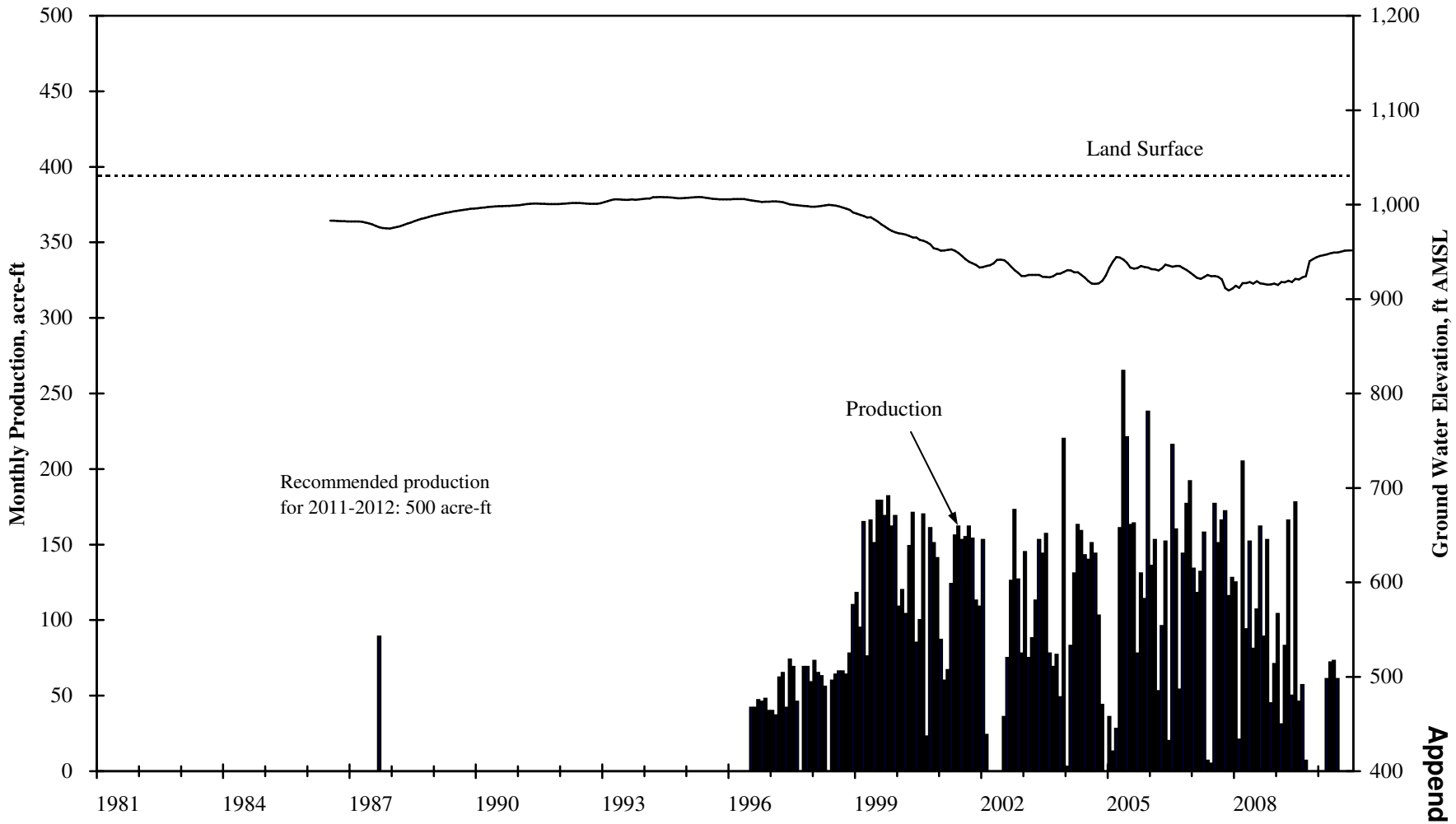
Long-Term Hydrograph and Production - RCWD Well 119



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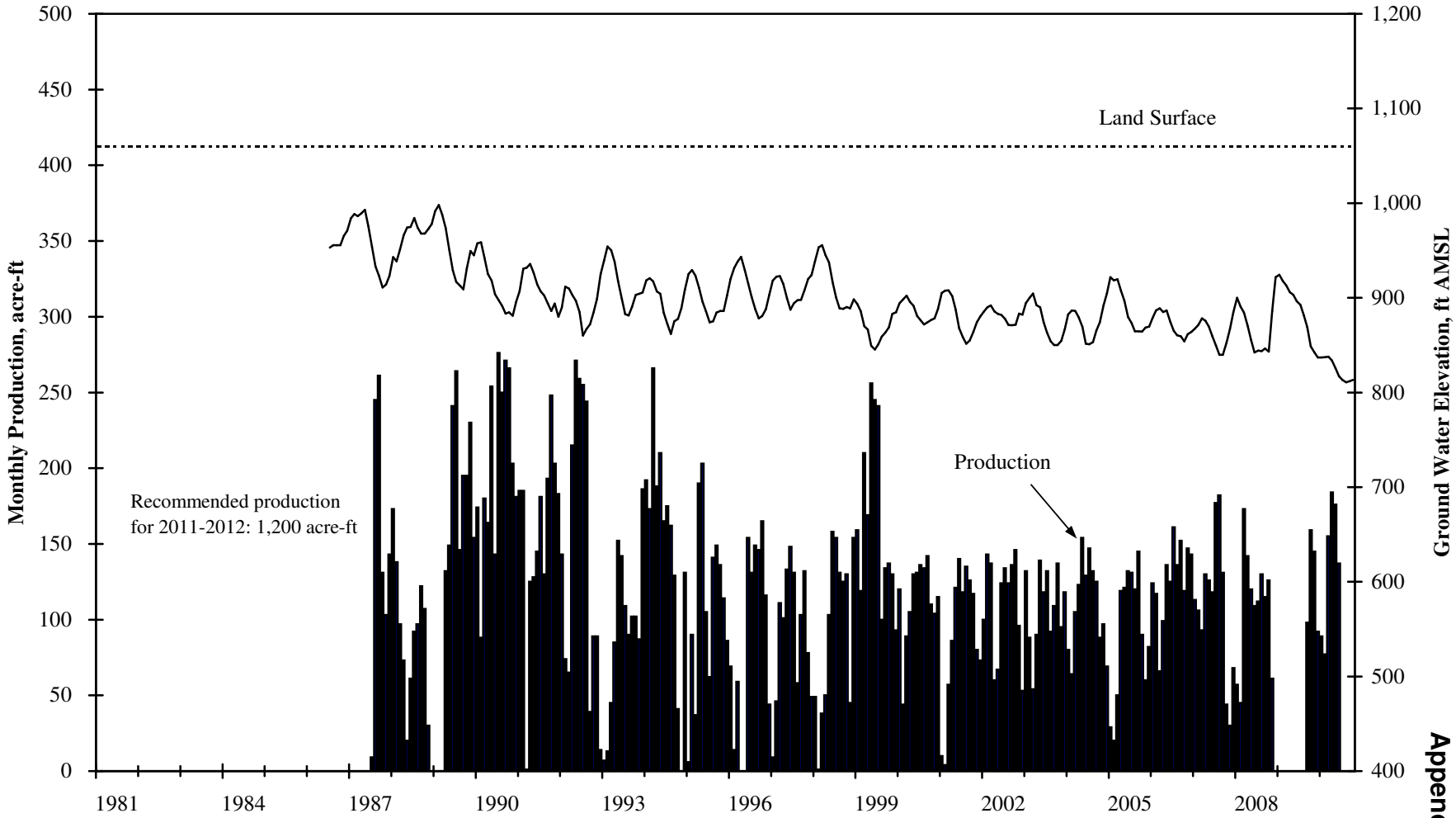
Long-Term Hydrograph and Production - RCWD Well 120



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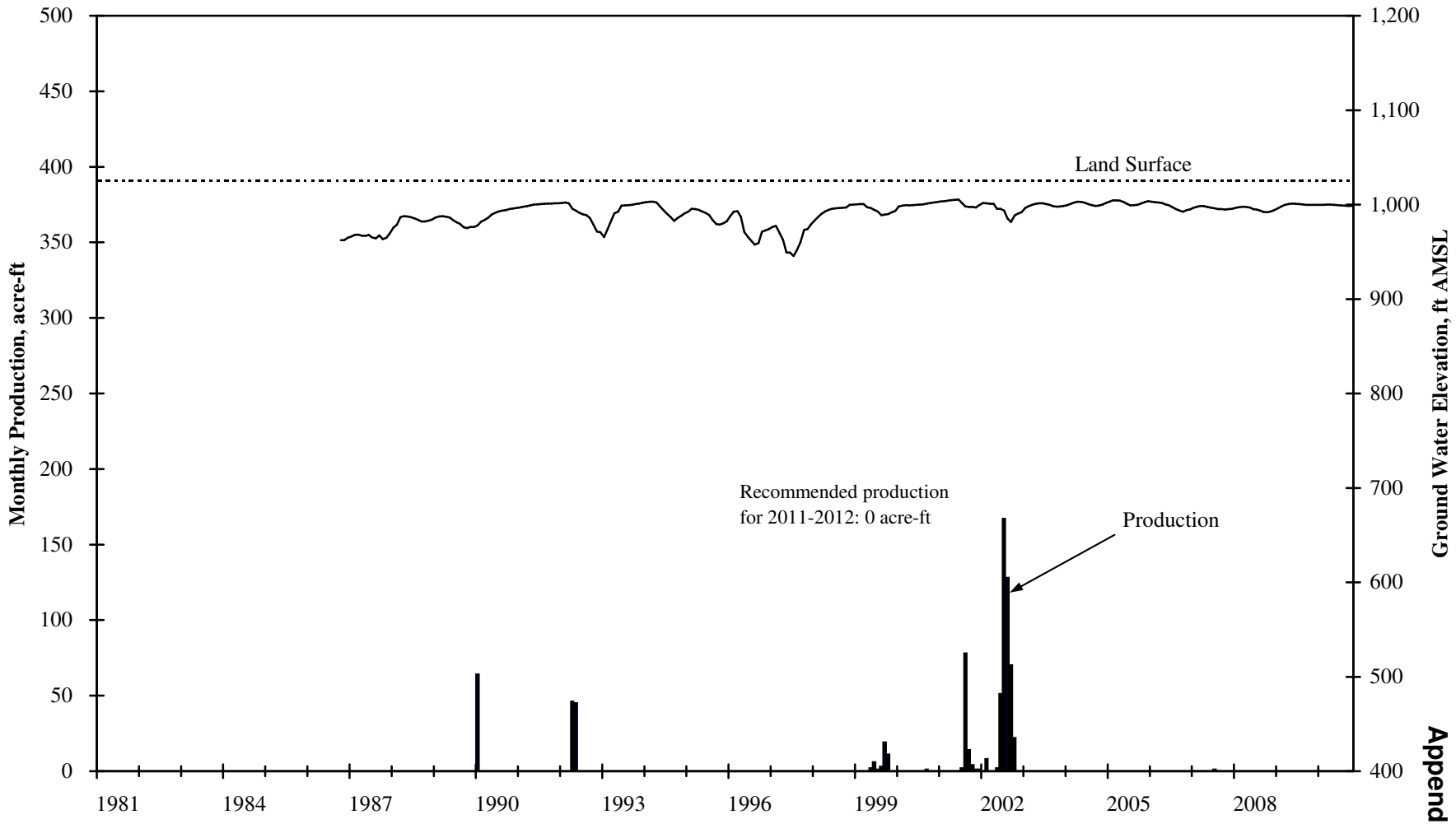
Long-Term Hydrograph and Production - RCWD Well 121



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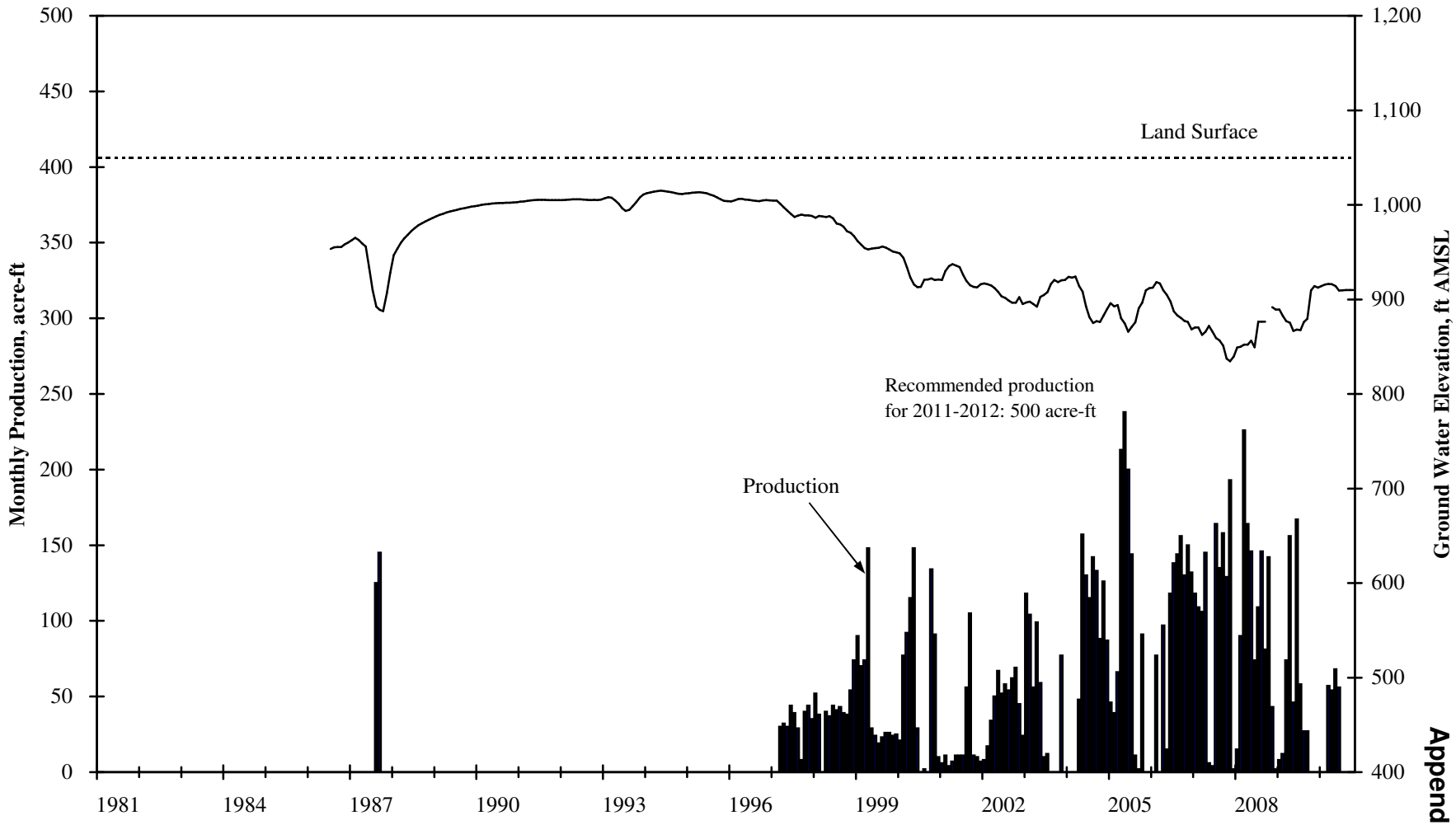
Long-Term Hydrograph and Production - RCWD Well 122



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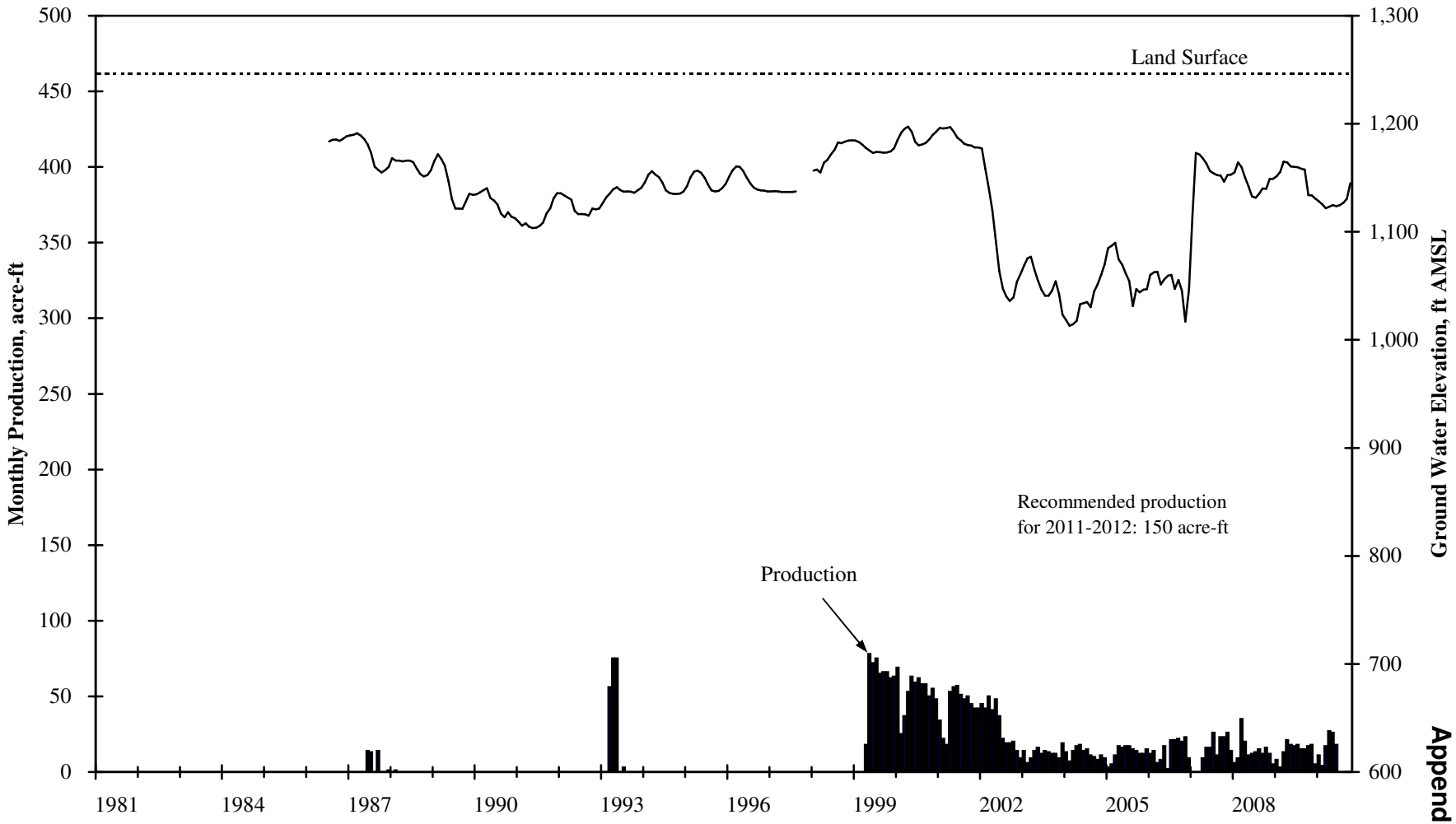
Long-Term Hydrograph and Production - RCWD Well 123



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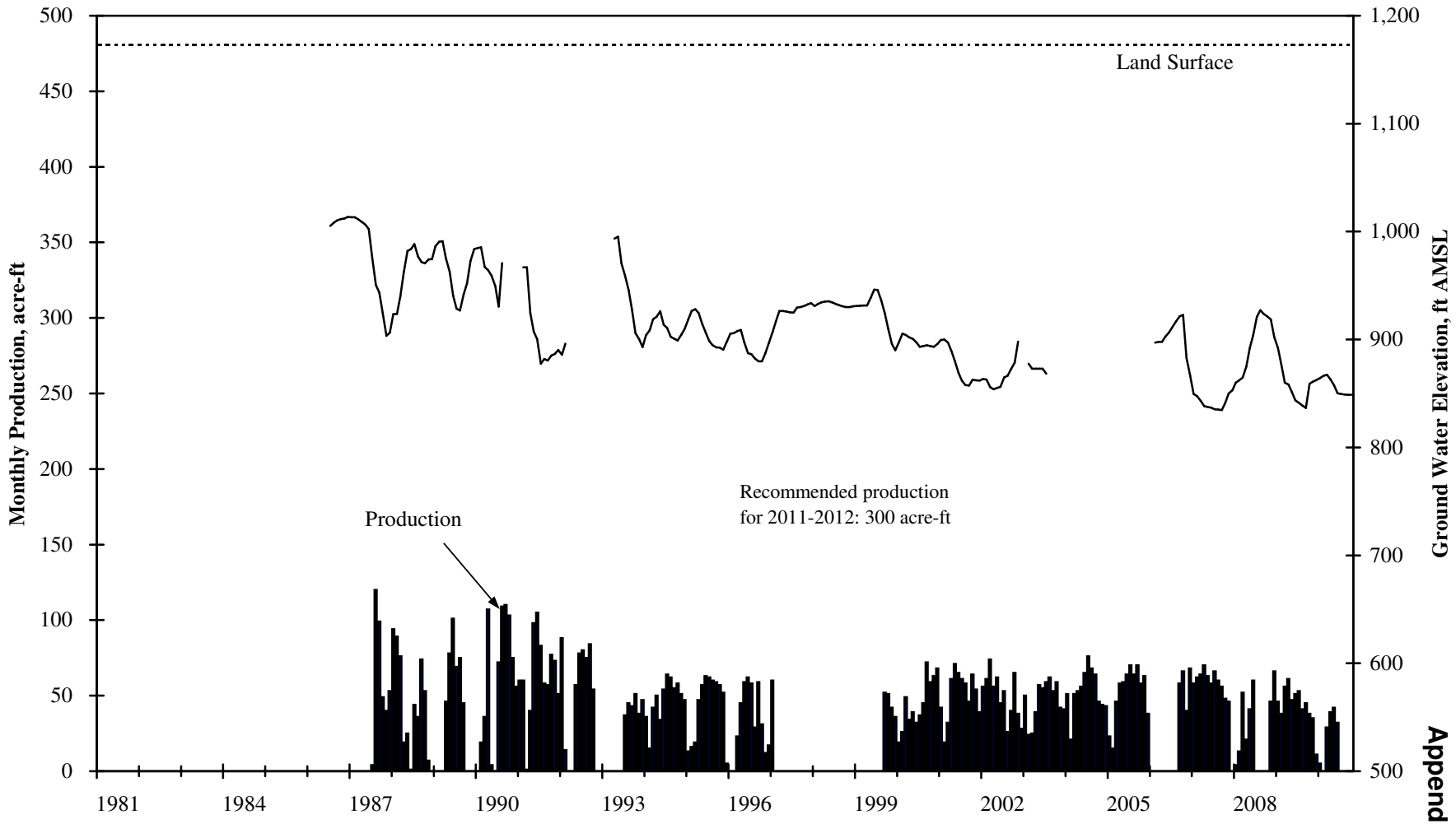
Long-Term Hydrograph and Production - RCWD Well 124



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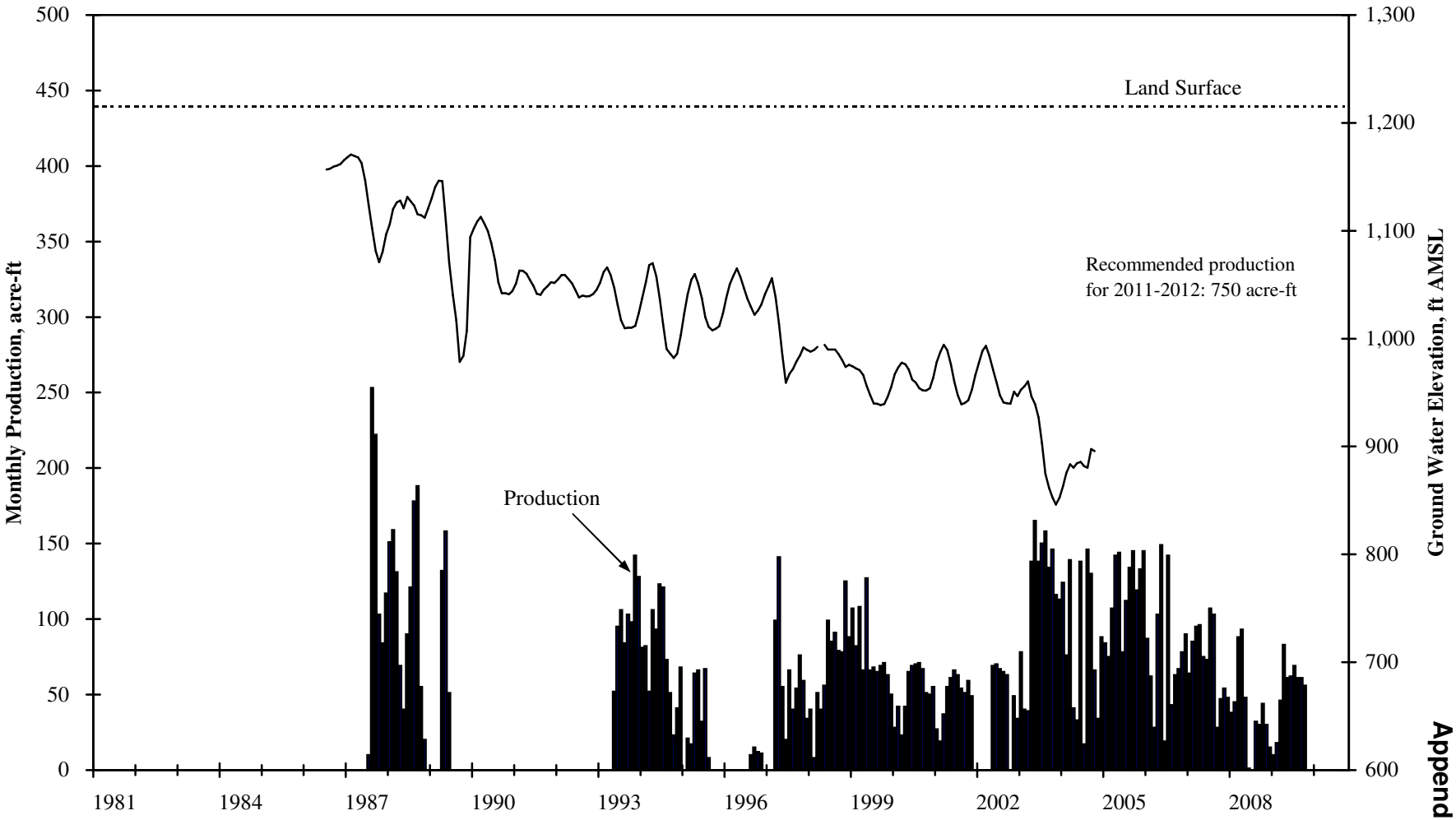
Long-Term Hydrograph and Production - RCWD Well 125



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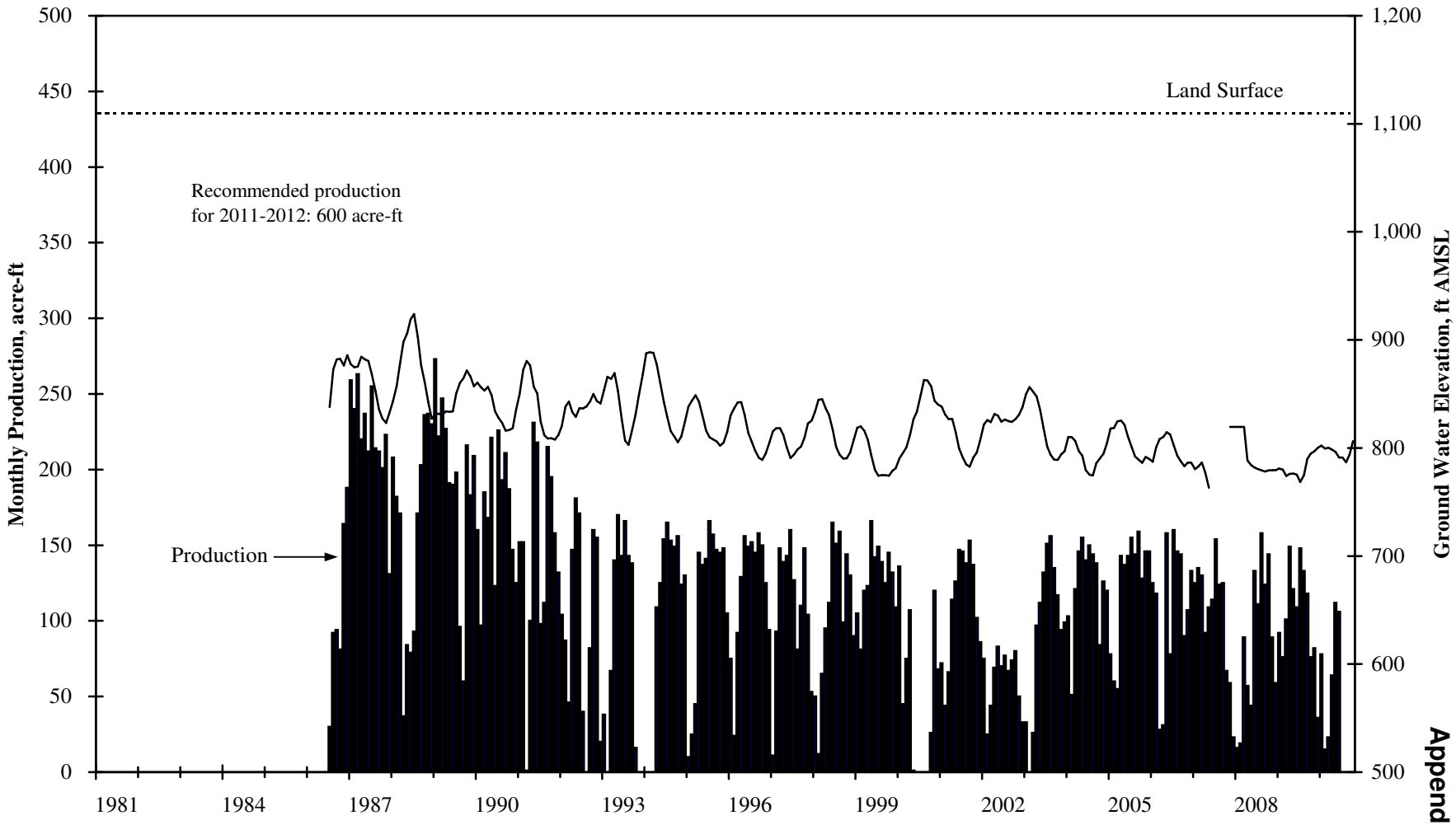
Long-Term Hydrograph and Production - RCWD Well 126



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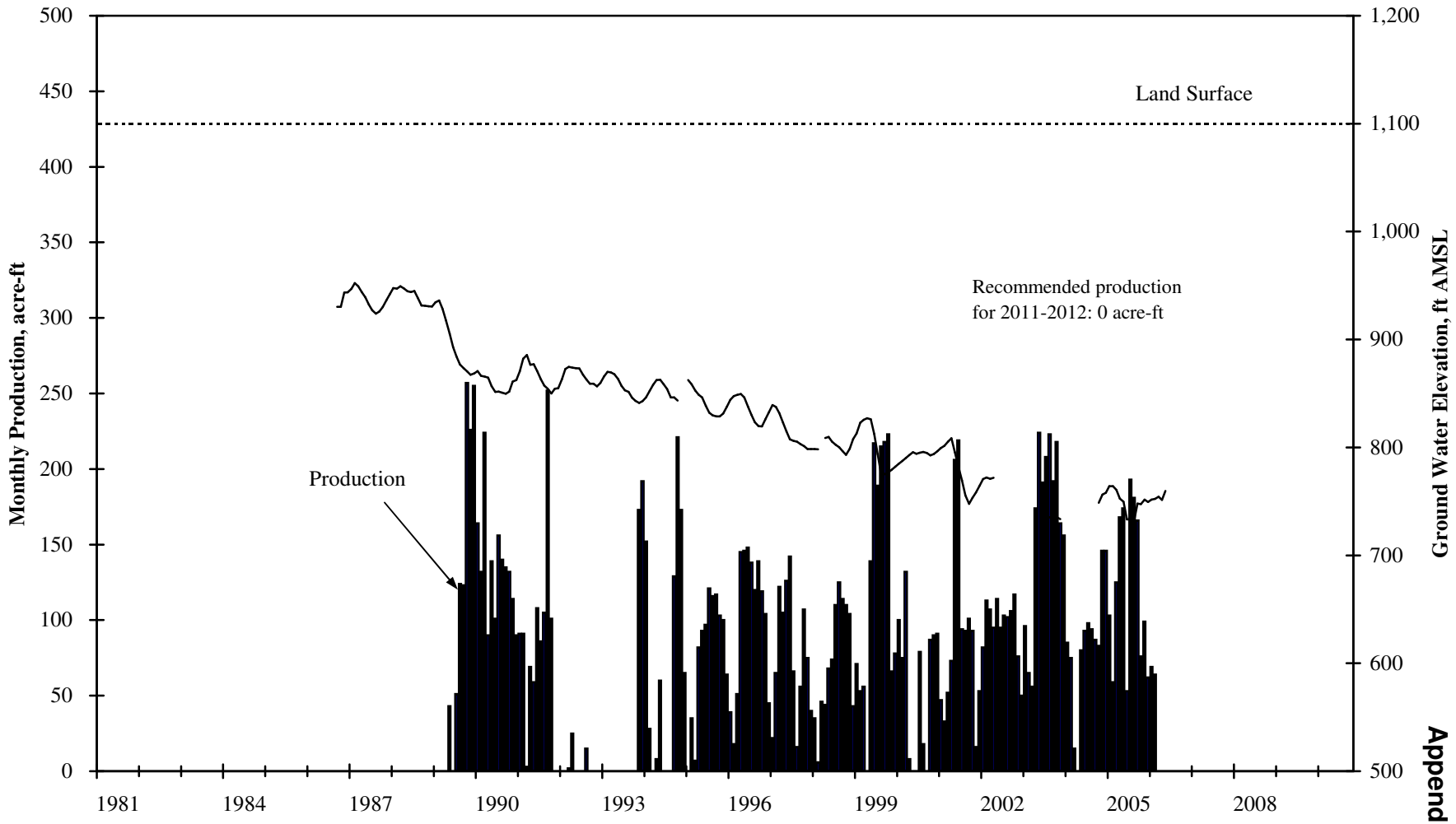
Long-Term Hydrograph and Production - RCWD Well 128



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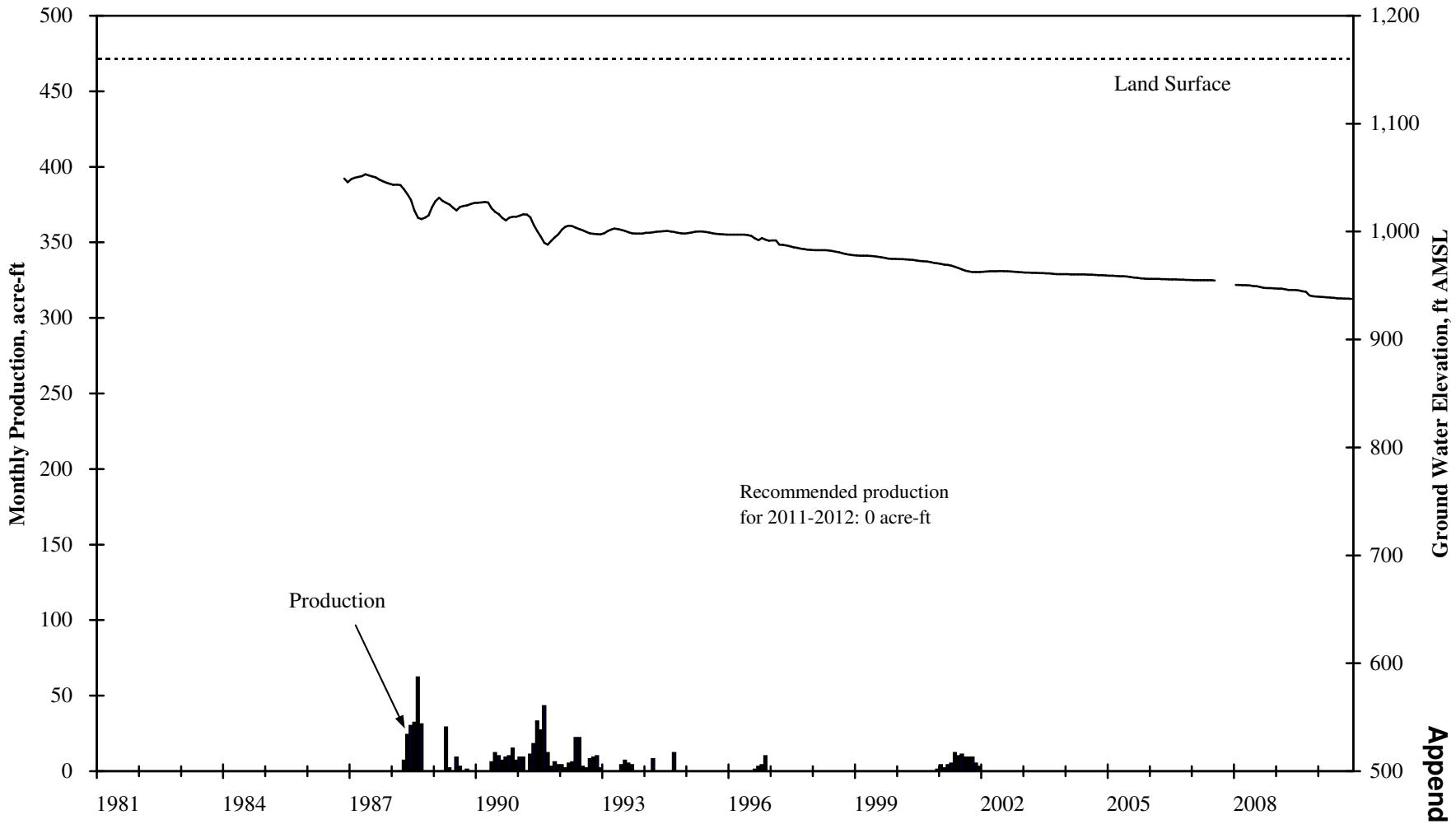
Long-Term Hydrograph and Production - RCWD Well 129



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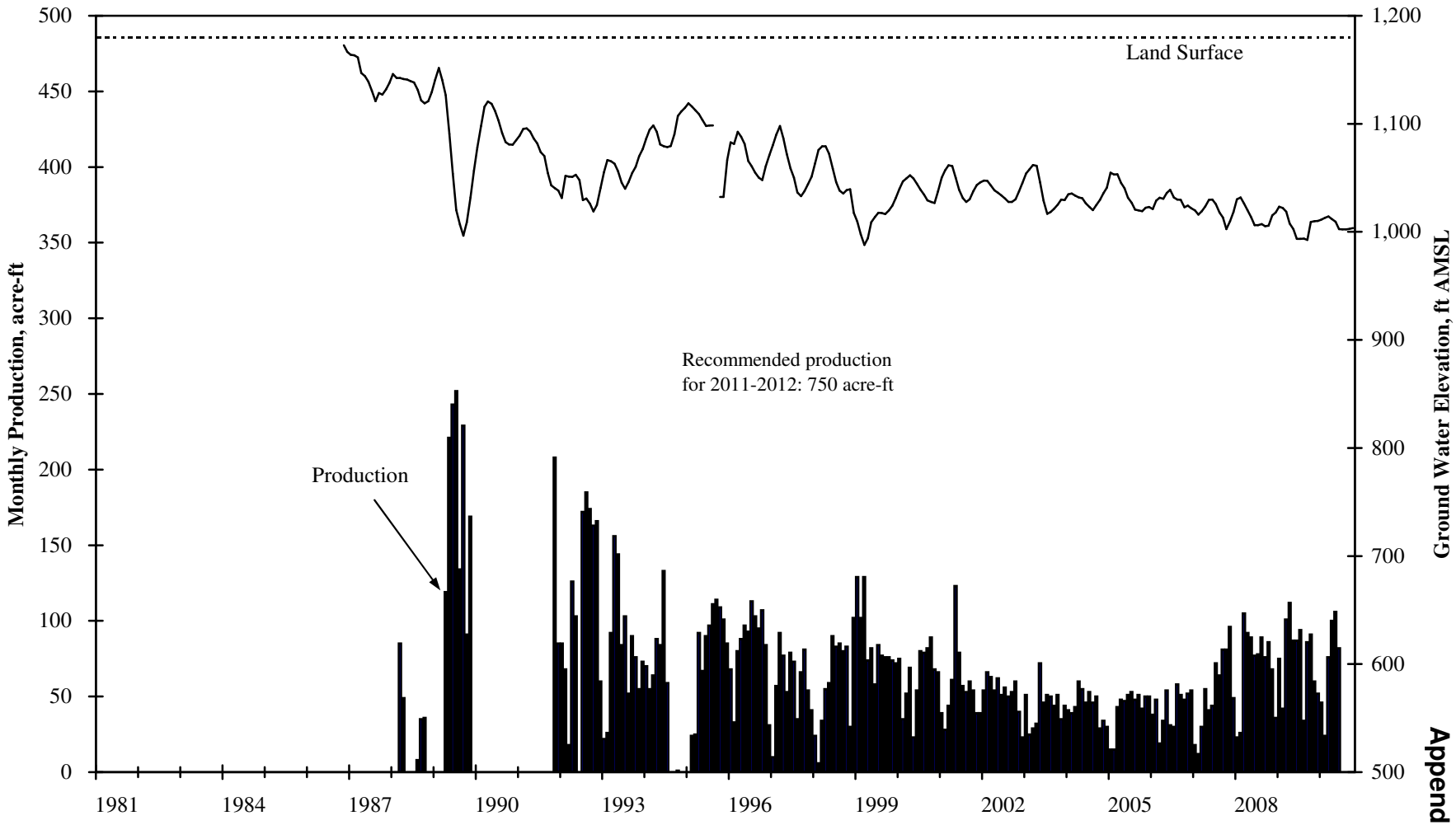
Long-Term Hydrograph and Production - RCWD Well 130



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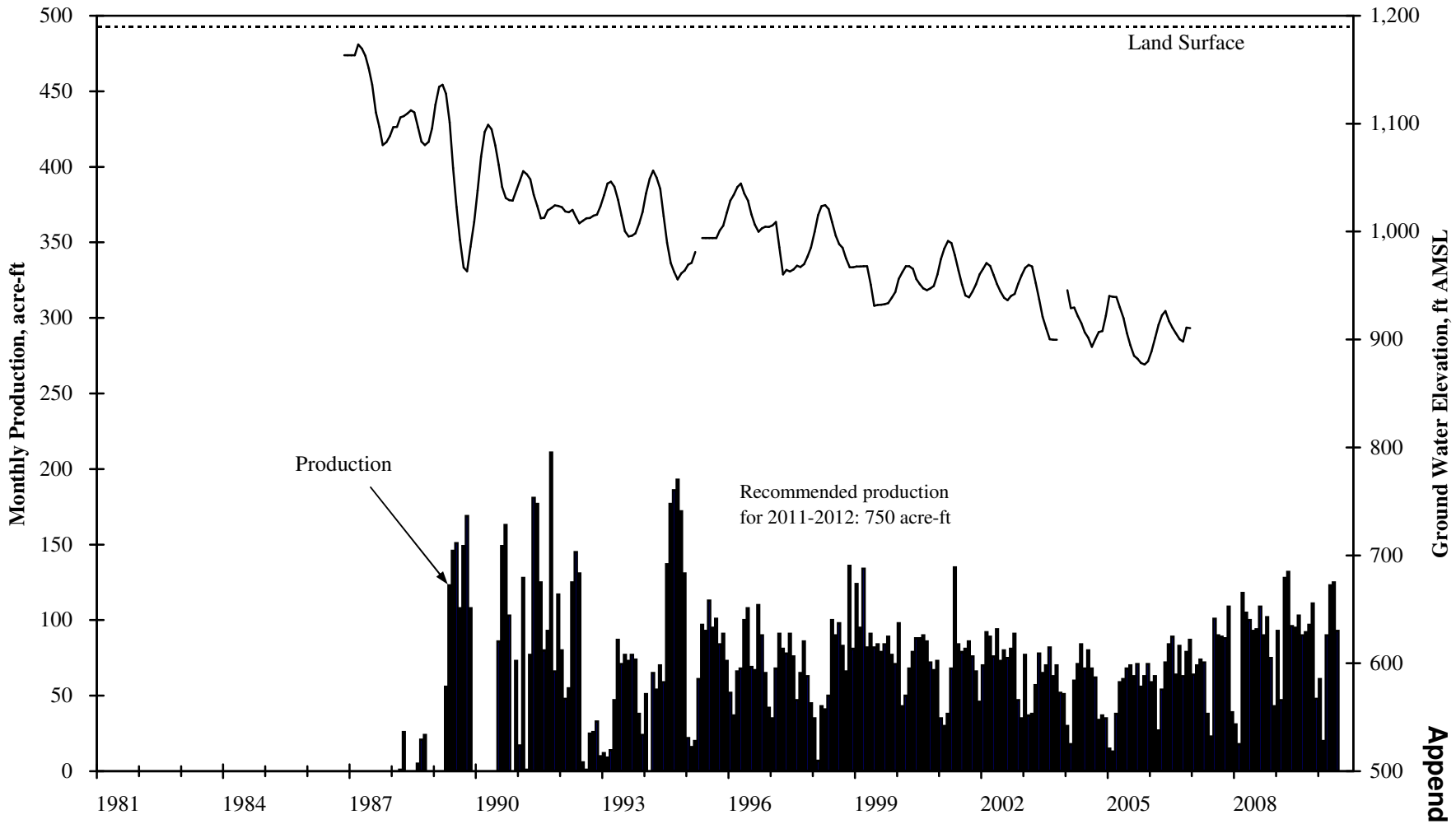
Long-Term Hydrograph and Production - RCWD Well 131



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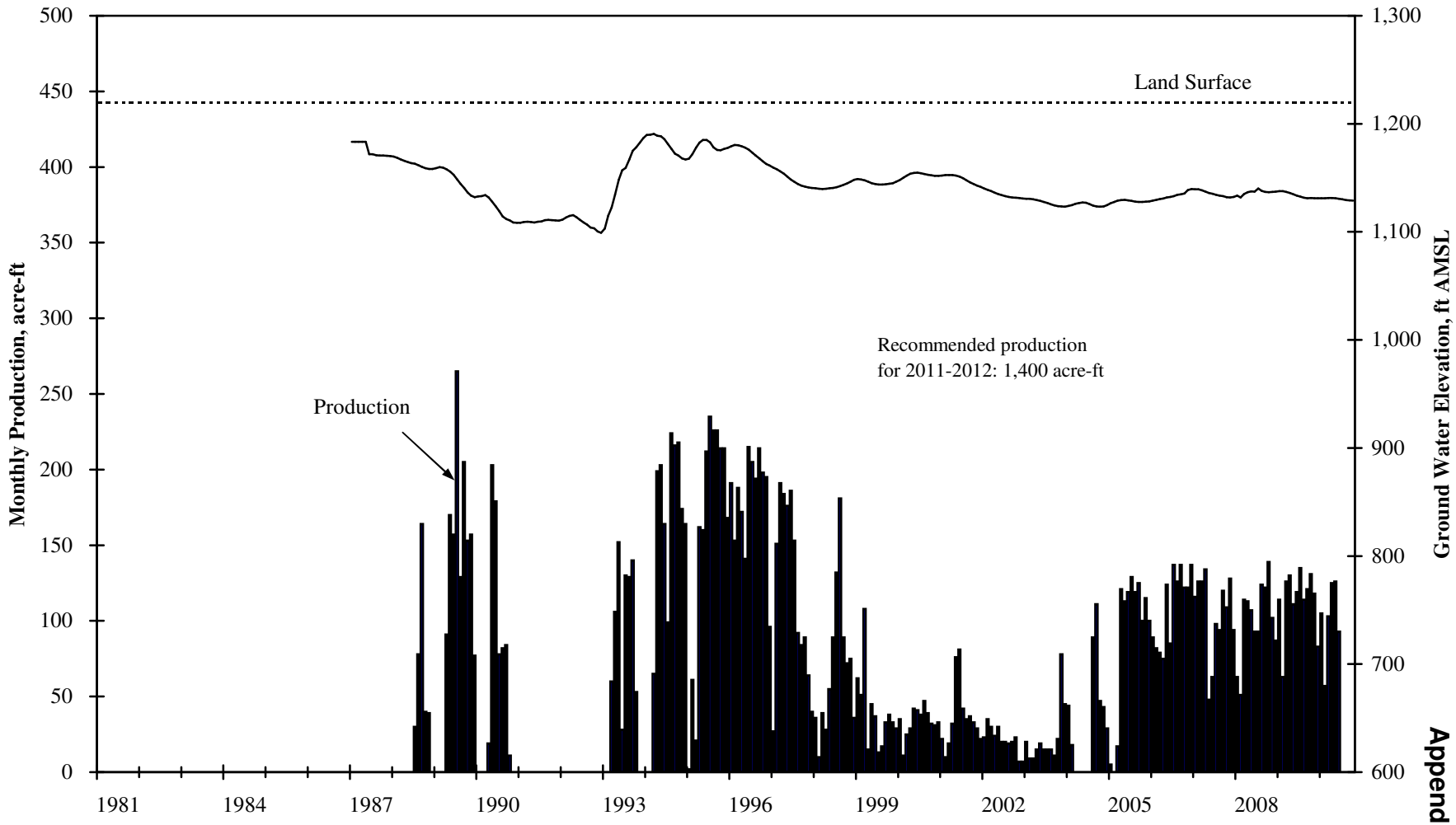
Long-Term Hydrograph and Production - RCWD Well 132



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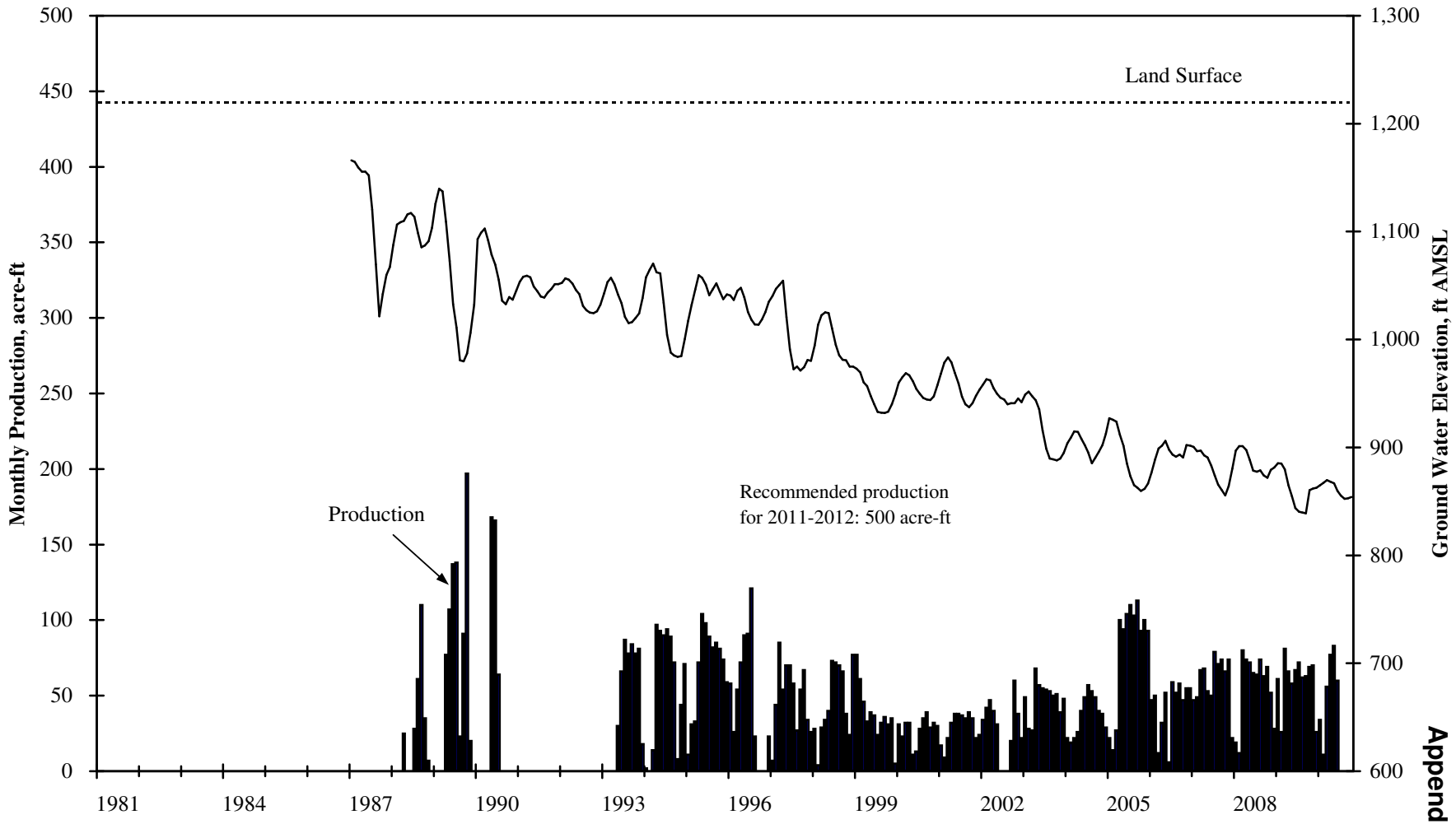
Long-Term Hydrograph and Production - RCWD Well 133



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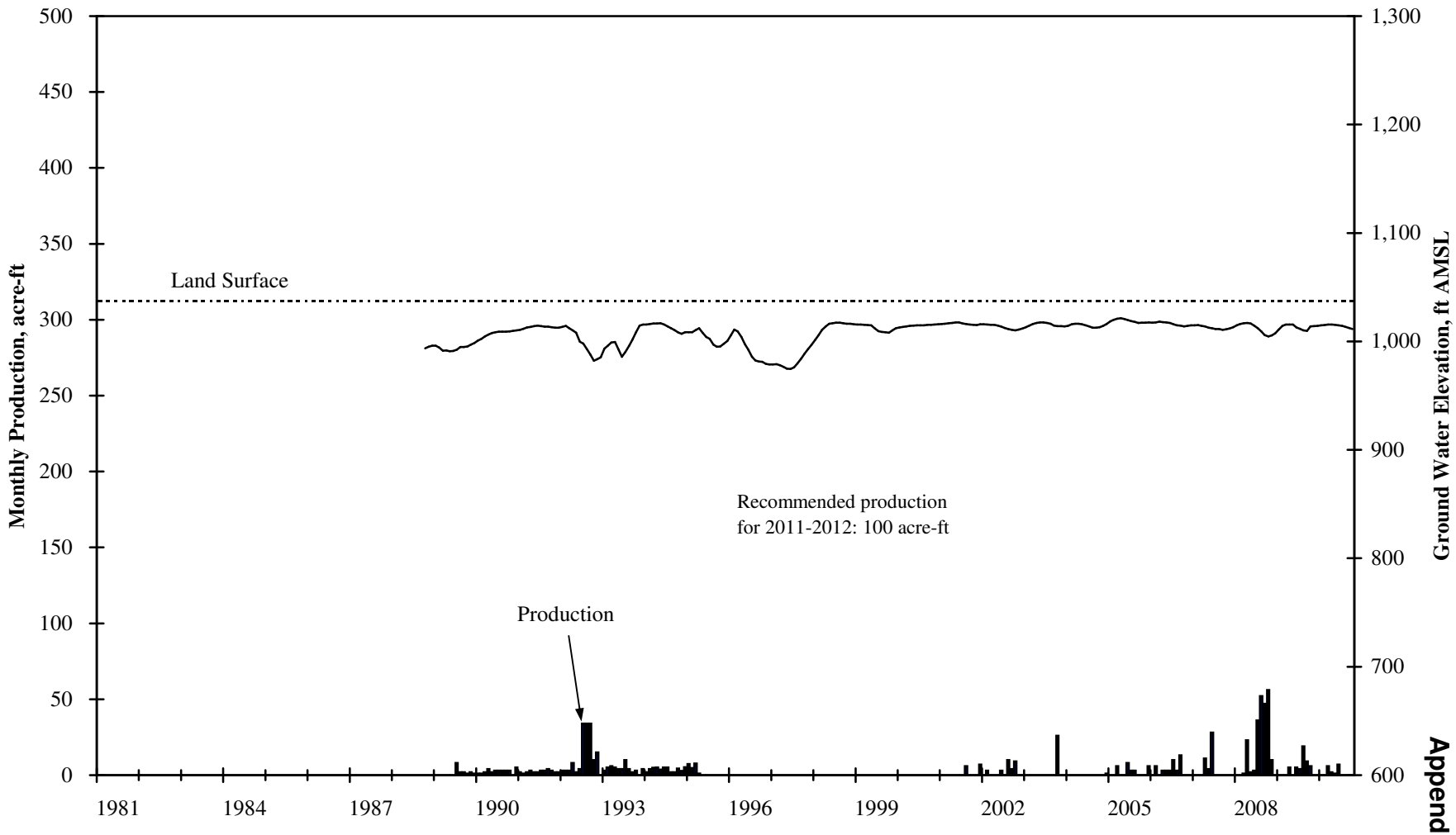
Long-Term Hydrograph and Production - RCWD Well 135



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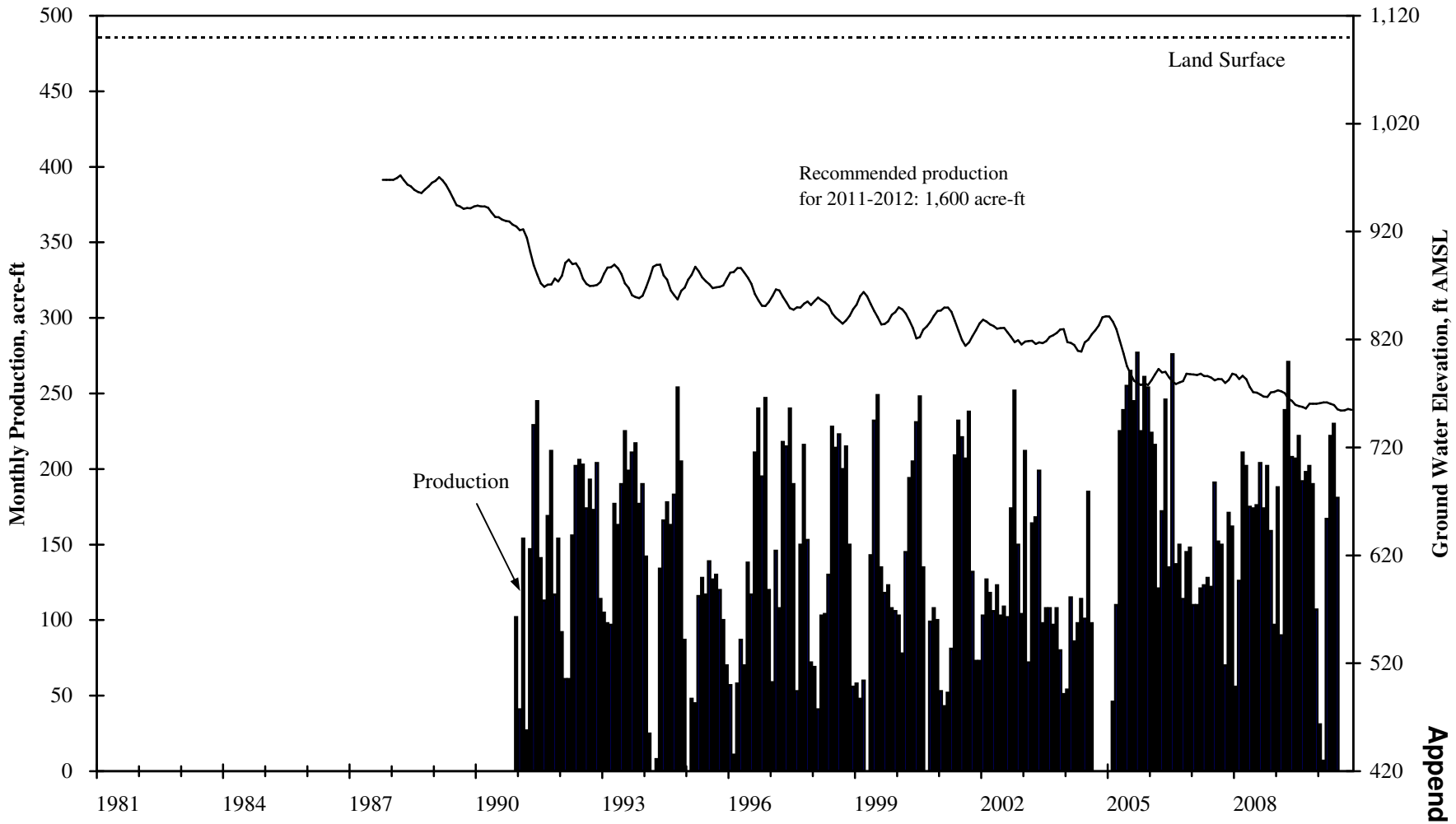
Long-Term Hydrograph and Production - RCWD Well 138



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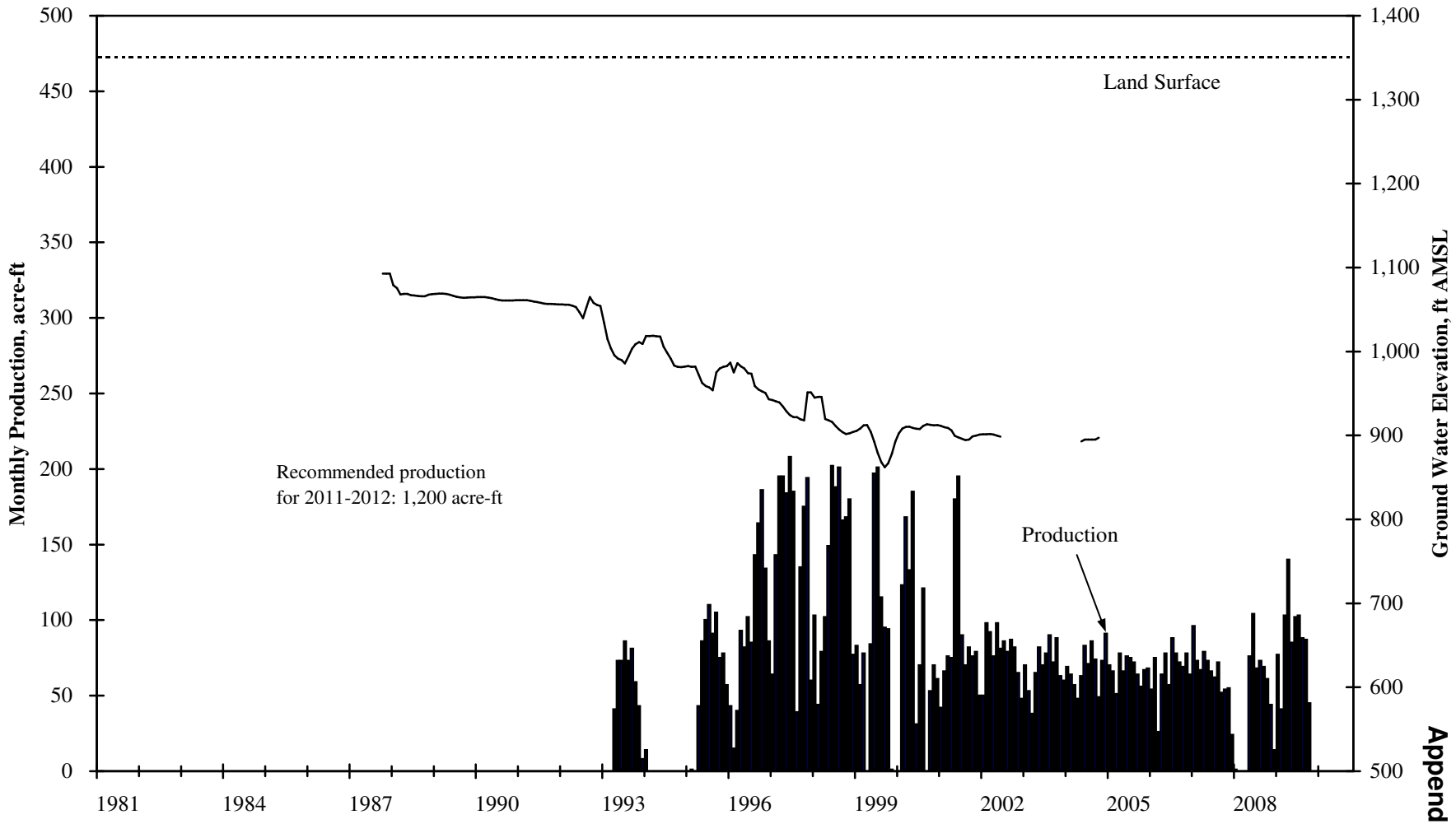
Long-Term Hydrograph and Production - RCWD Well 139



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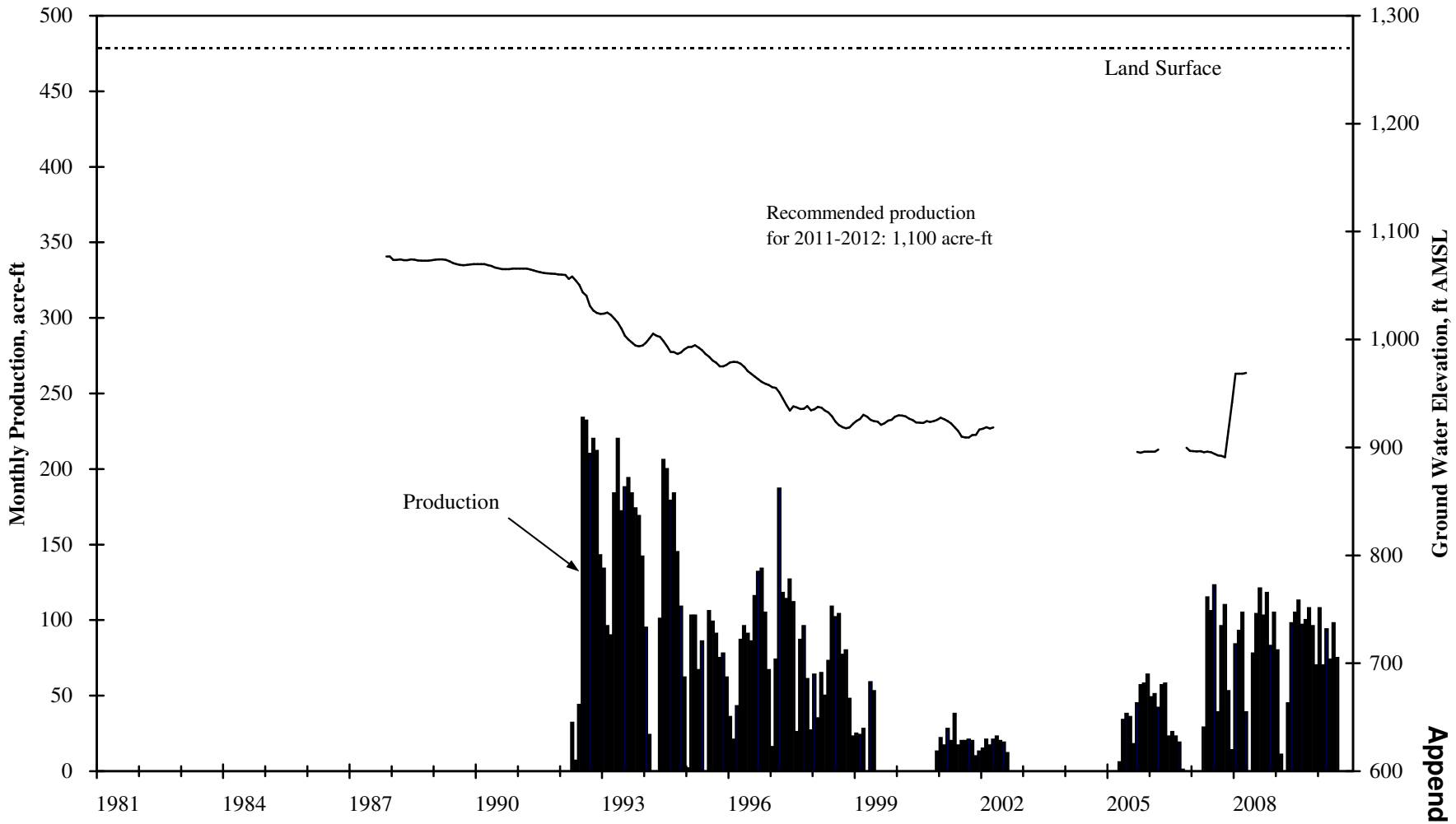
Long-Term Hydrograph and Production - RCWD Well 140



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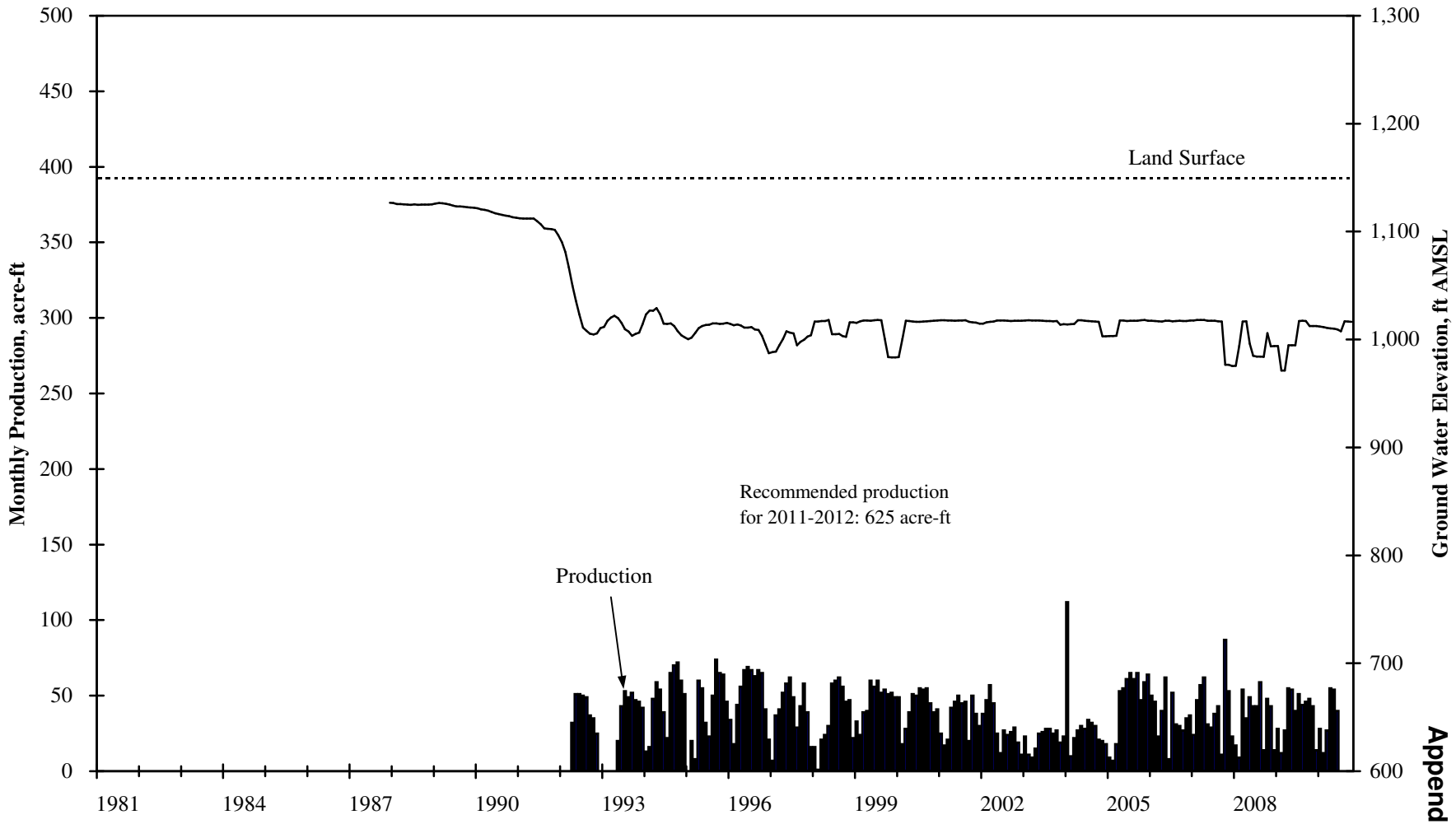
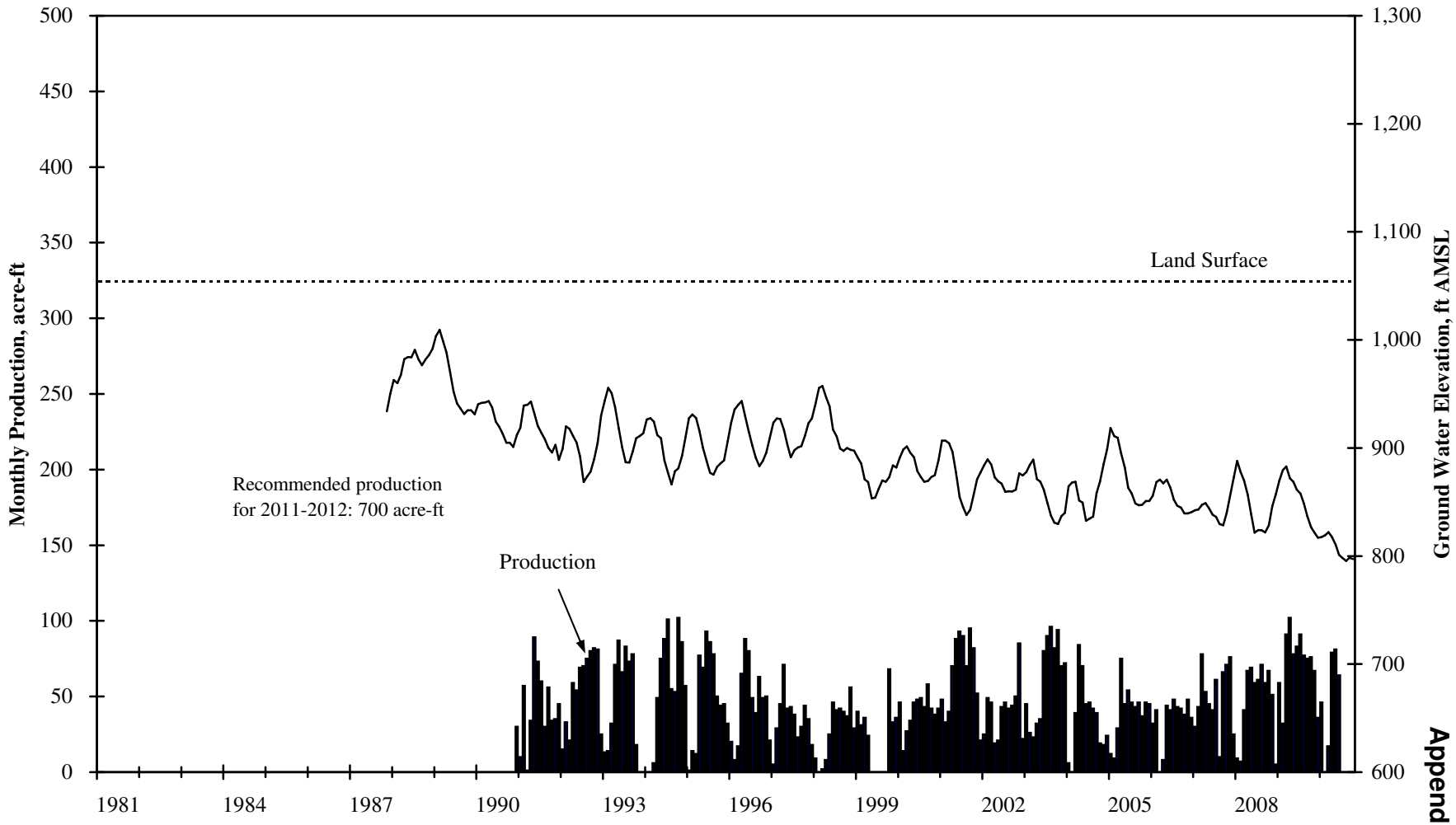


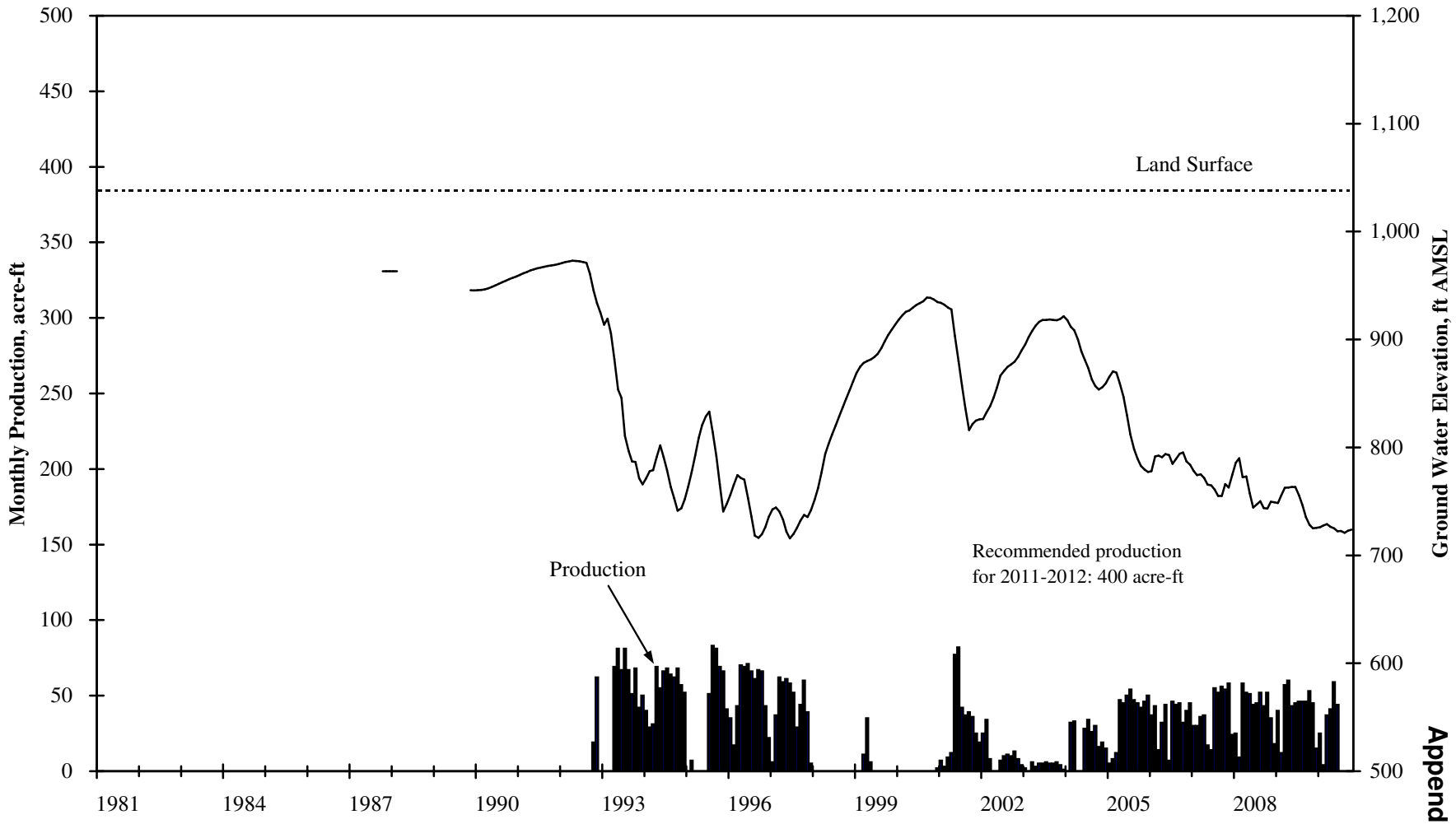
Appendix A

Long-Term Hydrograph and Production - RCWD Well 143



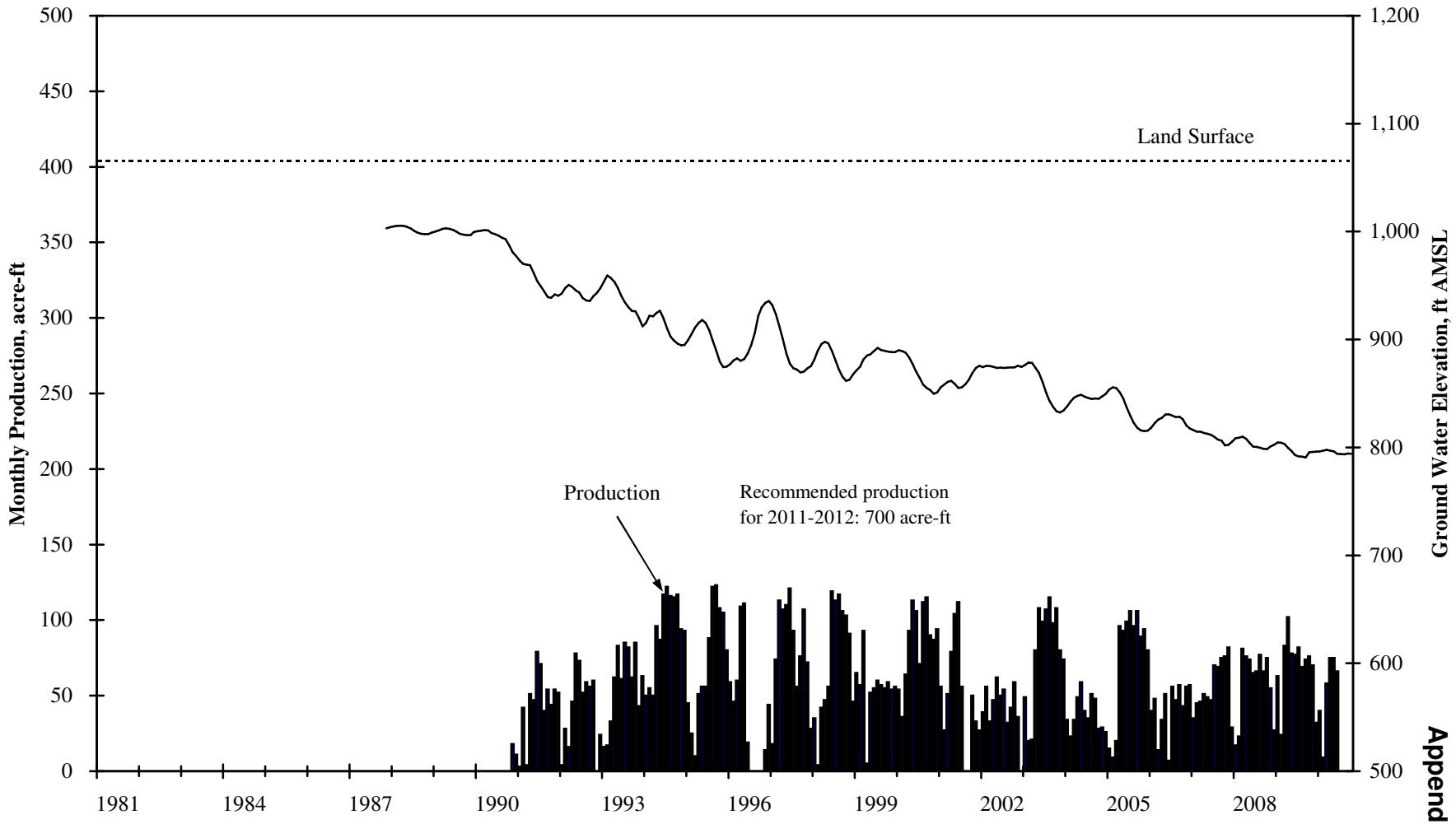
Appendix A

Long-Term Hydrograph and Production - RCWD Well 144



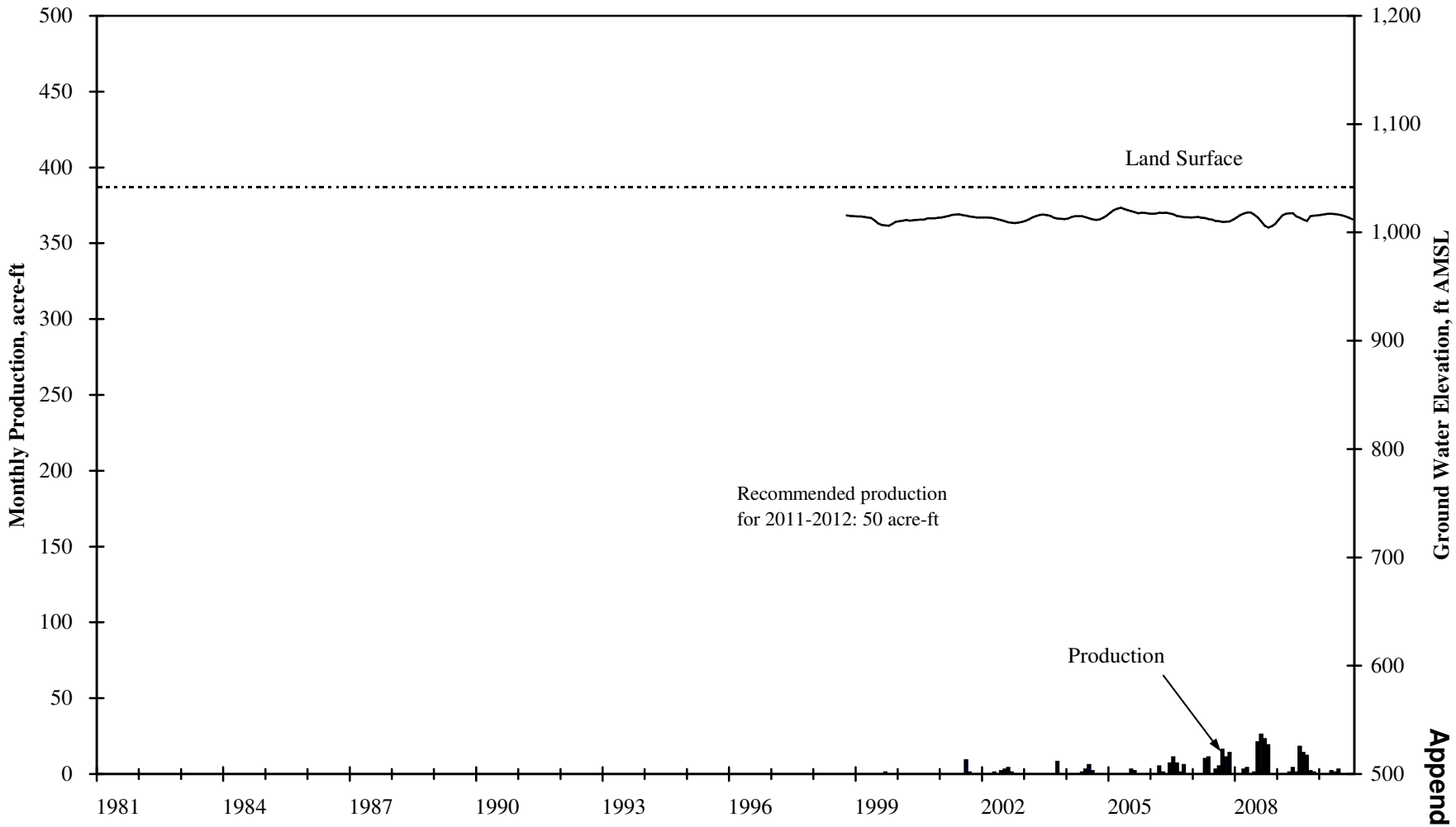
Appendix A

Long-Term Hydrograph and Production - RCWD Well 145



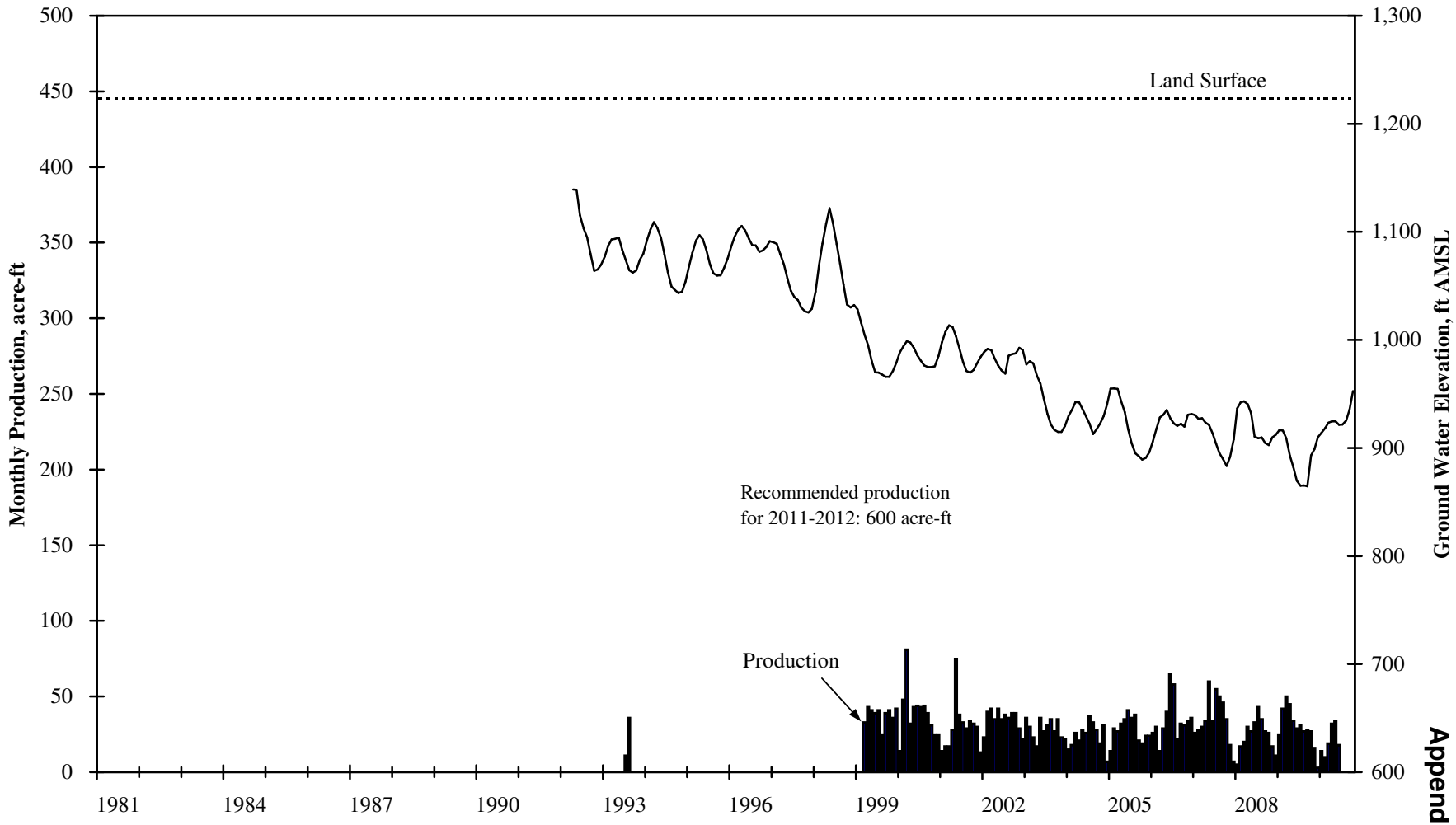
Appendix A

Long-Term Hydrograph and Production - RCWD Well 146



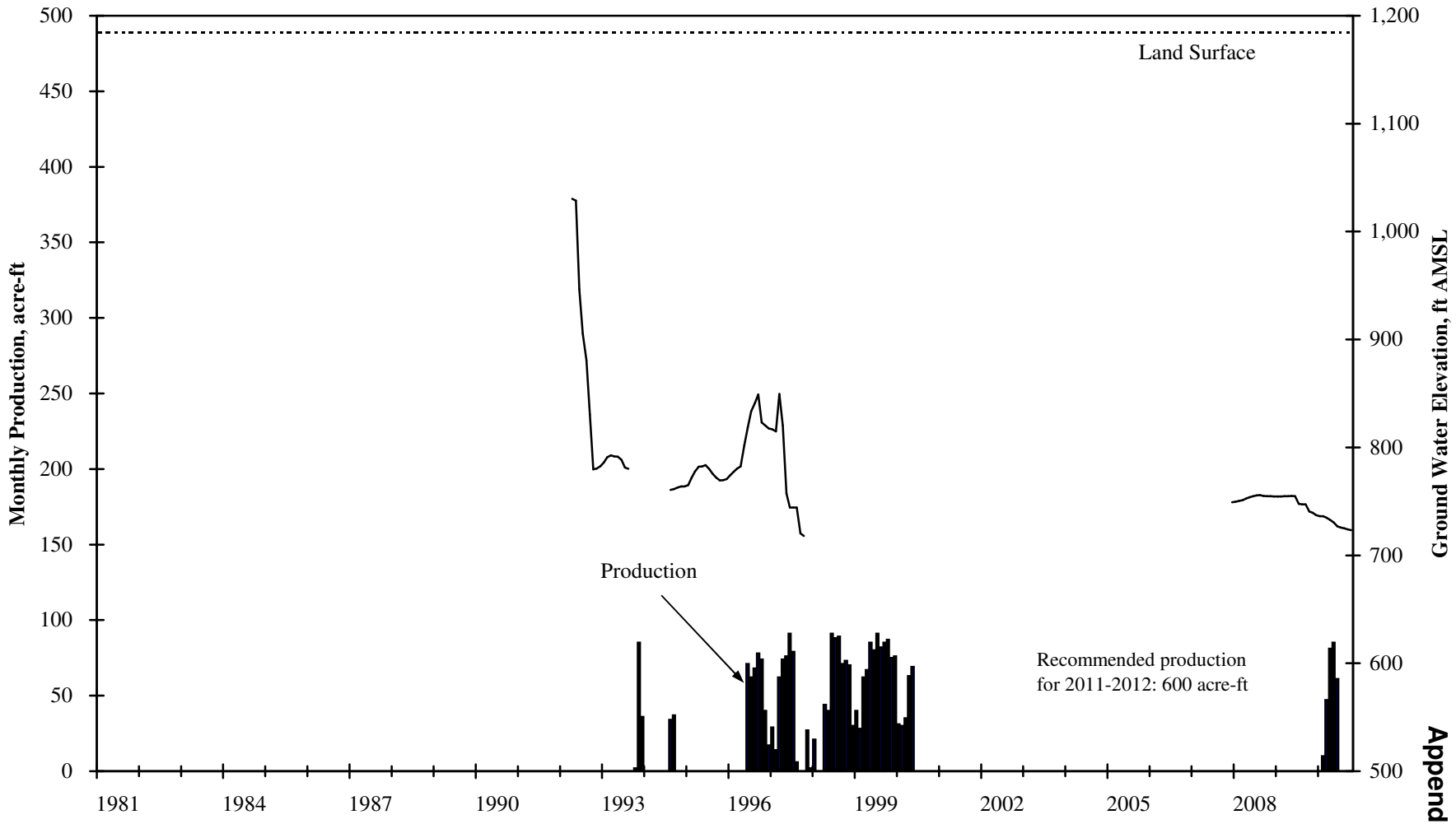
Appendix A

Long-Term Hydrograph and Production - RCWD Well 149



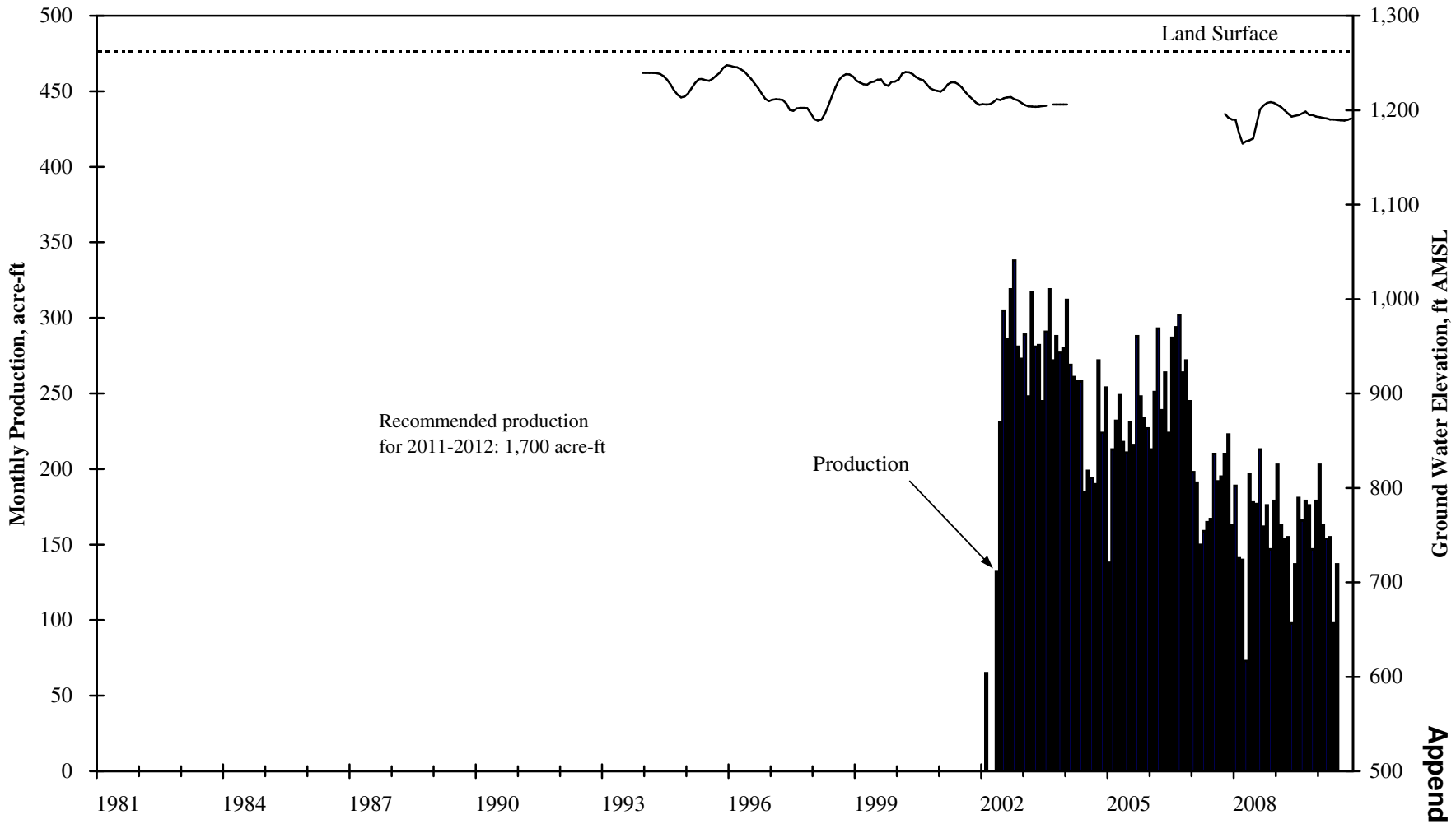
Appendix A

Long-Term Hydrograph and Production - RCWD Well 151



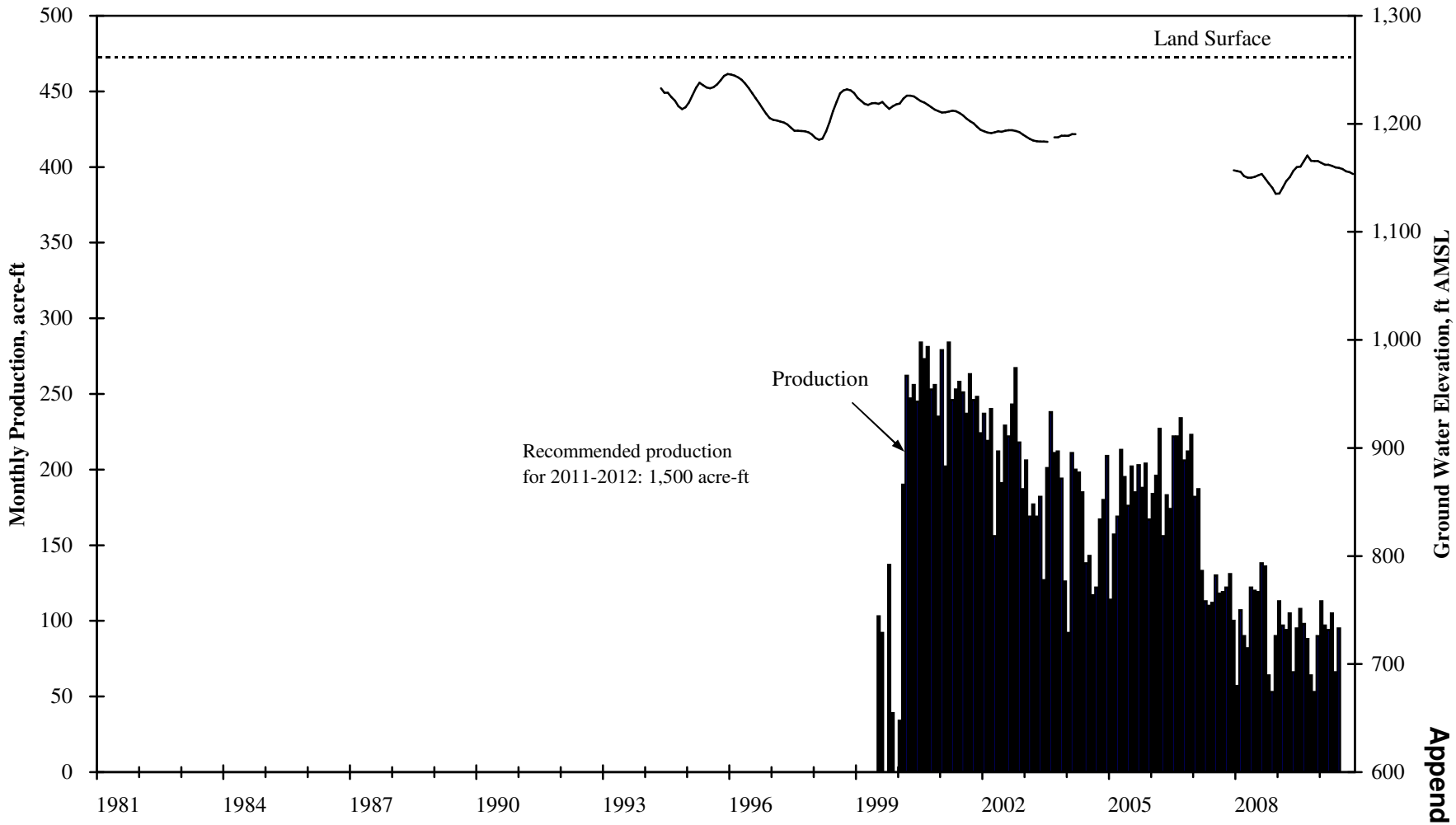
Appendix A

Long-Term Hydrograph and Production - RCWD Well 152



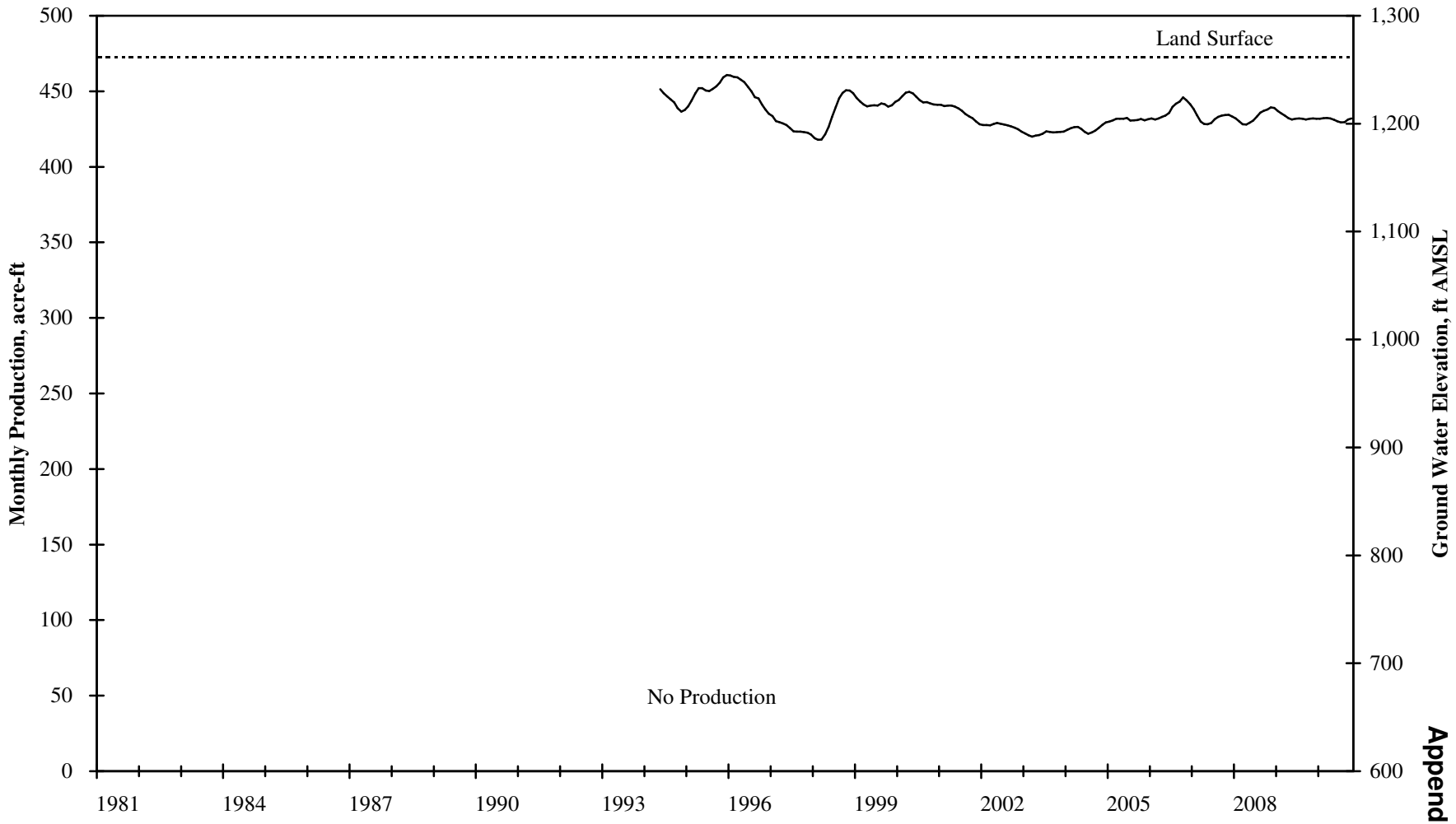
Appendix A

Long-Term Hydrograph and Production - RCWD Well 153



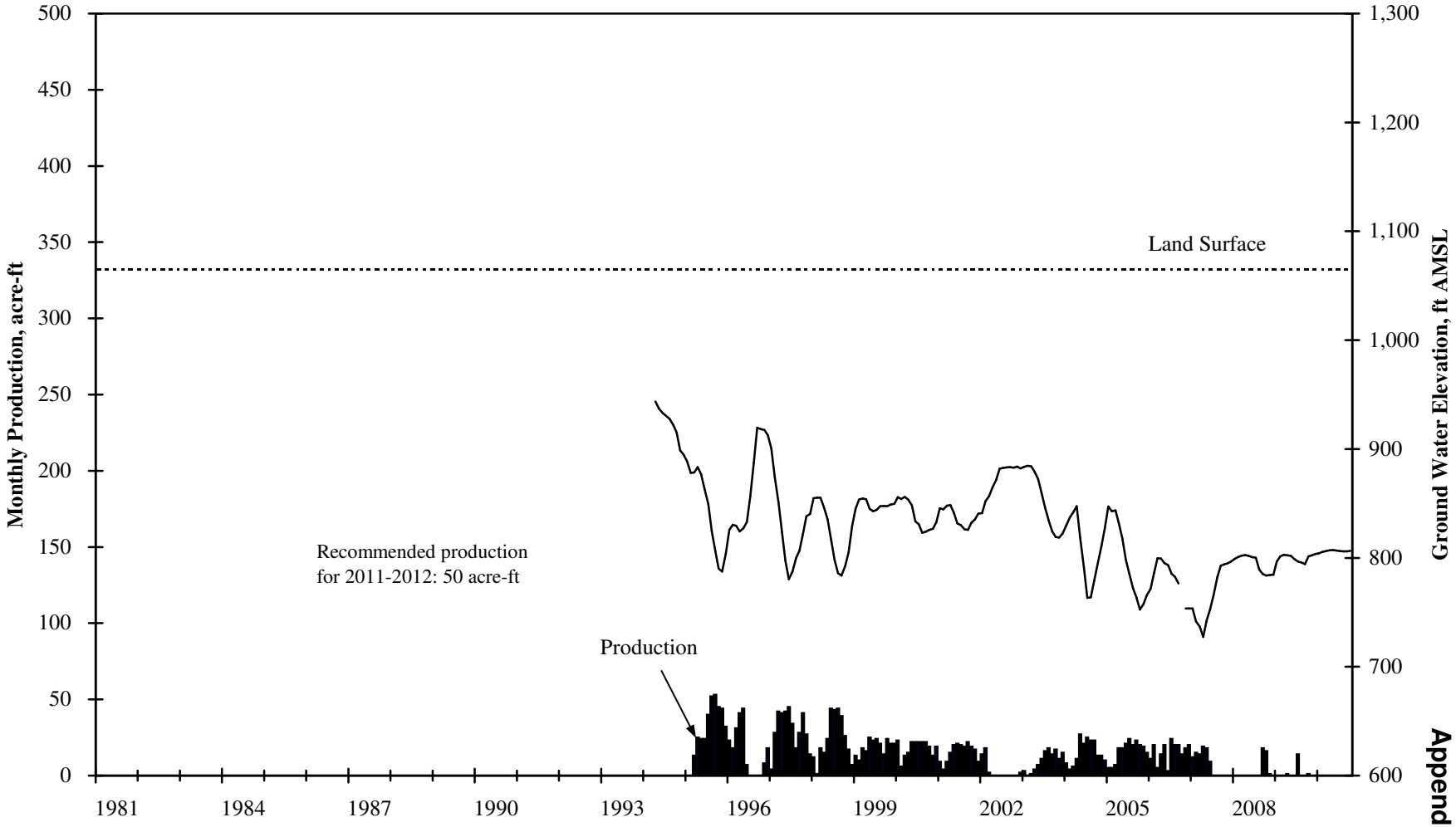
Appendix A

Long-Term Hydrograph and Production - RCWD Well 154



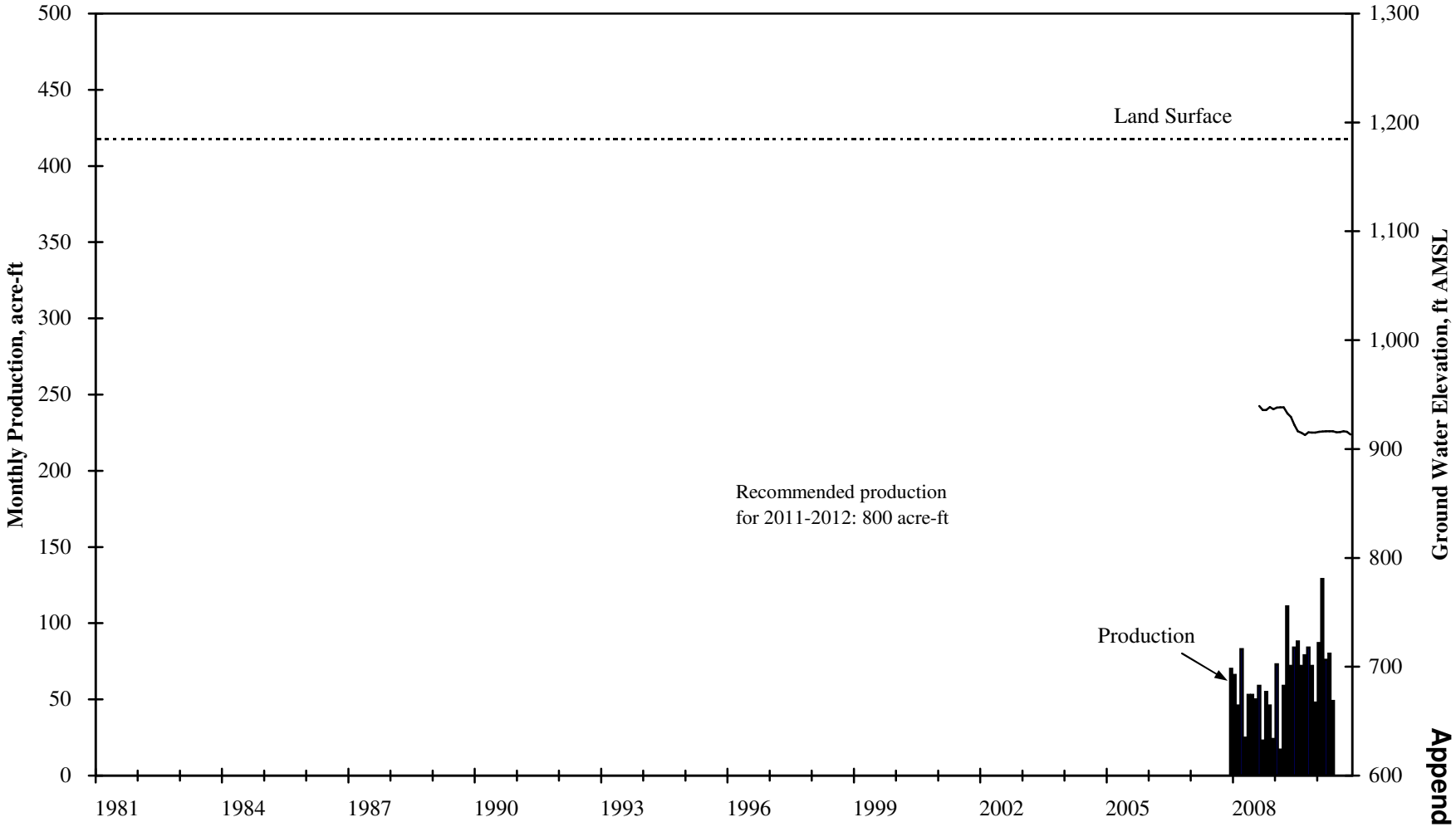
Appendix A

Long-Term Hydrograph and Production - RCWD Well 155



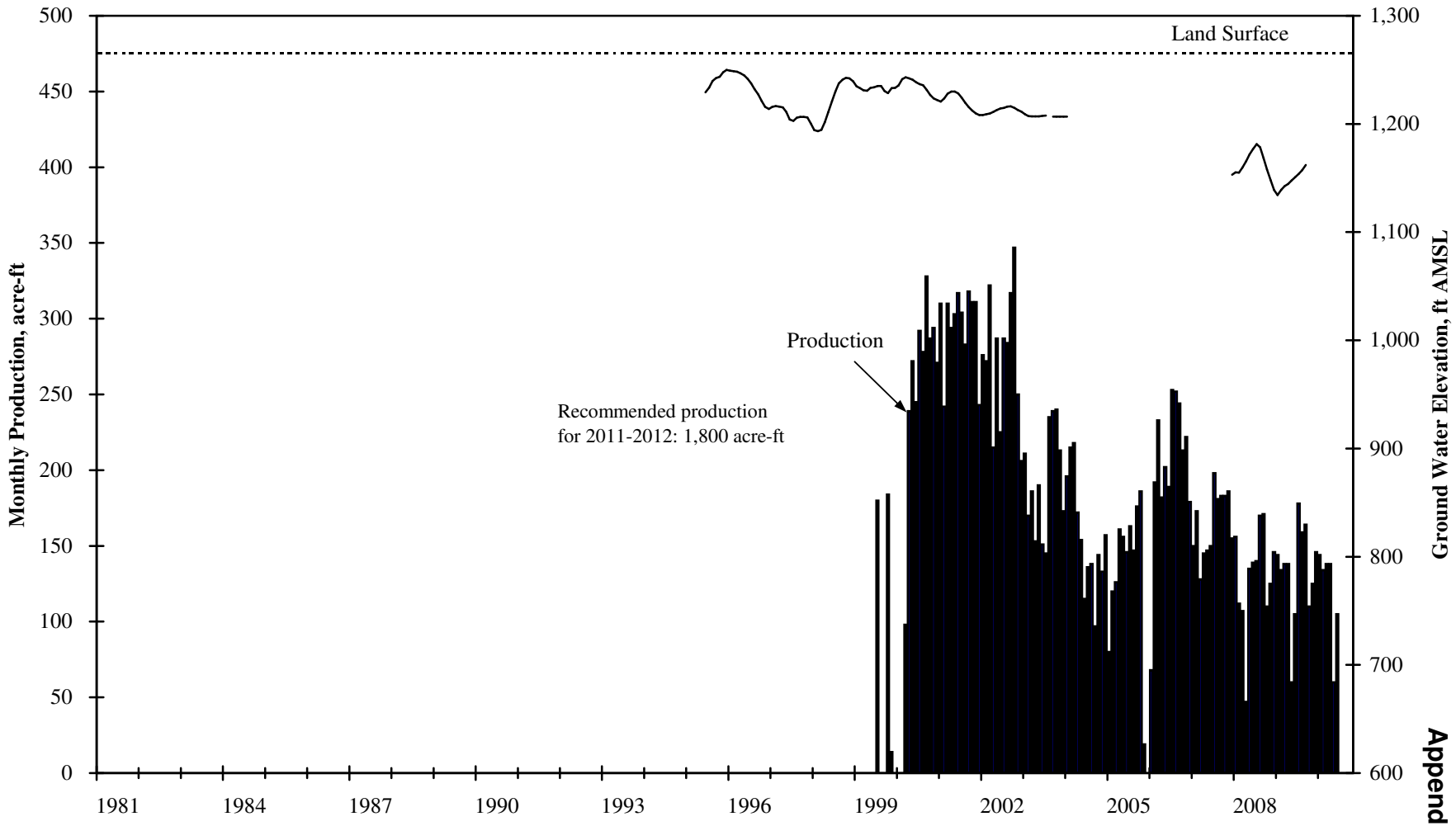
Appendix A

Long-Term Hydrograph and Production - RCWD Well 156



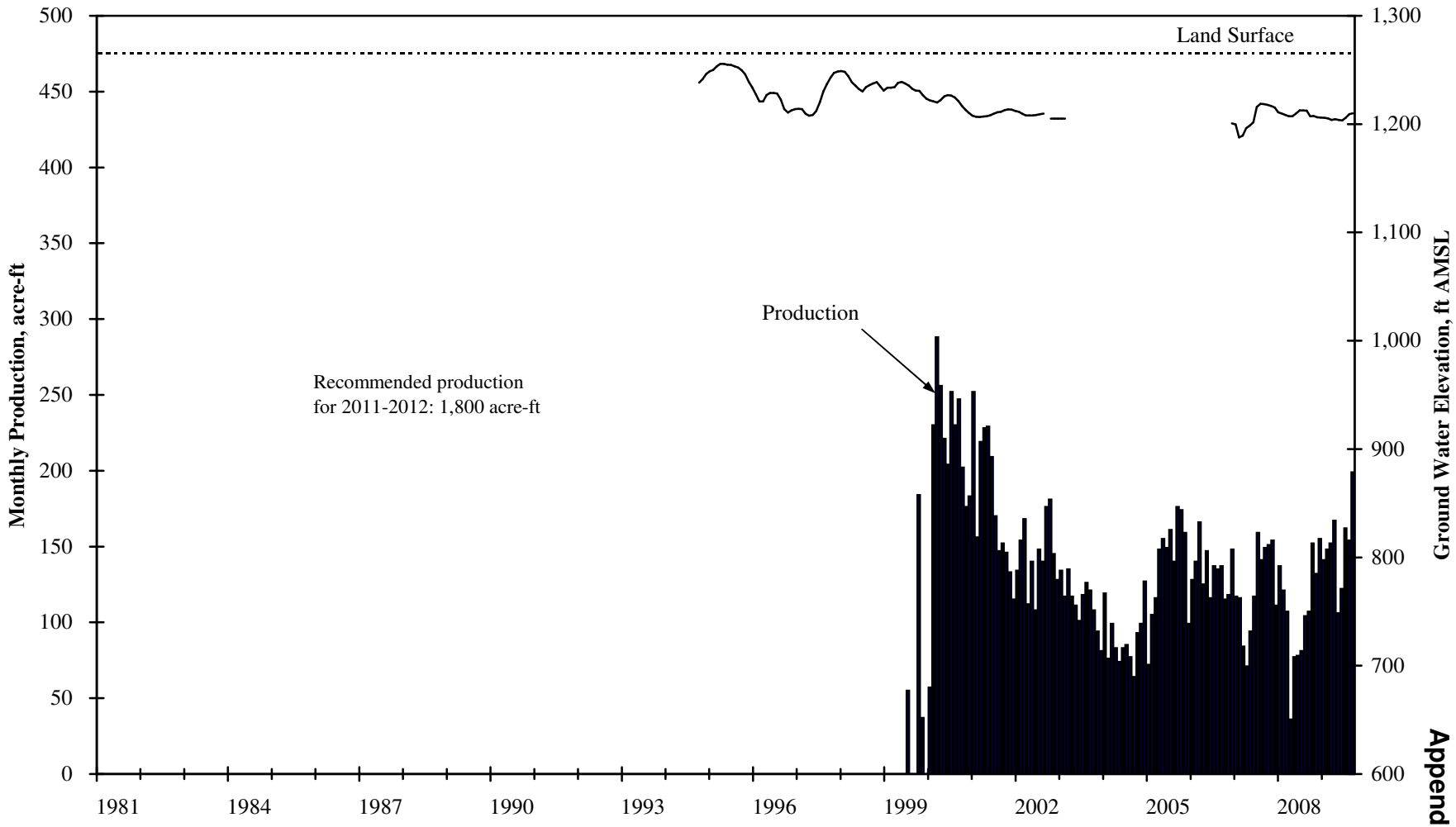
Appendix A

Long-Term Hydrograph and Production - RCWD Well 157



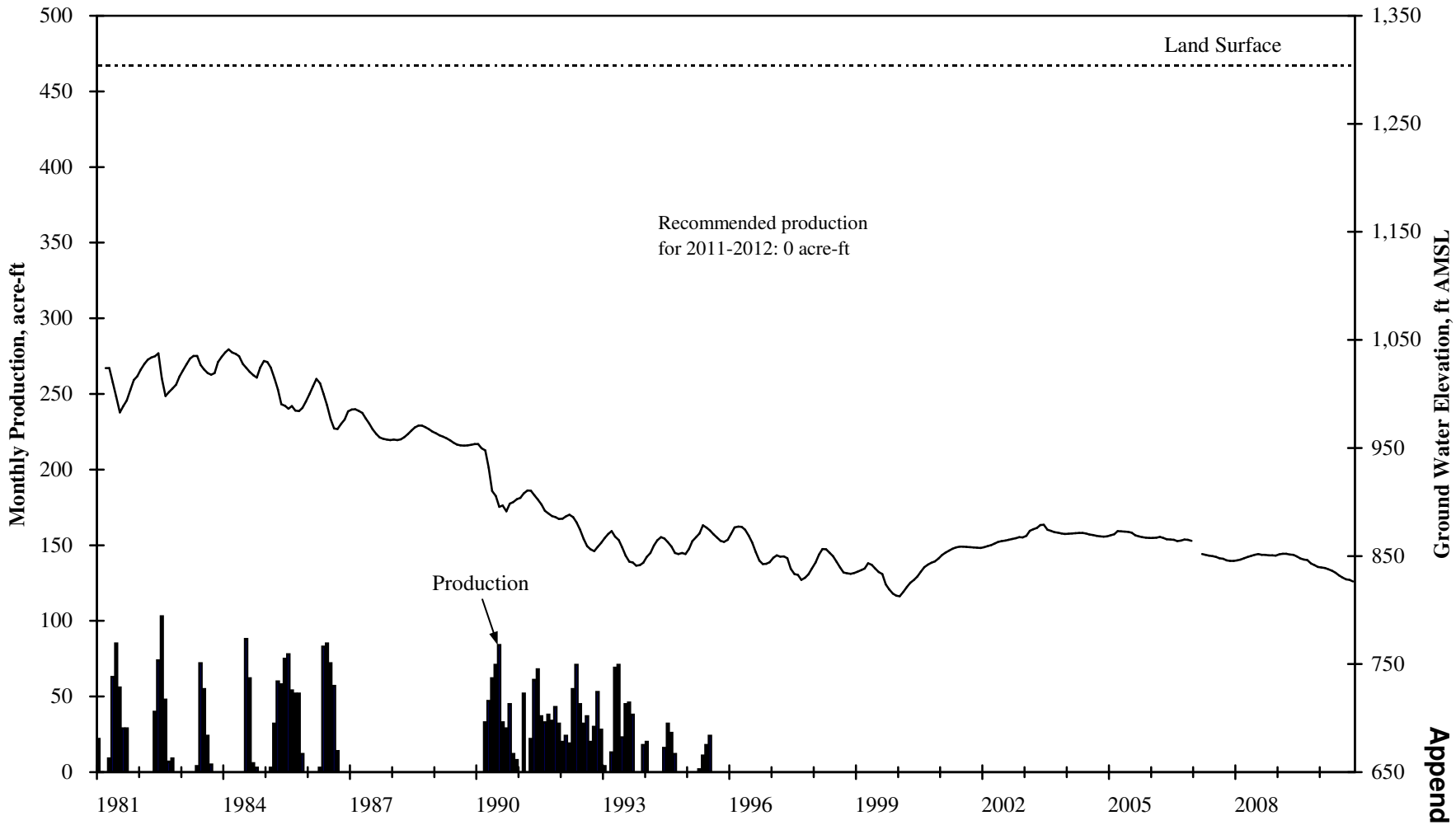
Appendix A

Long-Term Hydrograph and Production - RCWD Well 158



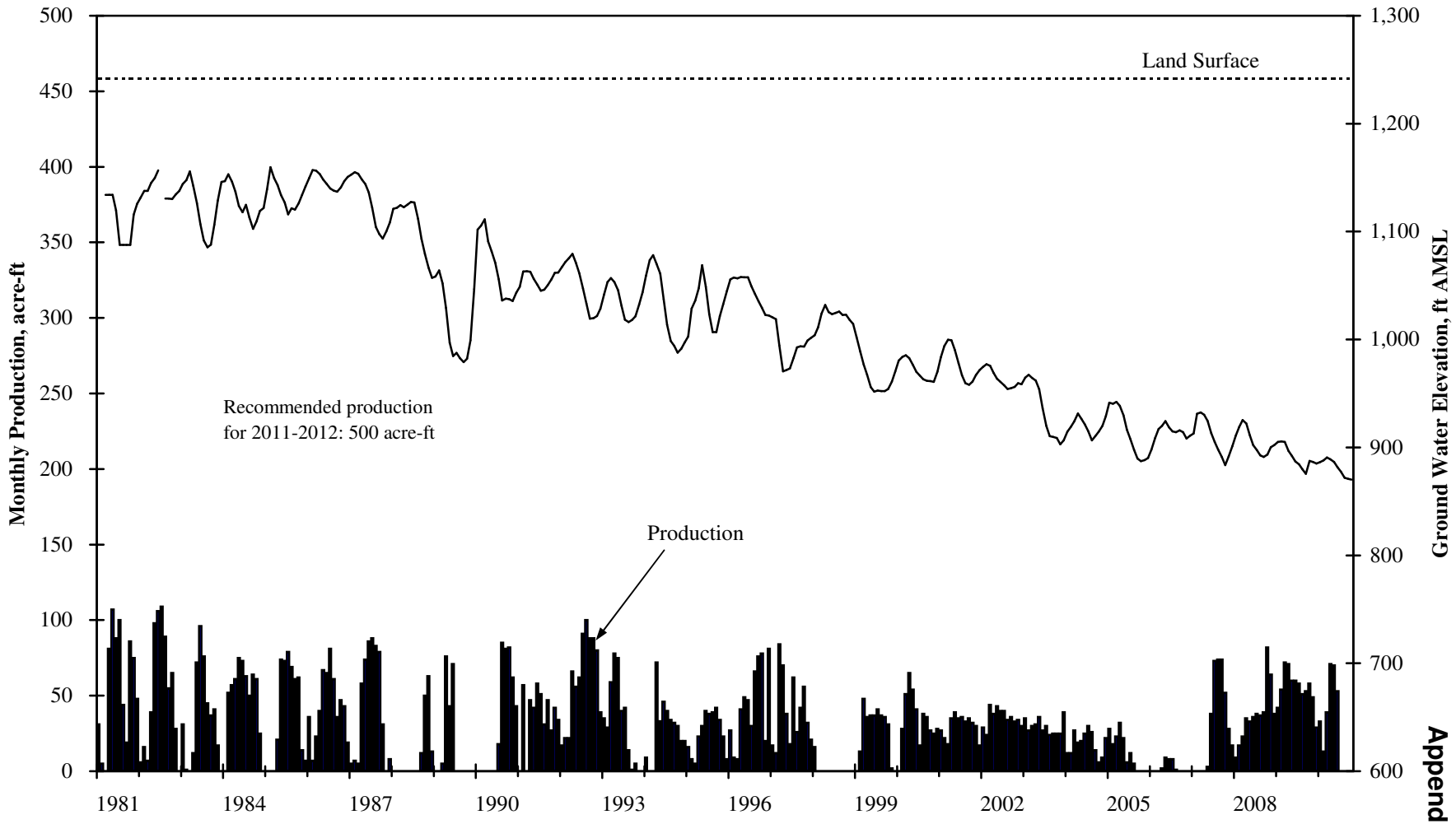
Appendix A

Long-Term Hydrograph and Production - RCWD Well 201



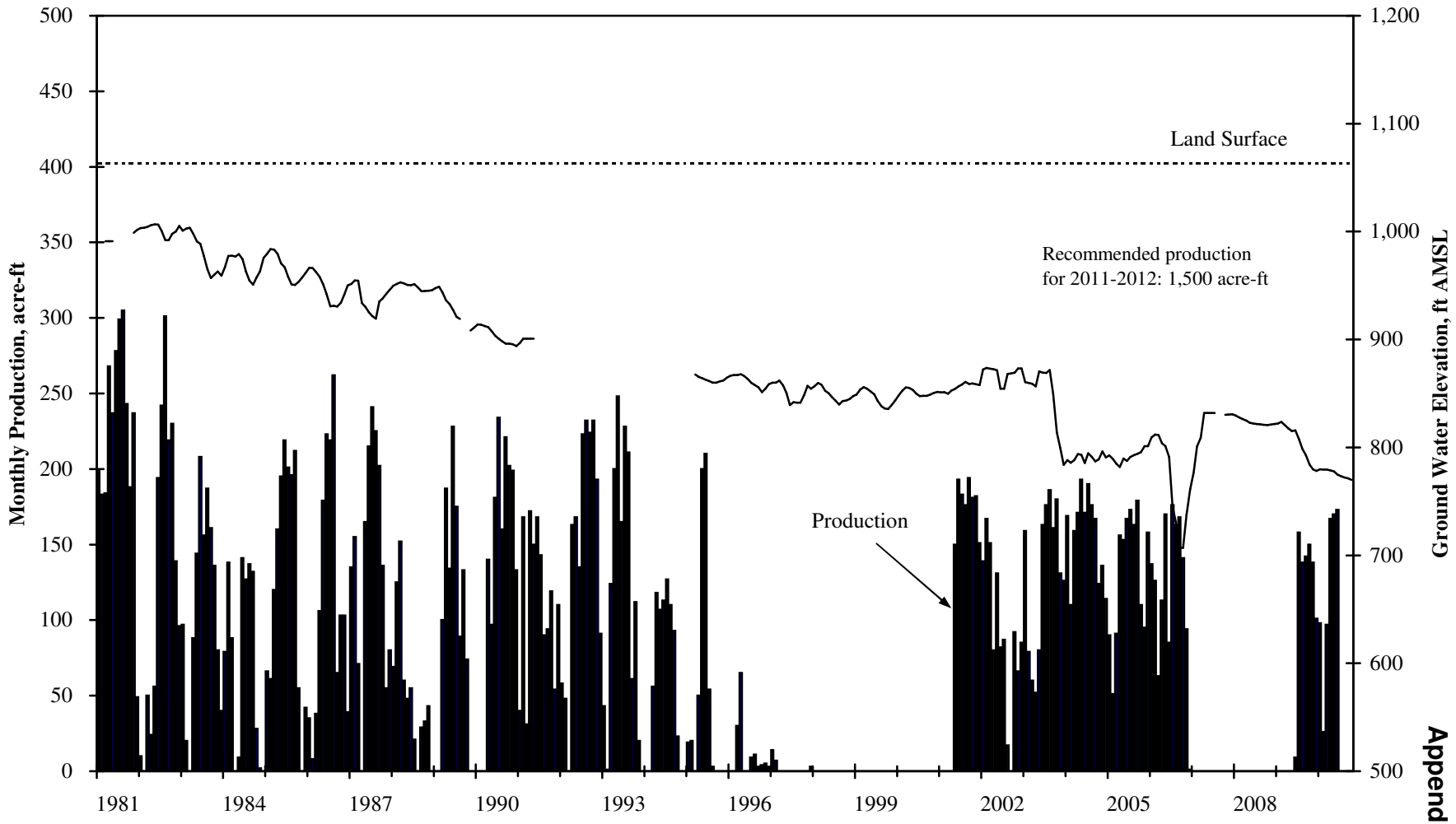
Appendix A

Long-Term Hydrograph and Production - RCWD Well 203



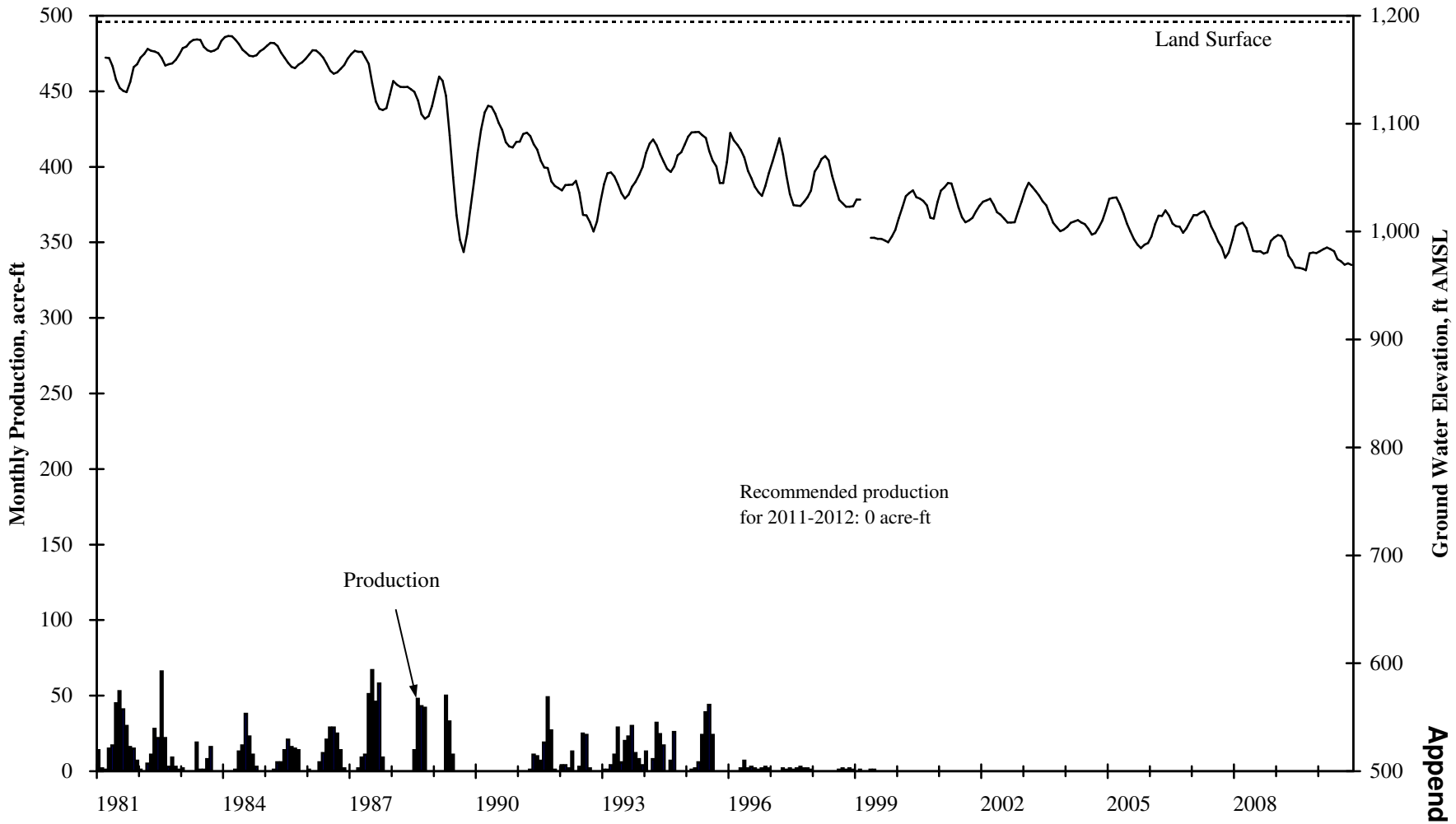
Appendix A

Long-Term Hydrograph and Production - RCWD Well 205



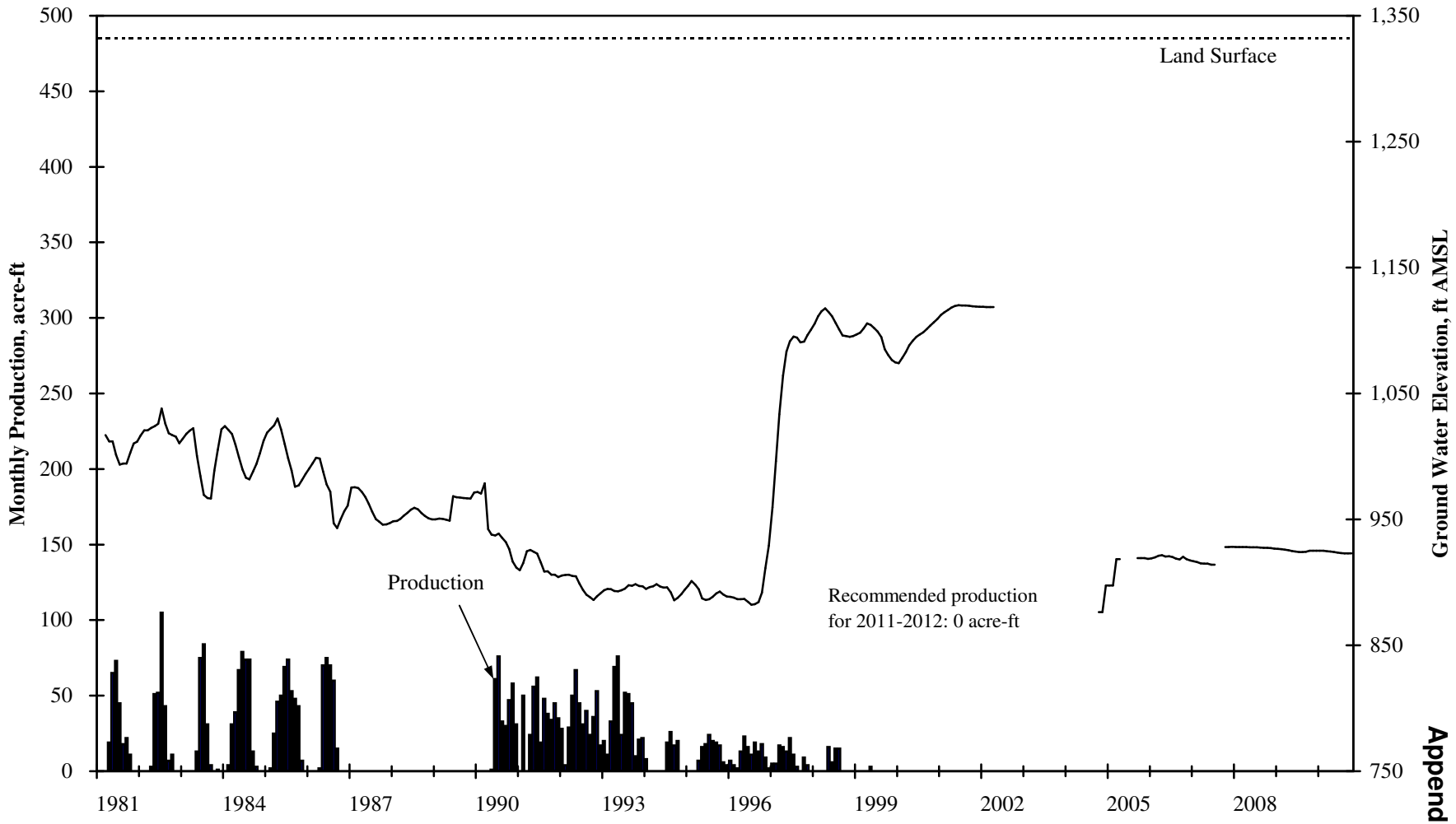
Appendix A

Long-Term Hydrograph and Production - RCWD Well 207



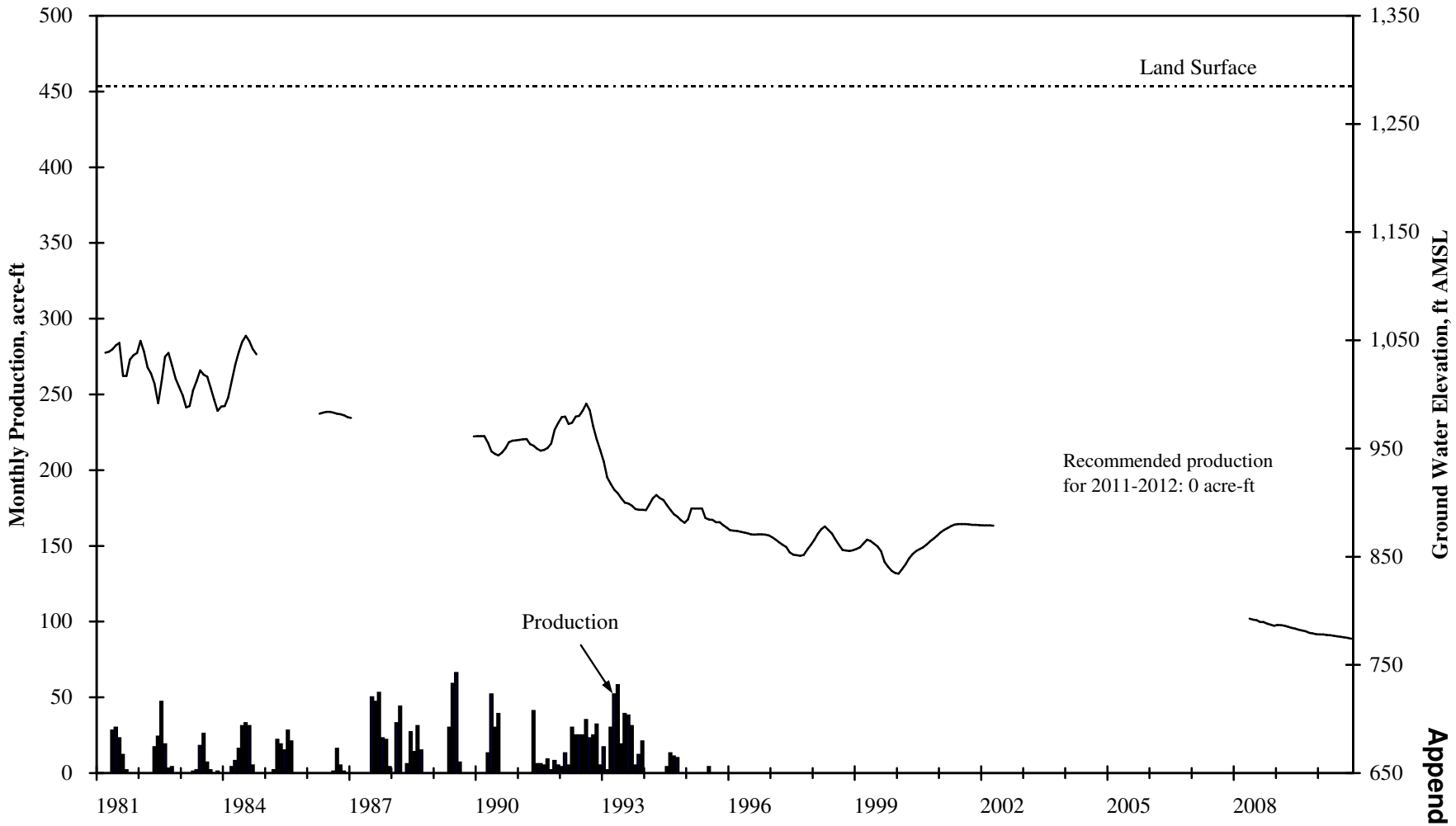
Appendix A

Long-Term Hydrograph and Production - RCWD Well 208



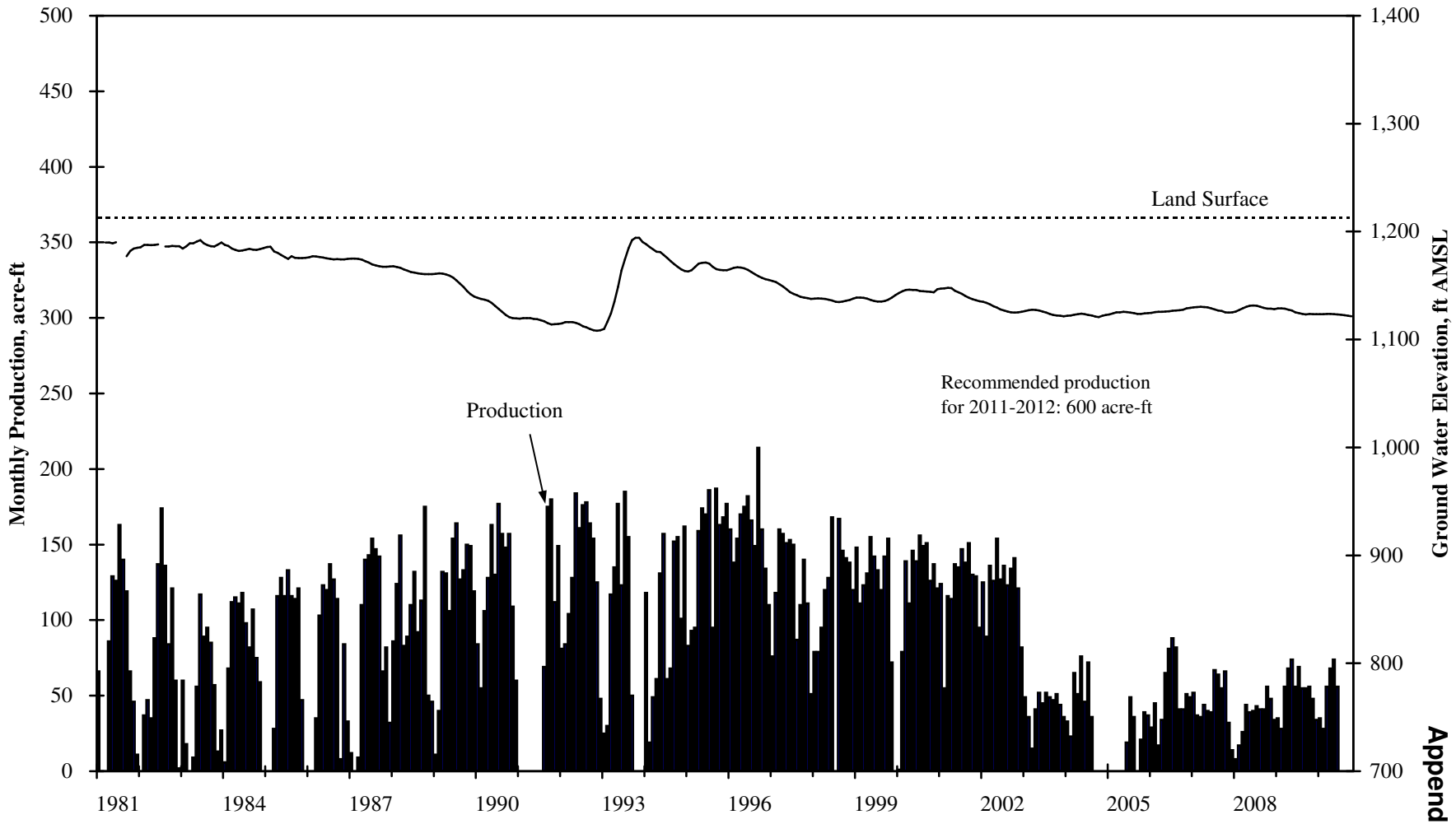
Appendix A

Long-Term Hydrograph and Production - RCWD Well 209



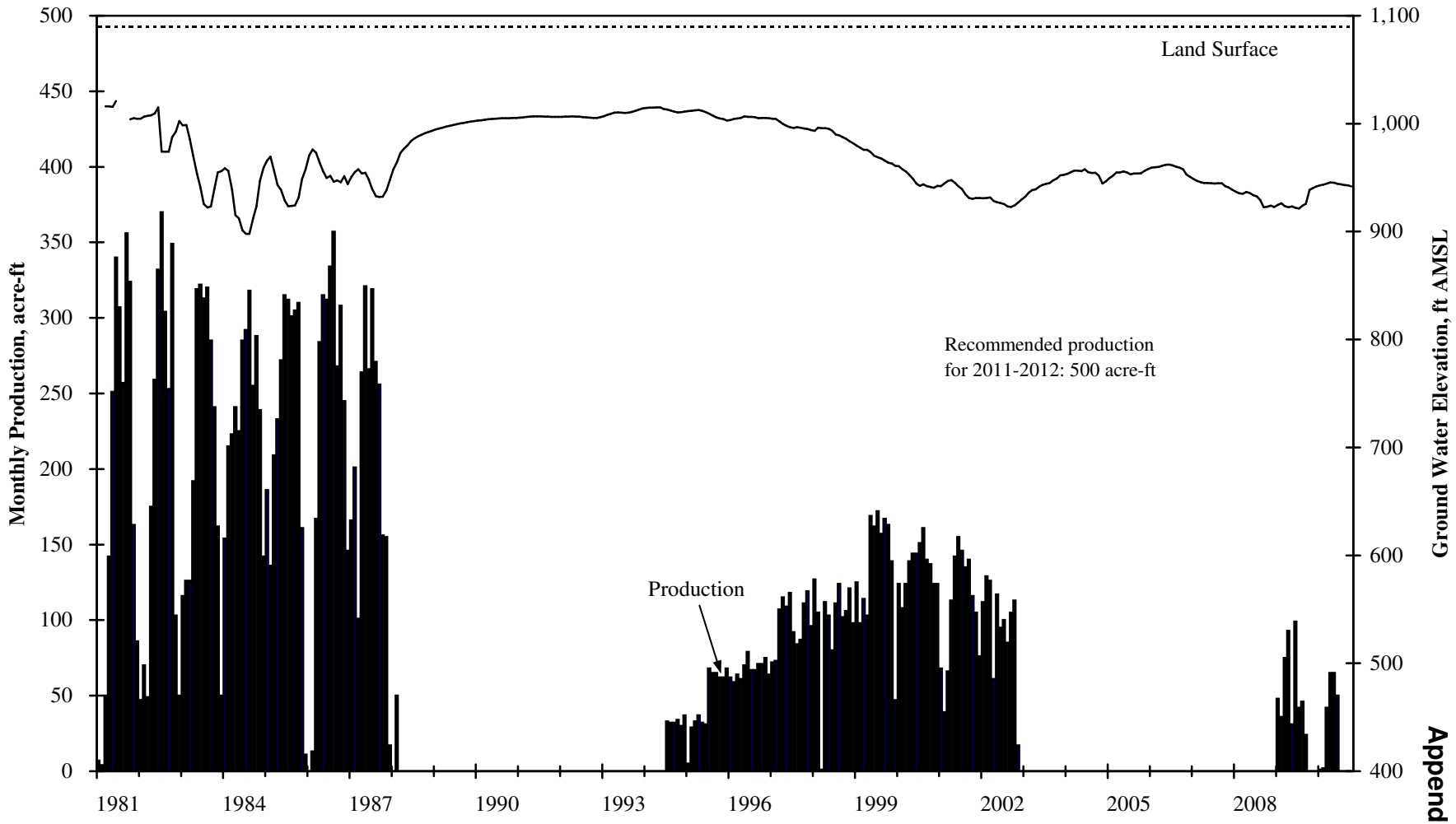
Appendix A

Long-Term Hydrograph and Production - RCWD Well 210



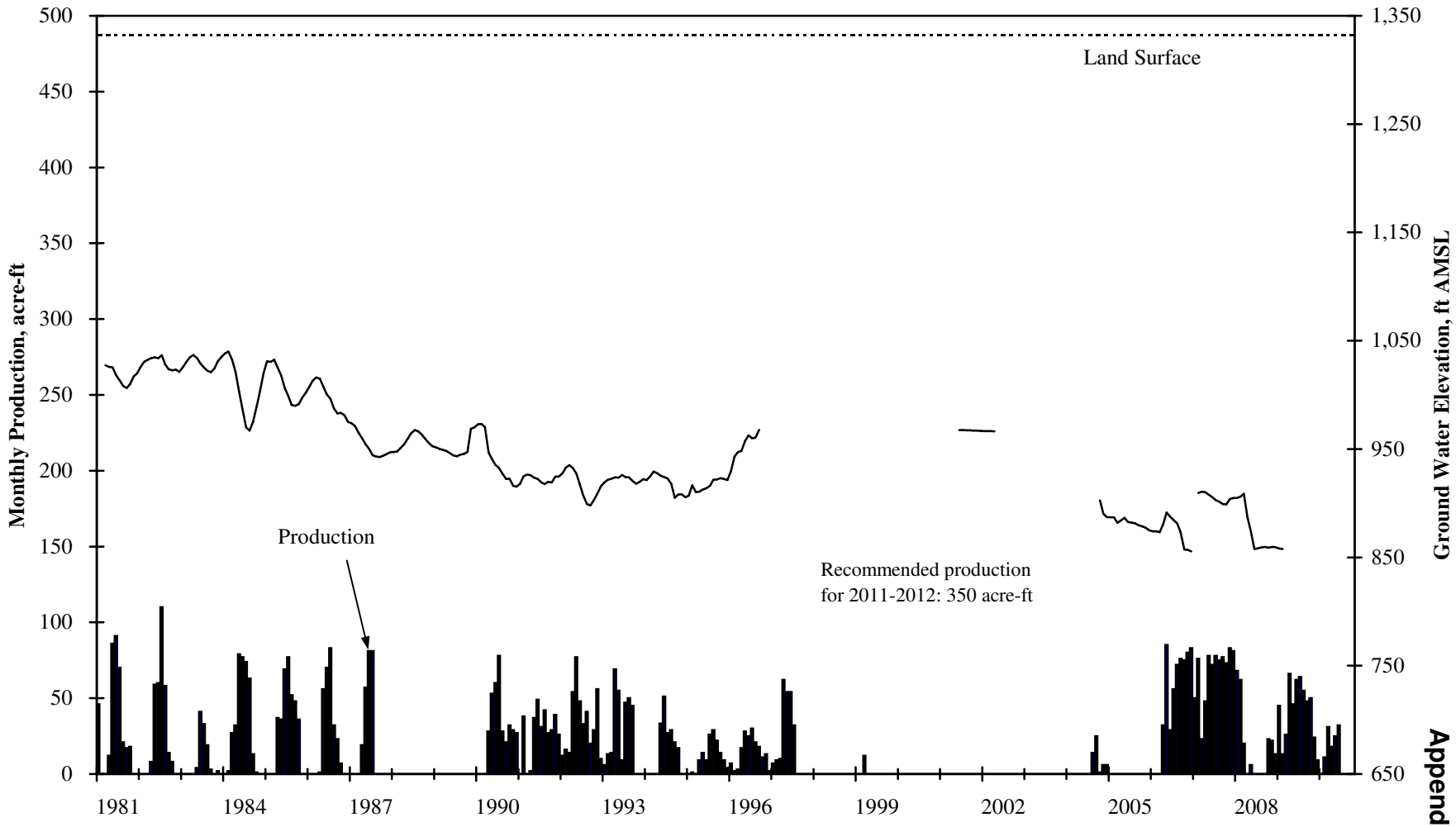
Appendix A

Long-Term Hydrograph and Production - RCWD Well 211



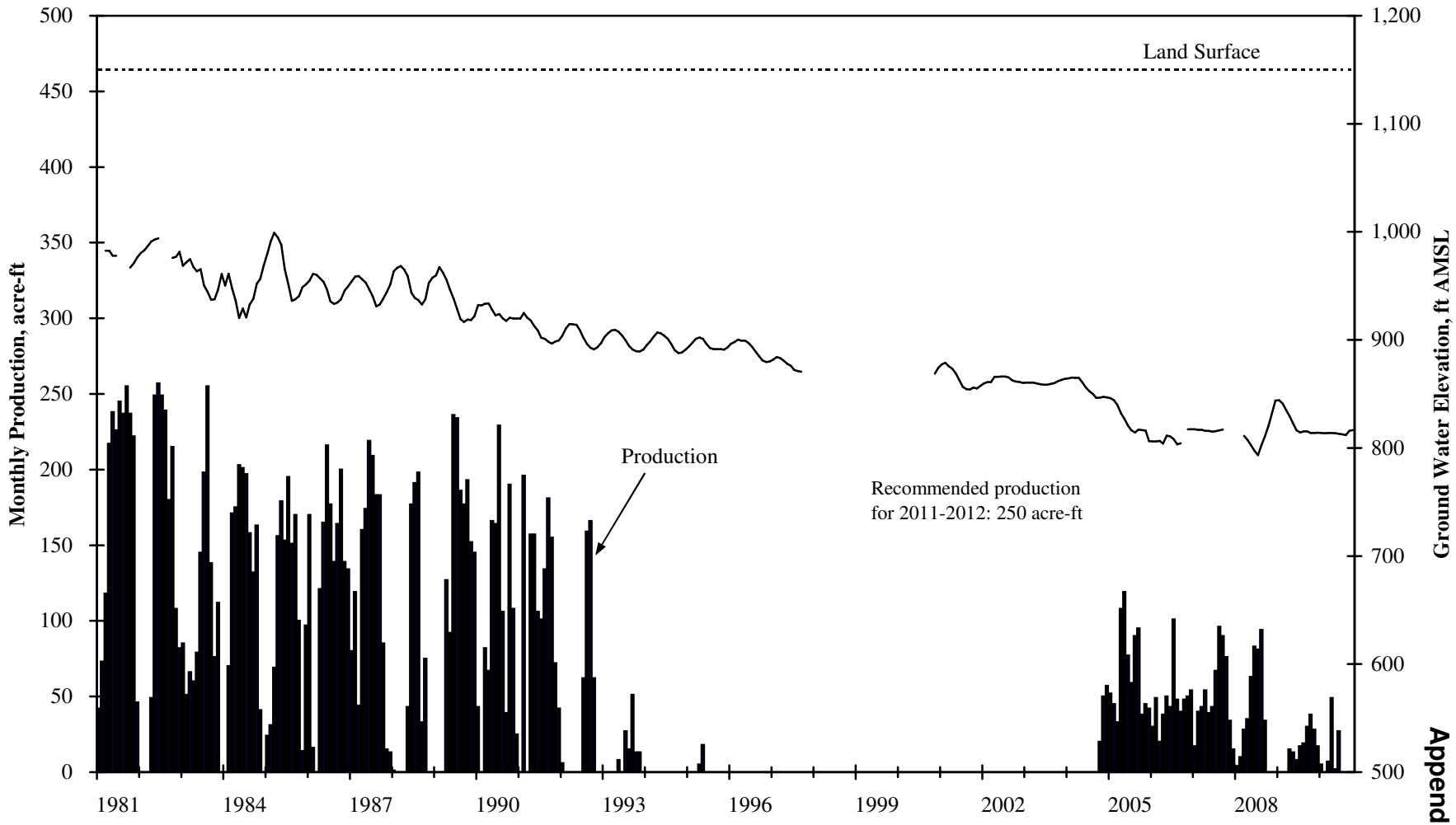
Appendix A

Long-Term Hydrograph and Production - RCWD Well 215



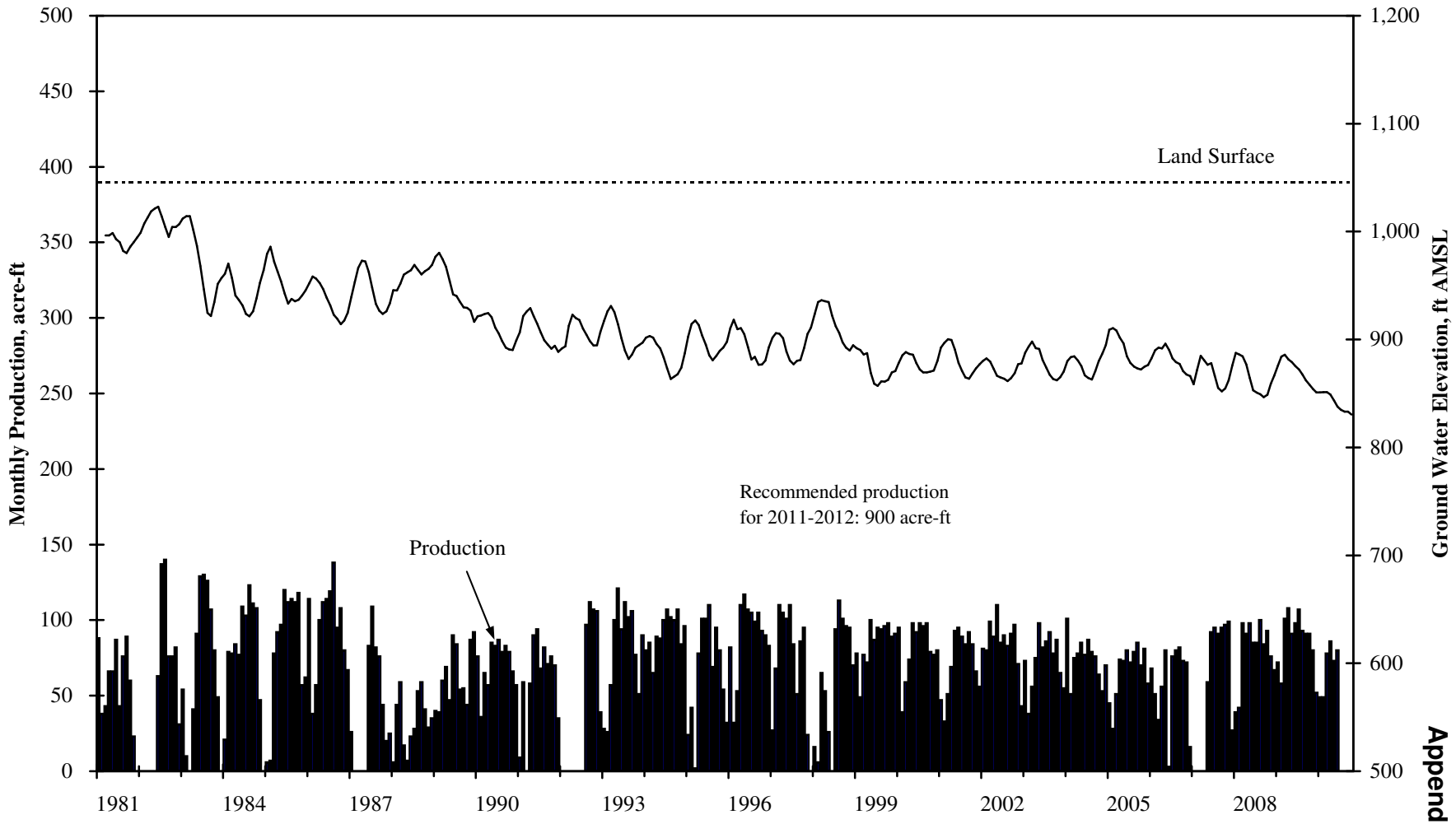
Appendix A

Long-Term Hydrograph and Production - RCWD Well 216



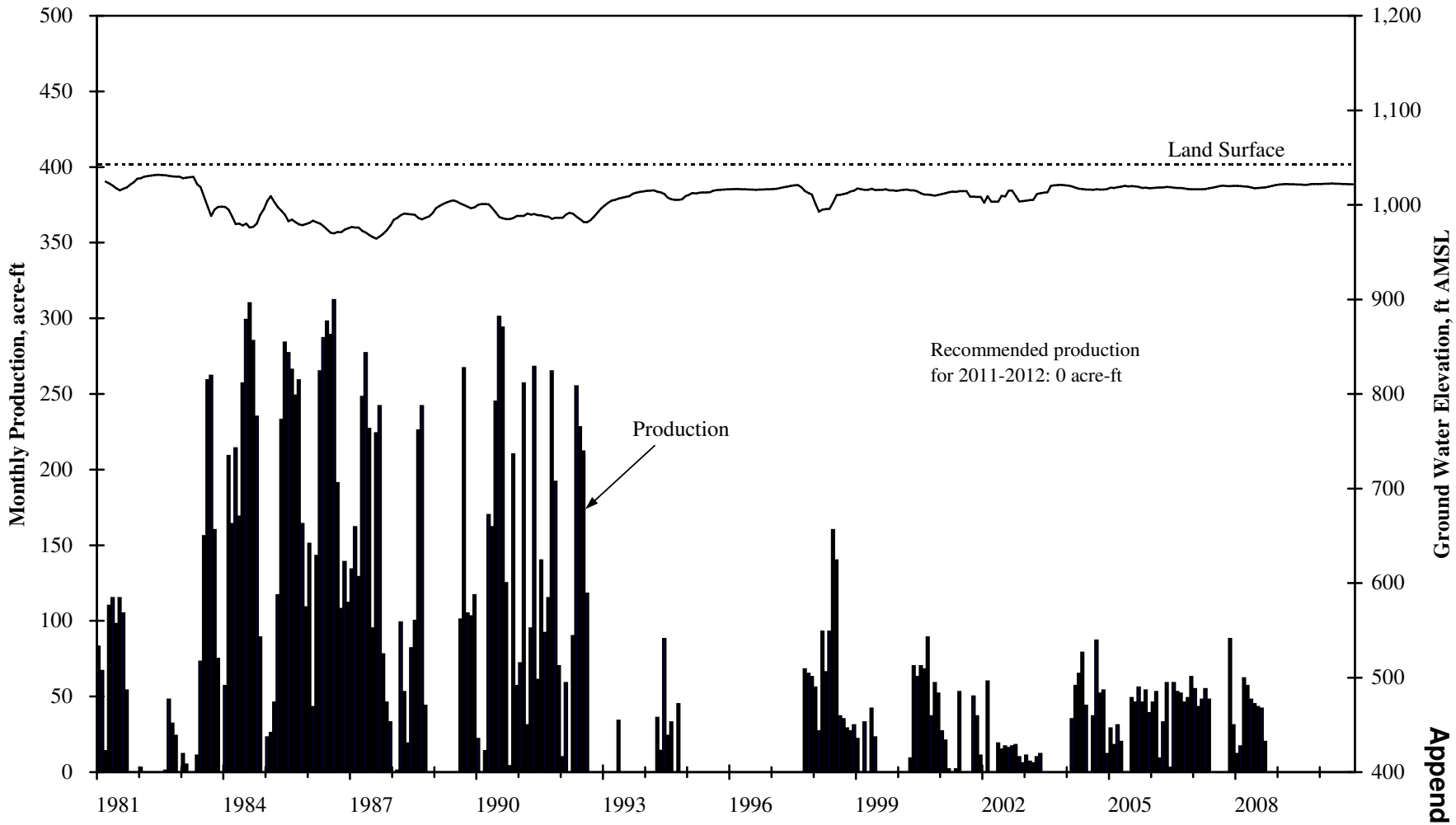
Appendix A

Long-Term Hydrograph and Production - RCWD Well 217



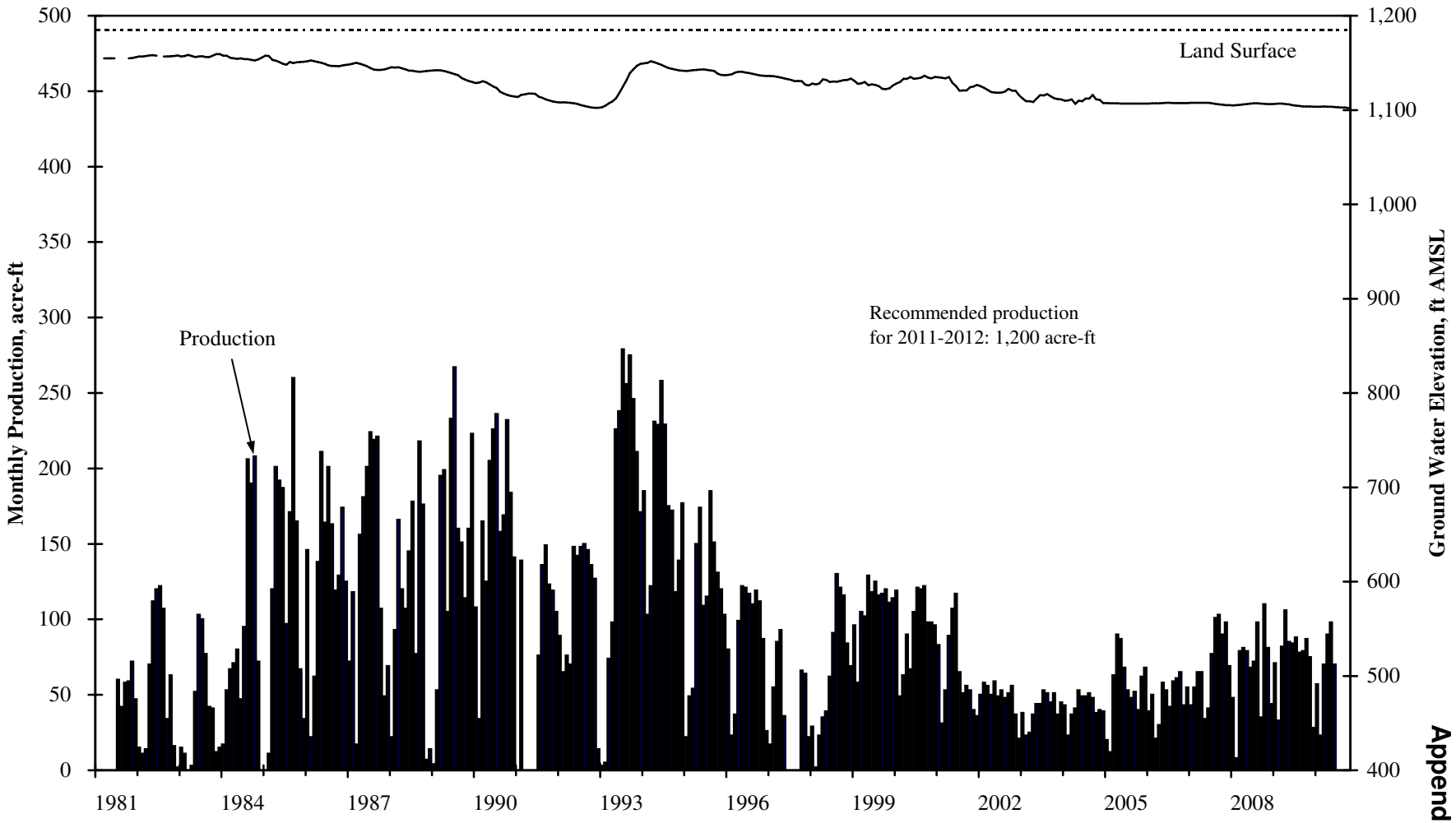
Appendix A

Long-Term Hydrograph and Production - RCWD Well 231



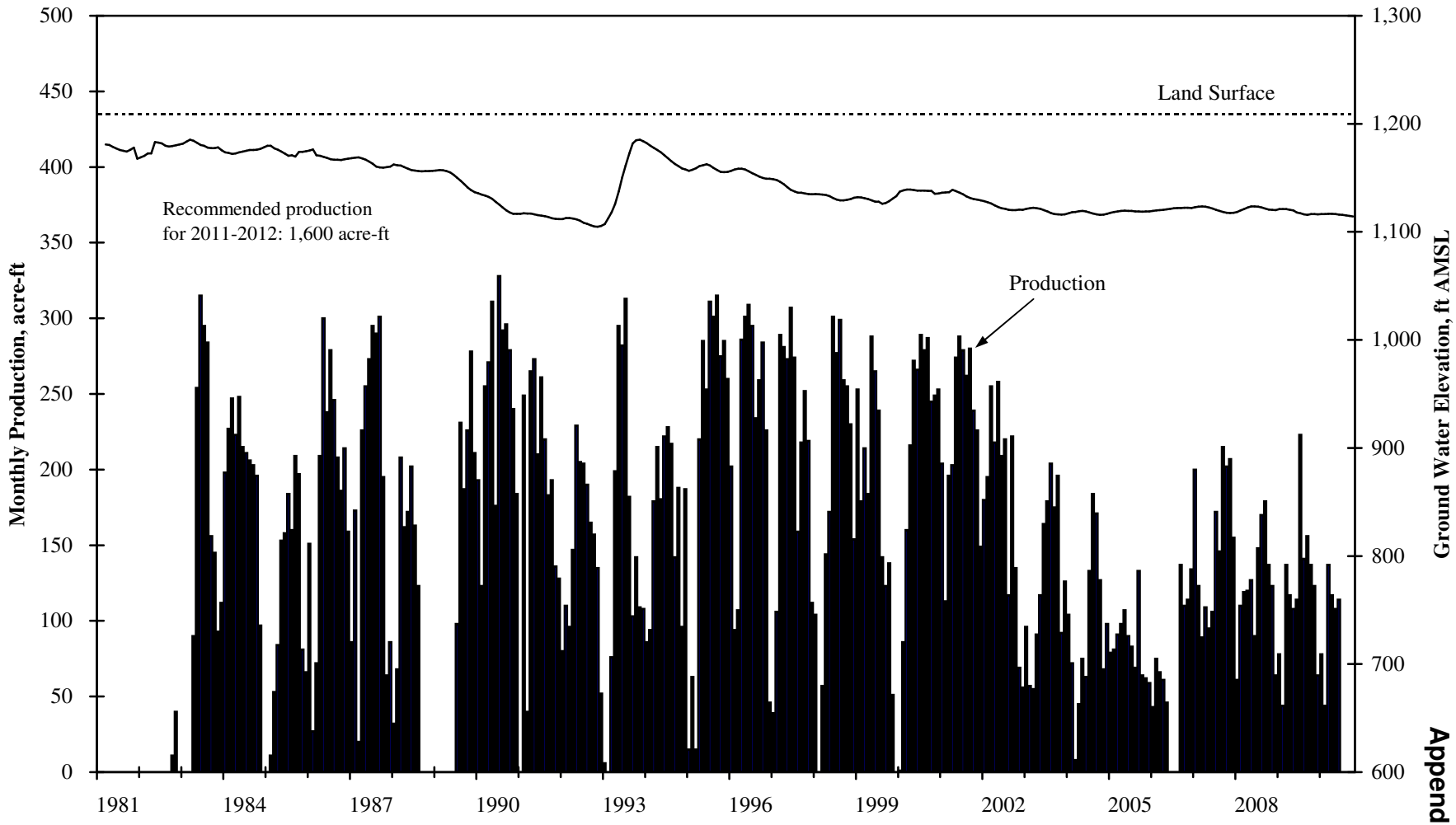
Appendix A

Long-Term Hydrograph and Production - RCWD Well 232



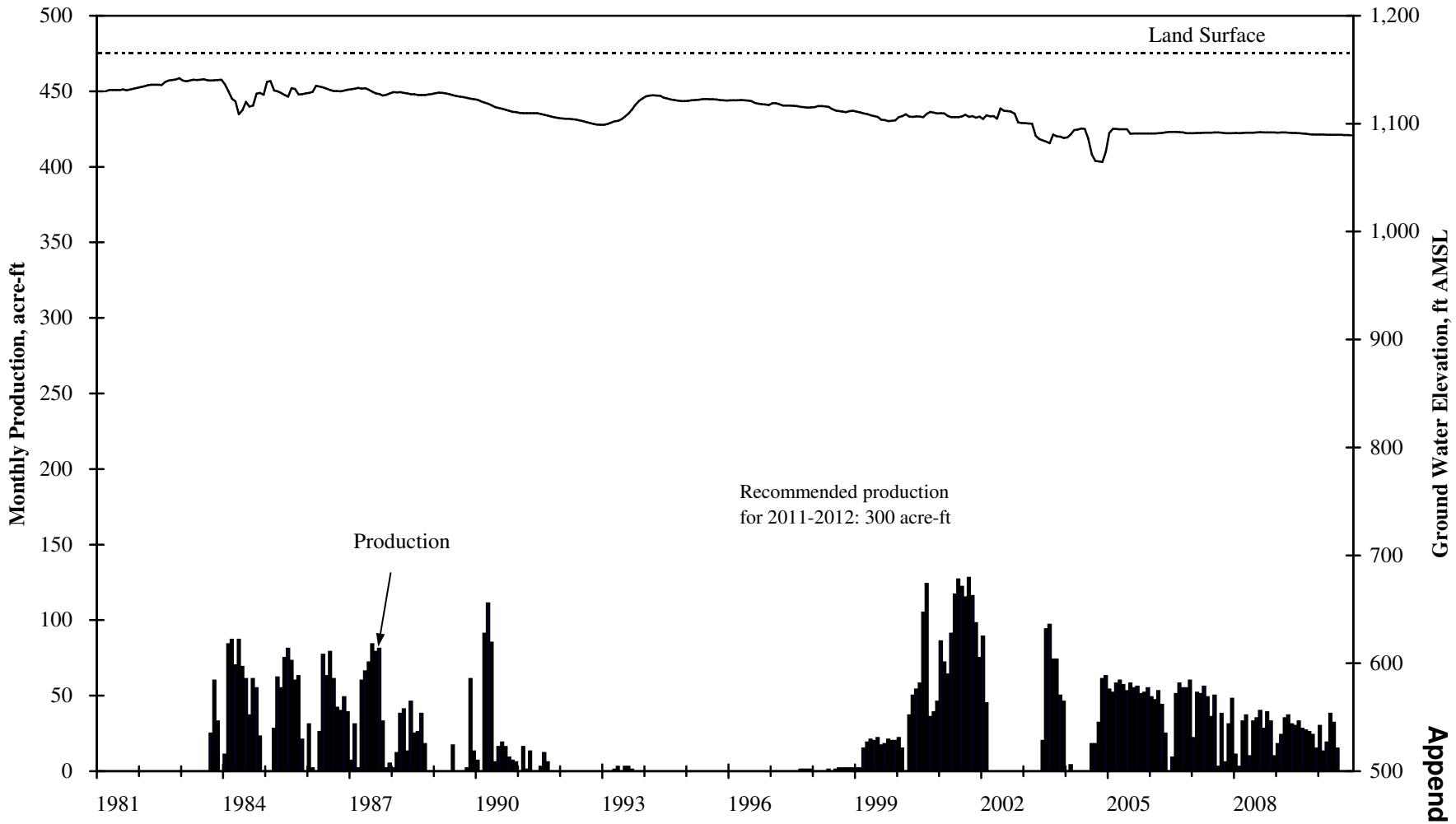
Appendix A

Long-Term Hydrograph and Production - RCWD Well 233



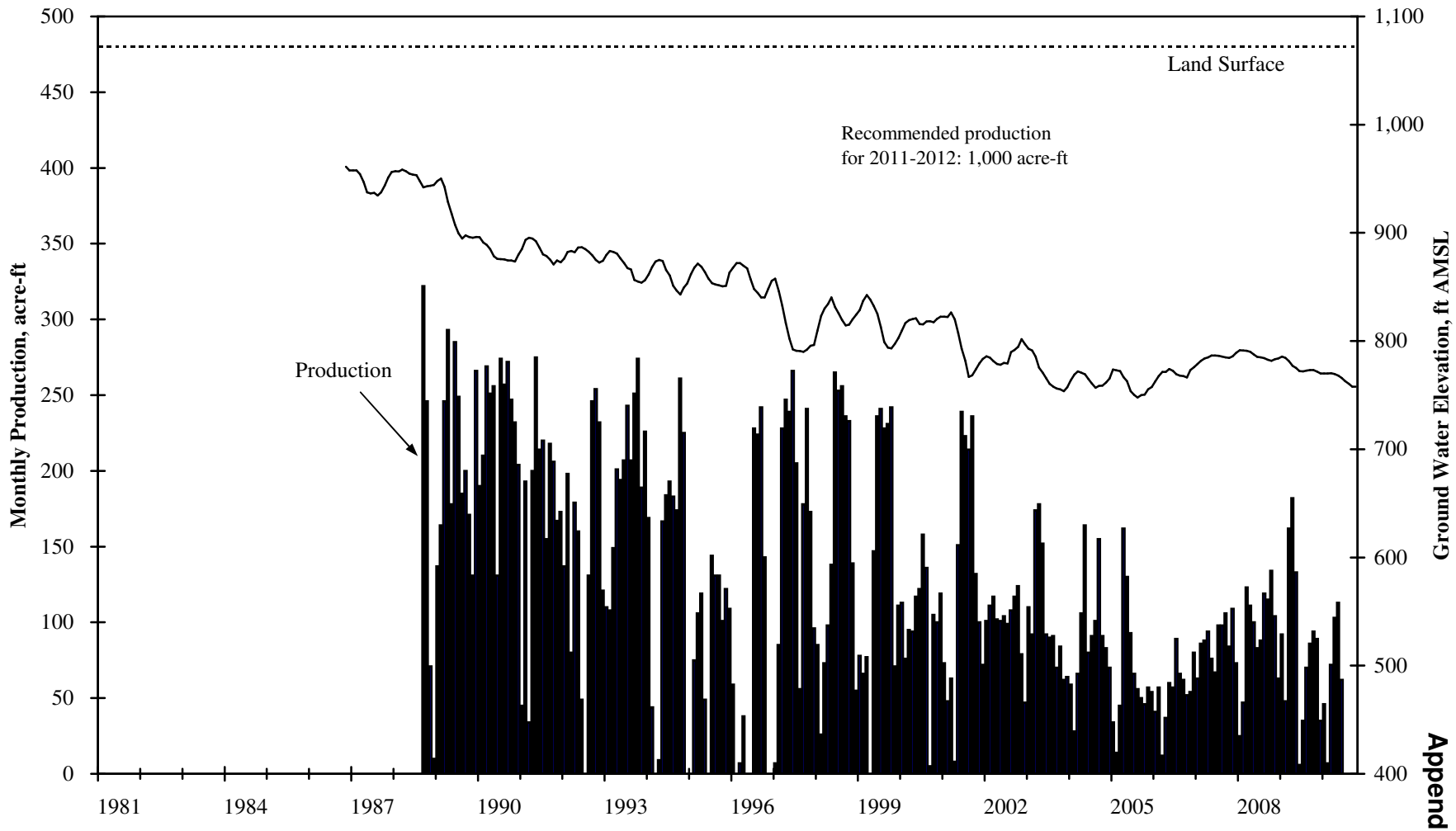
Appendix A

Long-Term Hydrograph and Production - RCWD Well 234



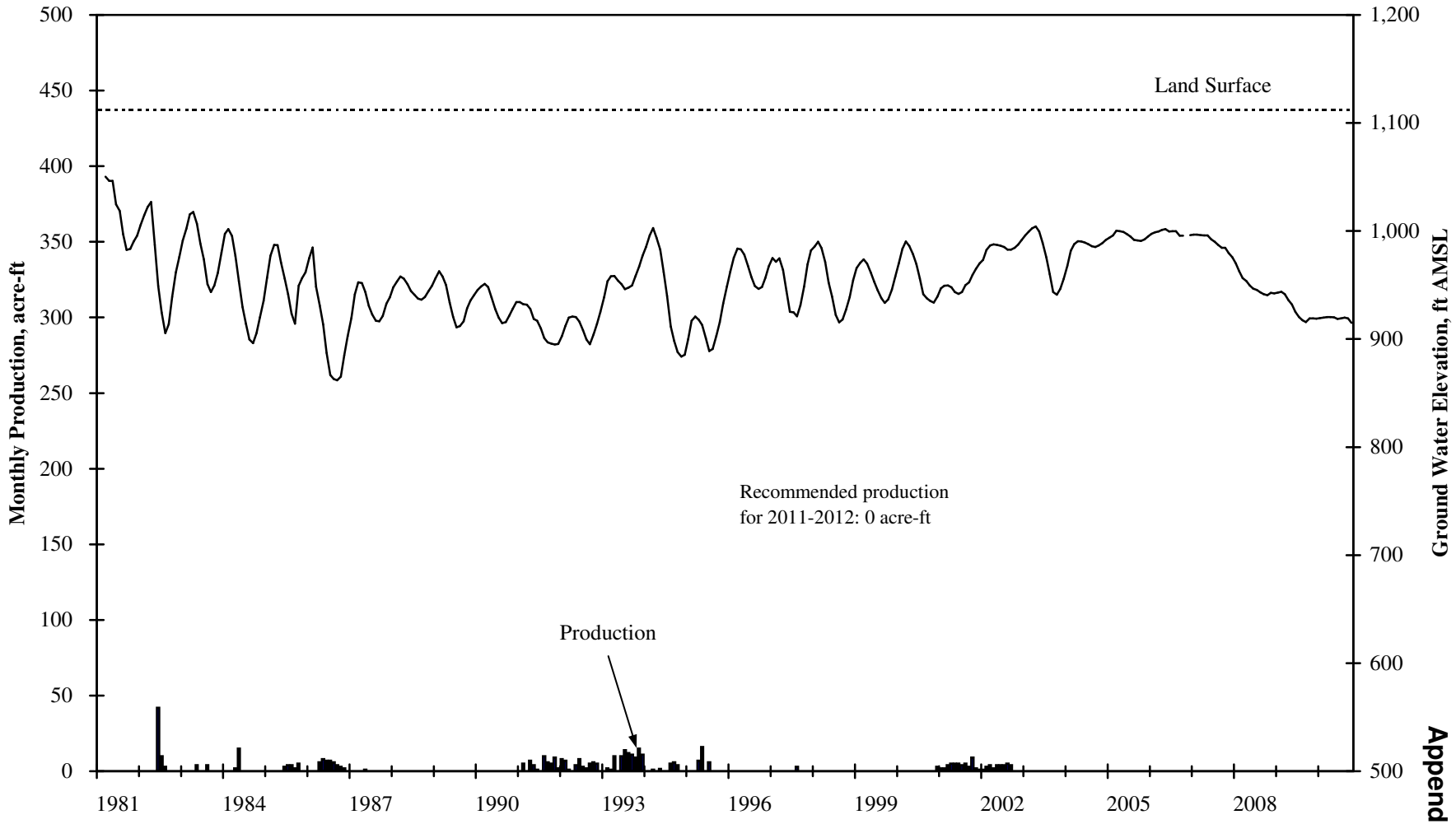
Appendix A

Long-Term Hydrograph and Production - RCWD Well 235



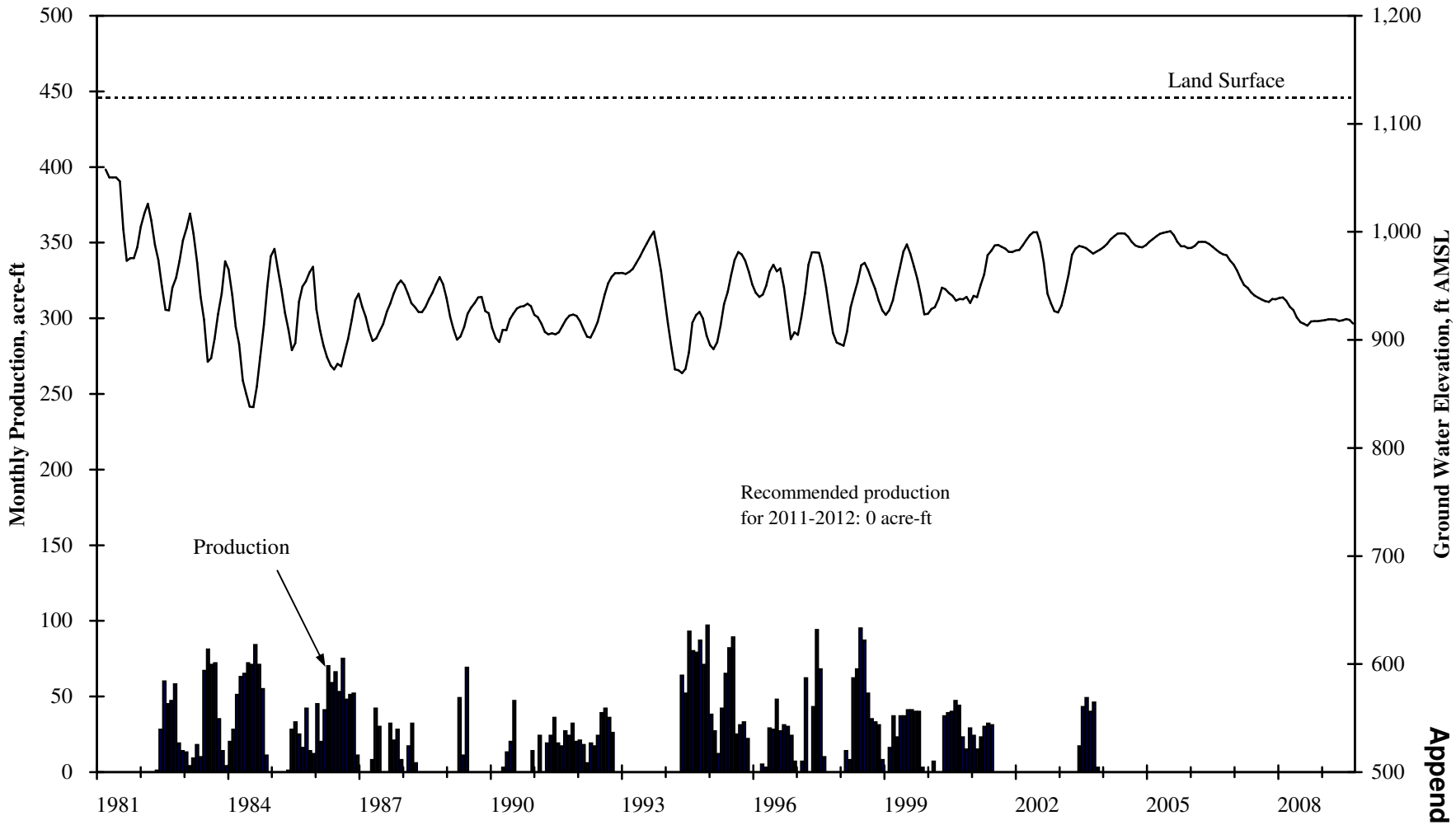
Appendix A

Long-Term Hydrograph and Production - RCWD Well 301



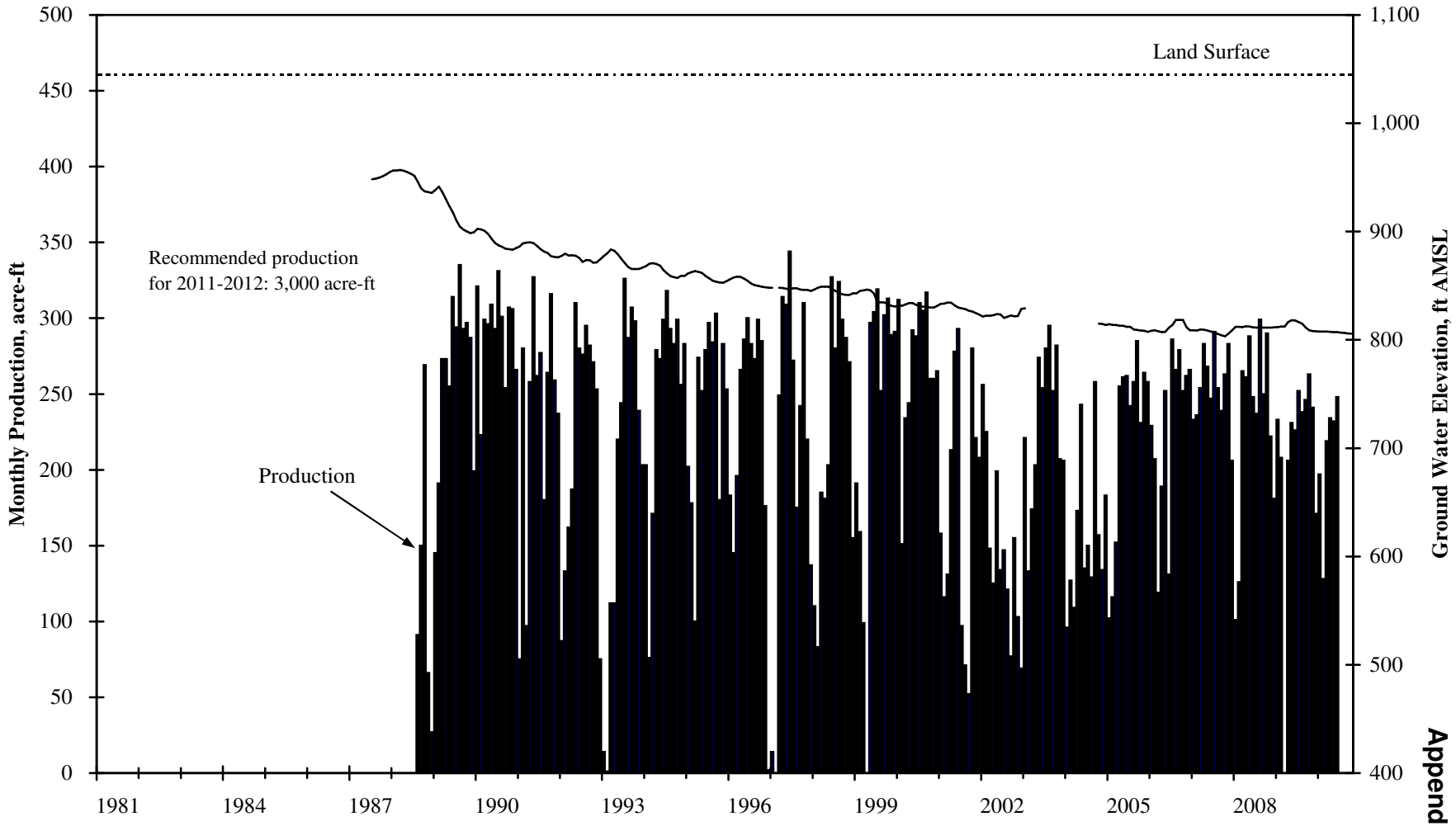
Appendix A

Long-Term Hydrograph and Production - RCWD Well 302



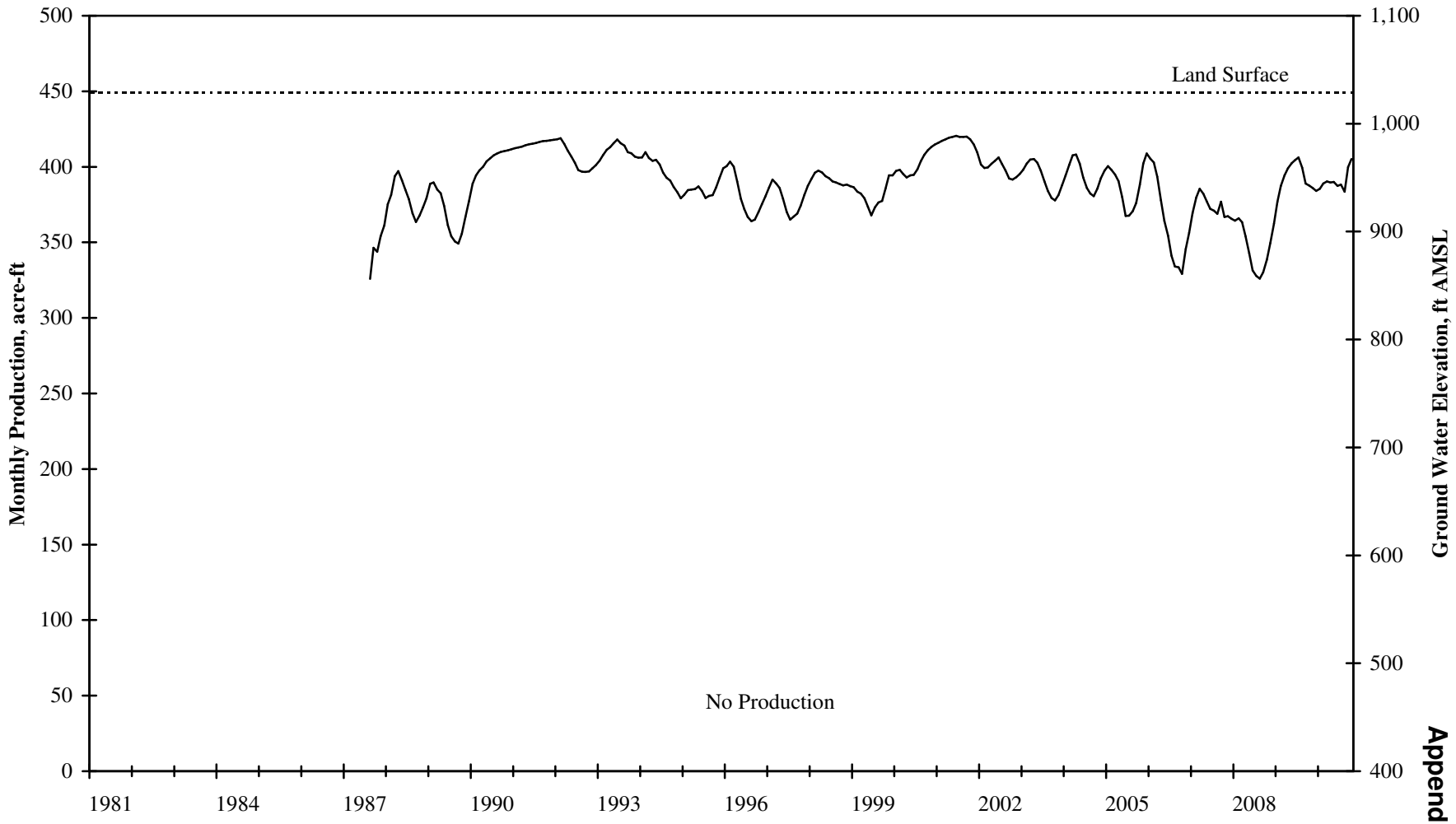
Appendix A

Long-Term Hydrograph and Production - RCWD Well 309



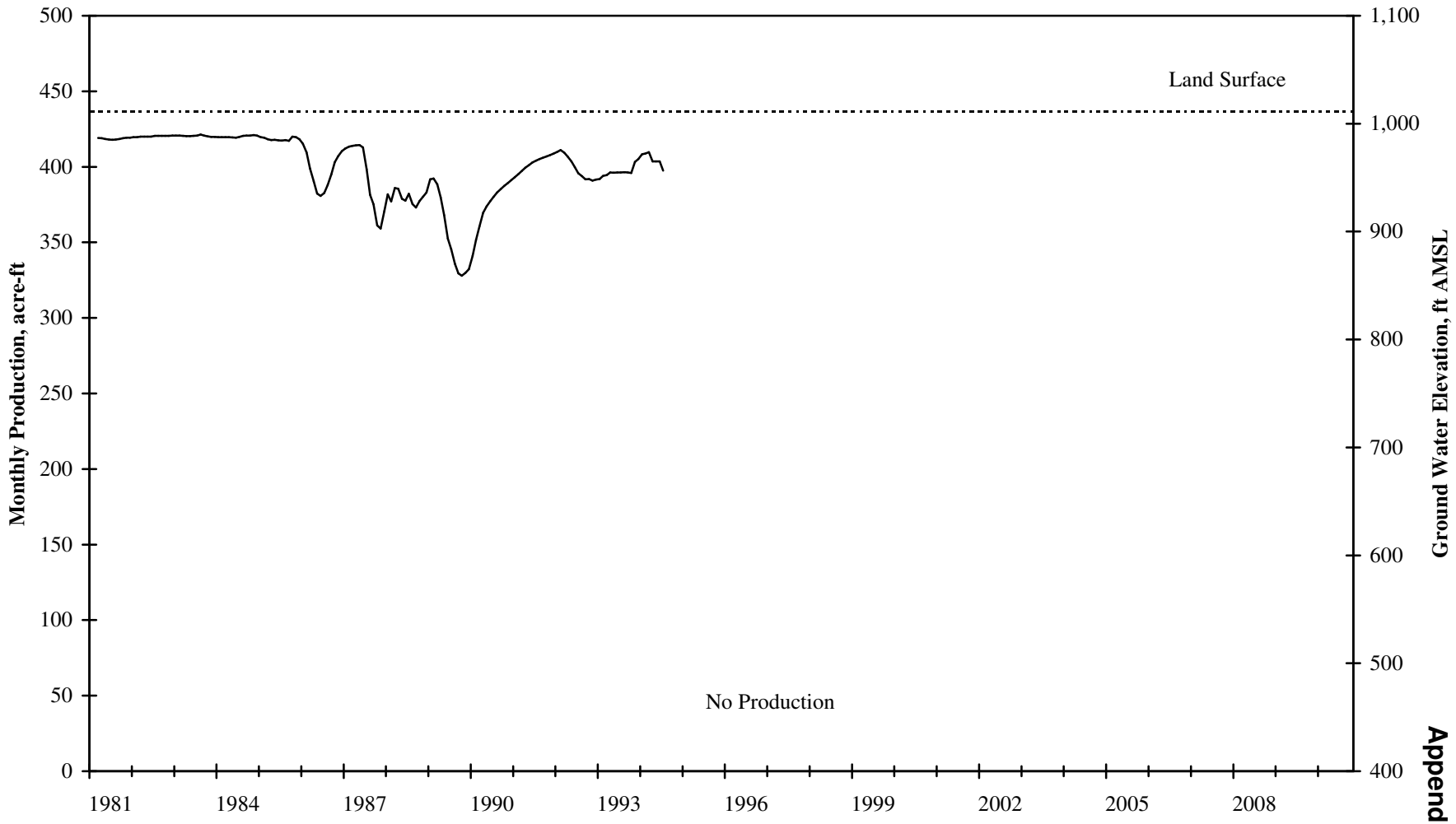
Appendix A

Long-Term Hydrograph and Production - RCWD Well 401



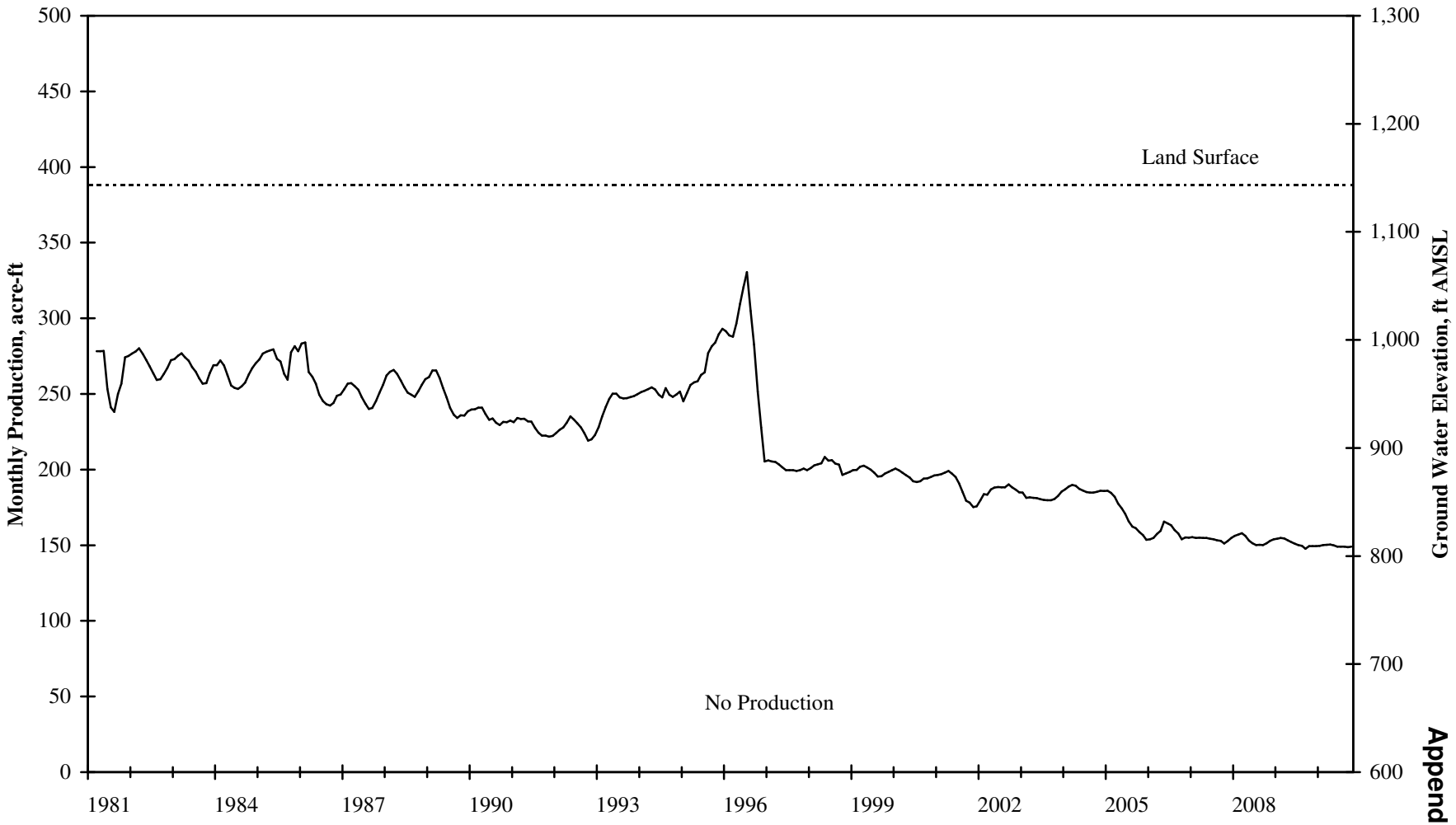
Appendix A

Long-Term Hydrograph and Production - RCWD Well 402



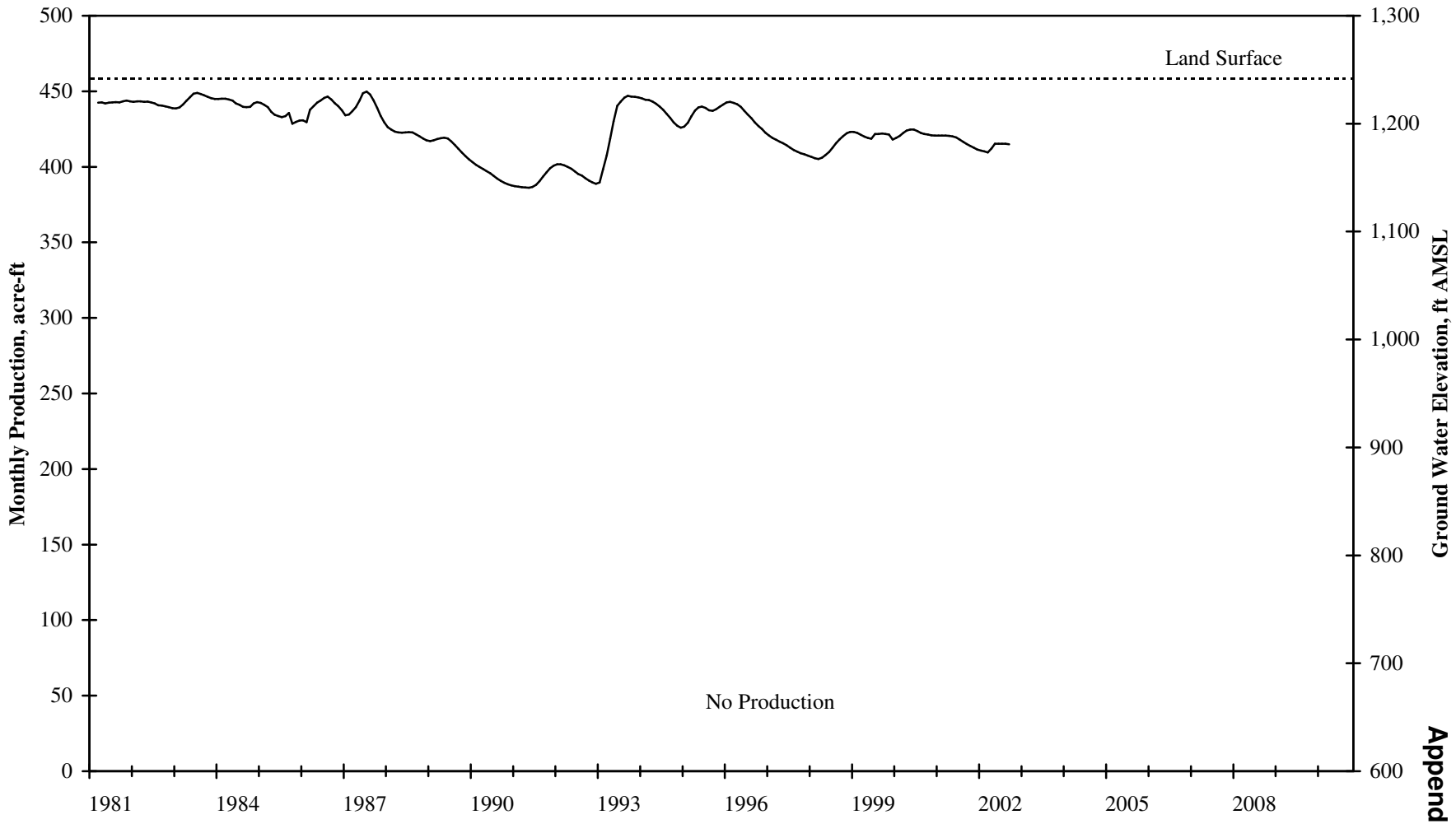
Appendix A

Long-Term Hydrograph and Production - RCWD Well 410



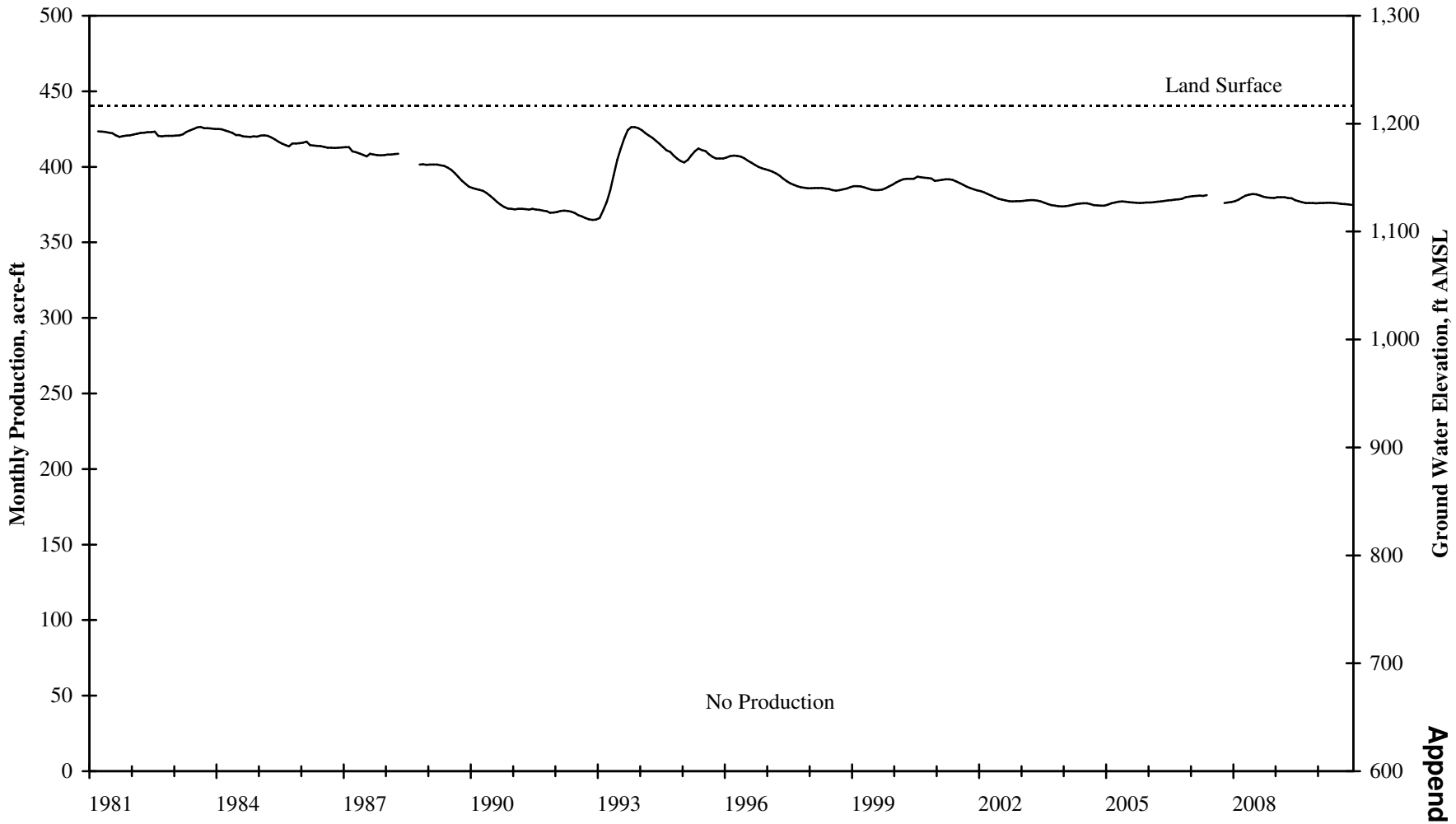
Appendix A

Long-Term Hydrograph and Production - RCWD Well 414



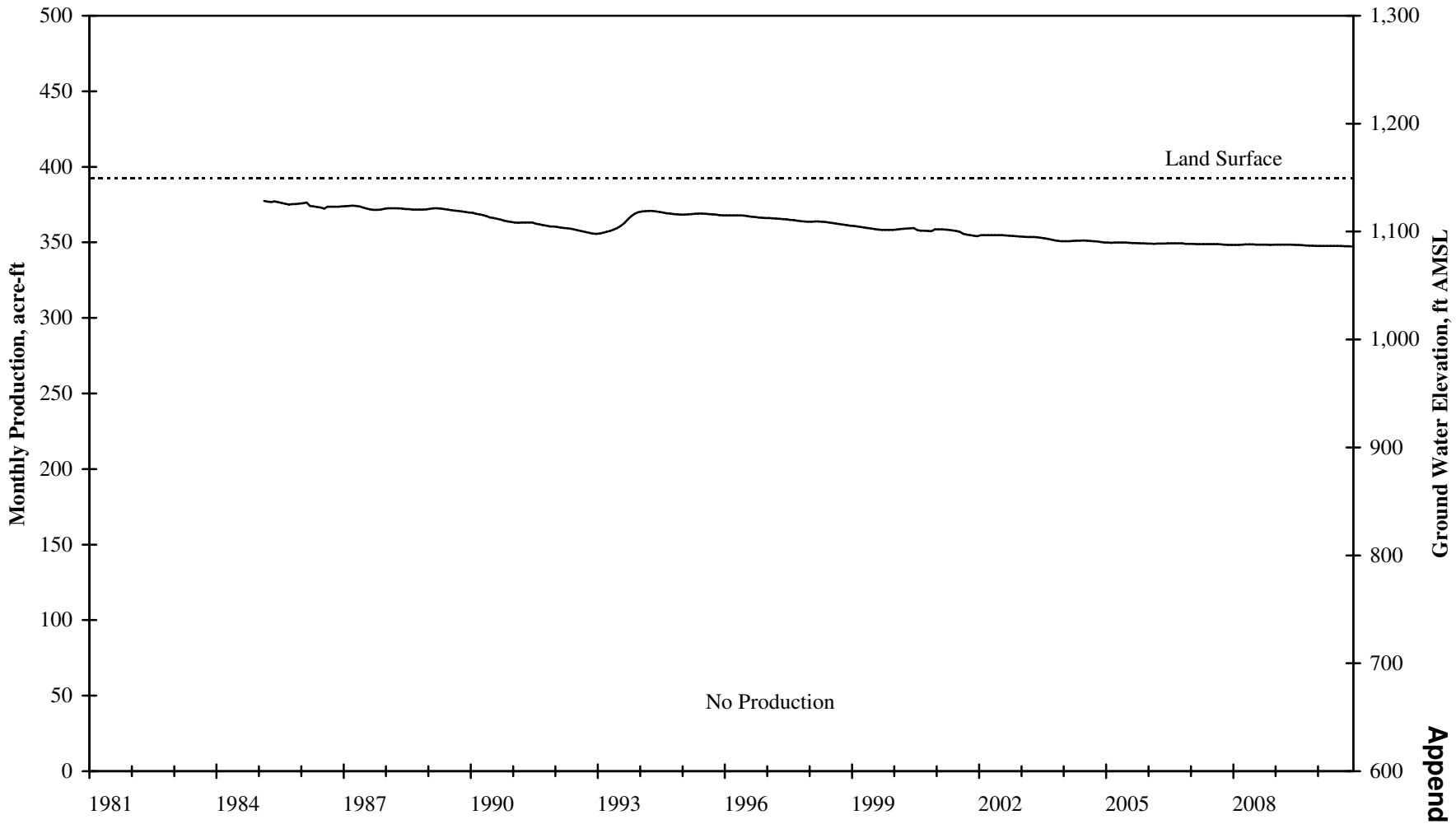
Appendix A

Long-Term Hydrograph and Production - RCWD Well 417



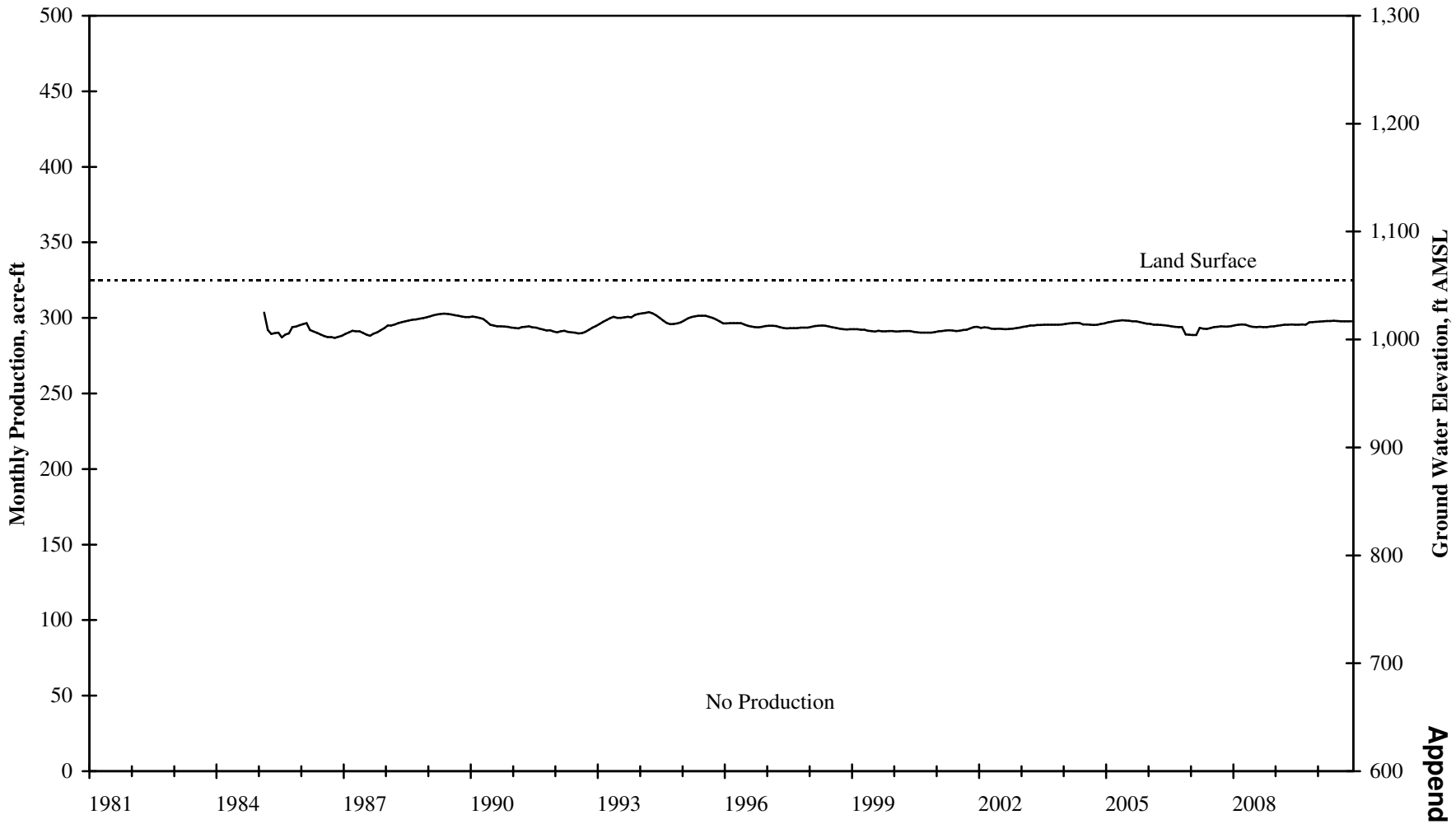
Appendix A

Long-Term Hydrograph and Production - RCWD Well 422



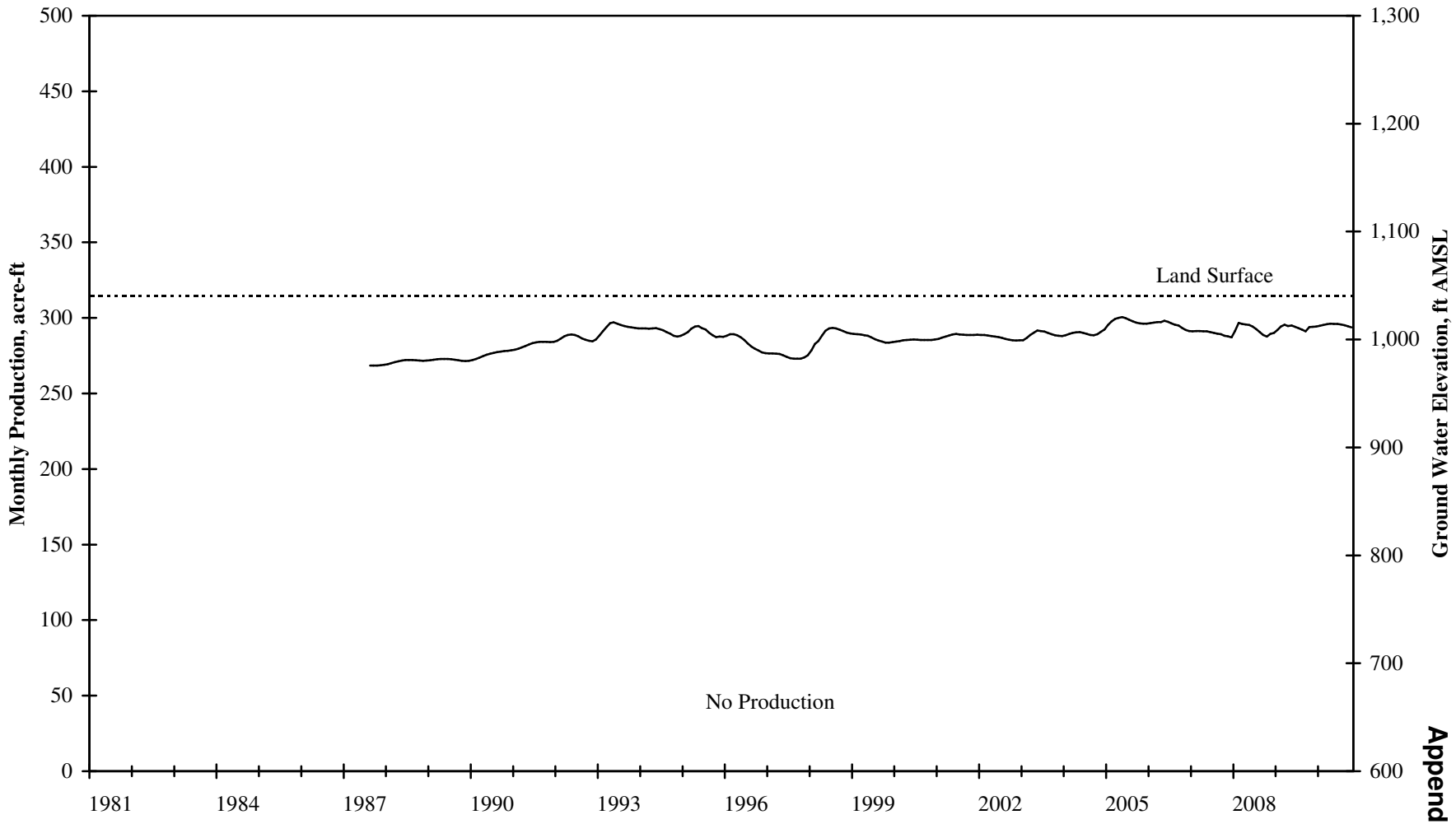
Appendix A

Long-Term Hydrograph and Production - RCWD Well 426



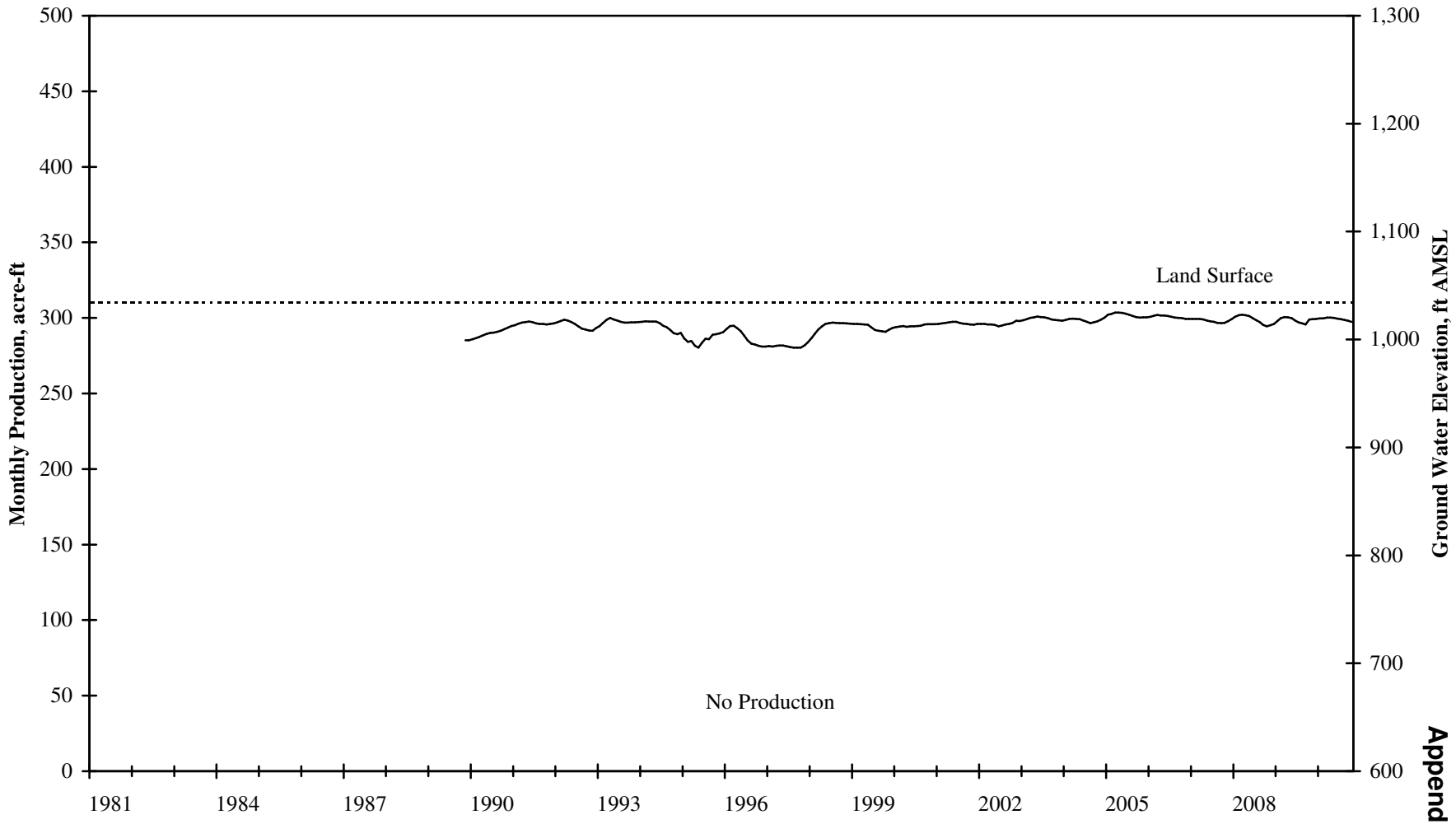
Appendix A

Long-Term Hydrograph and Production - RCWD Well 439



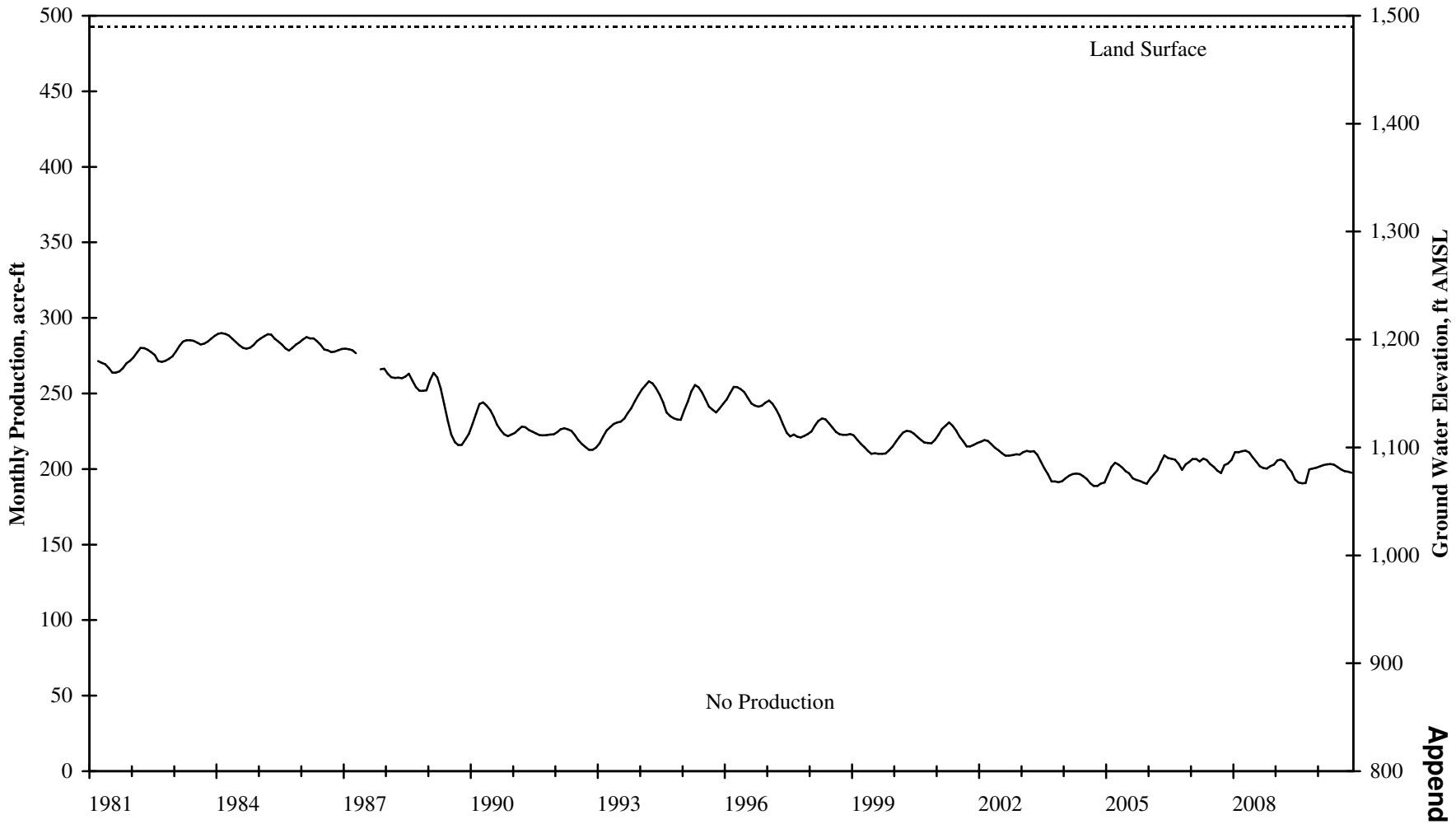
Appendix A

Long-Term Hydrograph and Production - RCWD Well 454



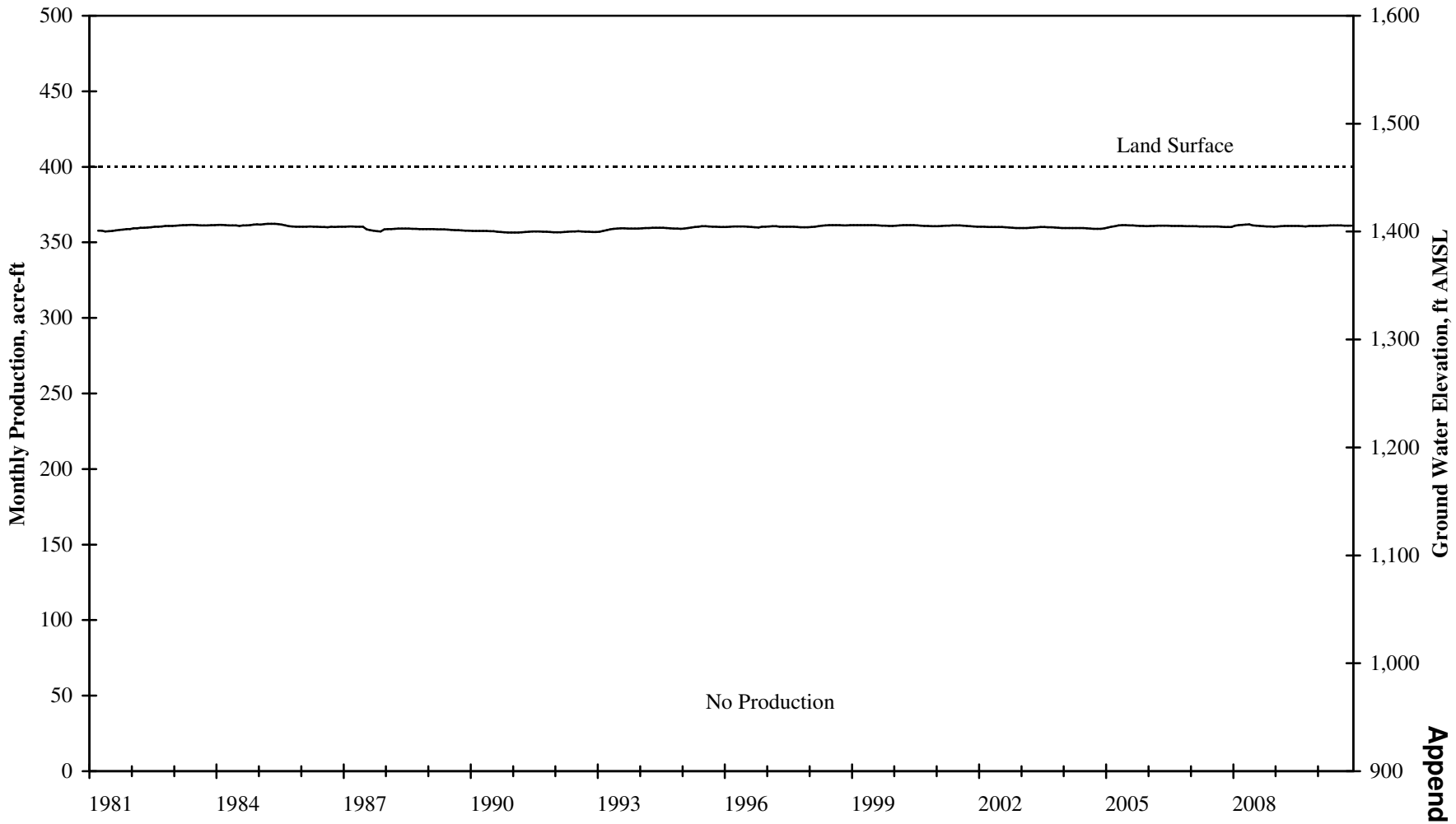
Appendix A

Long-Term Hydrograph and Production - RCWD Well 462



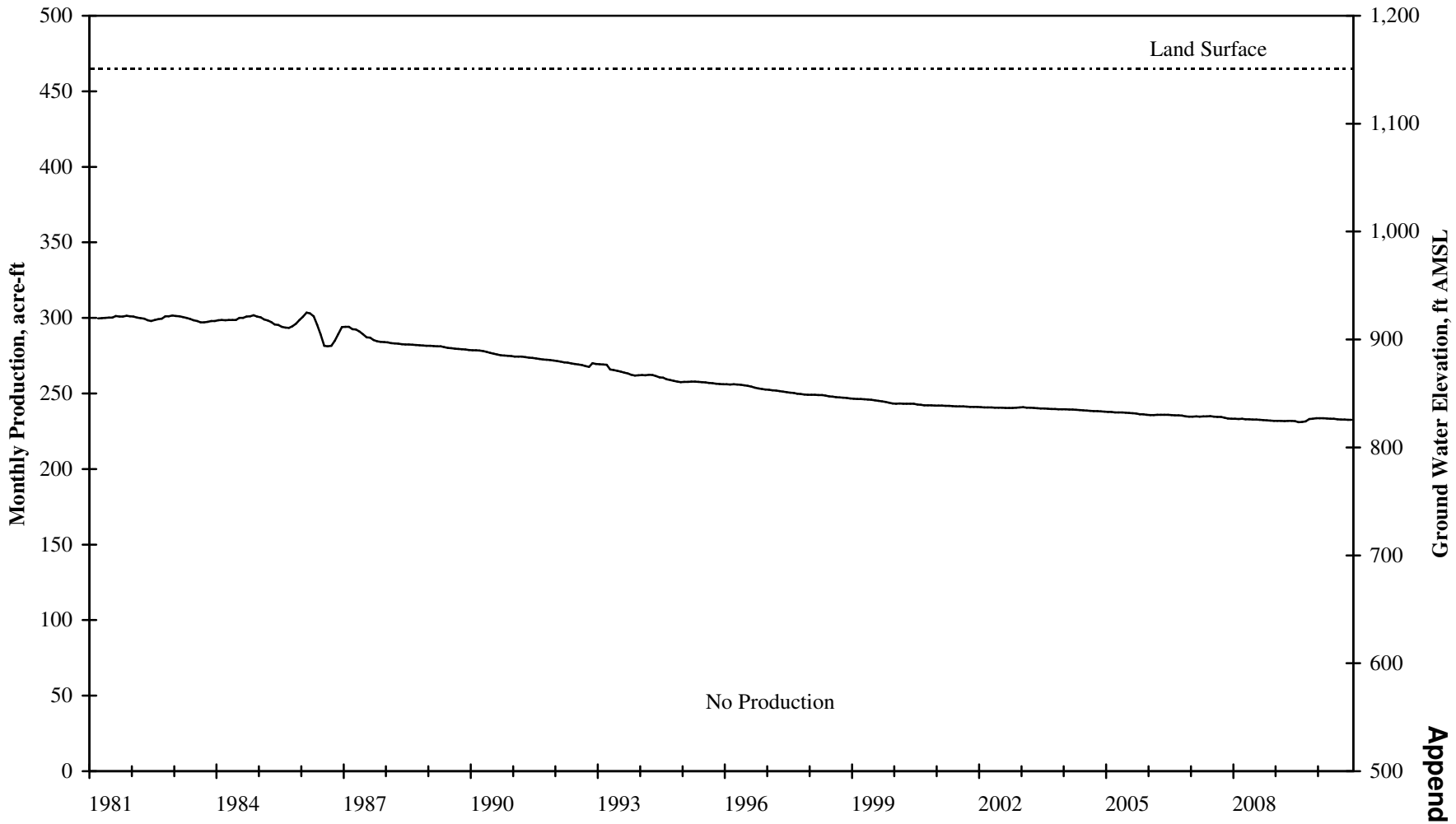
Appendix A

Long-Term Hydrograph and Production - RCWD Well 463



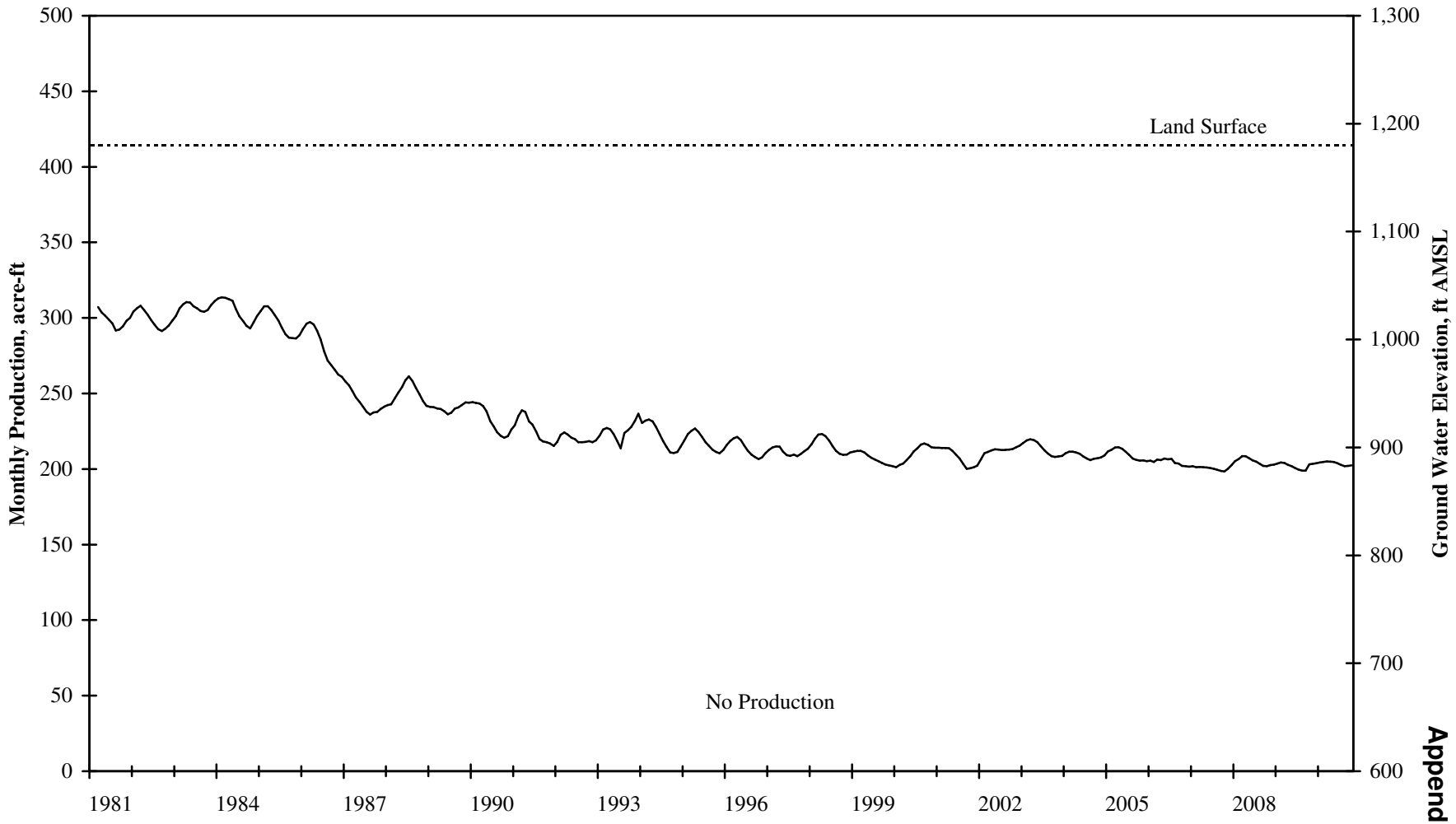
Appendix A

Long-Term Hydrograph and Production - RCWD Well 464



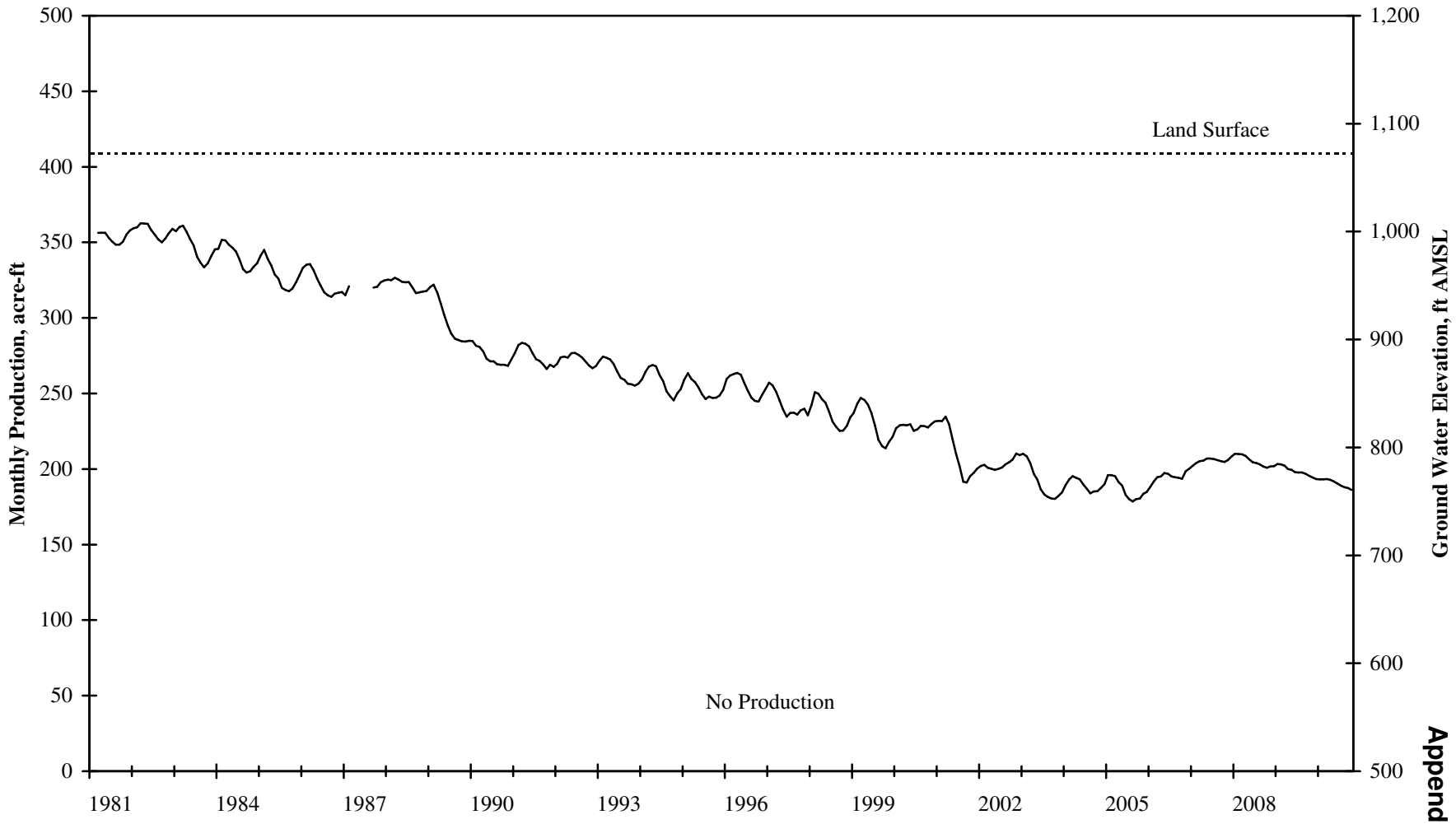
Appendix A

Long-Term Hydrograph and Production - RCWD Well 465



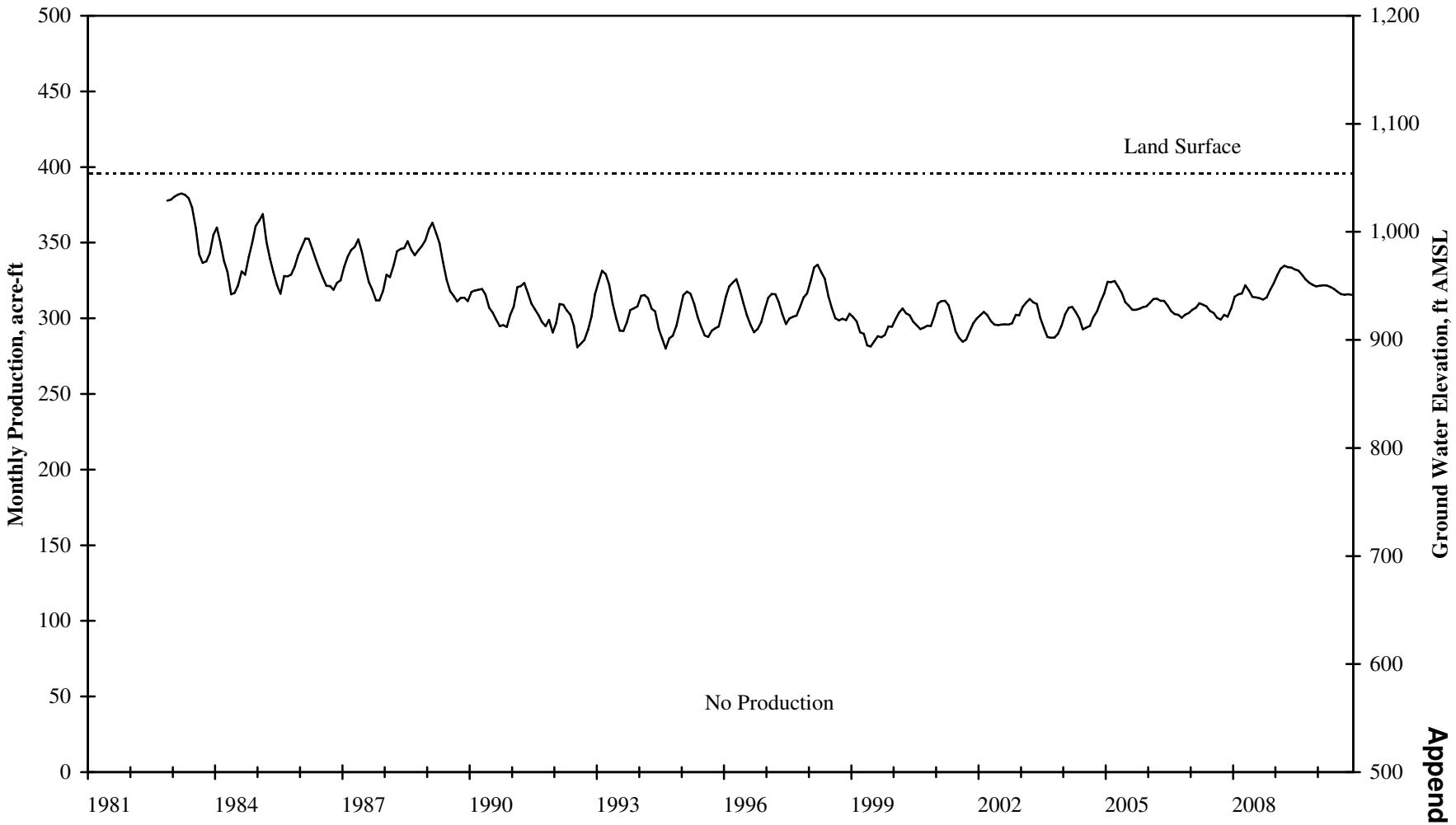
Appendix A

Long-Term Hydrograph and Production - RCWD Well 466



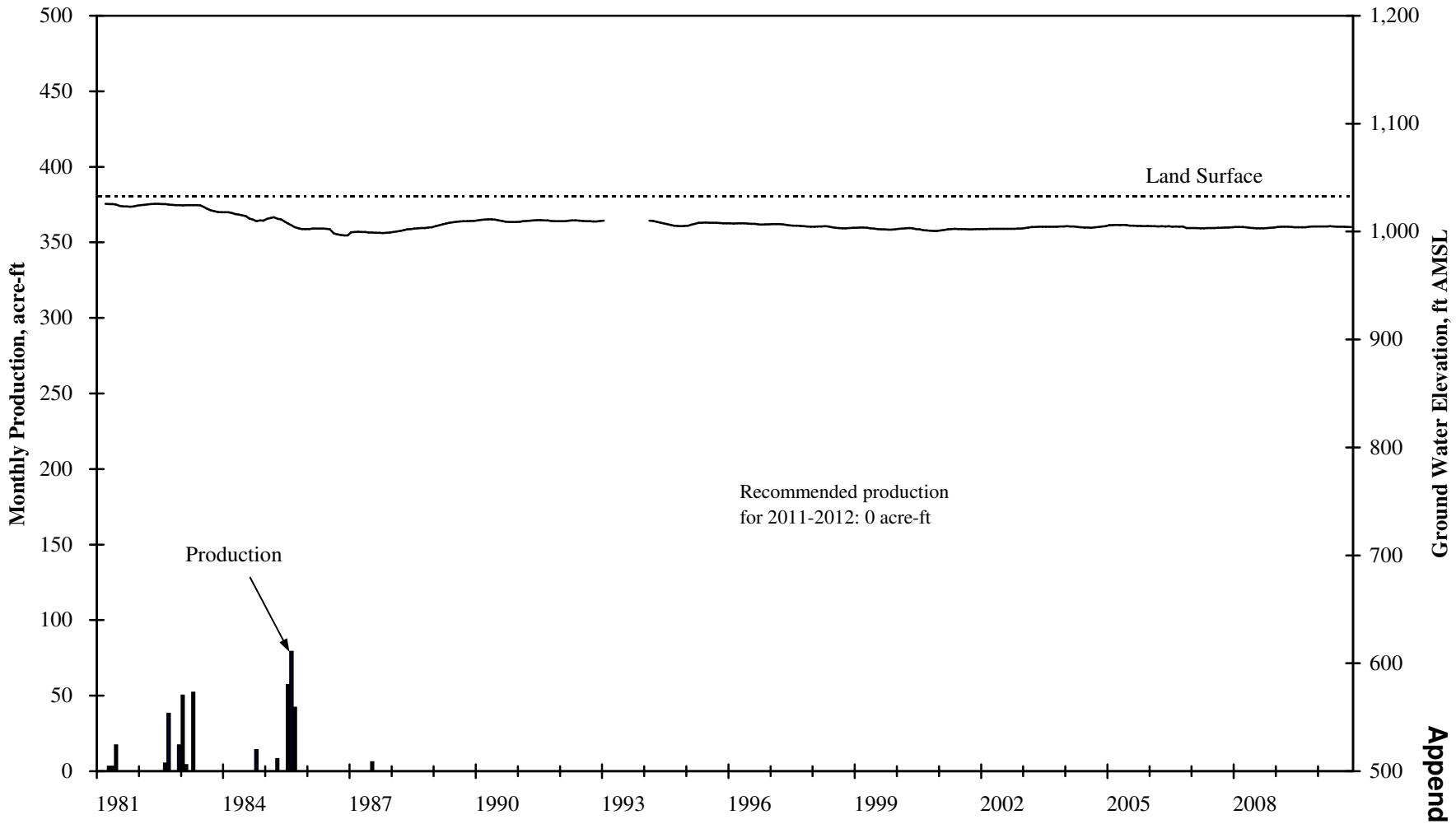
Appendix A

Long-Term Hydrograph and Production - RCWD Well 468



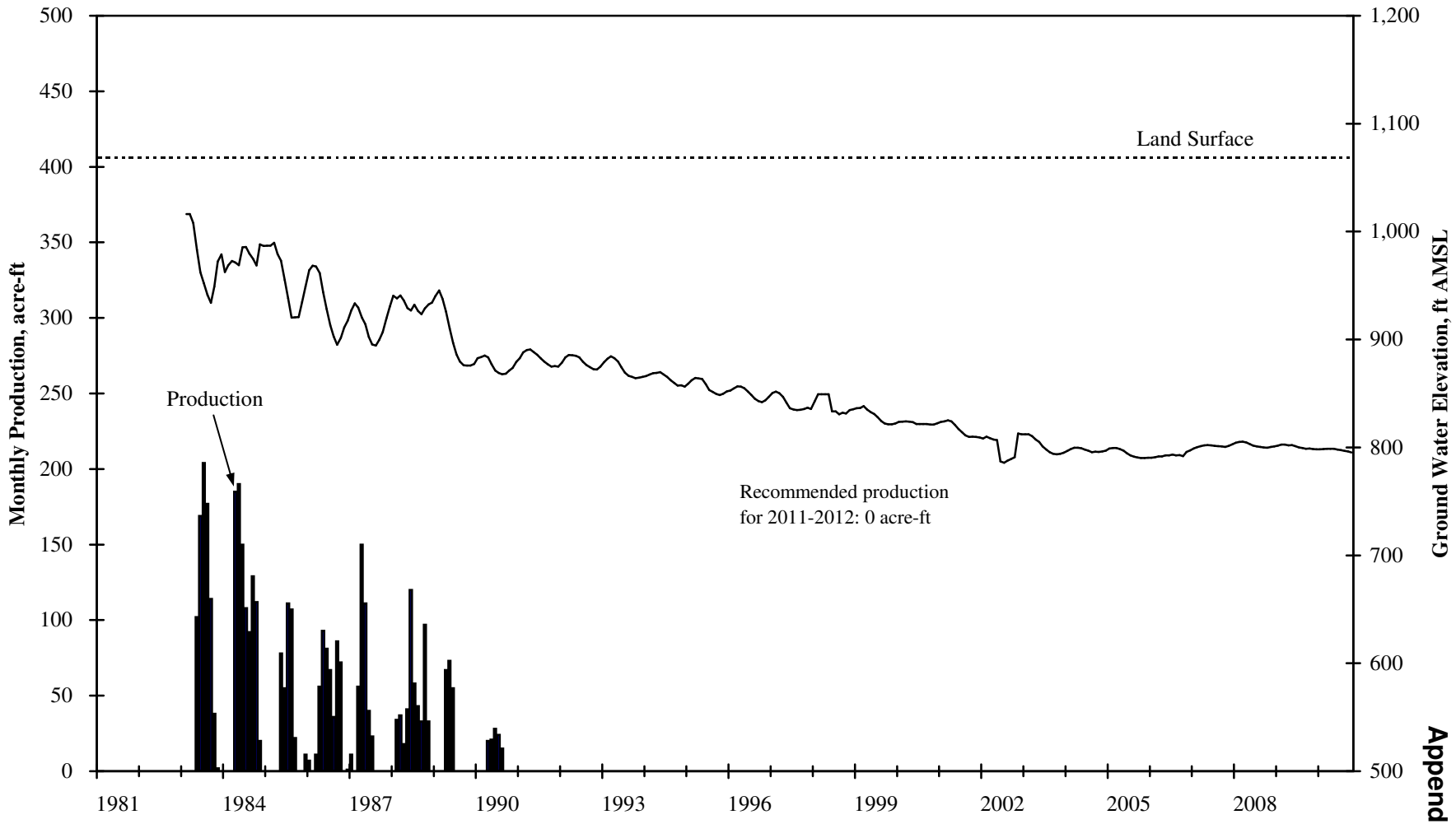
Appendix A

Long-Term Hydrograph and Production - RCWD Well 492 (Well 223)



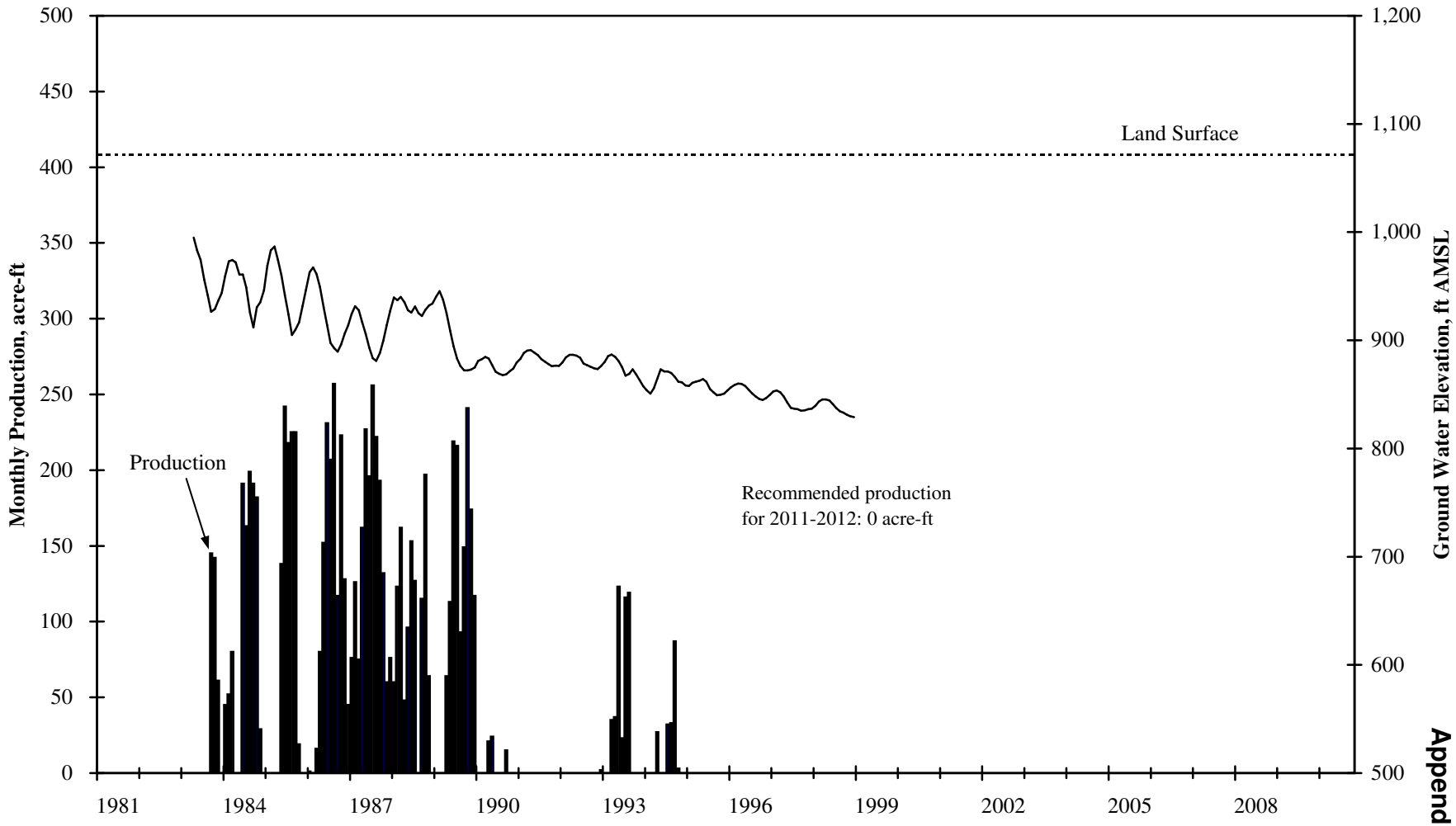
Appendix A

Long-Term Hydrograph and Production - RCWD Well 493 (Well 107)



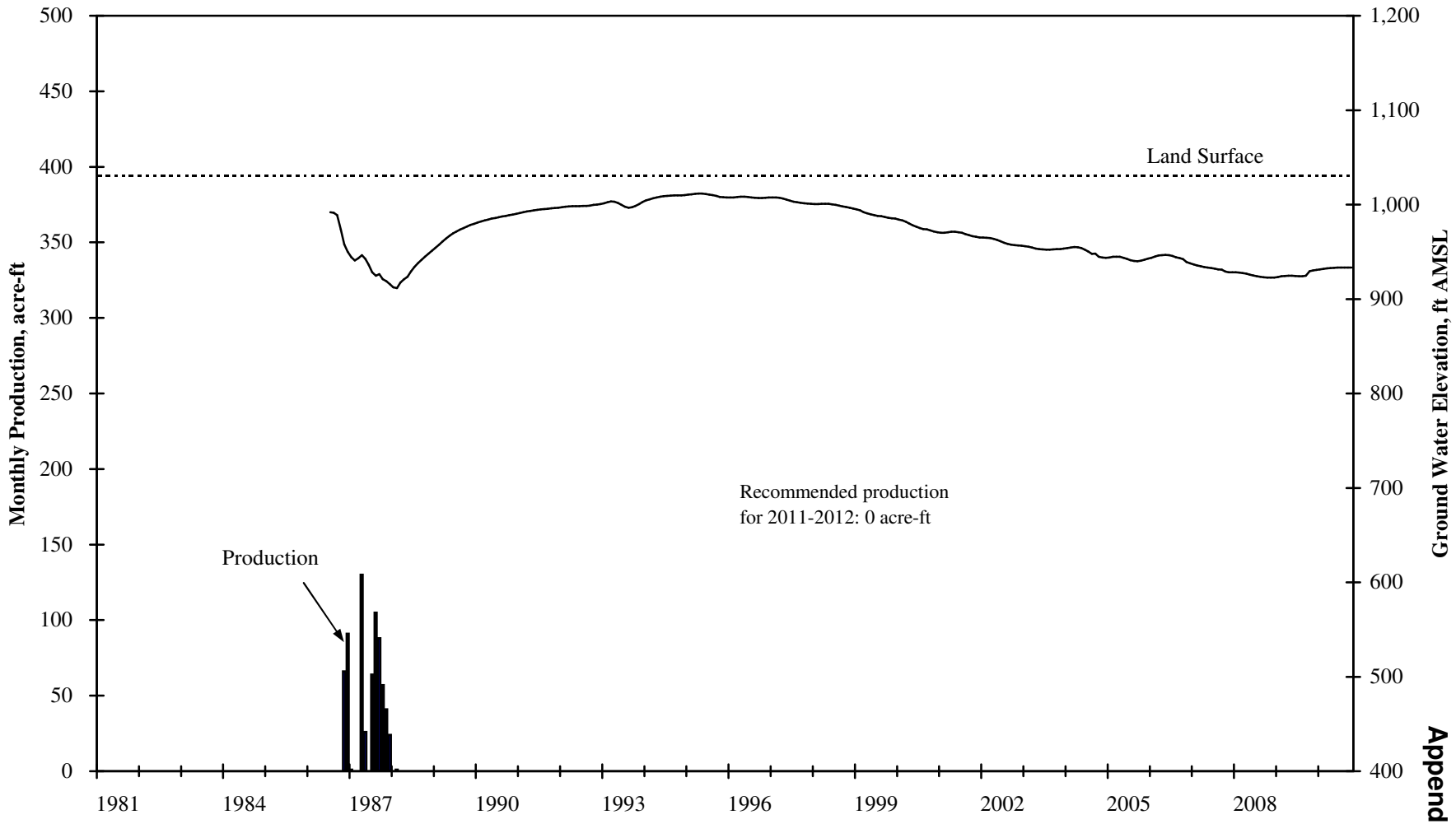
Appendix A

Long-Term Hydrograph and Production - RCWD Well 494 (Well 105)



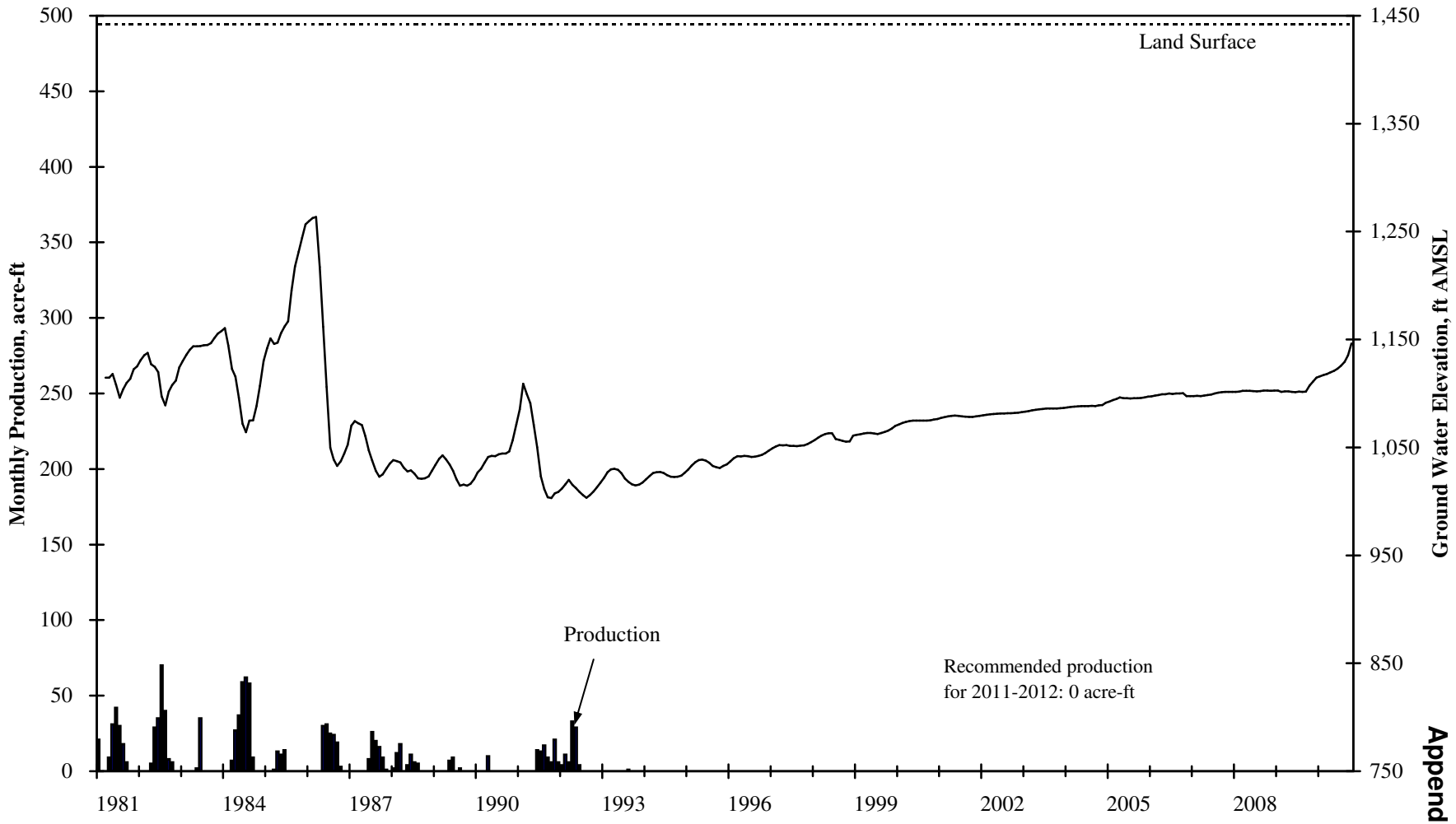
Appendix A

Long-Term Hydrograph and Production - RCWD Well 495 (Well 117)



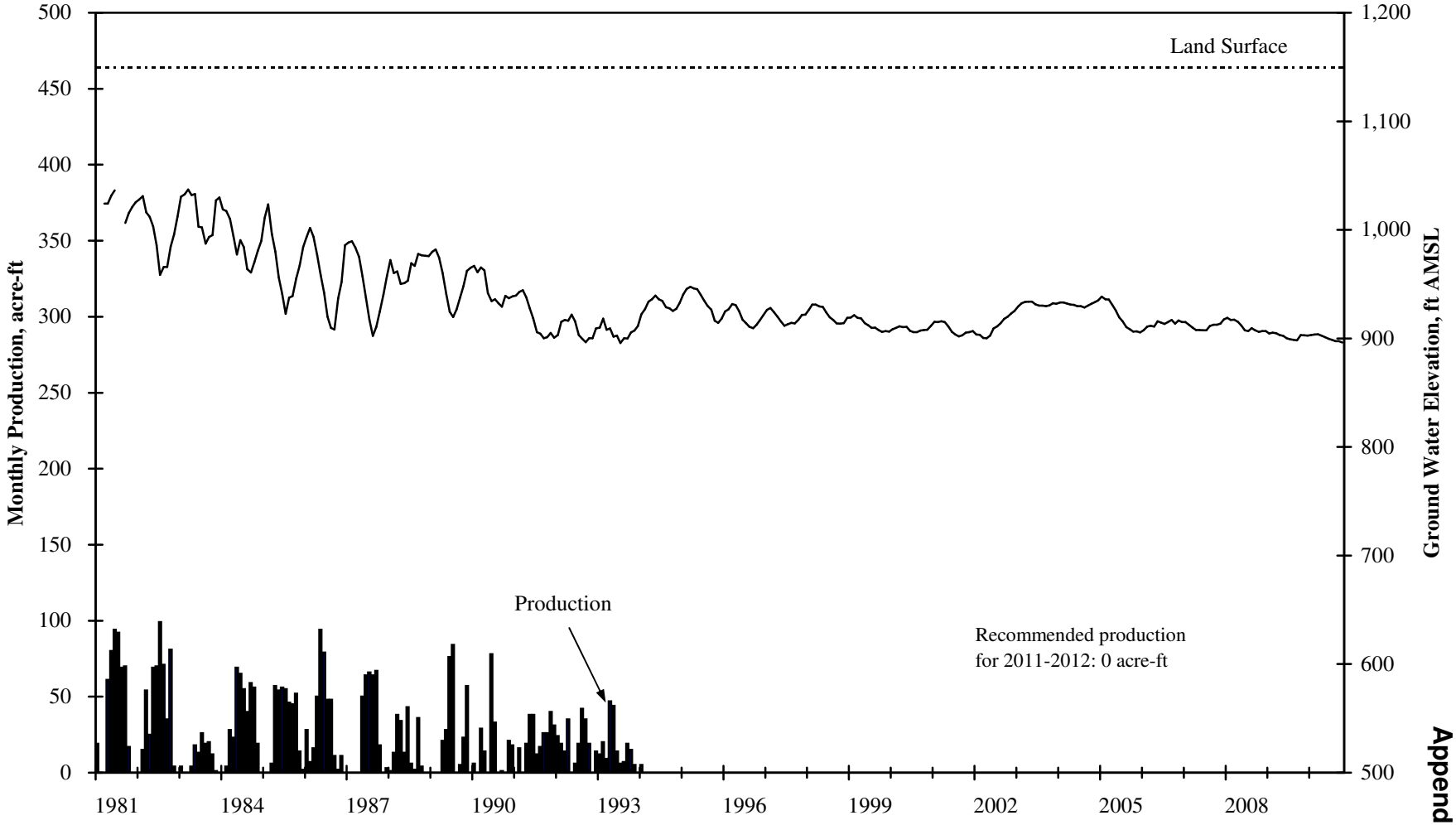
Appendix A

Long-Term Hydrograph and Production - RCWD Well 496 (Well 204)



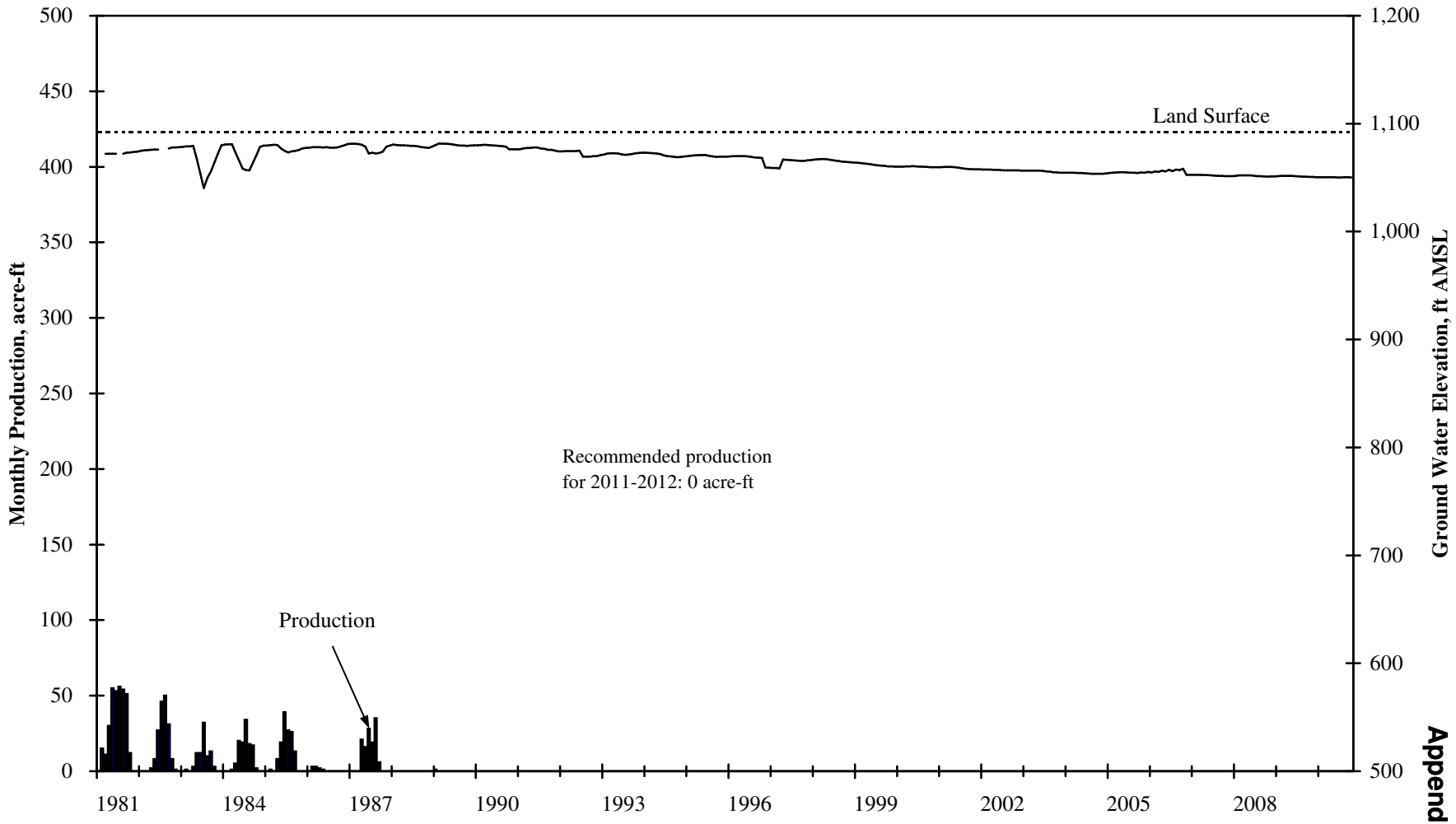
Appendix A

Long-Term Hydrograph and Production - RCWD Well 497 (Well 212)



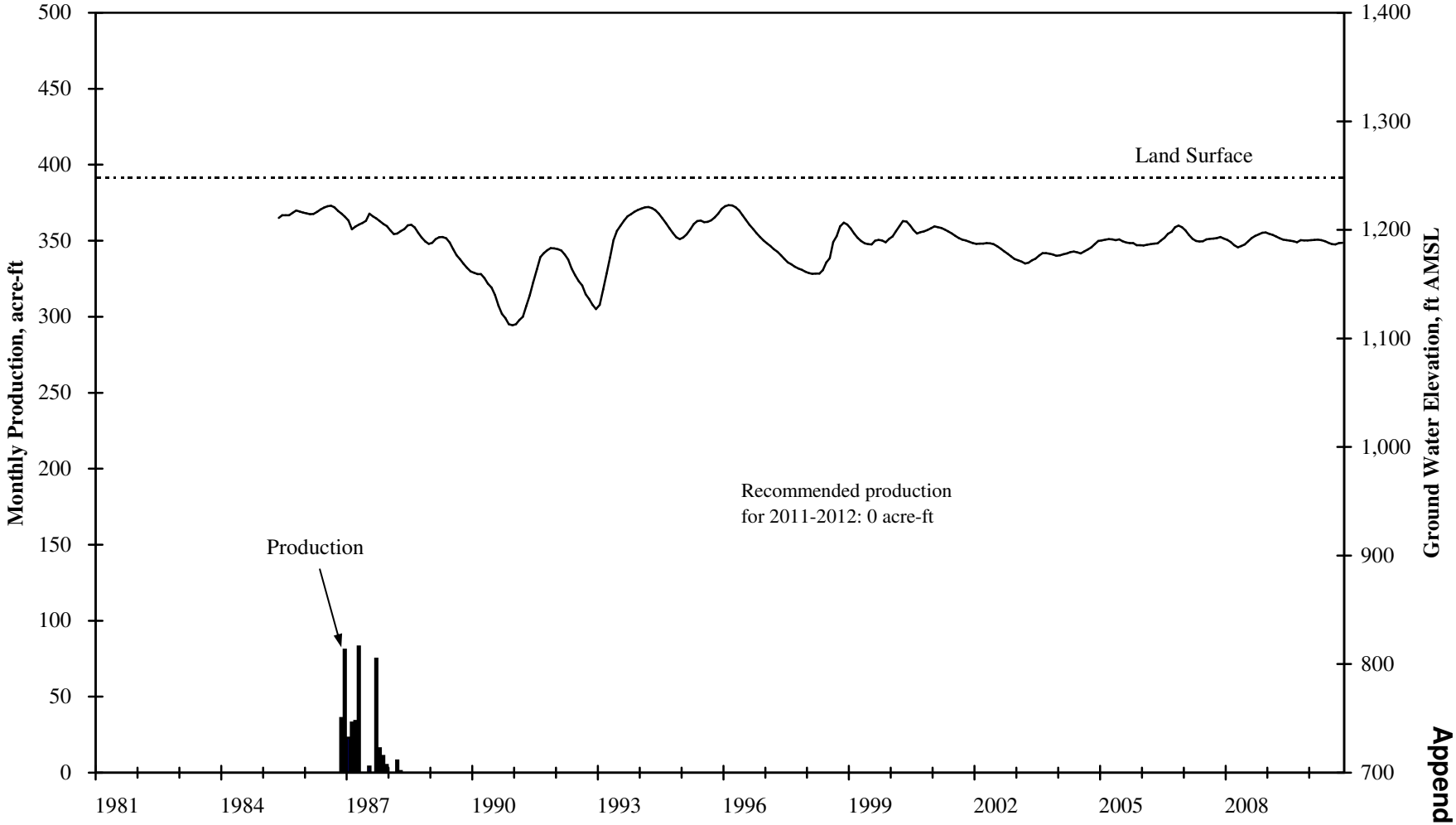
Appendix A

Long-Term Hydrograph and Production - RCWD Well 498 (Well 224)



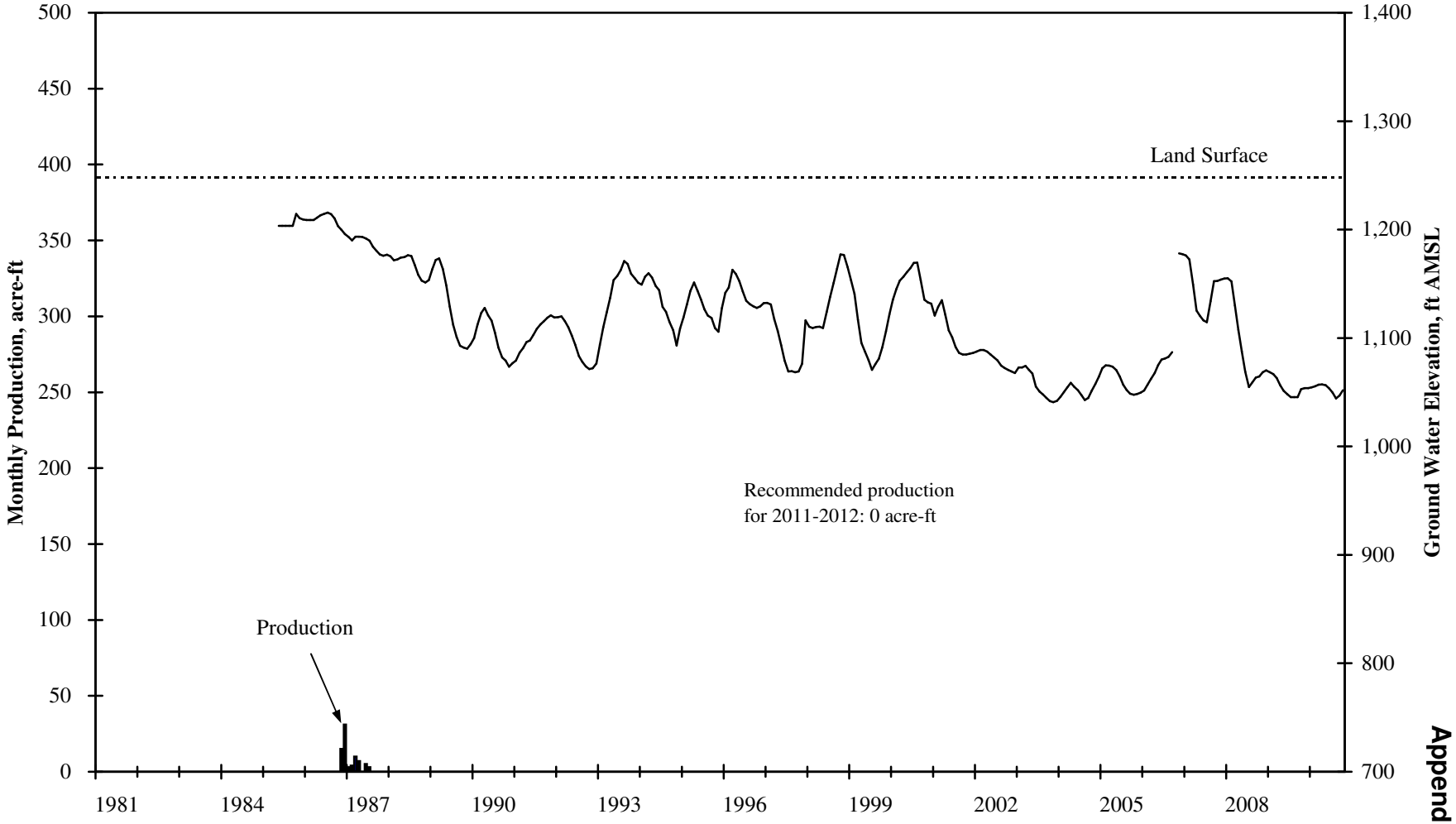
Appendix A

Long-Term Hydrograph and Production - RCWD Well 499 (Well 115)



Appendix A

Long-Term Hydrograph and Production - RCWD Well 500 (Well 116)



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Short-Term Hydrographs – October 2009 to September 2010

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SHORT-TERM HYDROGRAPHS
October 2009 to September 2010

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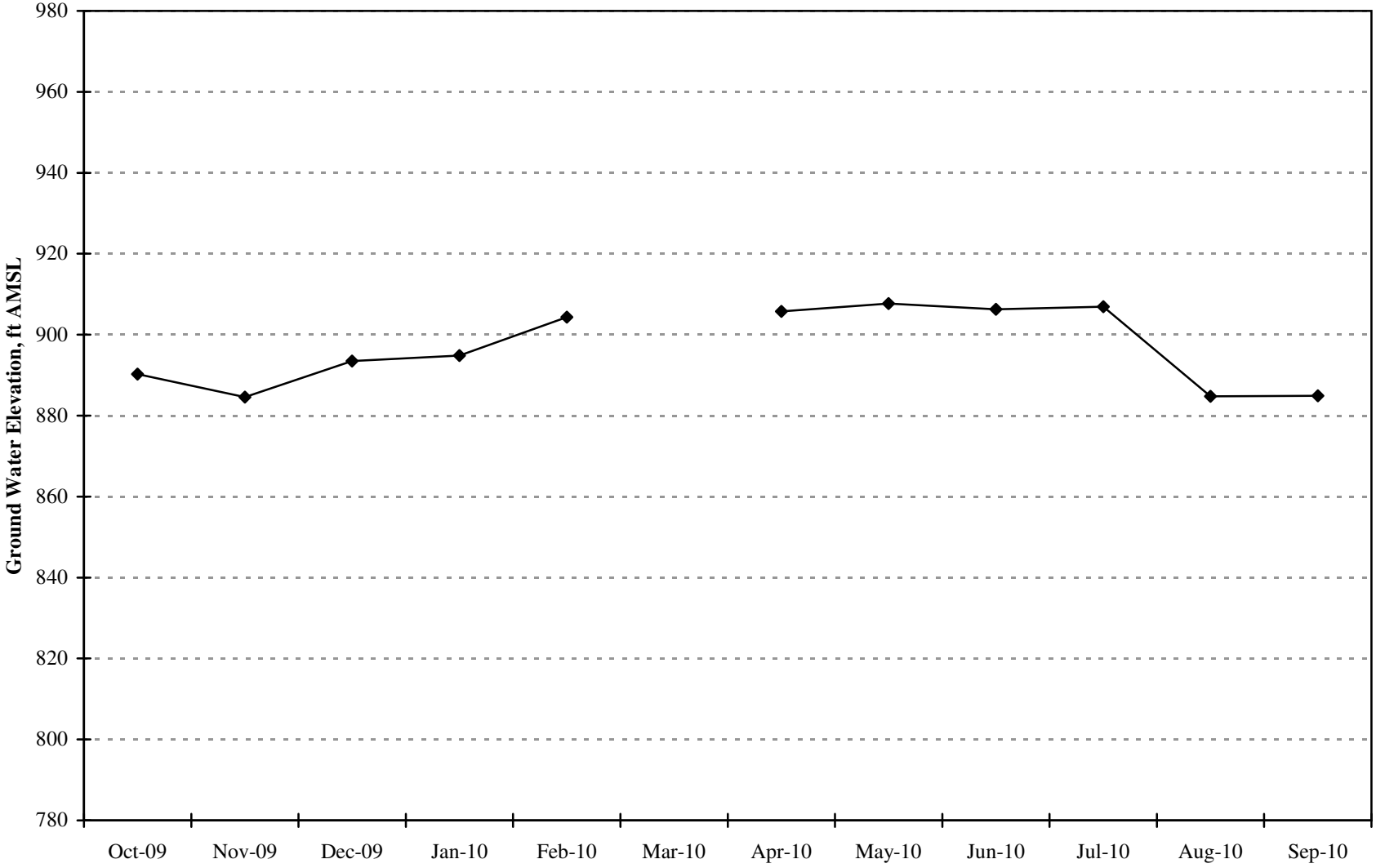
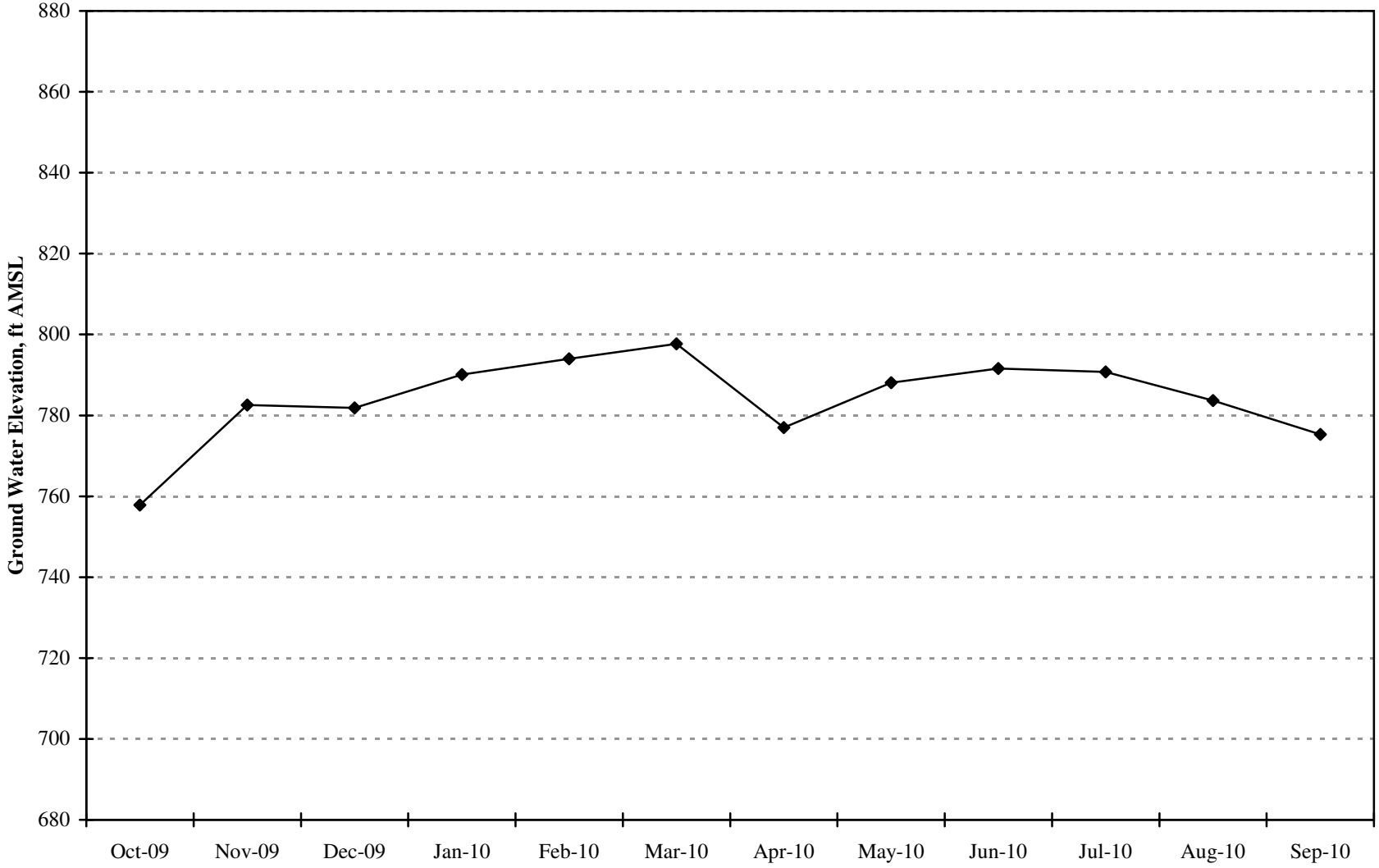
Short-Term Hydrograph - RCWD Well 102



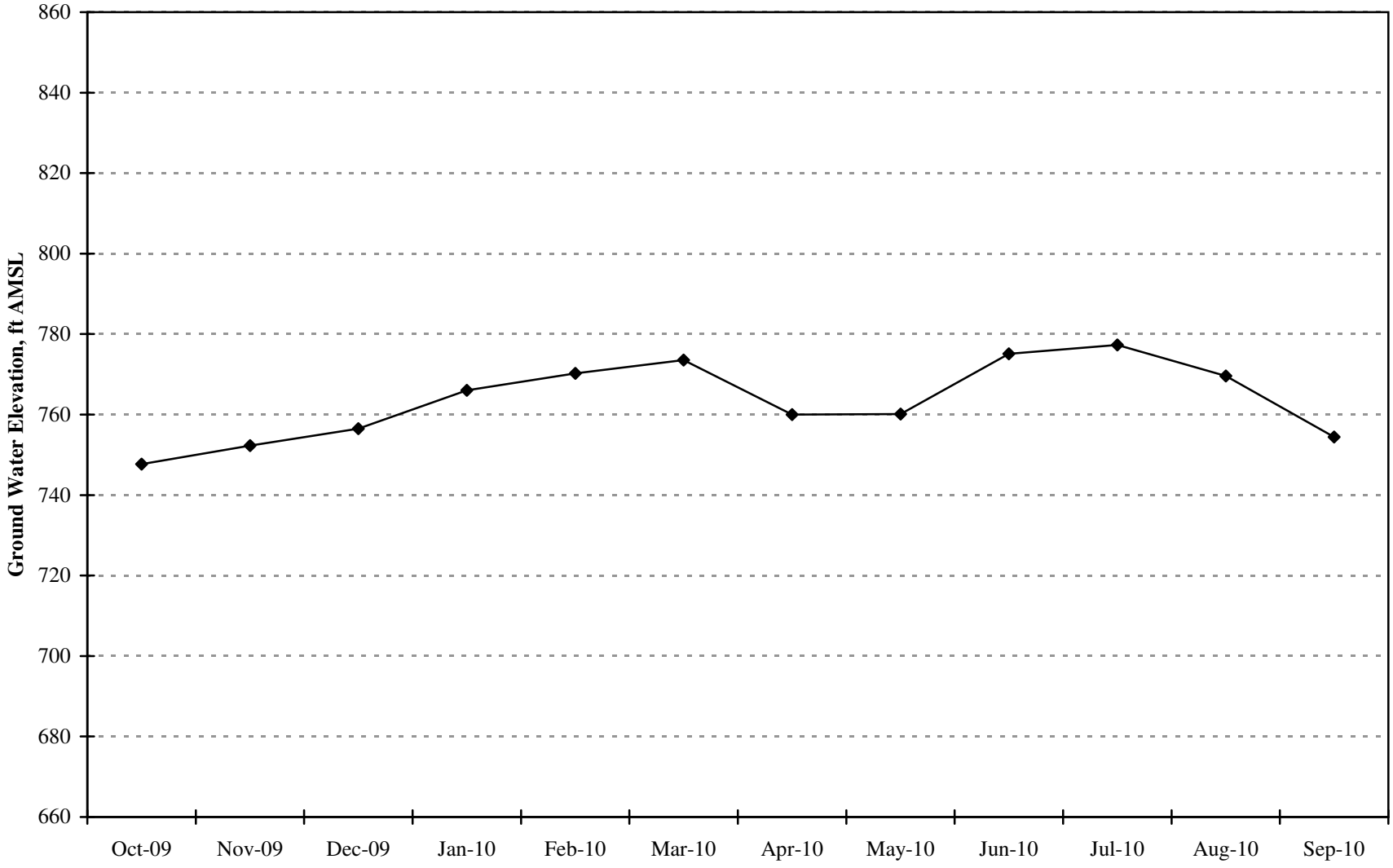
Appendix B

Short-Term Hydrograph - RCWD Well 106



Appendix B

Short-Term Hydrograph - RCWD Well 108



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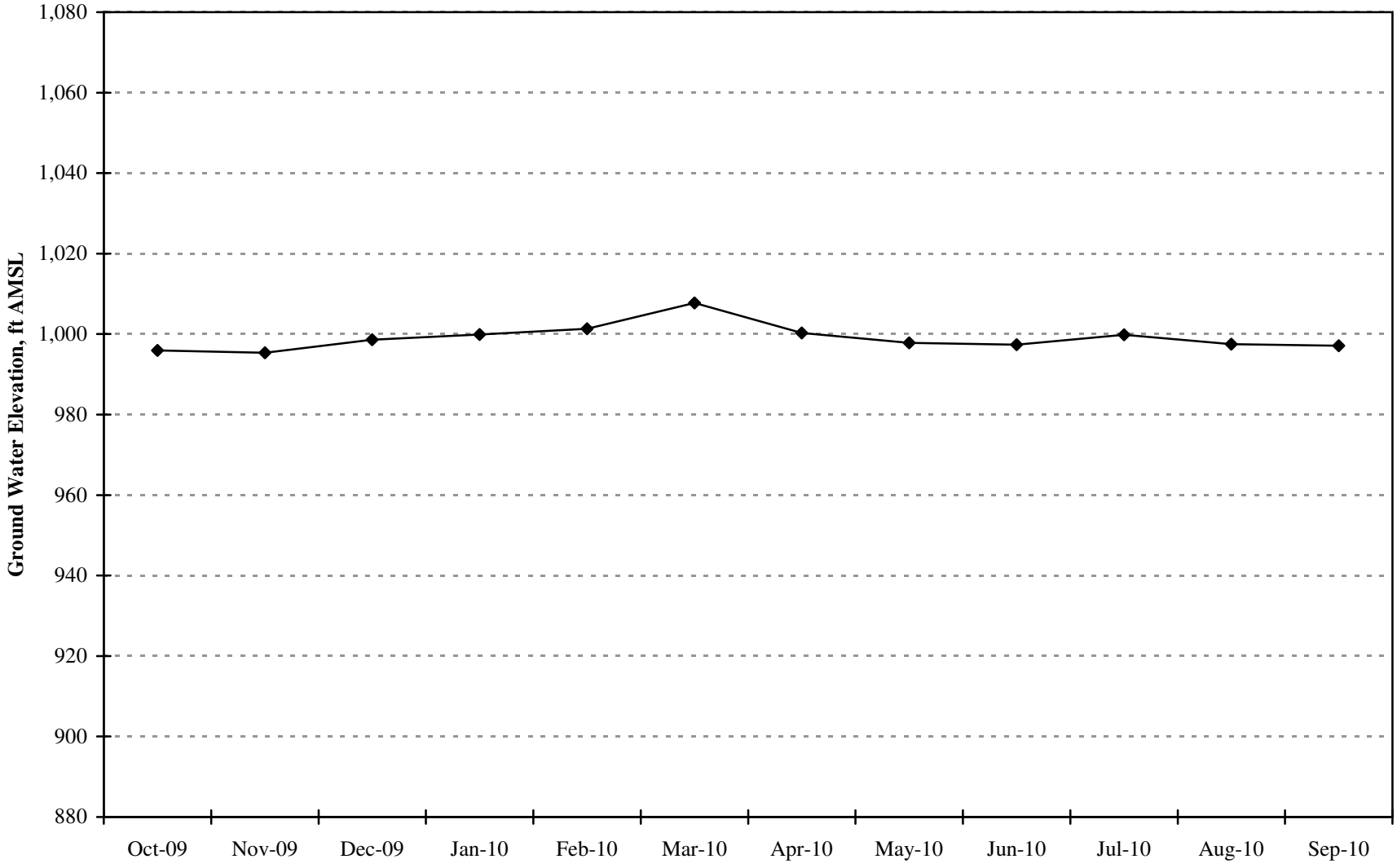
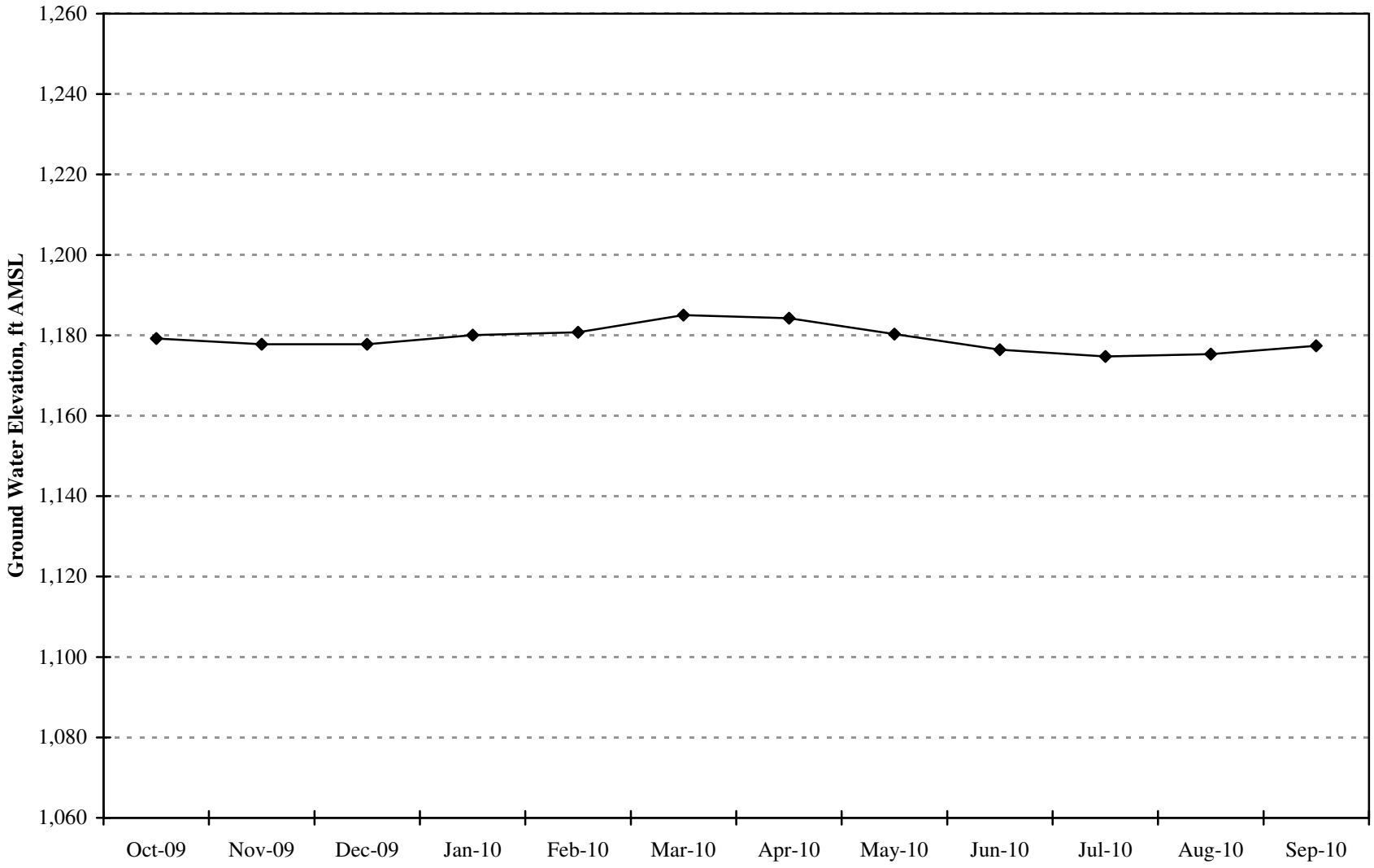
Short-Term Hydrograph - RCWD Well 109



Appendix B

Short-Term Hydrograph - RCWD Well 110



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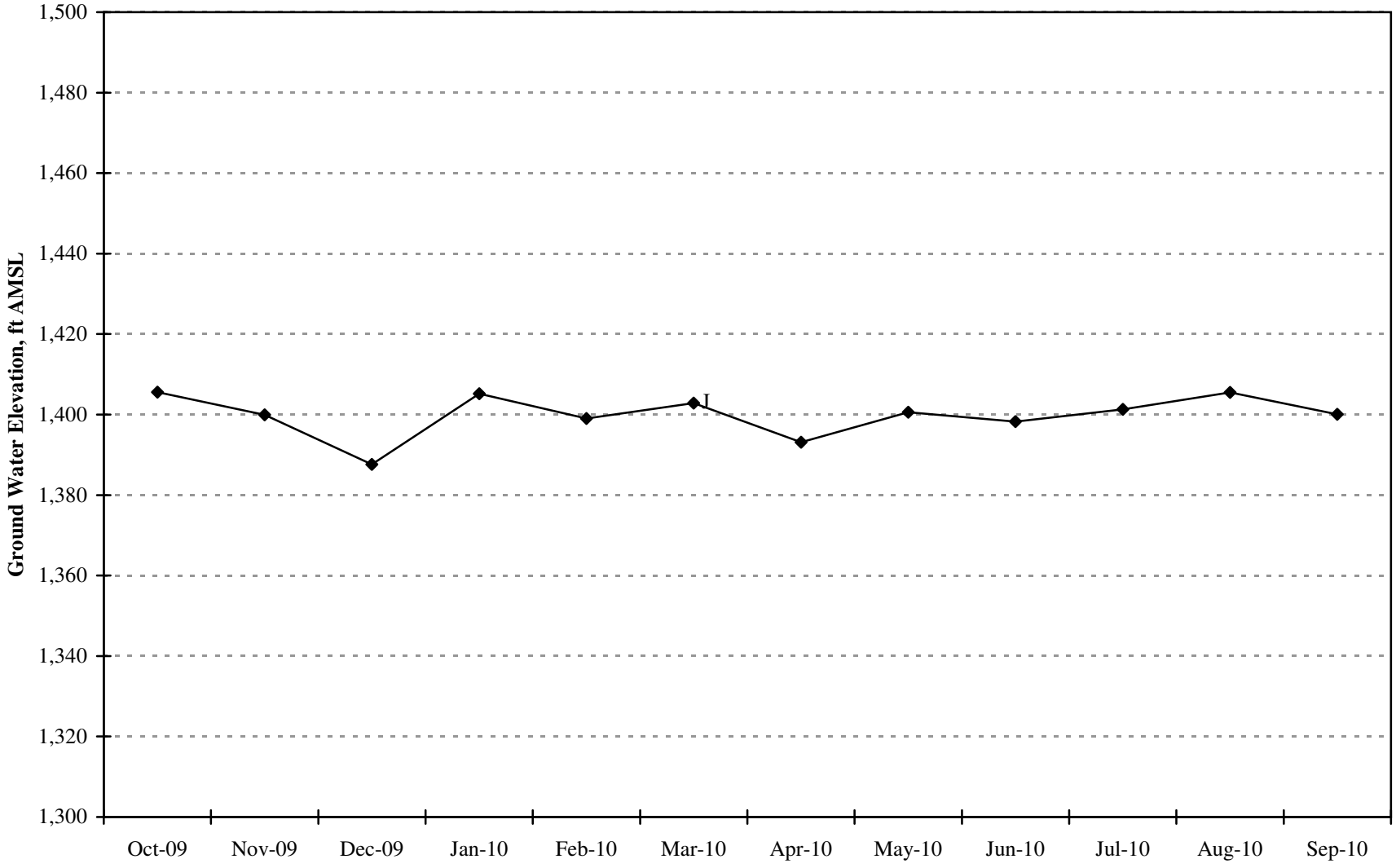
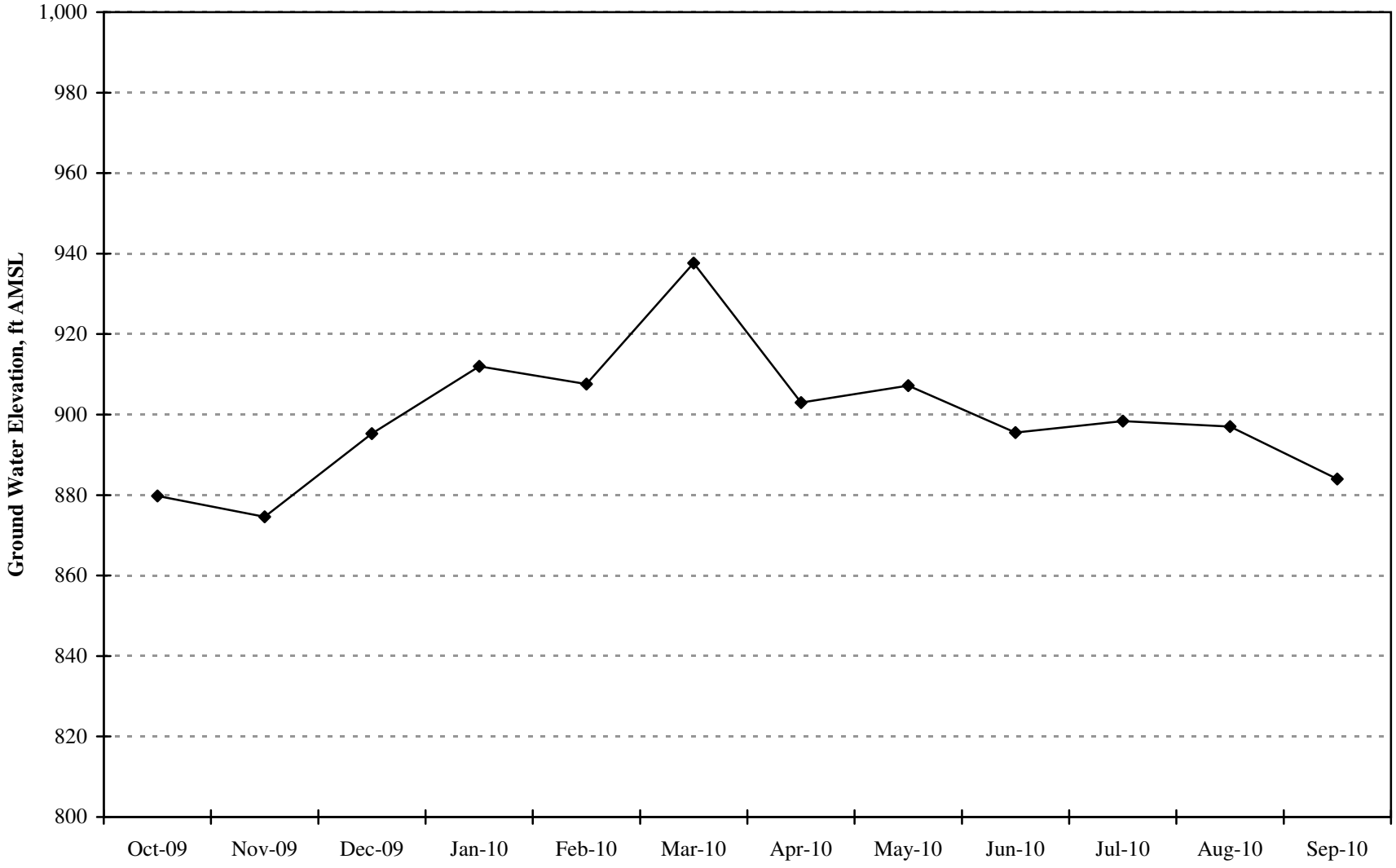
Short-Term Hydrograph - RCWD Well 113



Appendix B

Short-Term Hydrograph - RCWD Well 118



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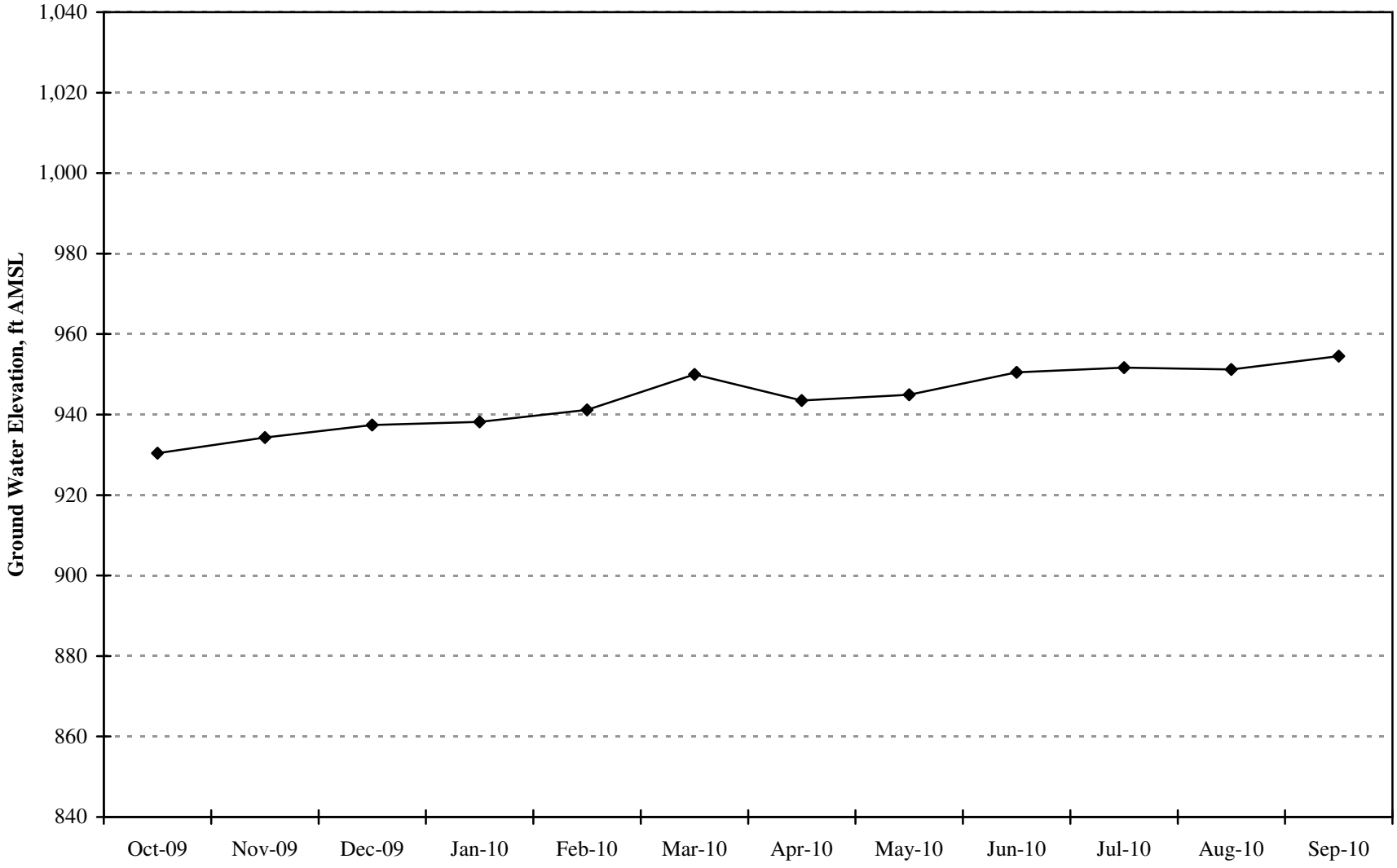
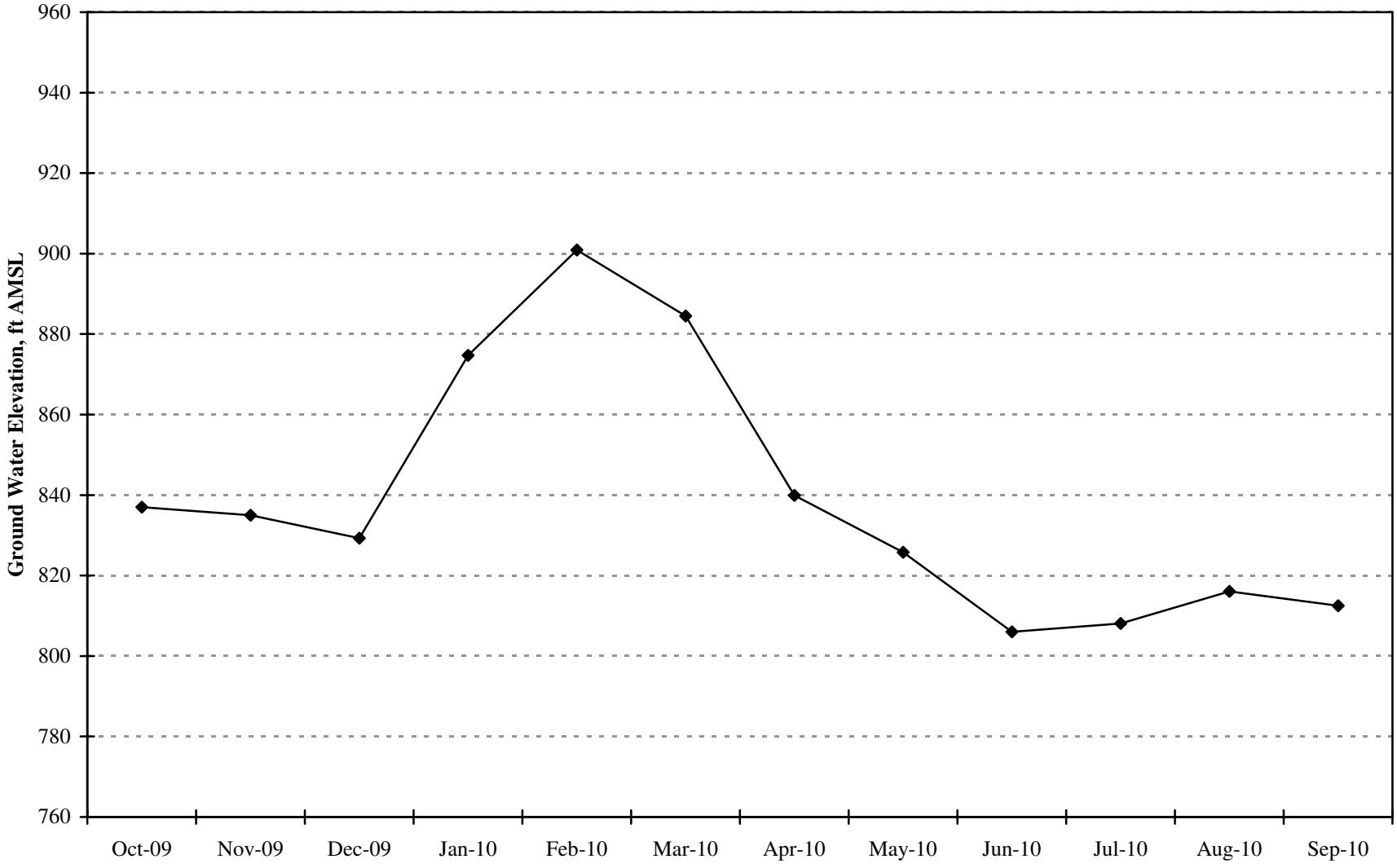
Short-Term Hydrograph - RCWD Well 119



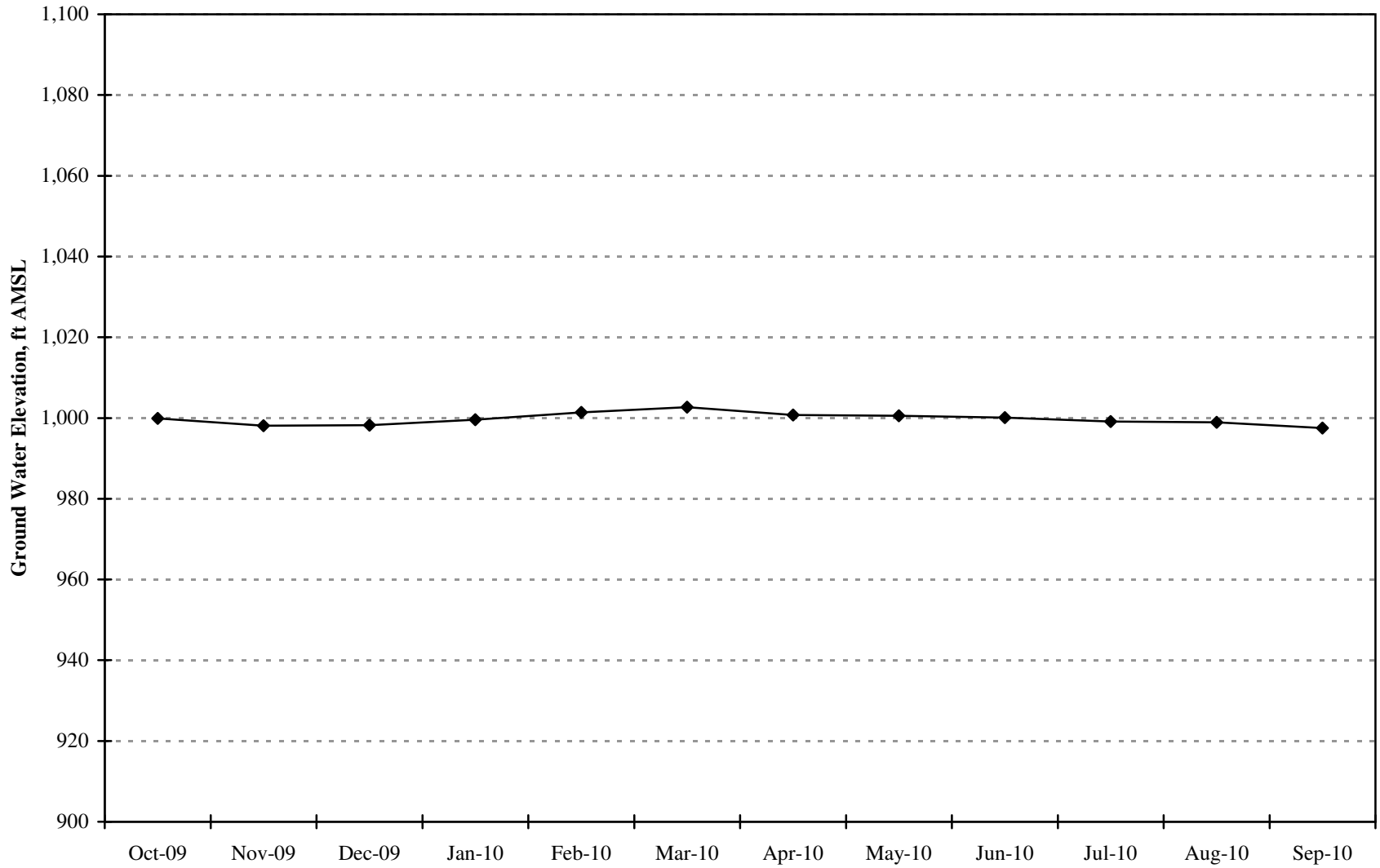
Appendix B

Short-Term Hydrograph - RCWD Well 120



Appendix B

Short-Term Hydrograph - RCWD Well 121



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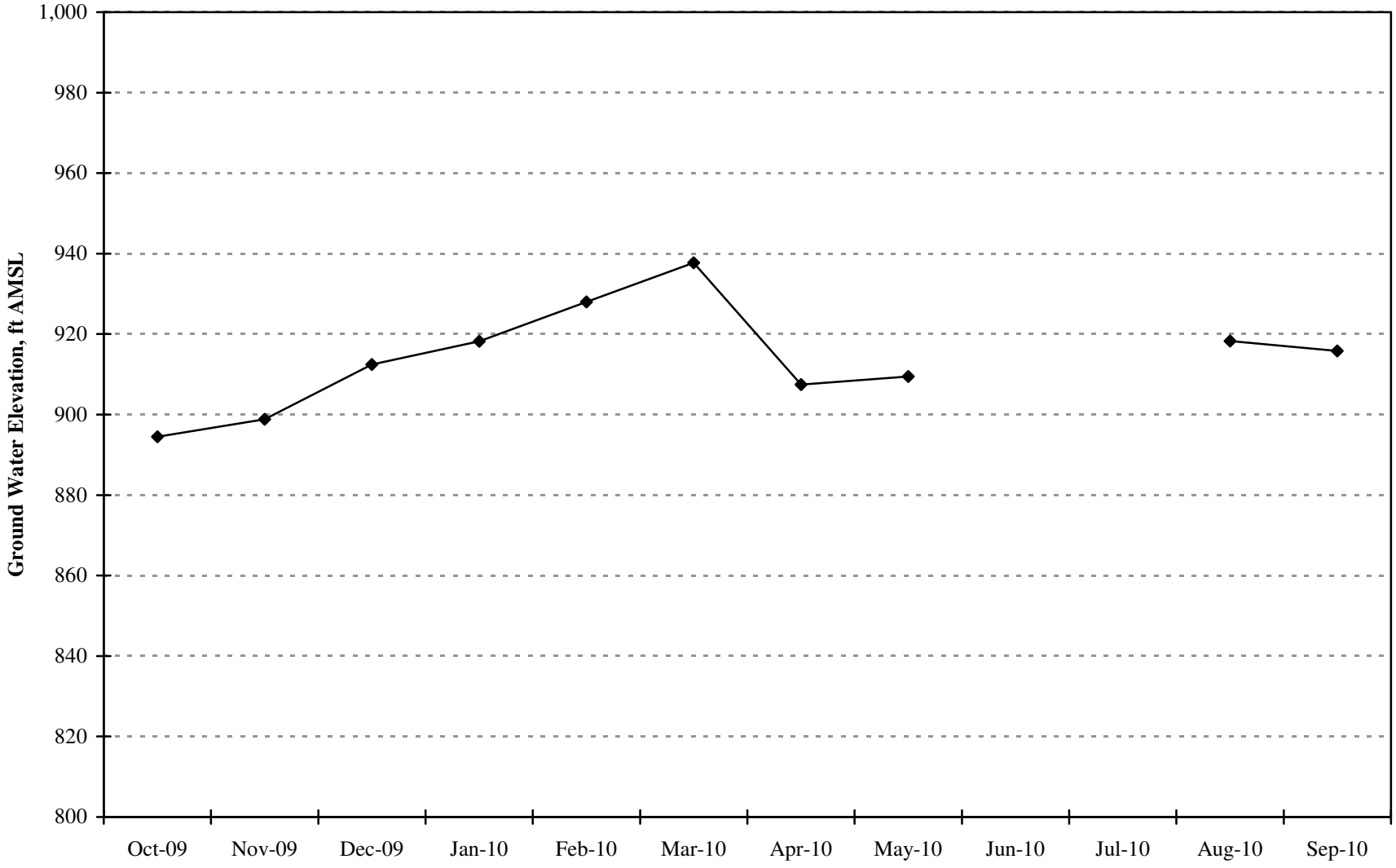
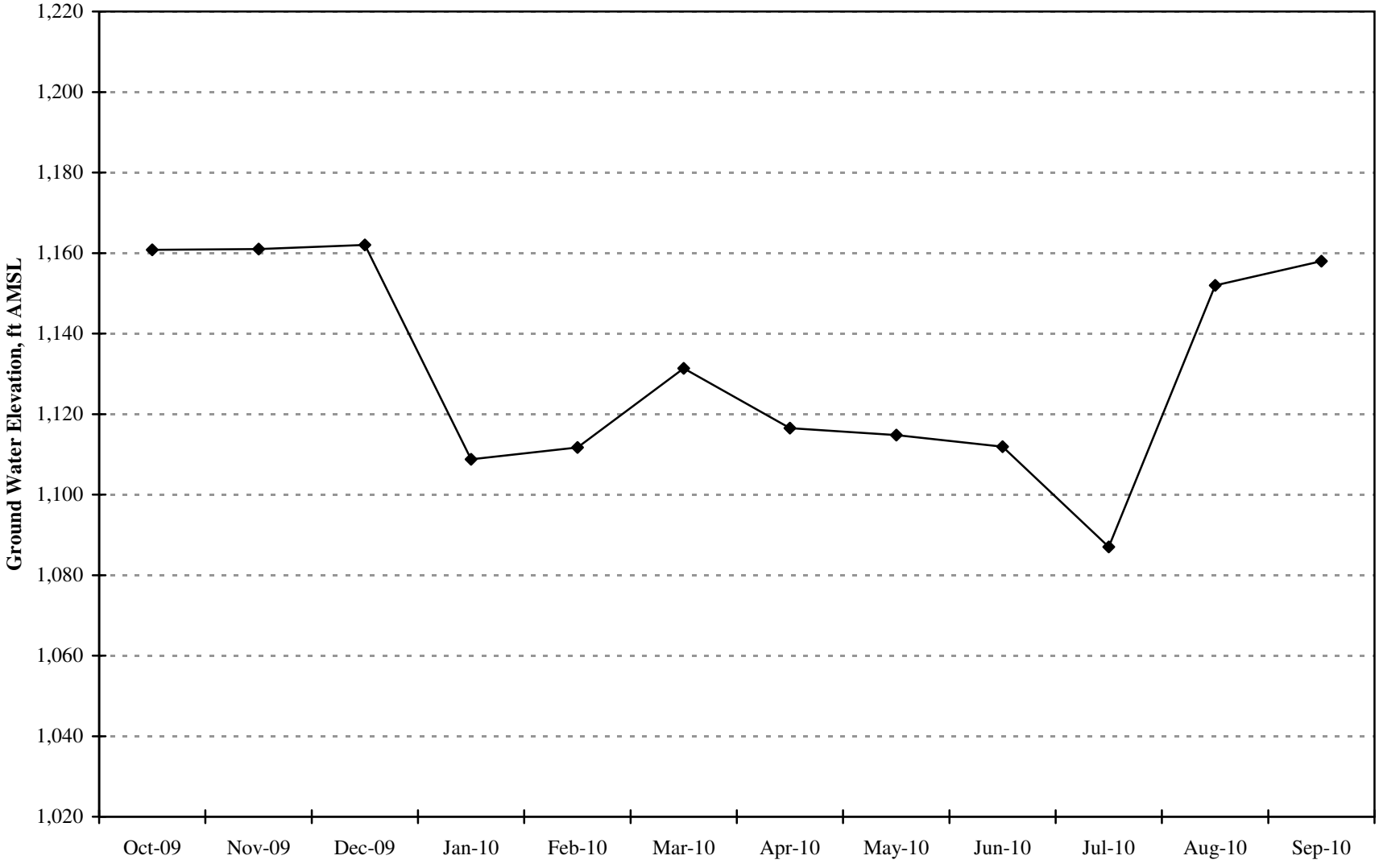
Short-Term Hydrograph - RCWD Well 122



Appendix B

Short-Term Hydrograph - RCWD Well 123



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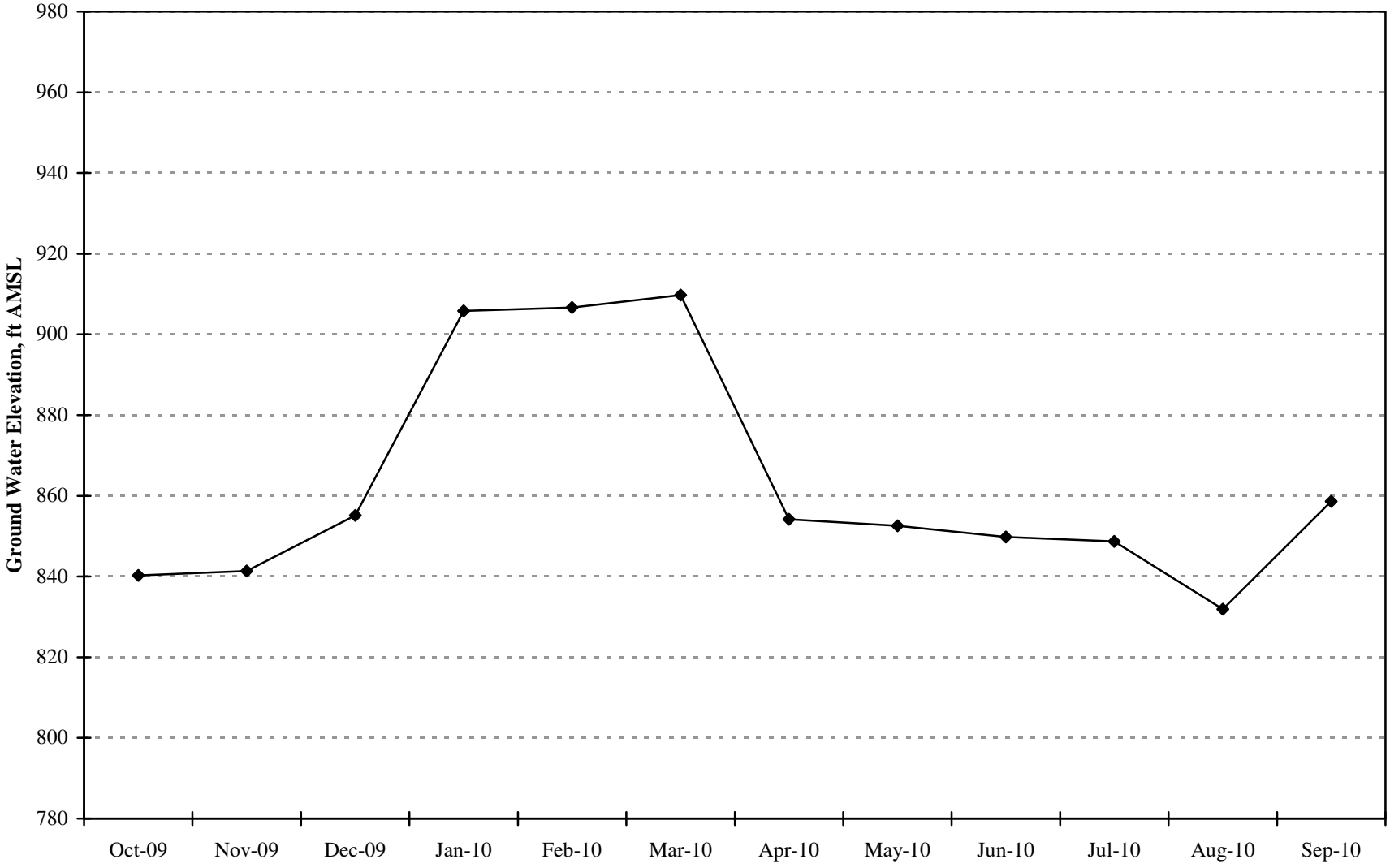
Short-Term Hydrograph - RCWD Well 124



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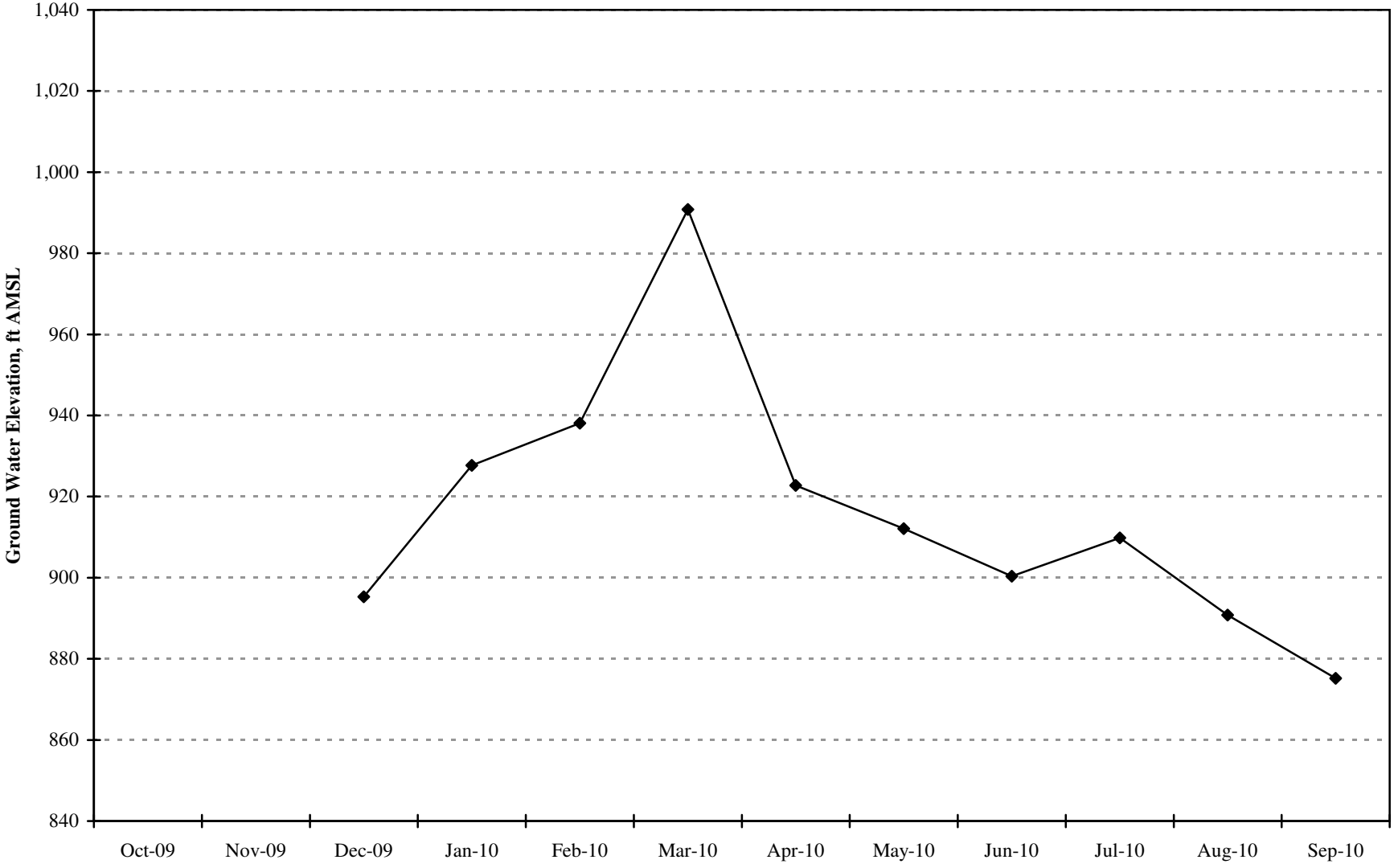
Short-Term Hydrograph - RCWD Well 125



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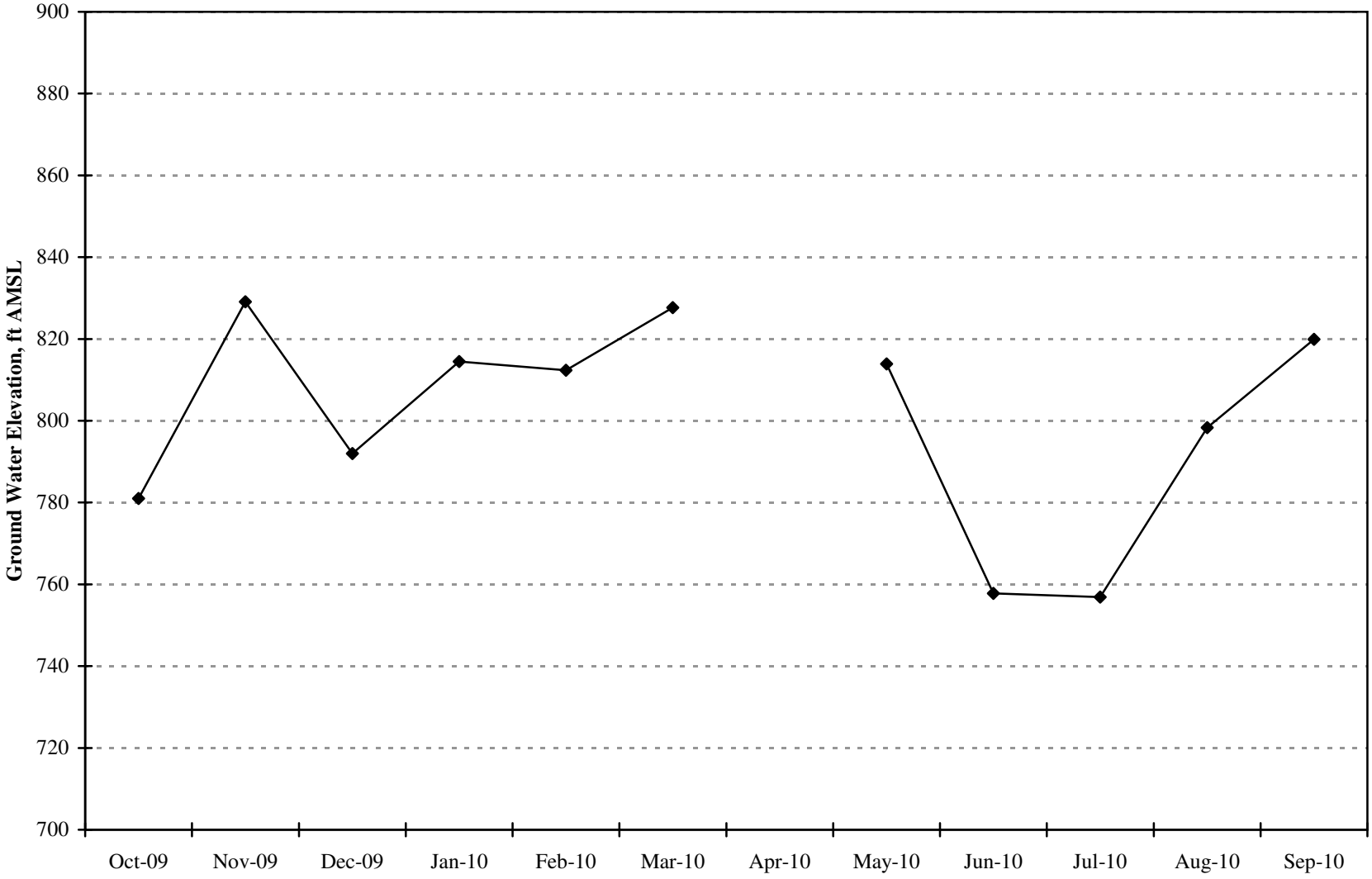
Short-Term Hydrograph - RCWD Well 126



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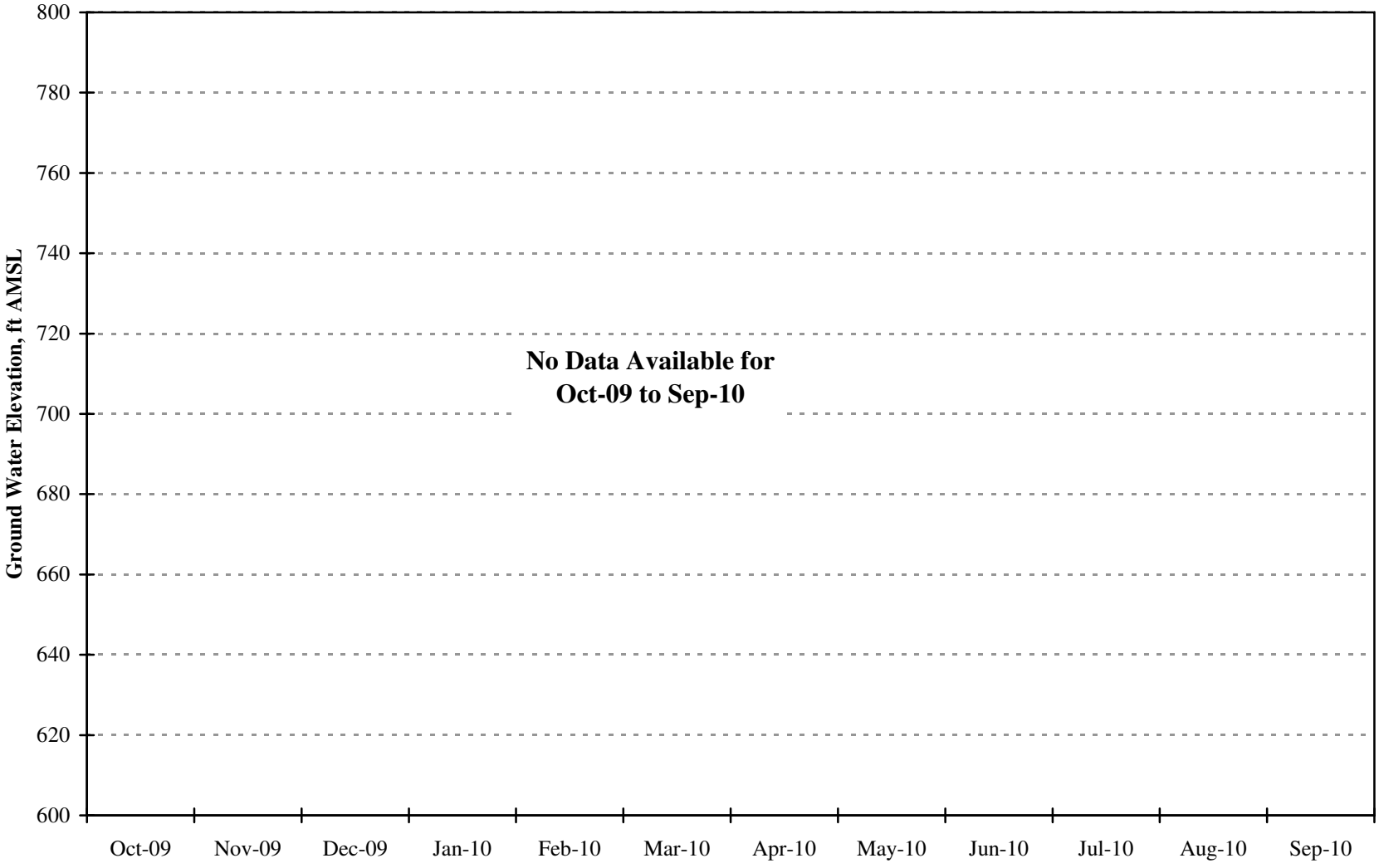
Short-Term Hydrograph - RCWD Well 128



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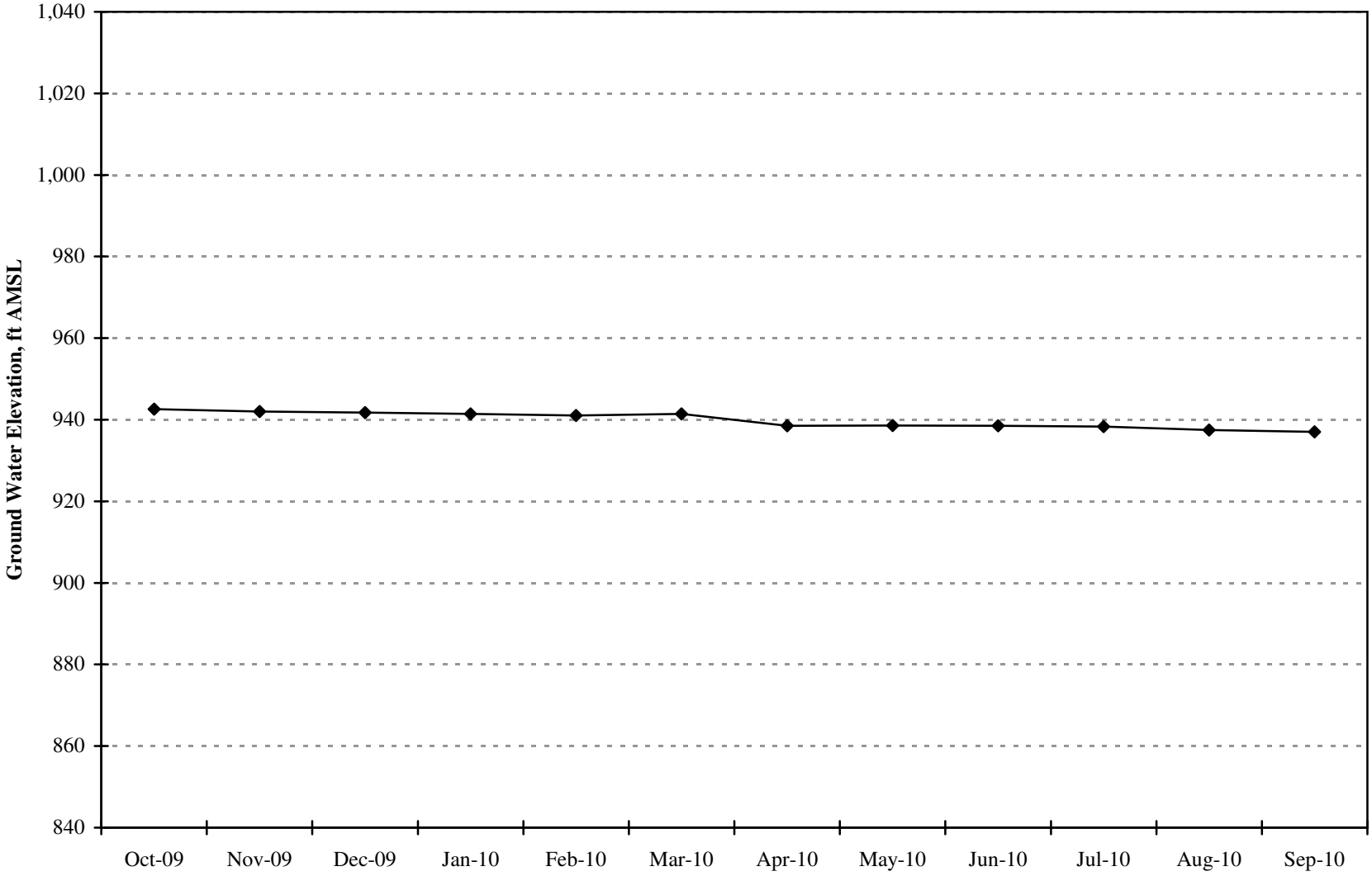
Short-Term Hydrograph - RCWD Well 129



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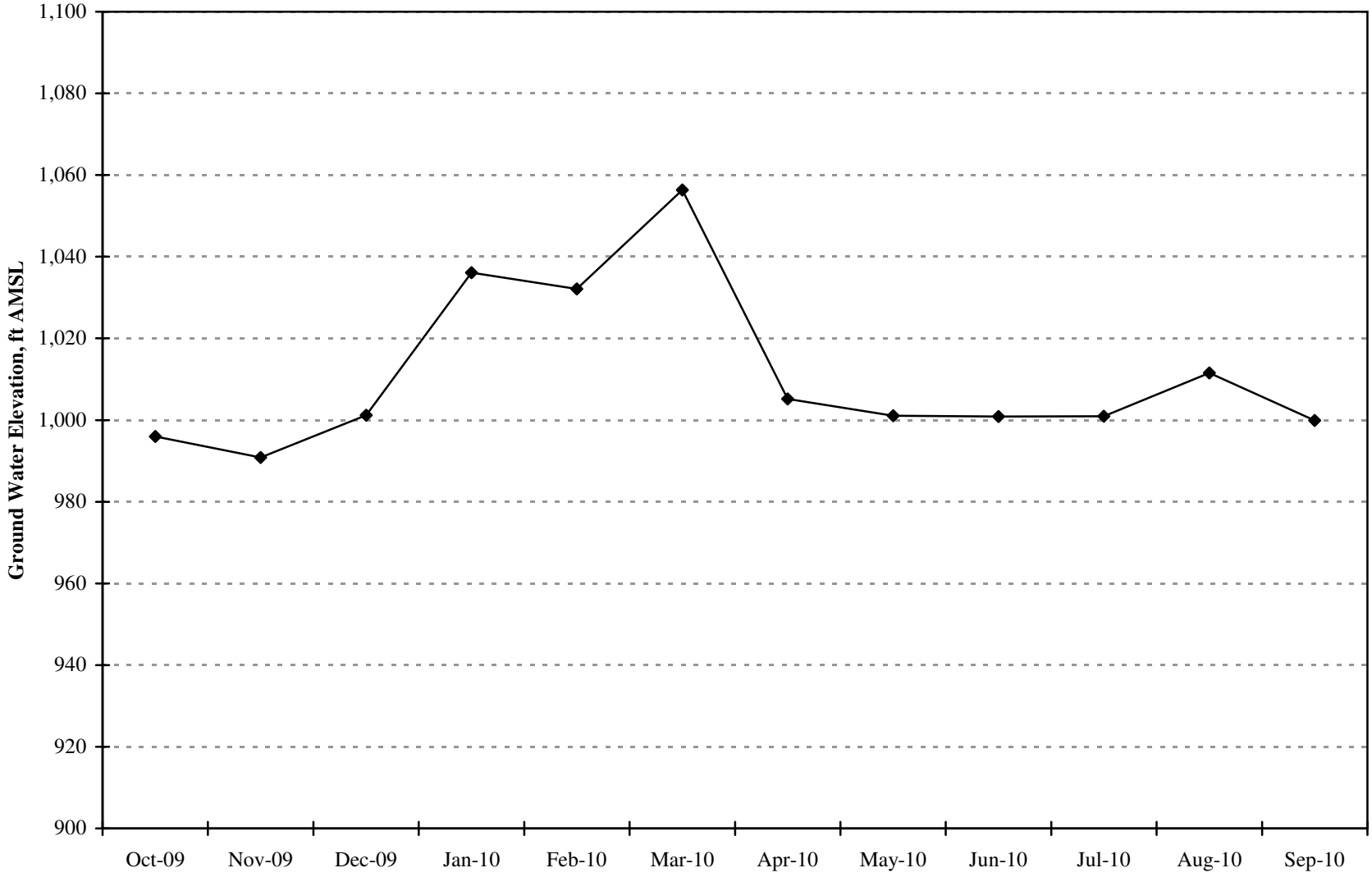
Short-Term Hydrograph - RCWD Well 130



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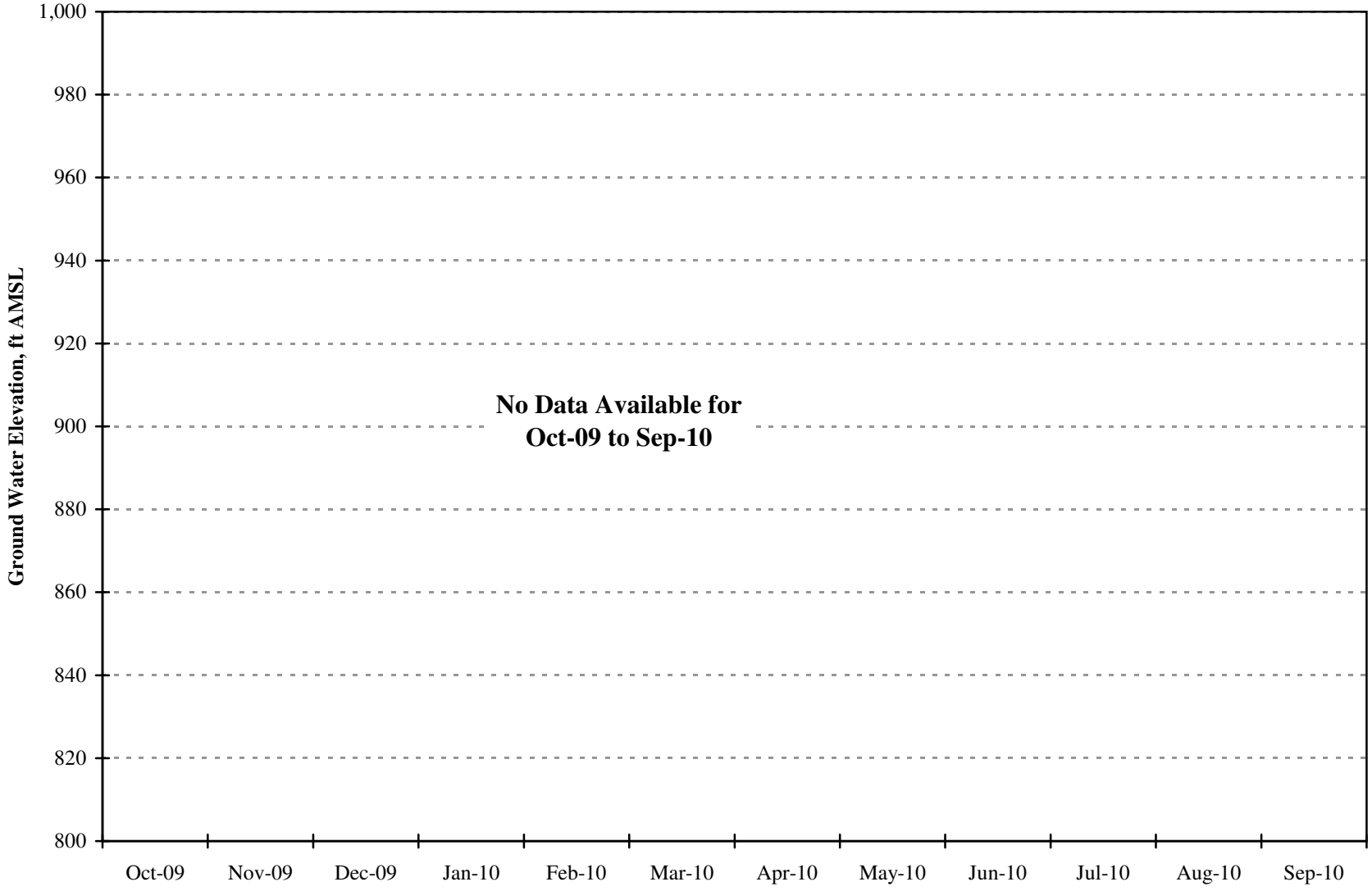
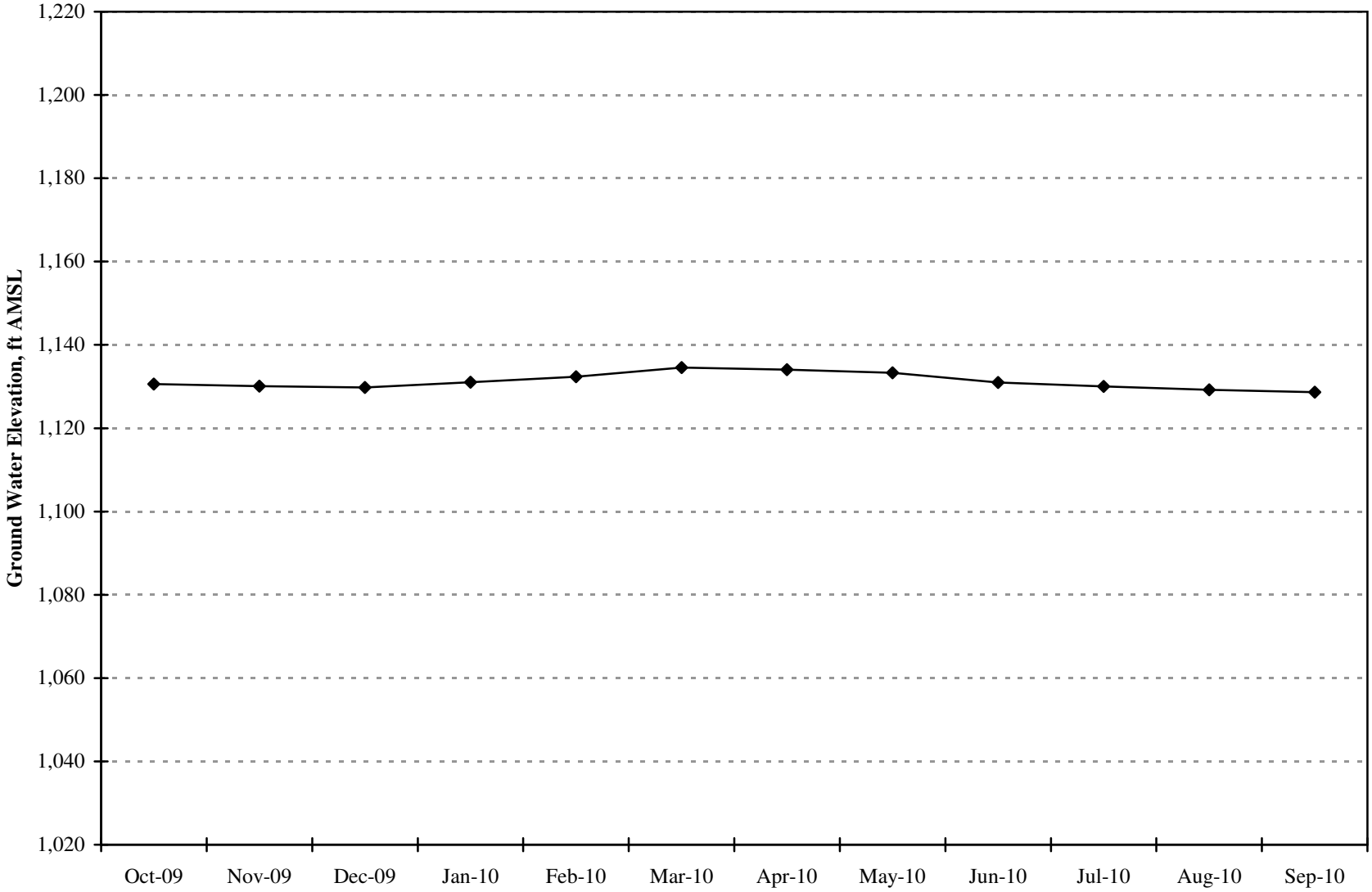
Short-Term Hydrograph - RCWD Well 131



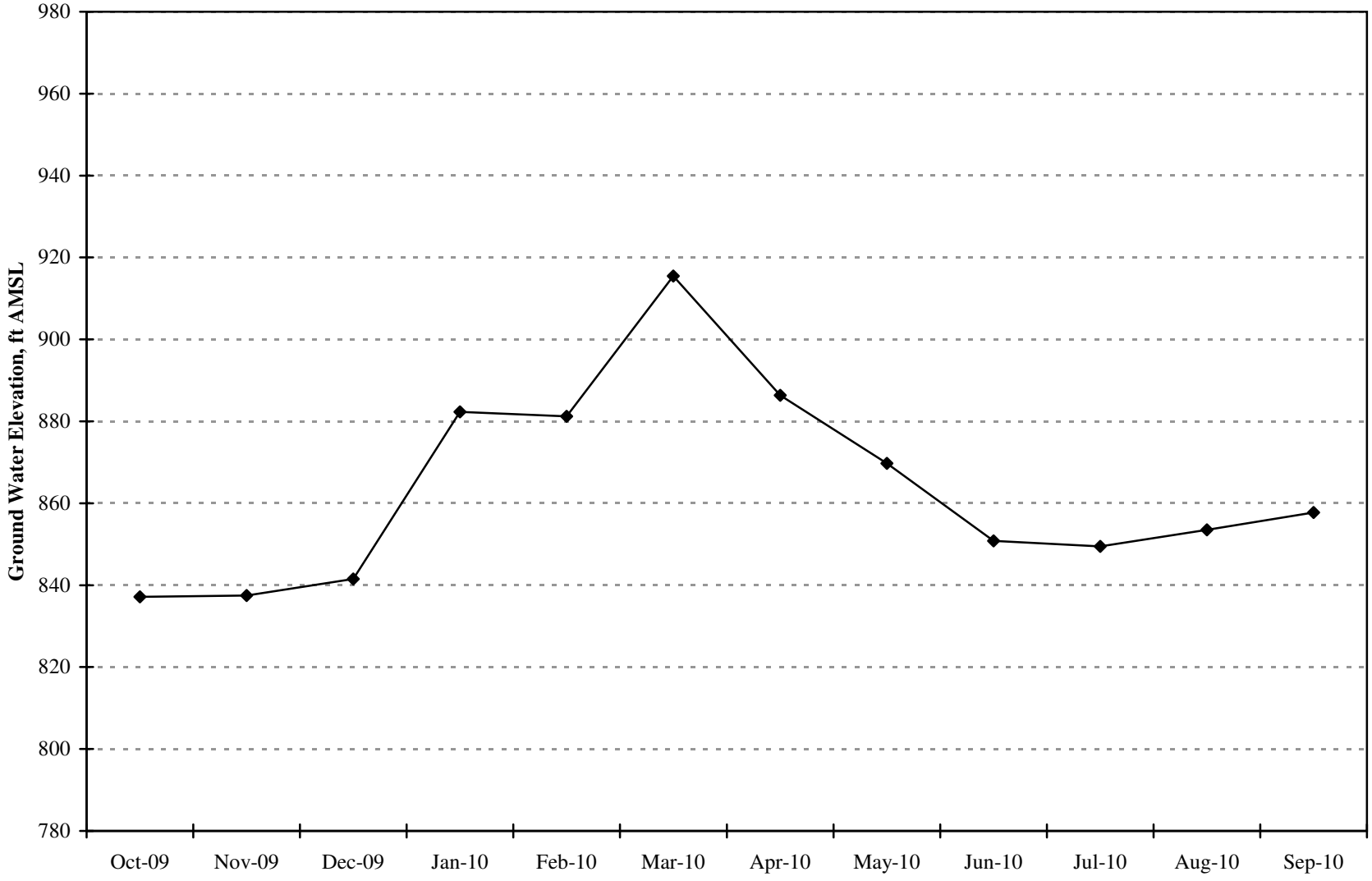
Appendix B

Short-Term Hydrograph - RCWD Well 132



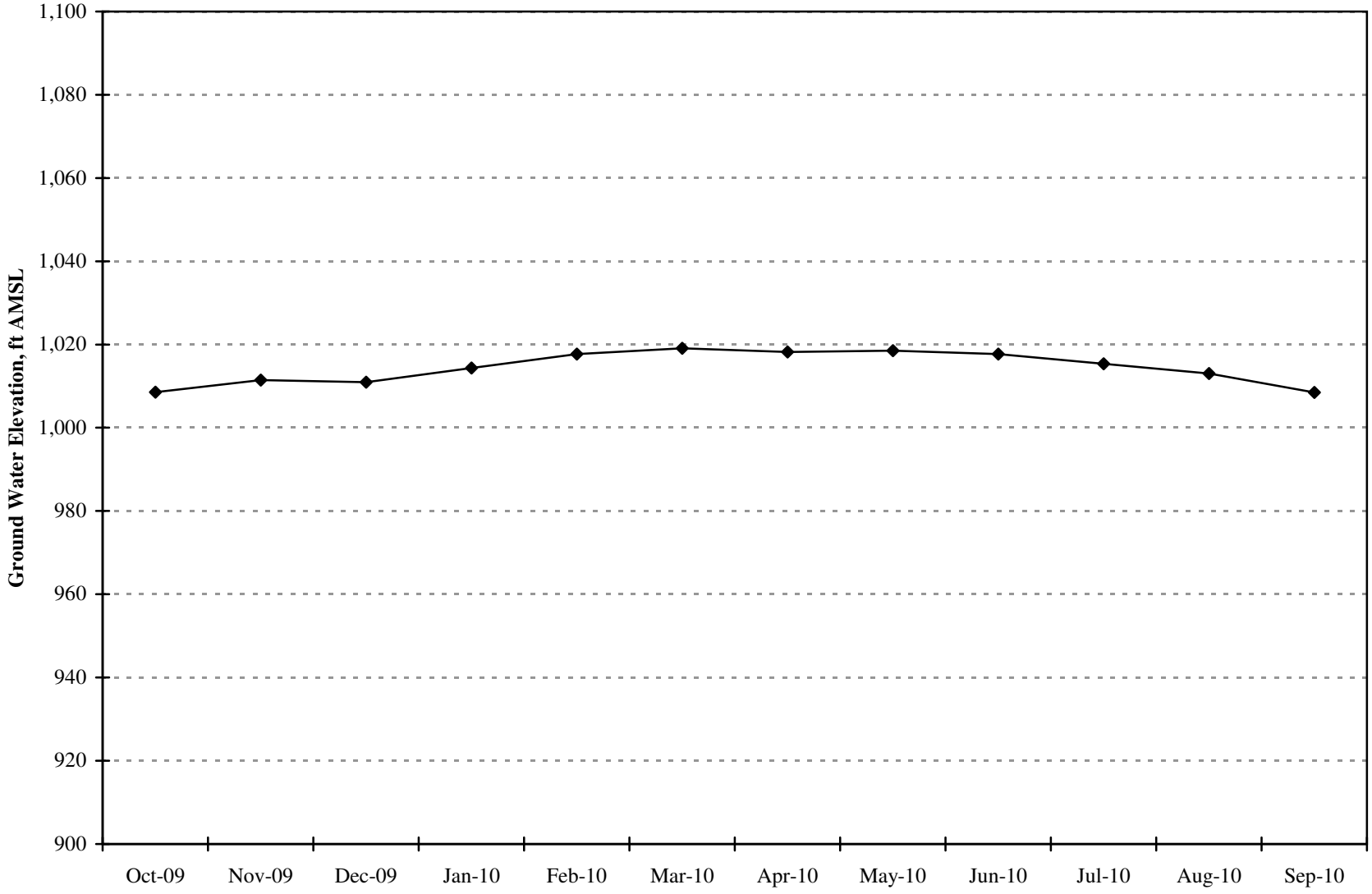
Appendix B

Short-Term Hydrograph - RCWD Well 133



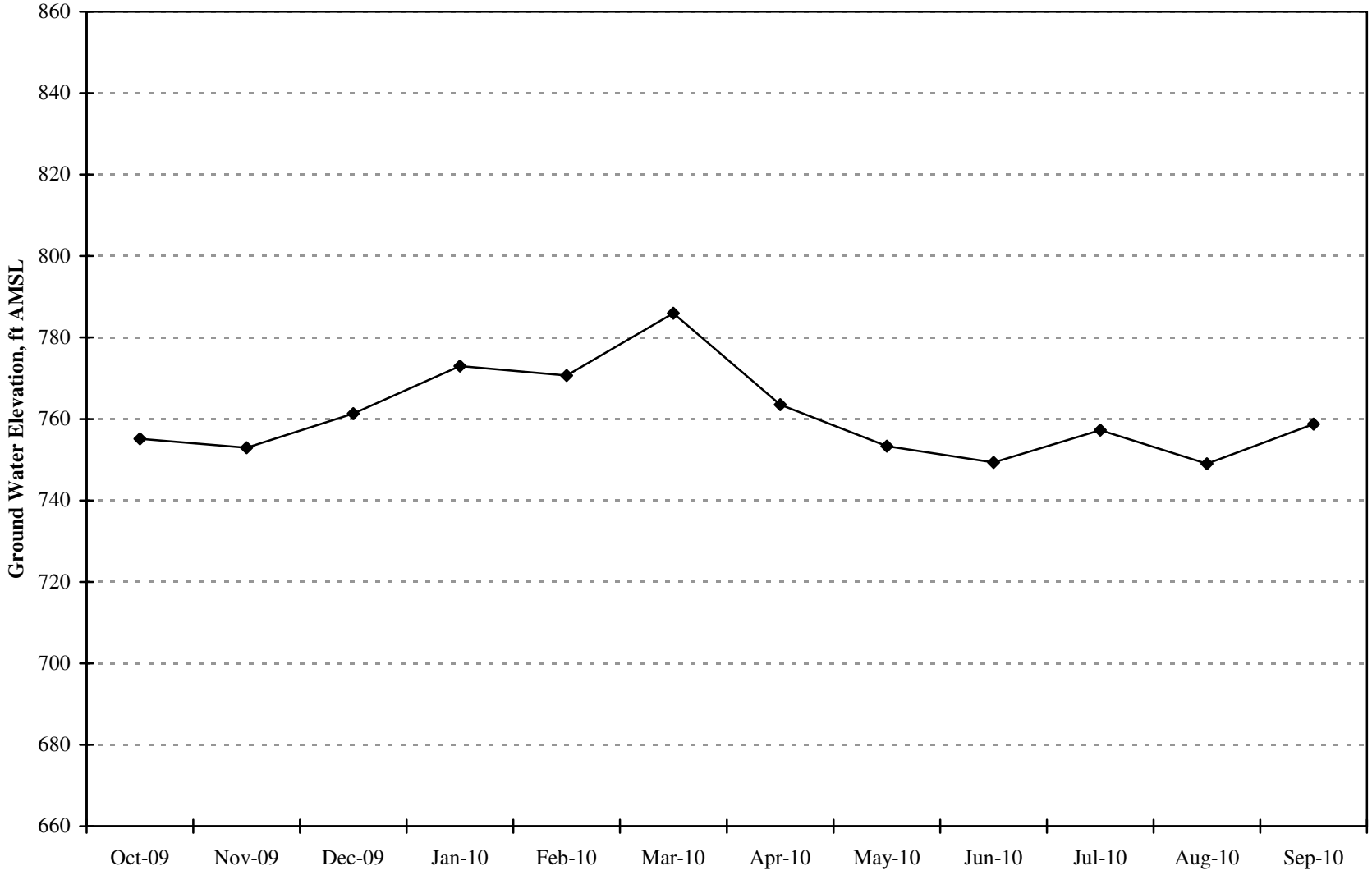
Appendix B

Short-Term Hydrograph - RCWD Well 135



Appendix B

Short-Term Hydrograph - RCWD Well 138



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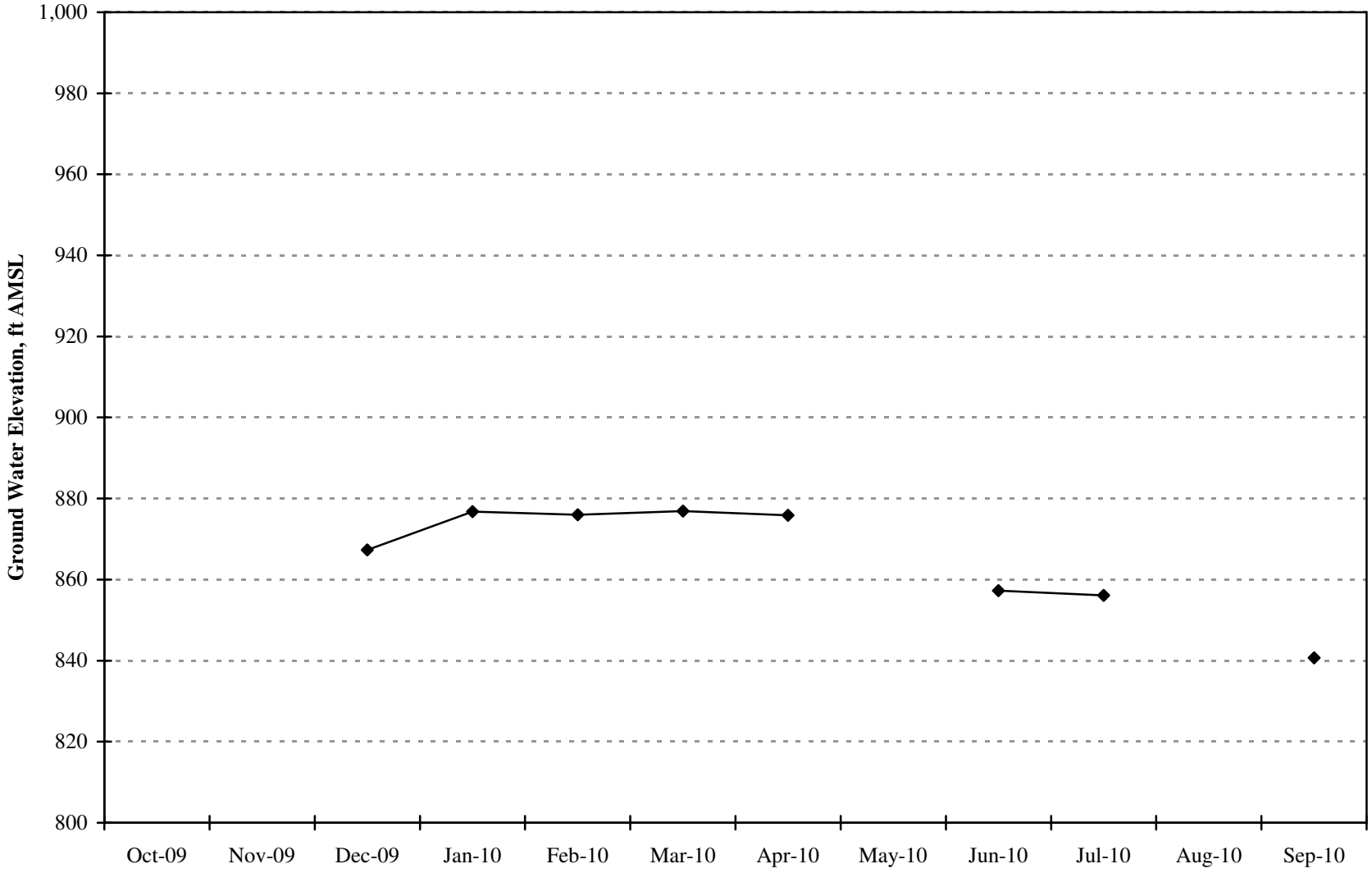
Short-Term Hydrograph - RCWD Well 139



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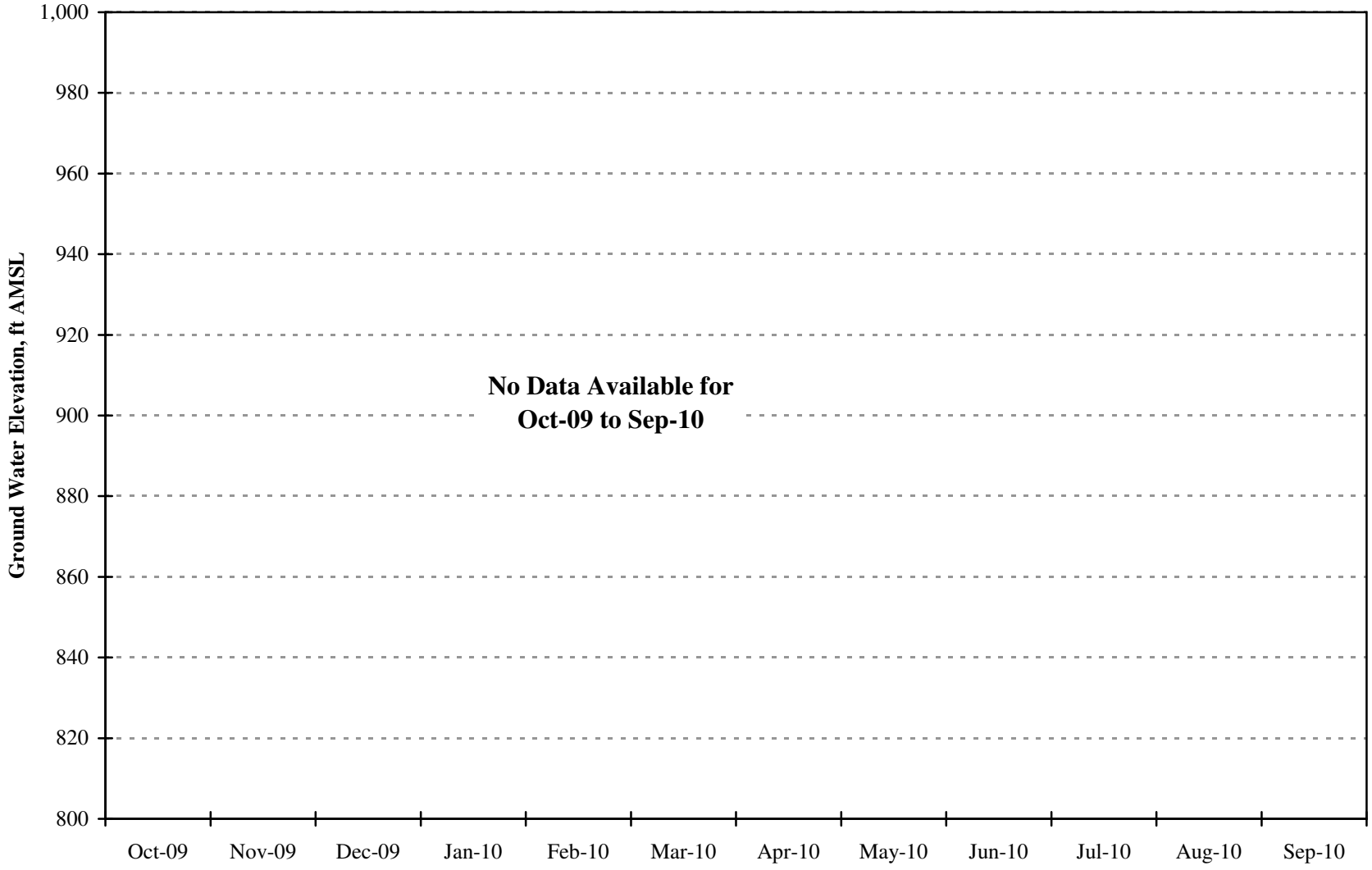
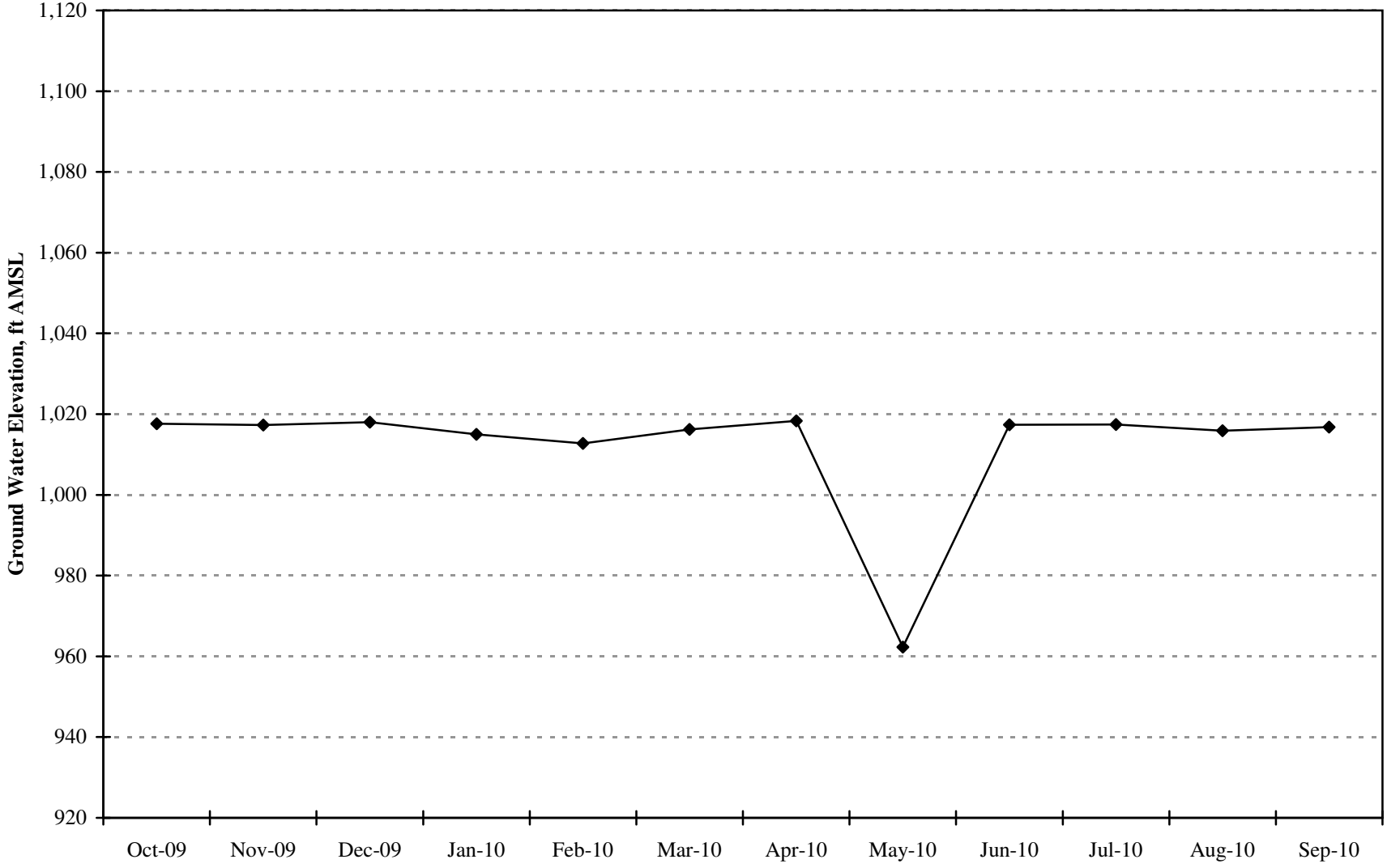
Short-Term Hydrograph - RCWD Well 140



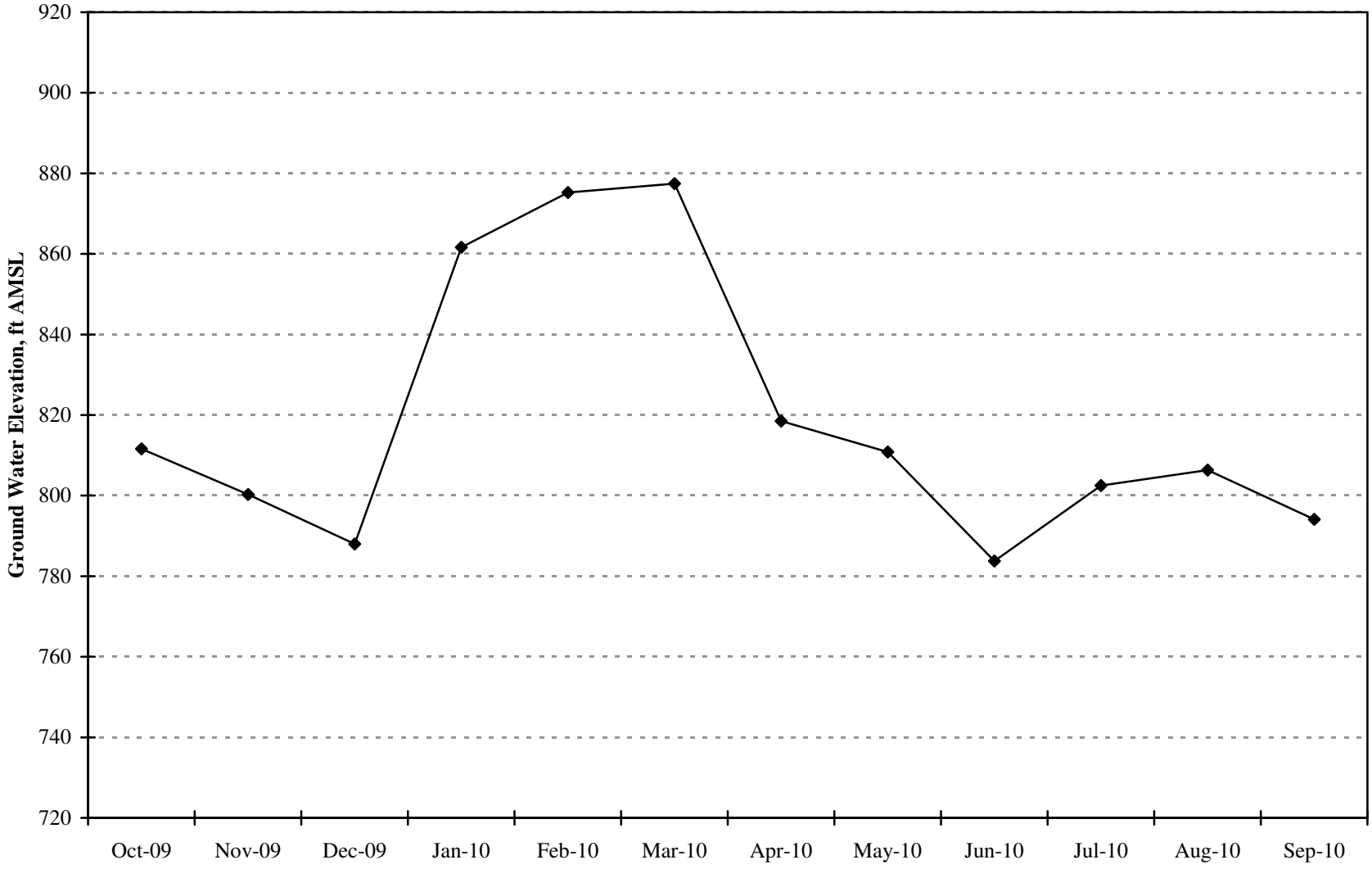
Appendix B

Short-Term Hydrograph - RCWD Well 141



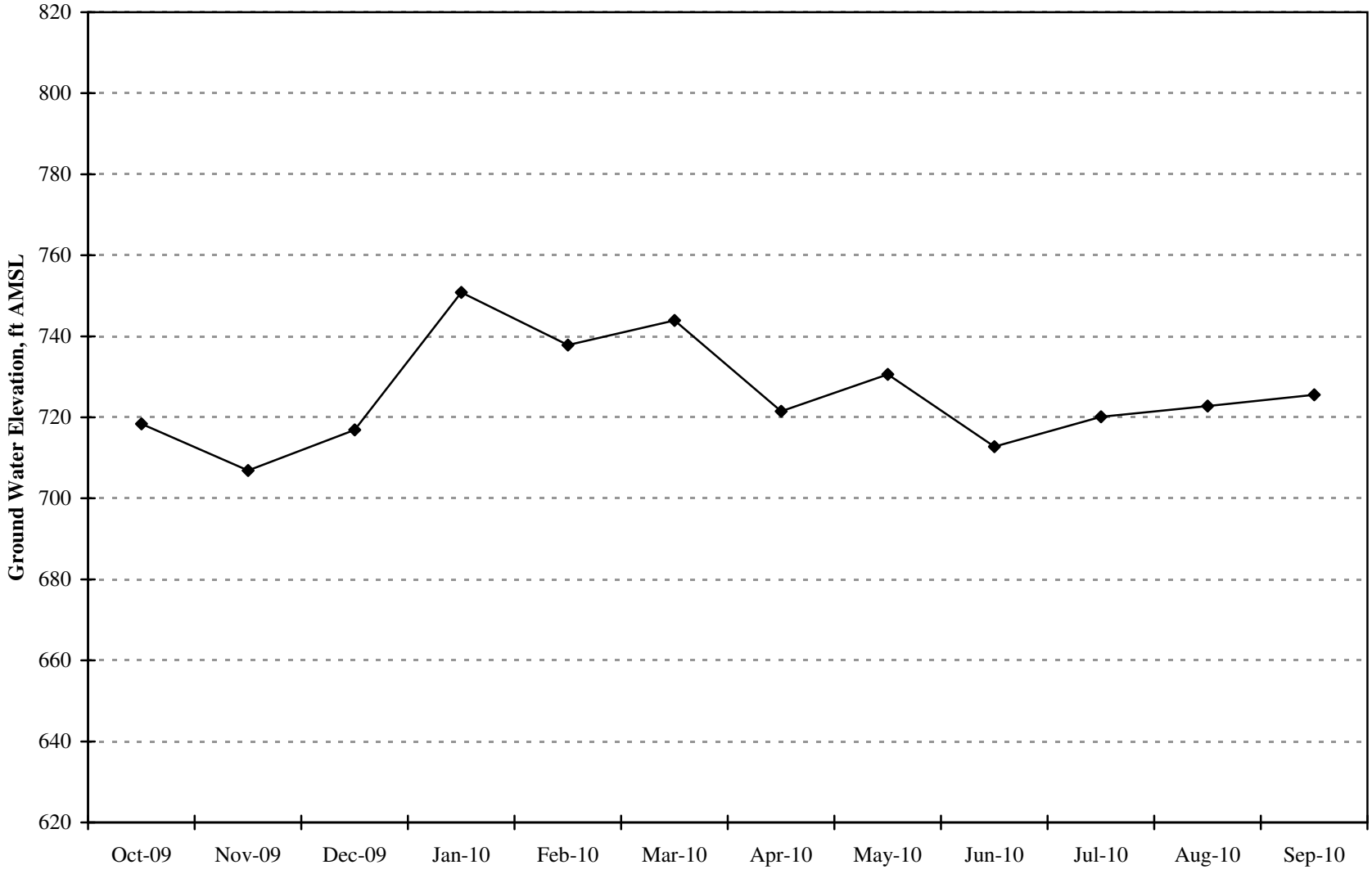
Appendix B

Short-Term Hydrograph - RCWD Well 143



Appendix B

Short-Term Hydrograph - RCWD Well 144



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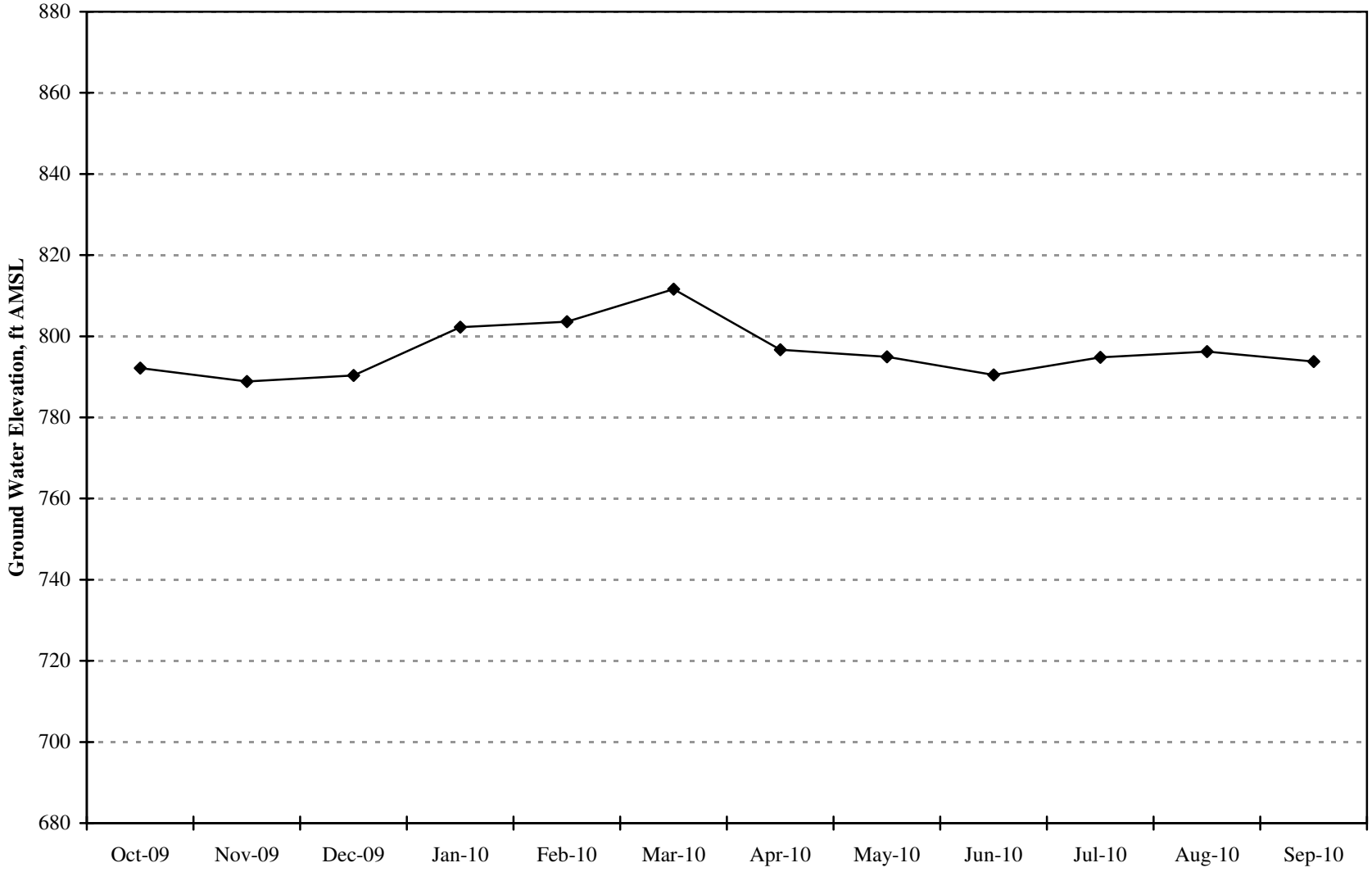
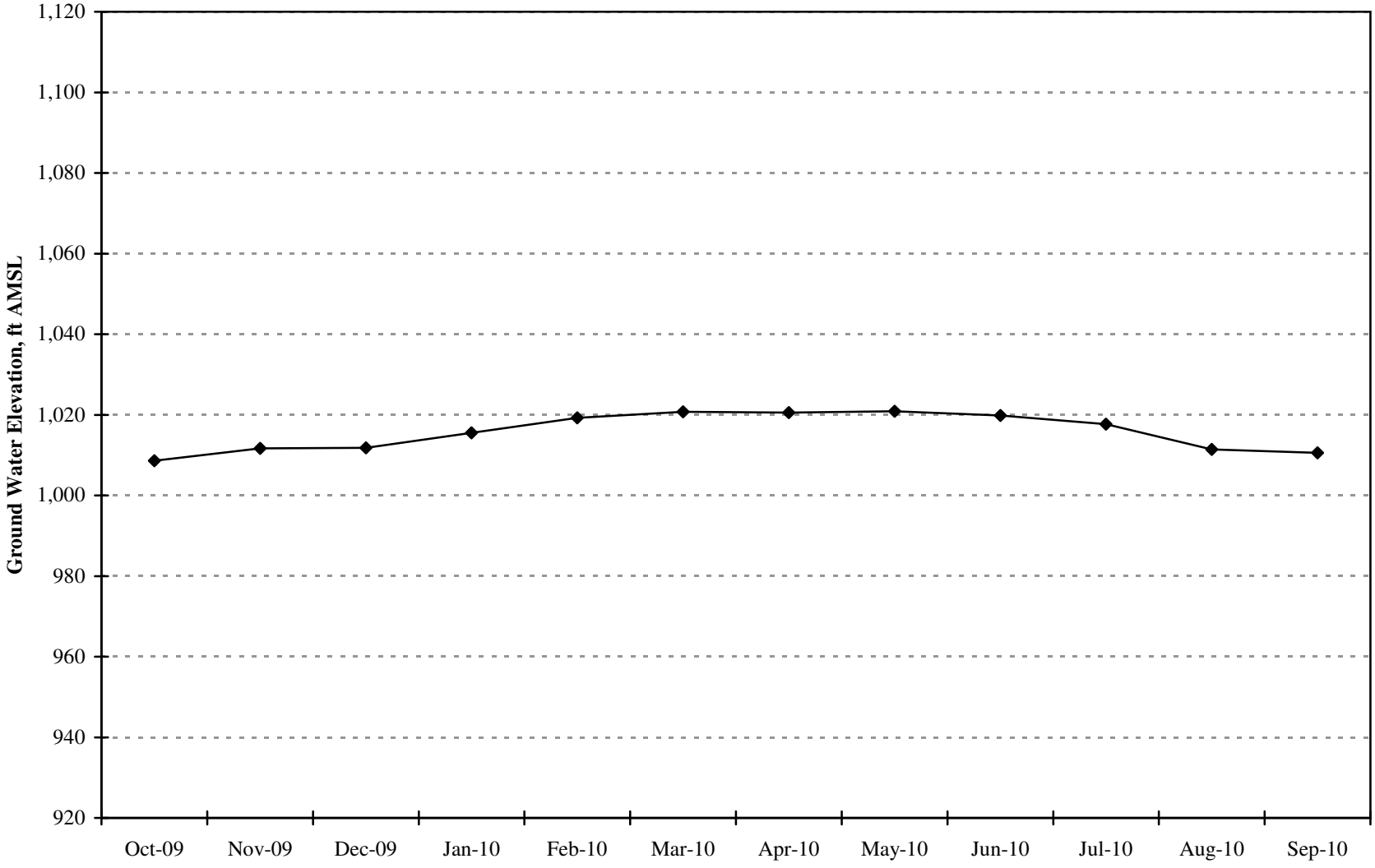
Short-Term Hydrograph - RCWD Well 145



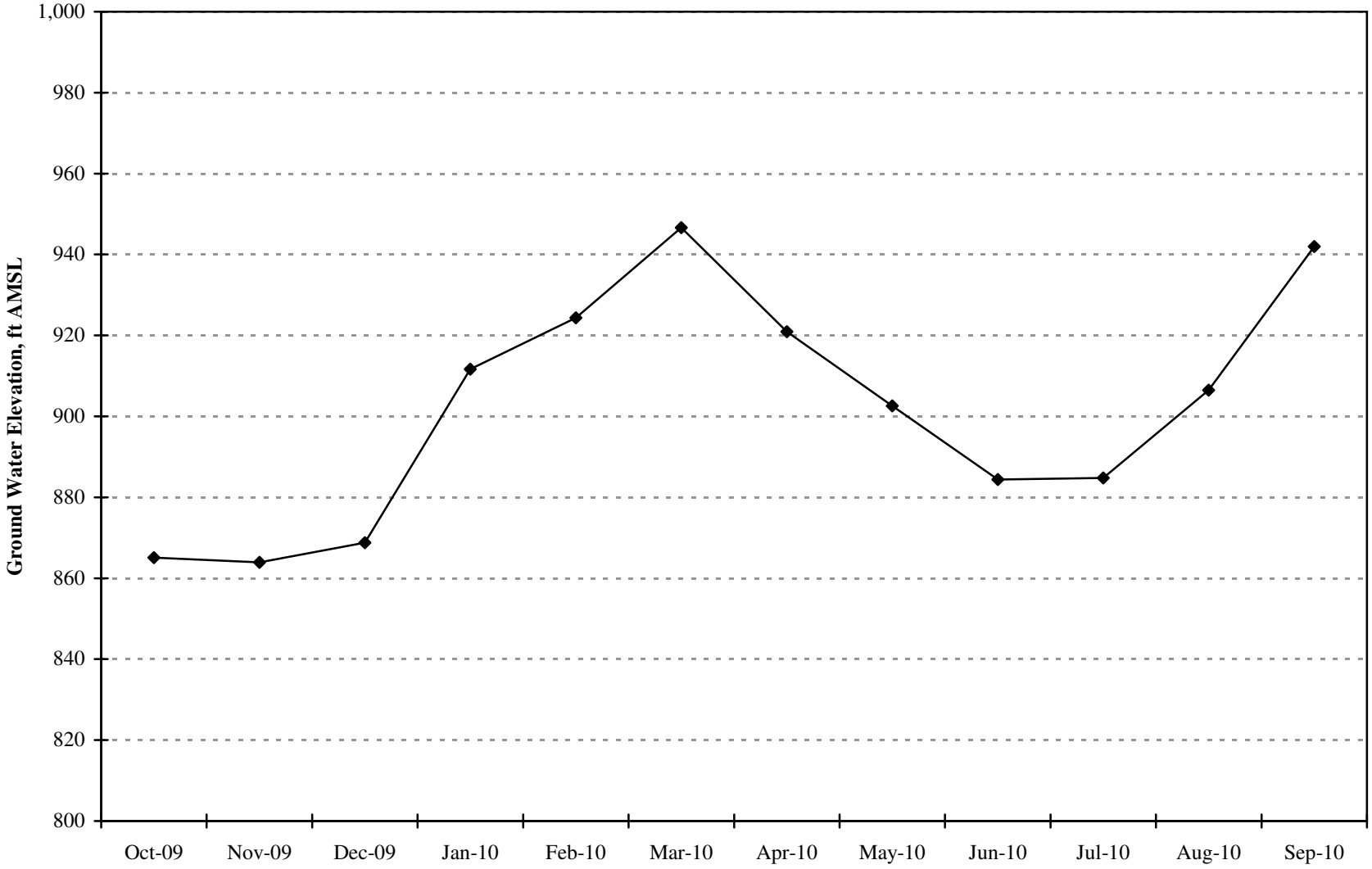
Appendix B

Short-Term Hydrograph - RCWD Well 146



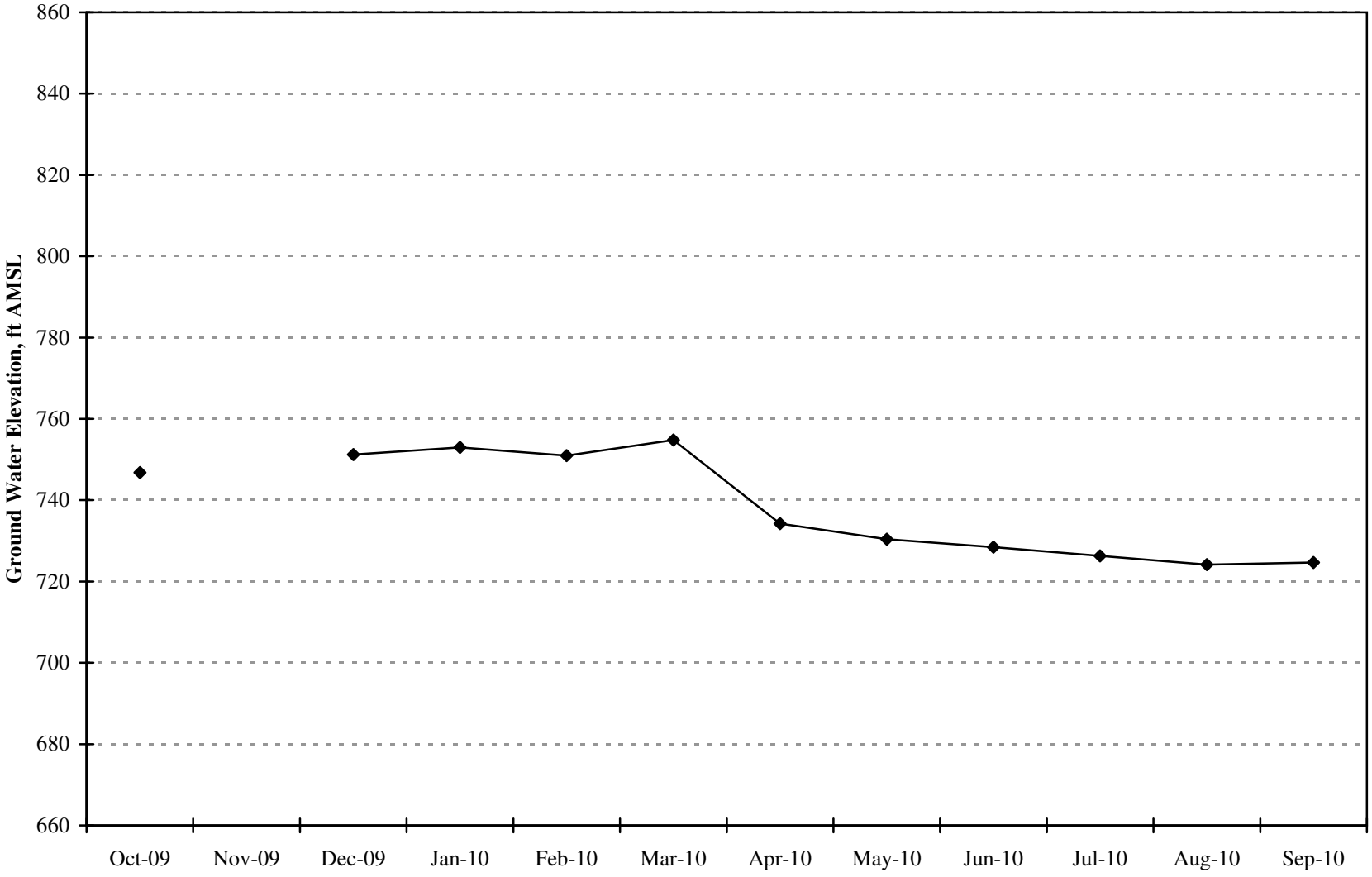
Appendix B

Short-Term Hydrograph - RCWD Well 149



Appendix B

Short-Term Hydrograph - RCWD Well 151



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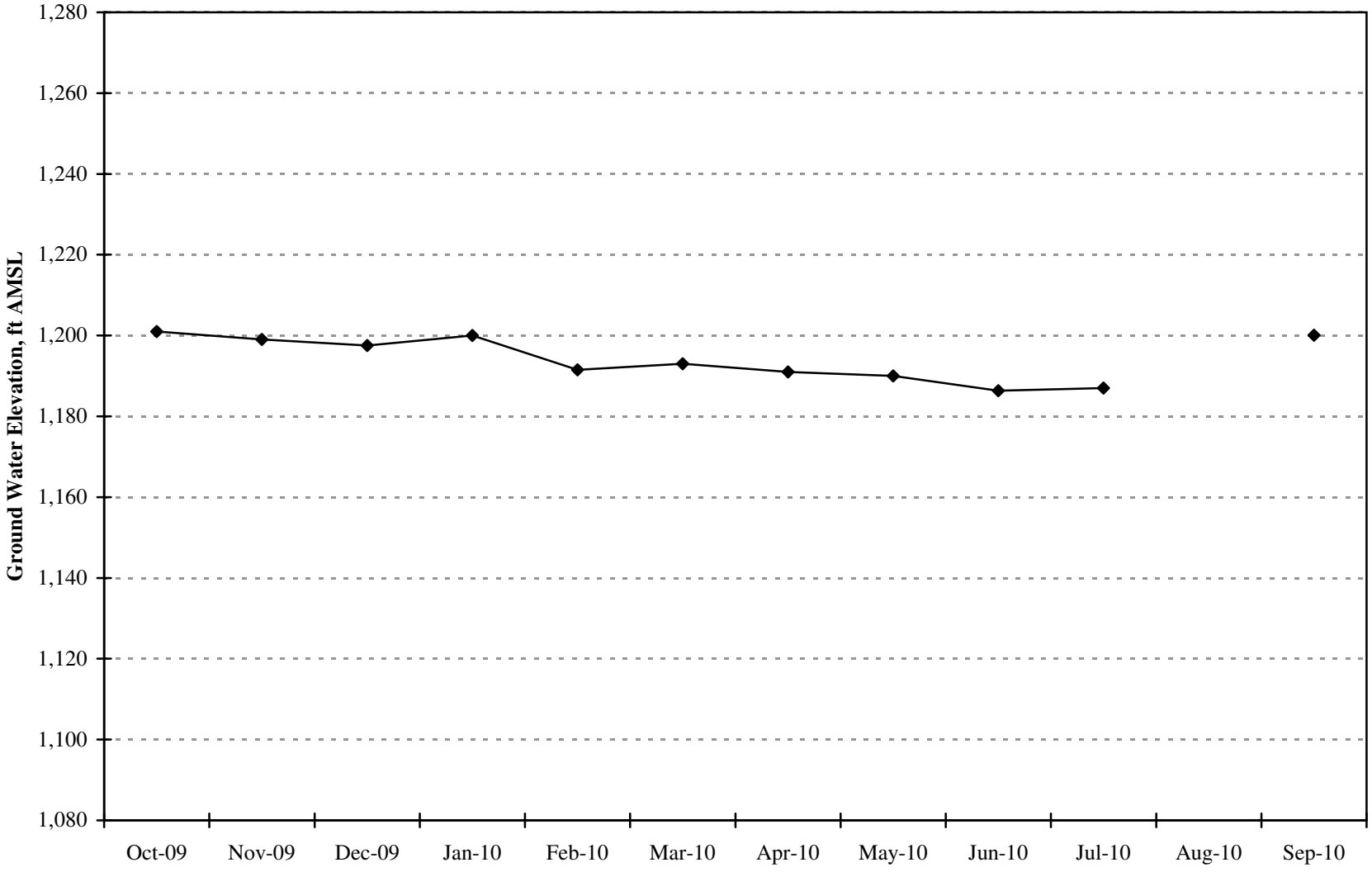
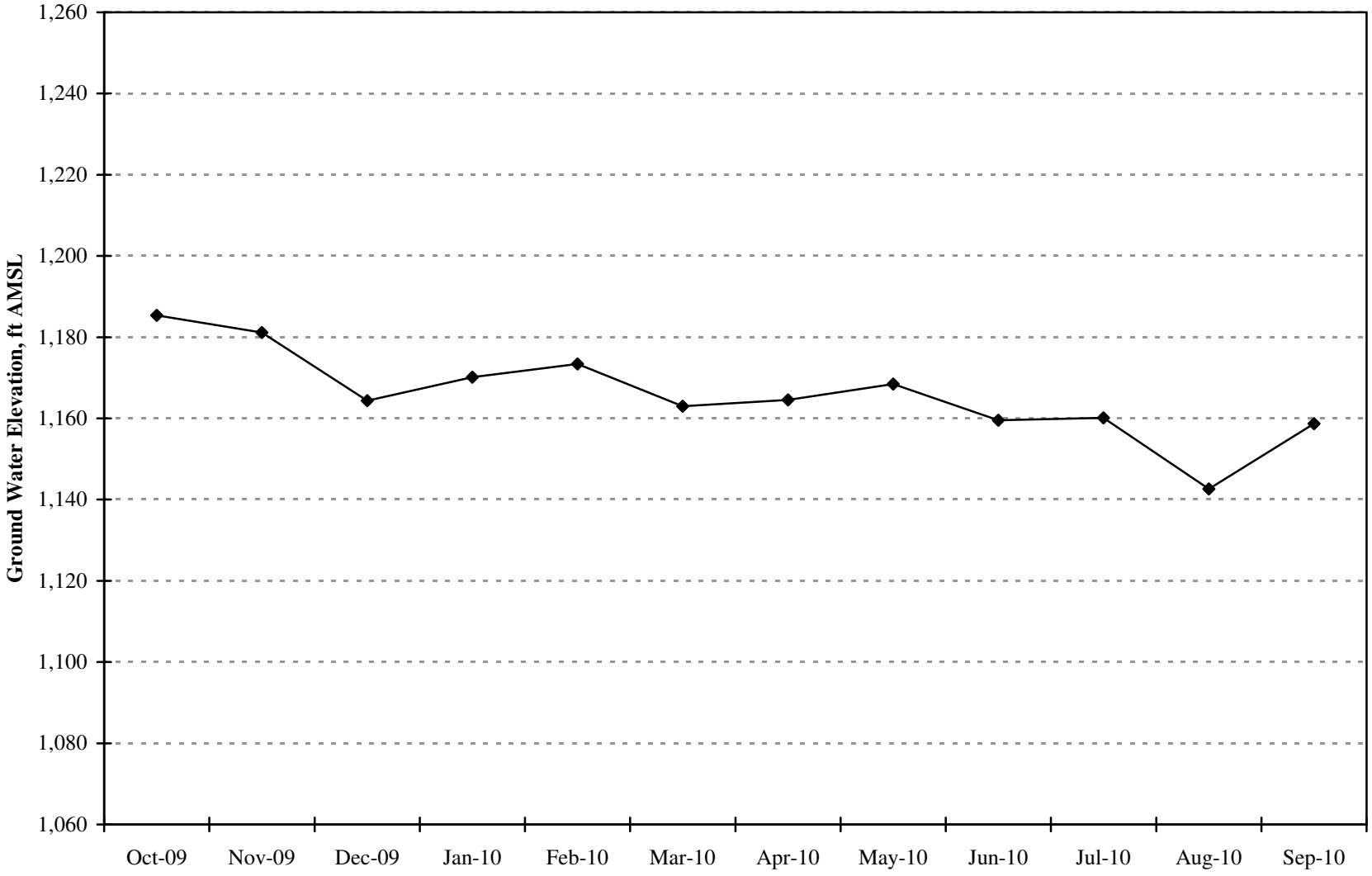
Short-Term Hydrograph - RCWD Well 152



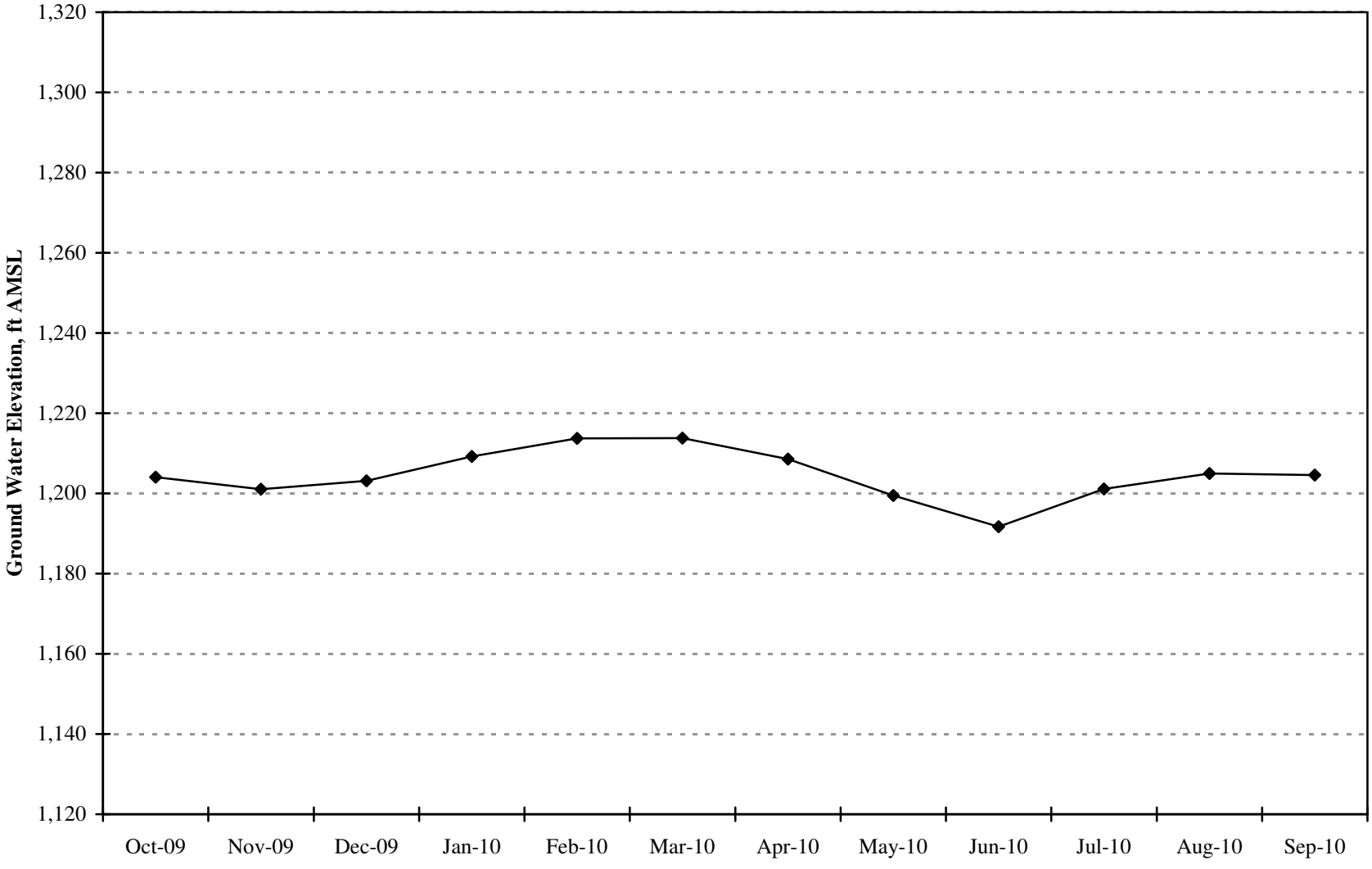
Appendix B

Short-Term Hydrograph - RCWD Well 153



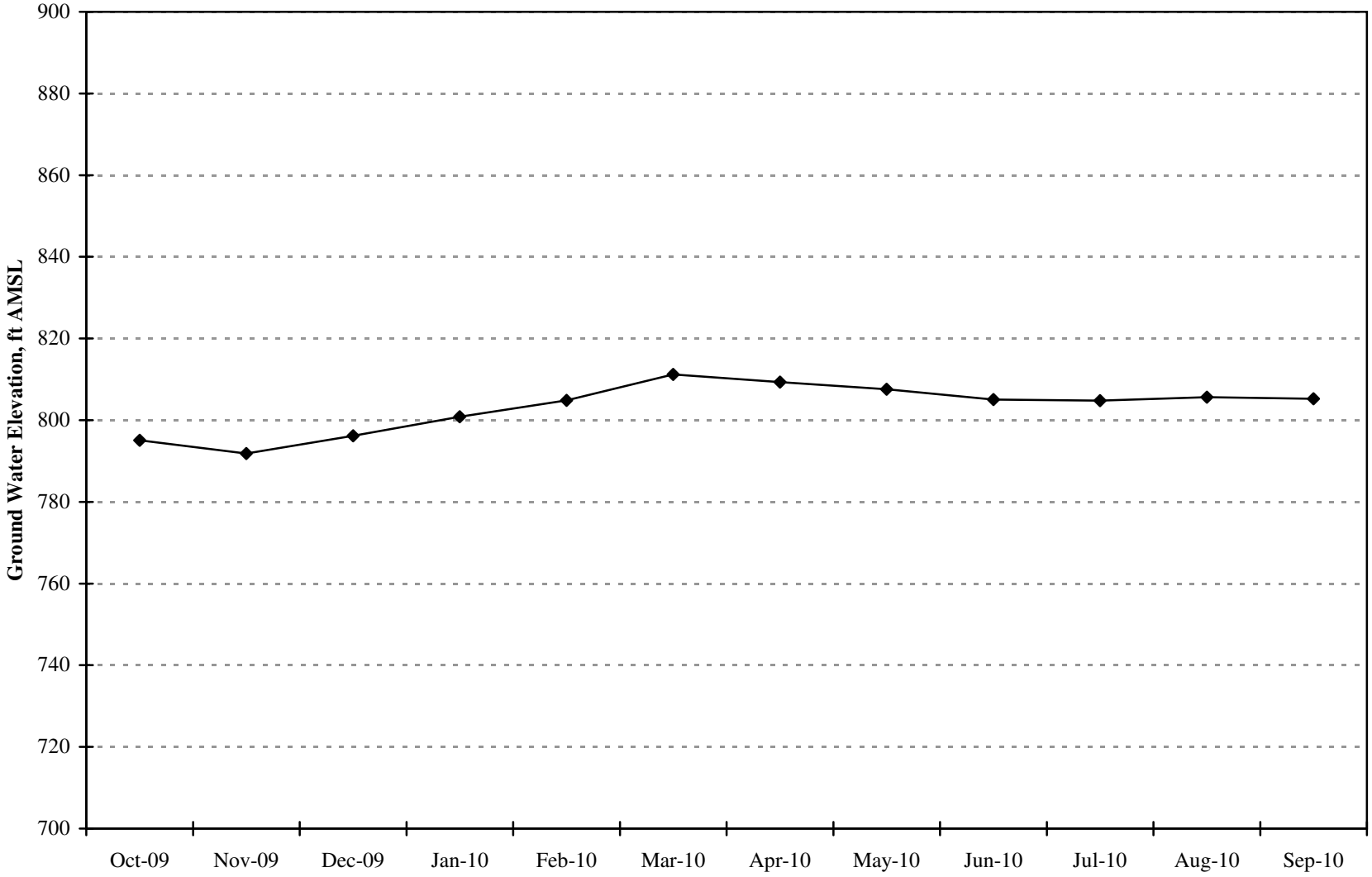
Appendix B

Short-Term Hydrograph - RCWD Well 154



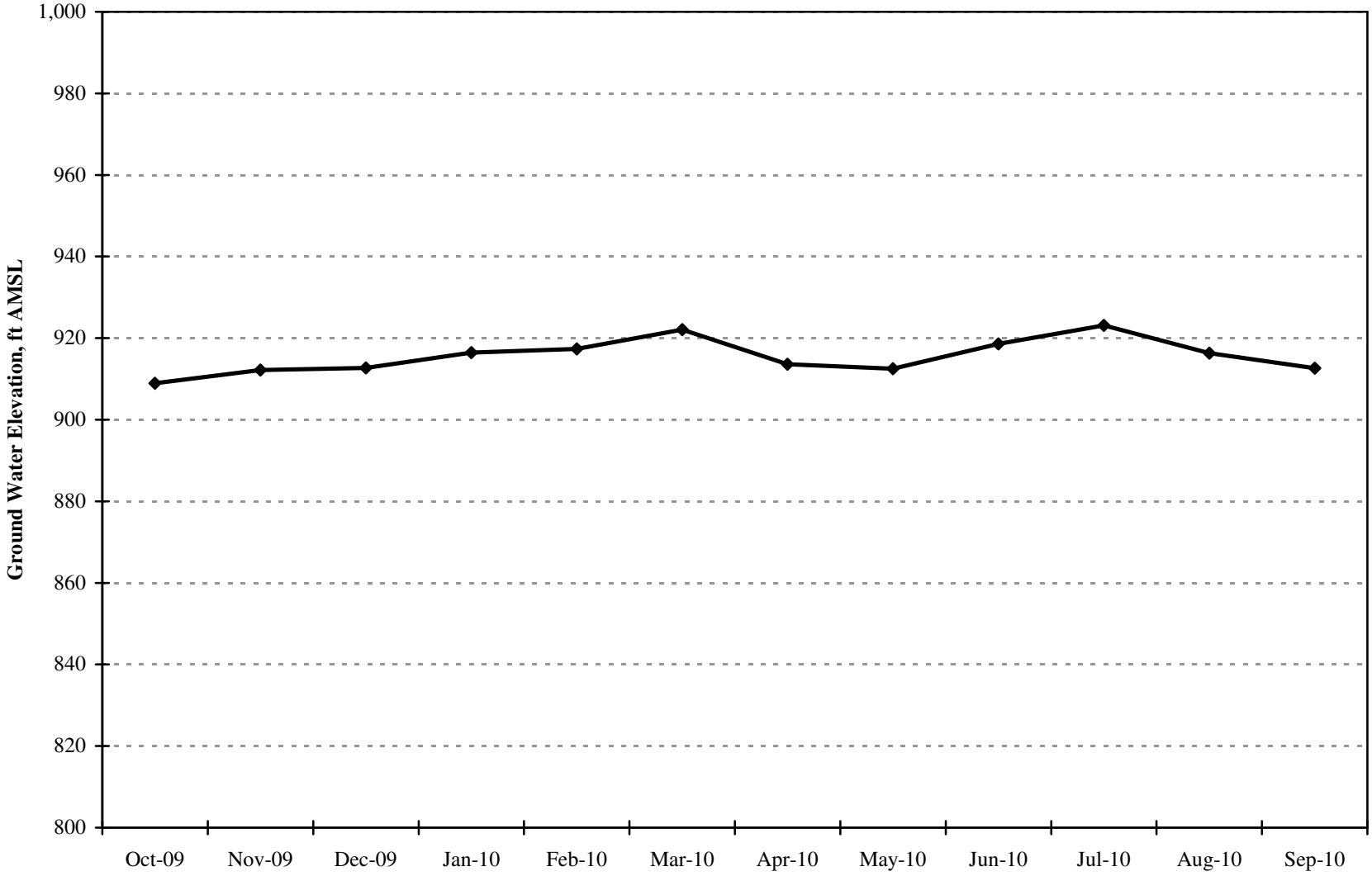
Appendix B

Short-Term Hydrograph - RCWD Well 155



Appendix B

Short-Term Hydrograph - RCWD Well 156



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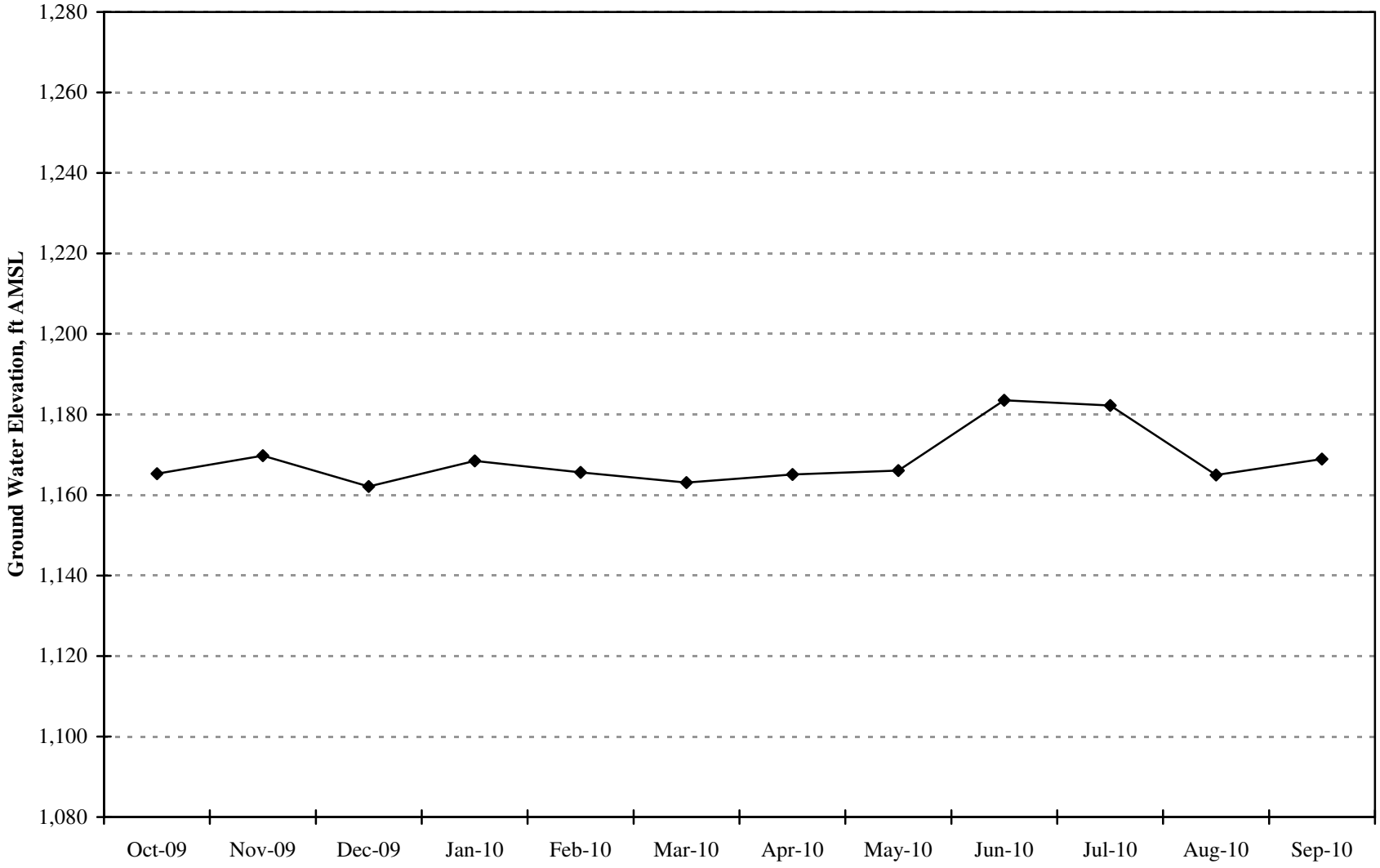
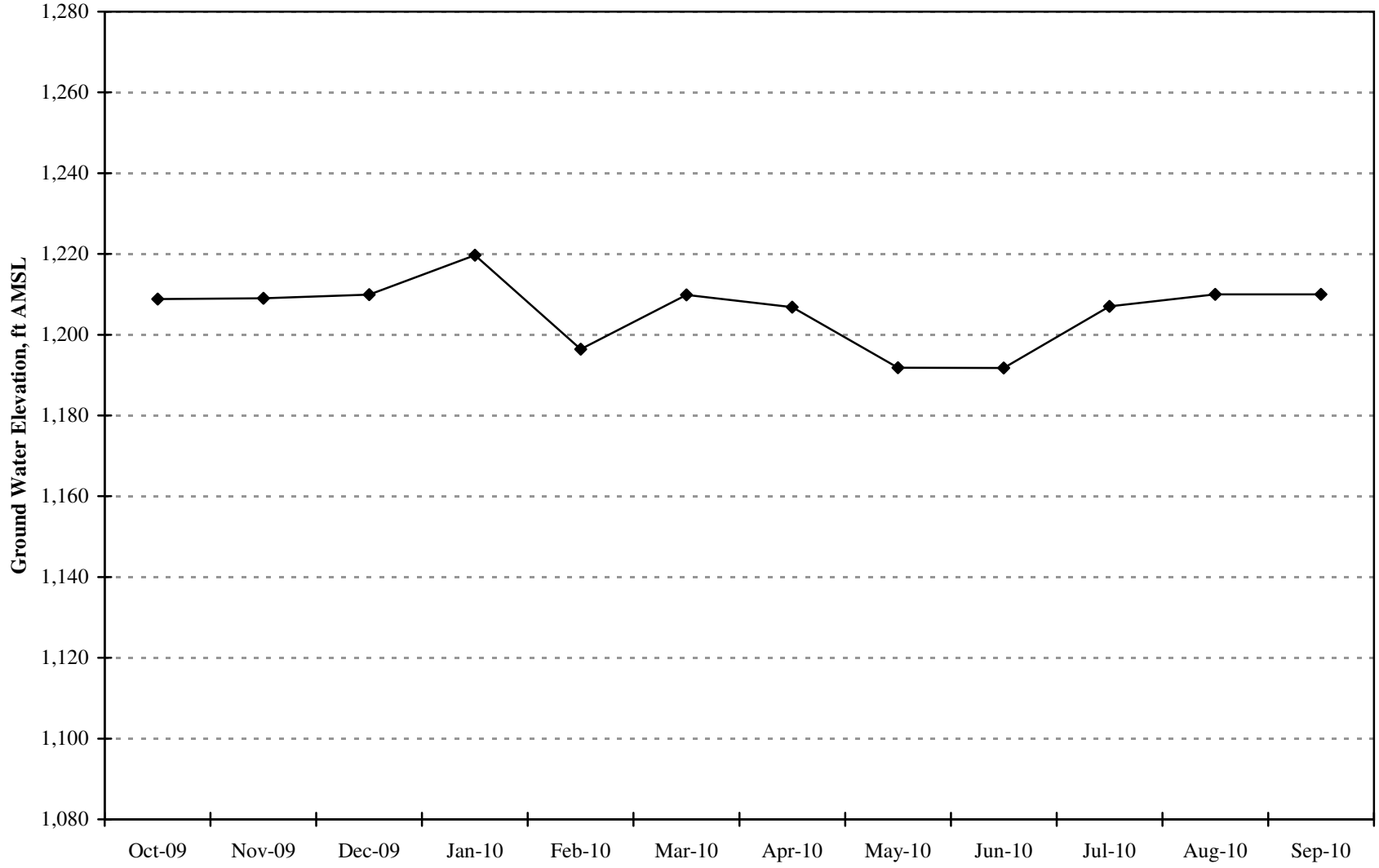
Short-Term Hydrograph - RCWD Well 157

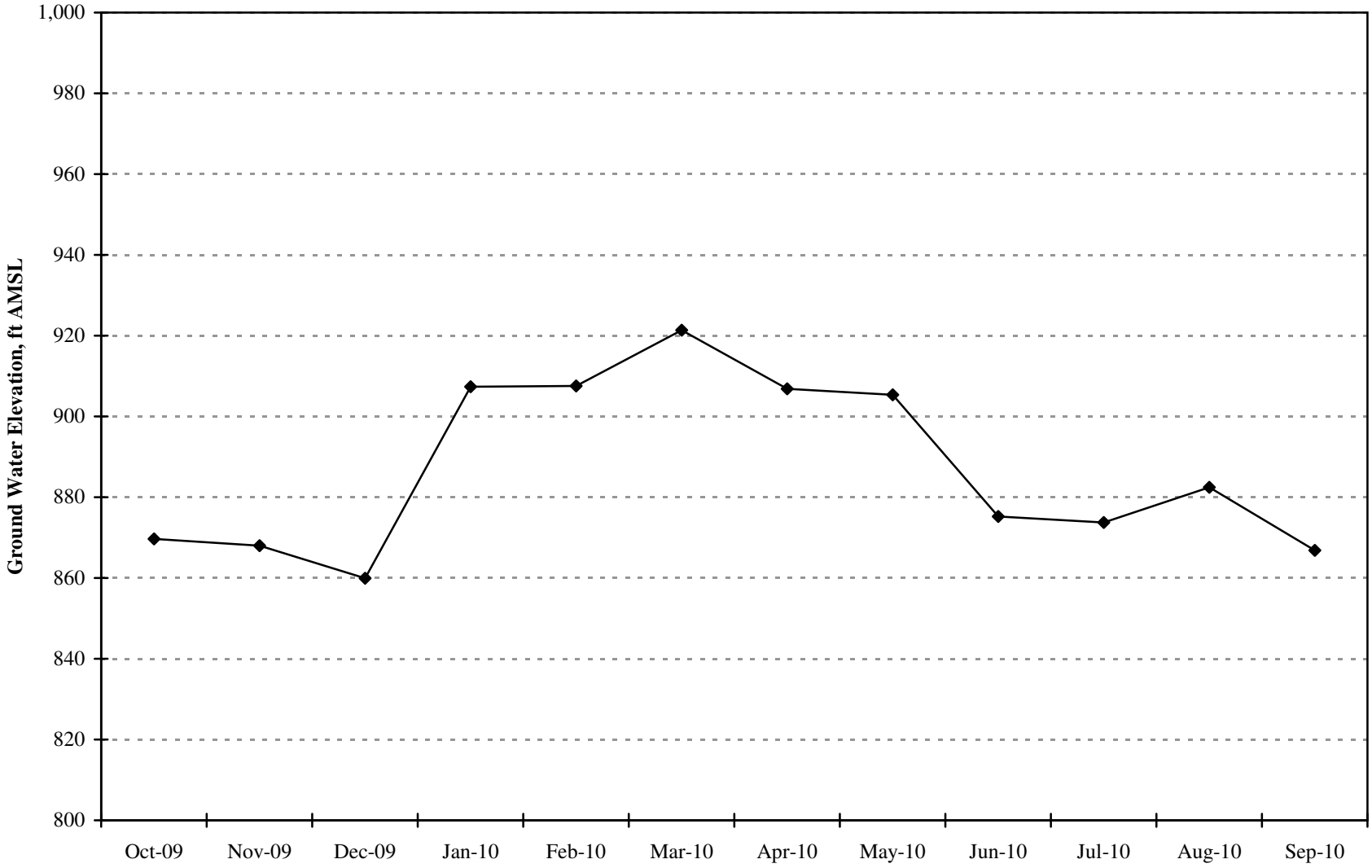


Appendix B

Short-Term Hydrograph - RCWD Well 158



Short-Term Hydrograph - RCWD Well 203



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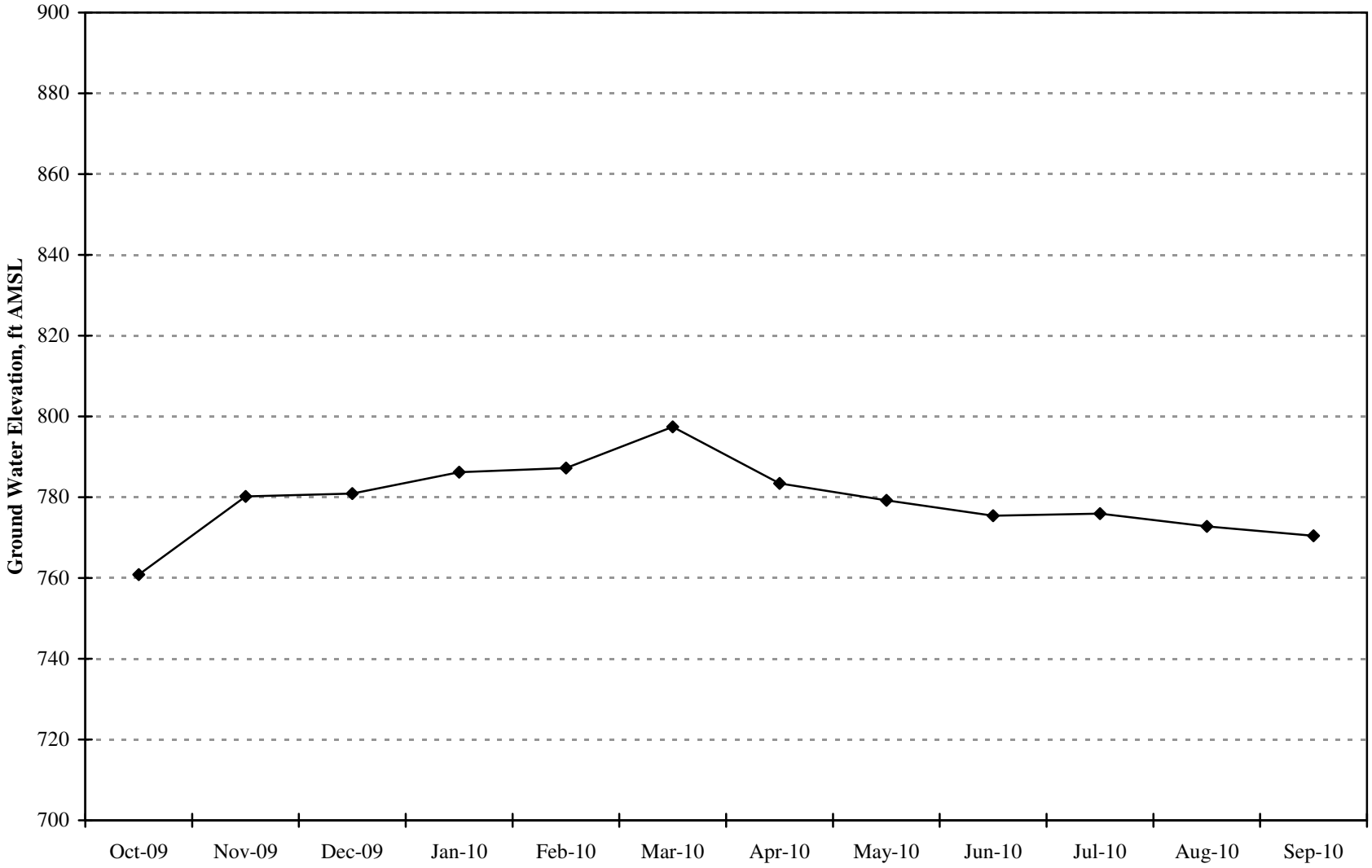
Short-Term Hydrograph - RCWD Well 205



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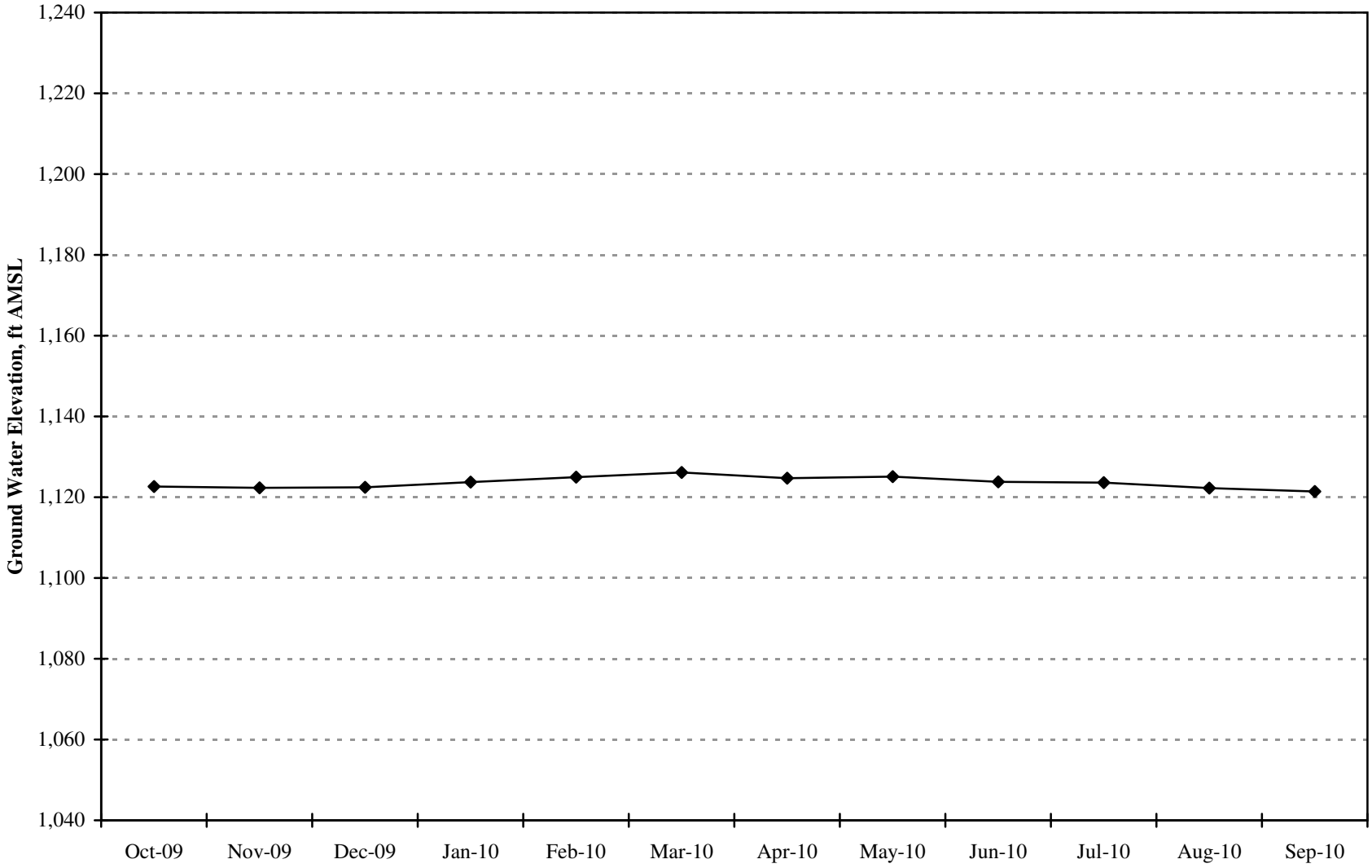
Short-Term Hydrograph - RCWD Well 210



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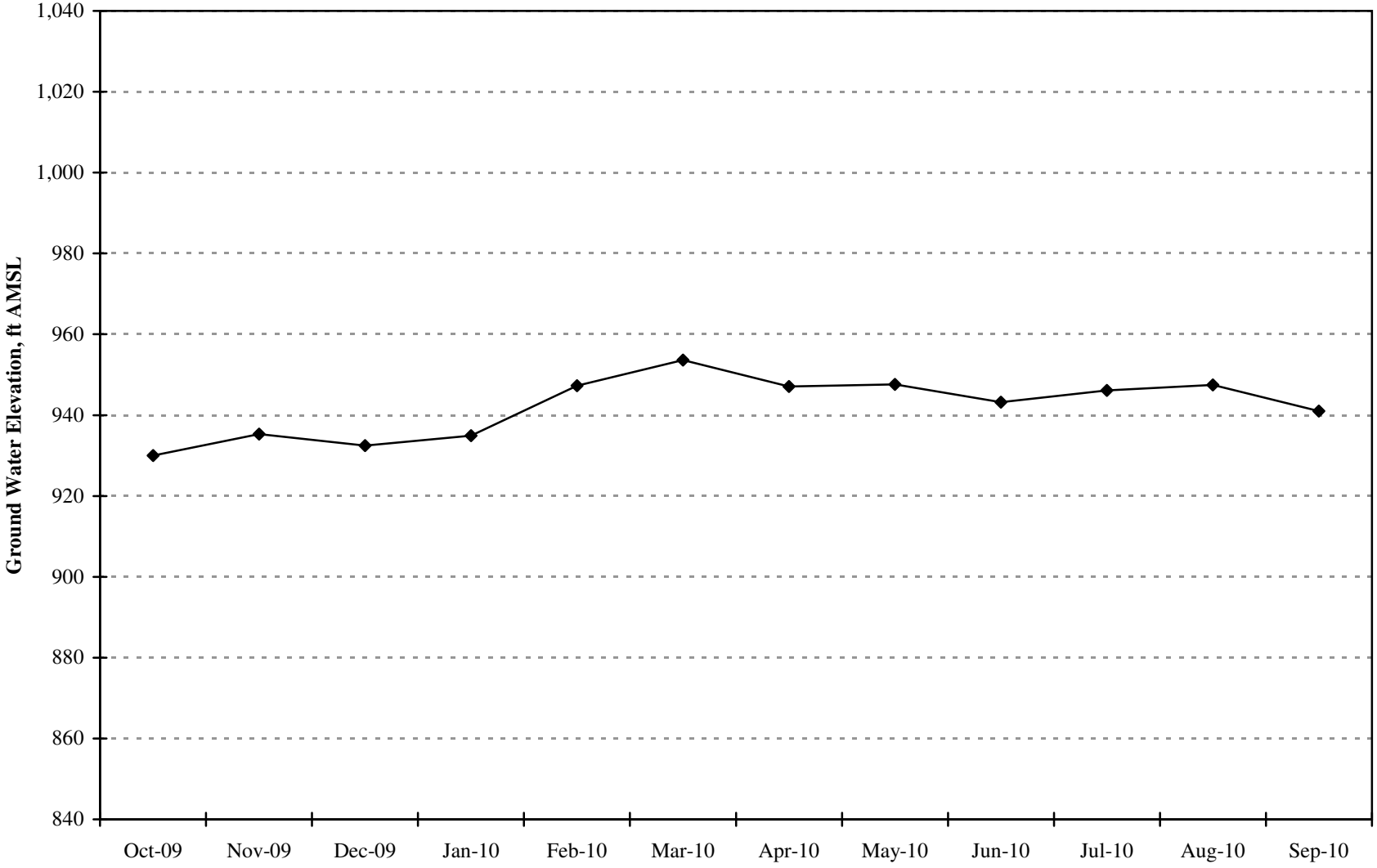
Short-Term Hydrograph - RCWD Well 211



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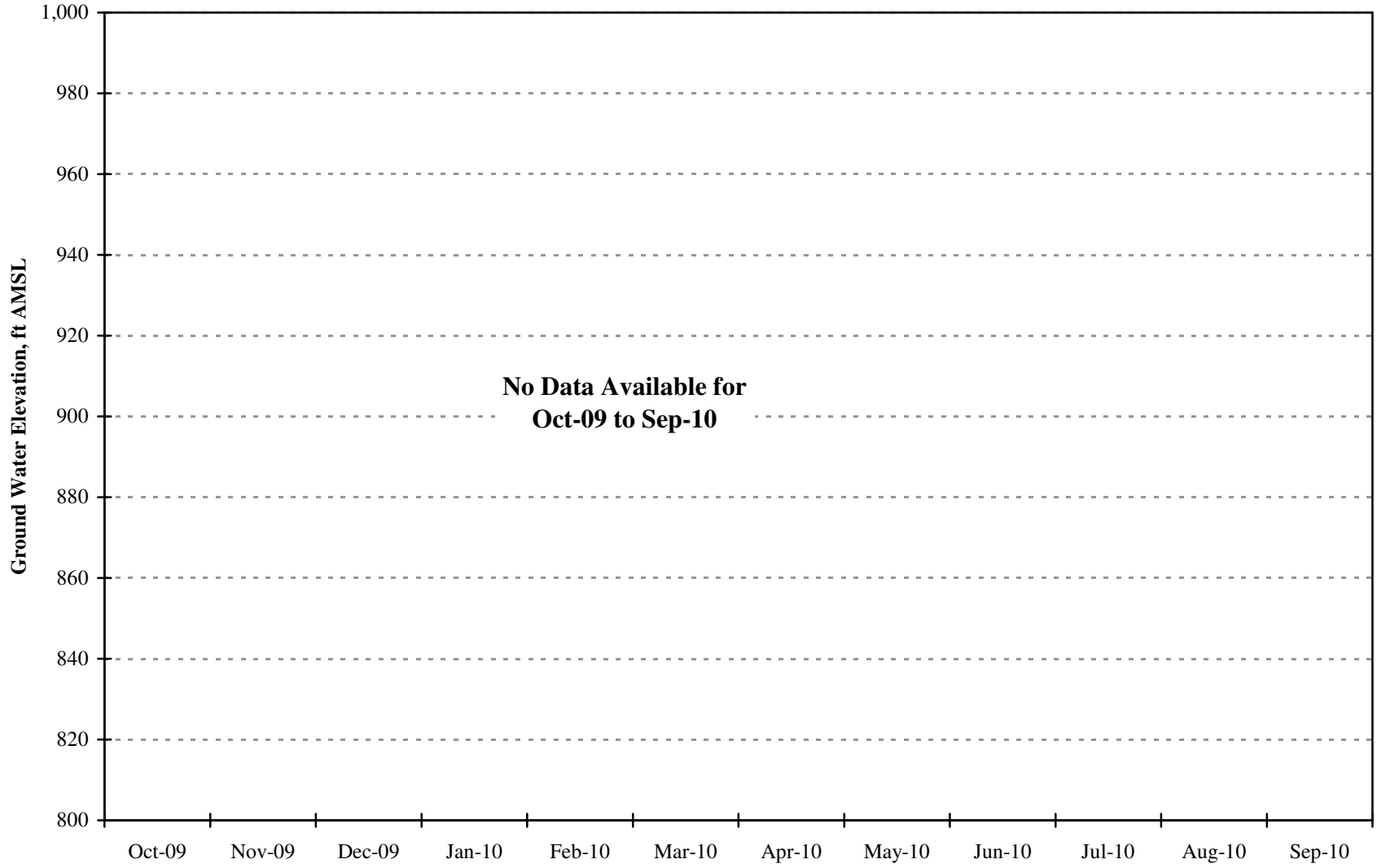
Short-Term Hydrograph - RCWD Well 215



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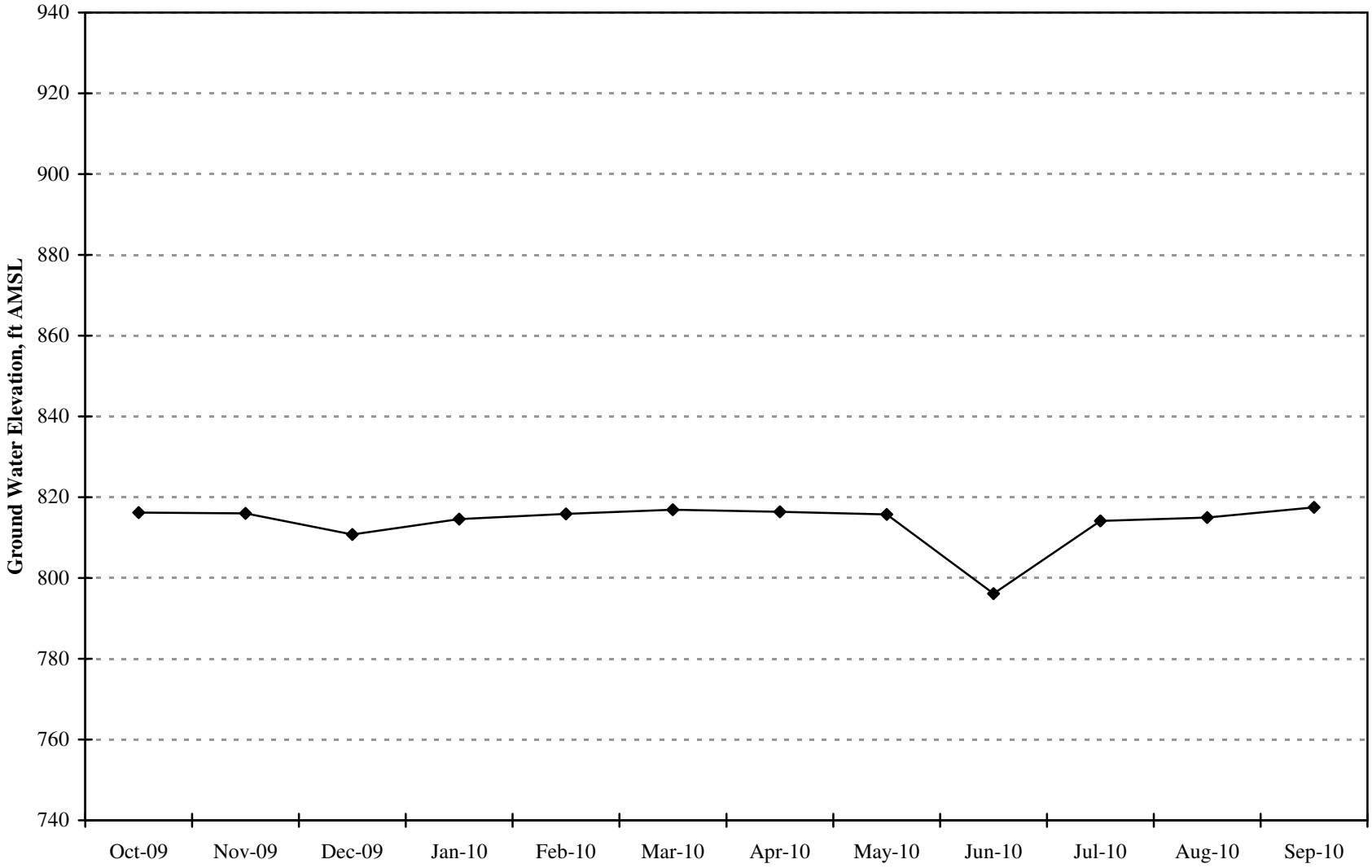
Short-Term Hydrograph - RCWD Well 216



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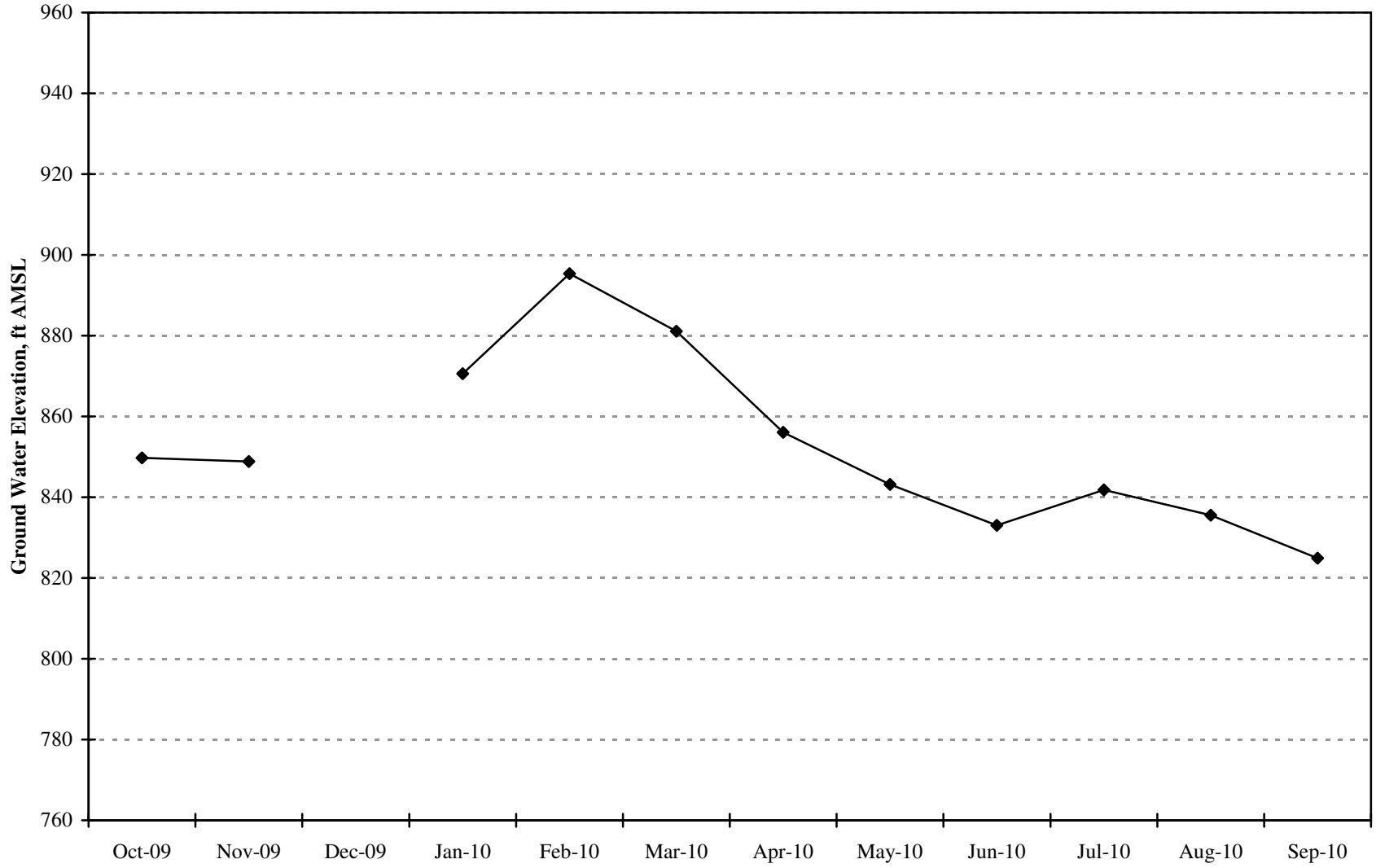
Short-Term Hydrograph - RCWD Well 217



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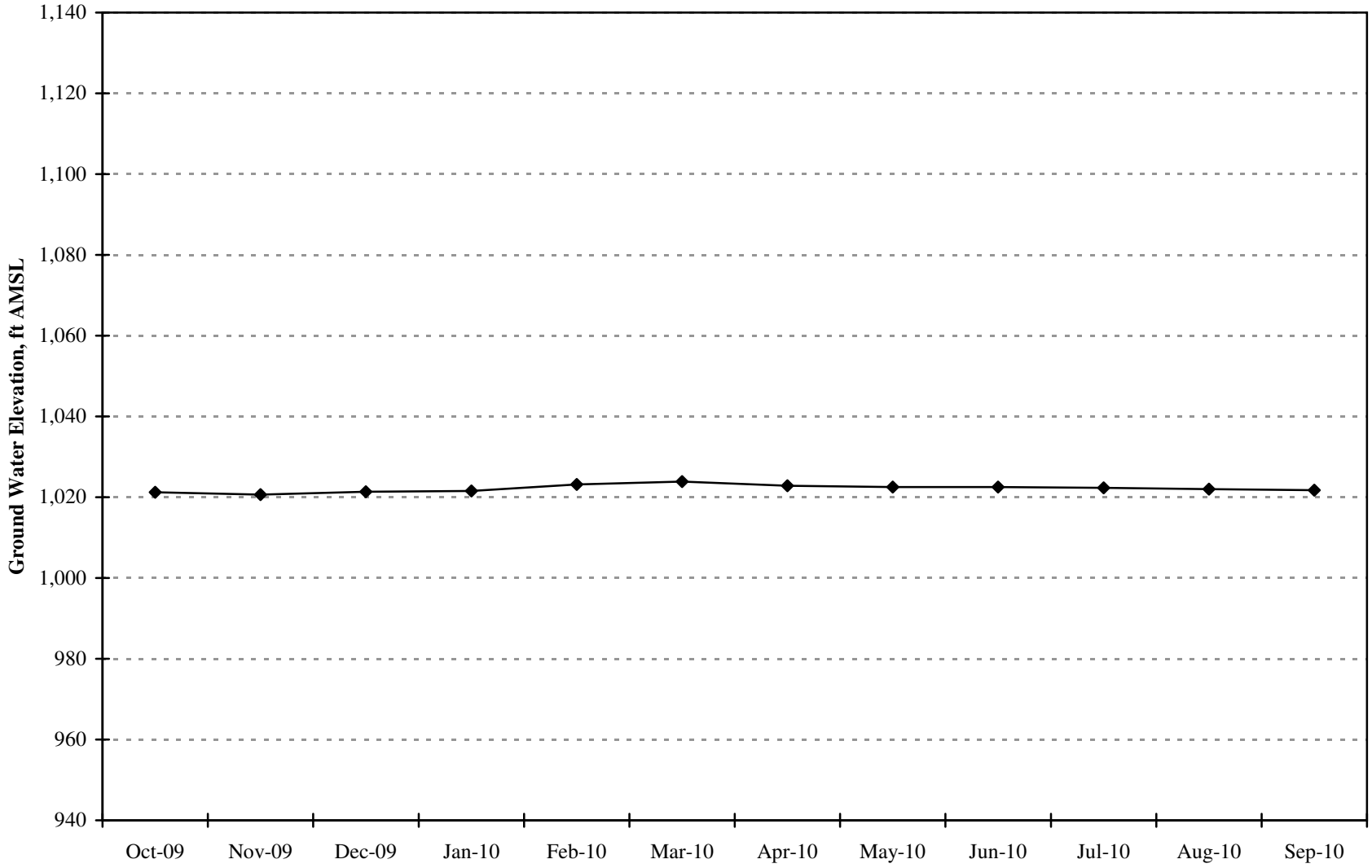
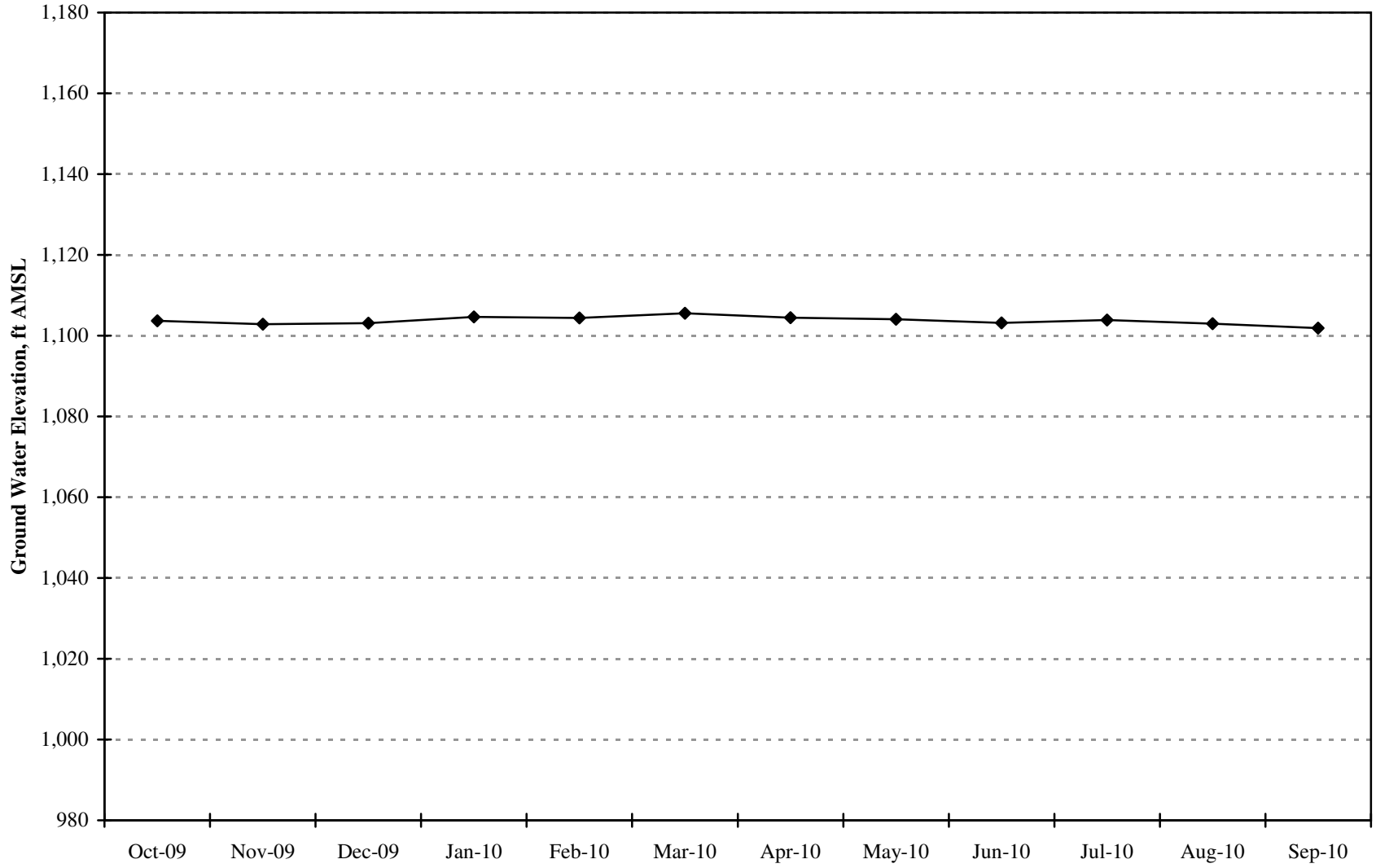
Short-Term Hydrograph - RCWD Well 231



Appendix B

Short-Term Hydrograph - RCWD Well 232



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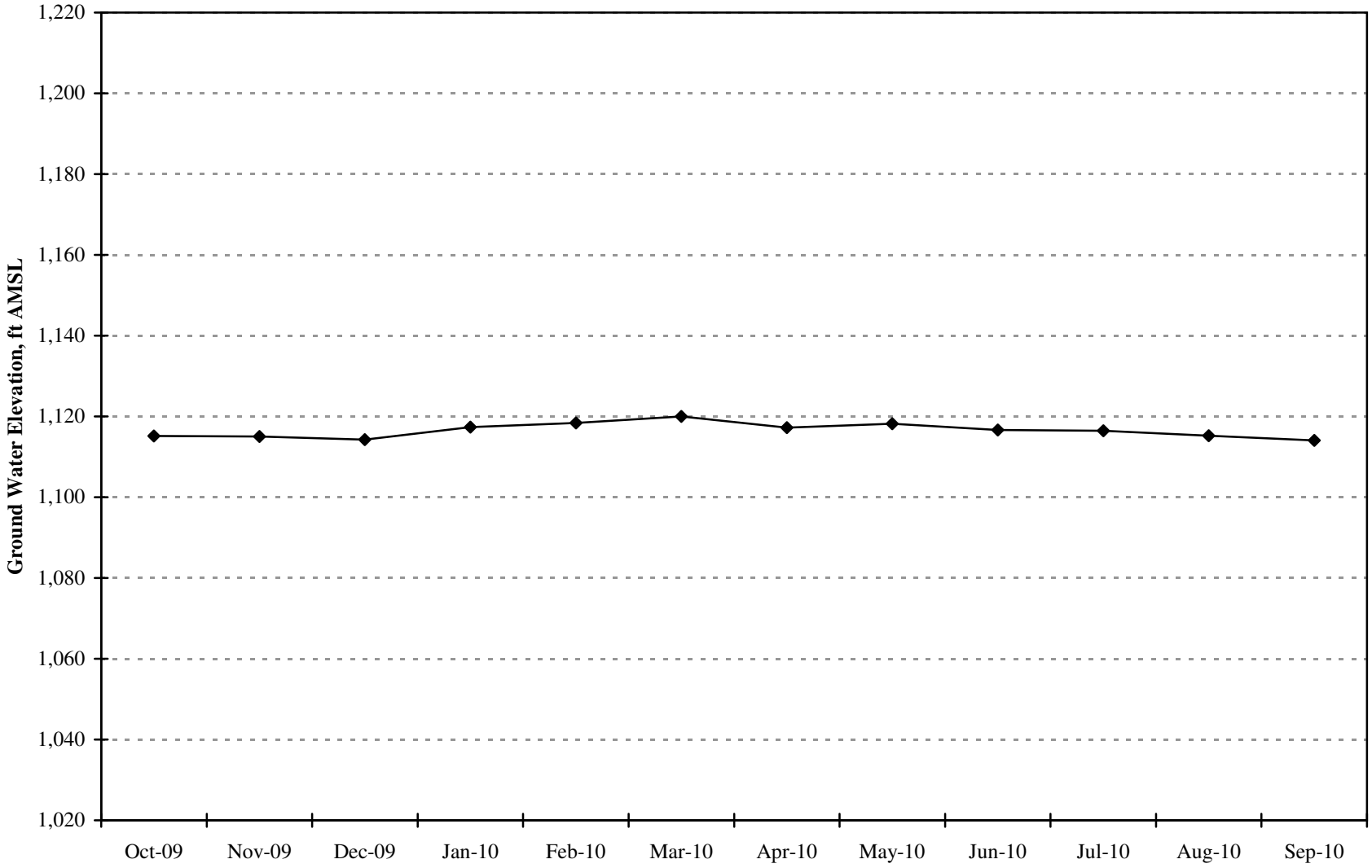
Short-Term Hydrograph - RCWD Well 233



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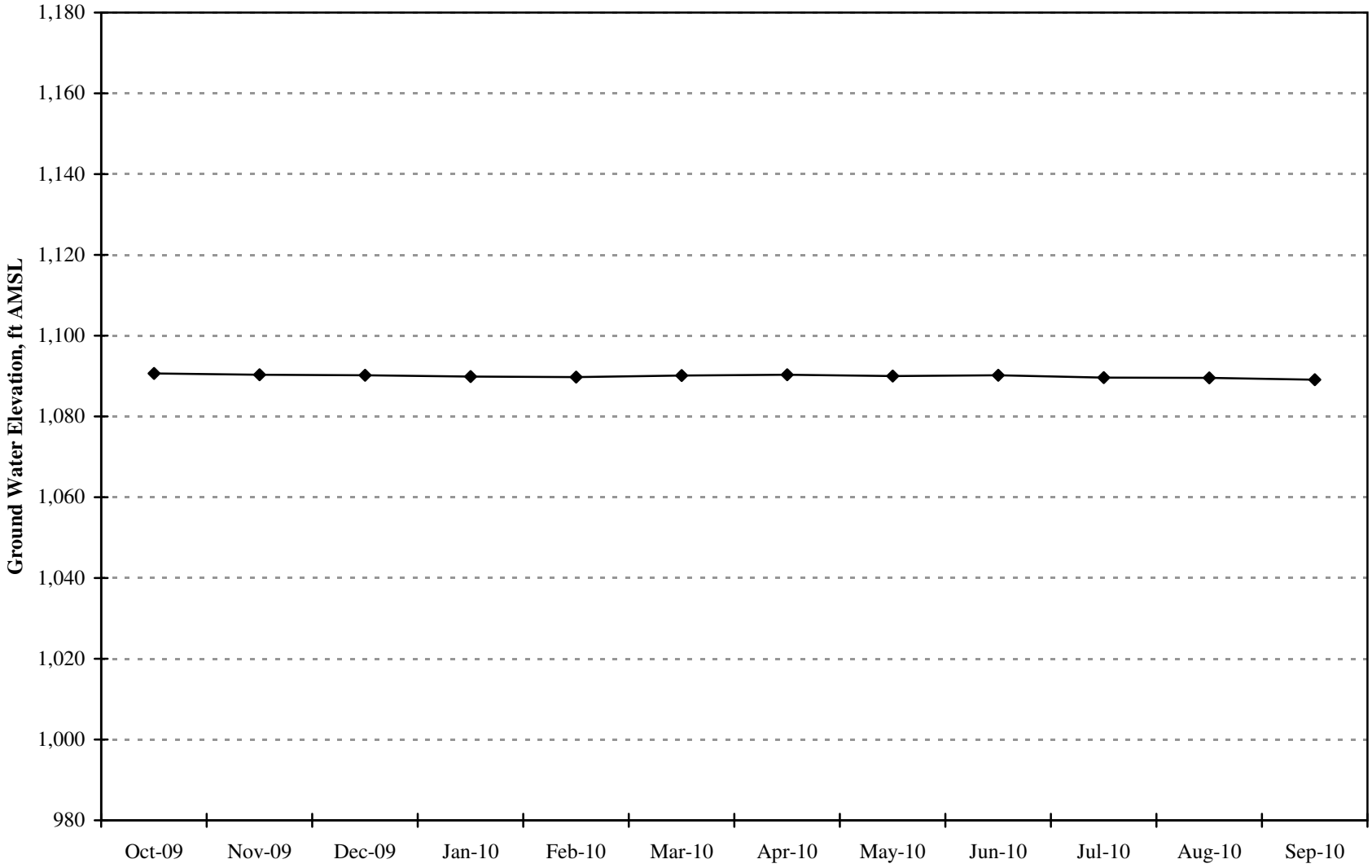
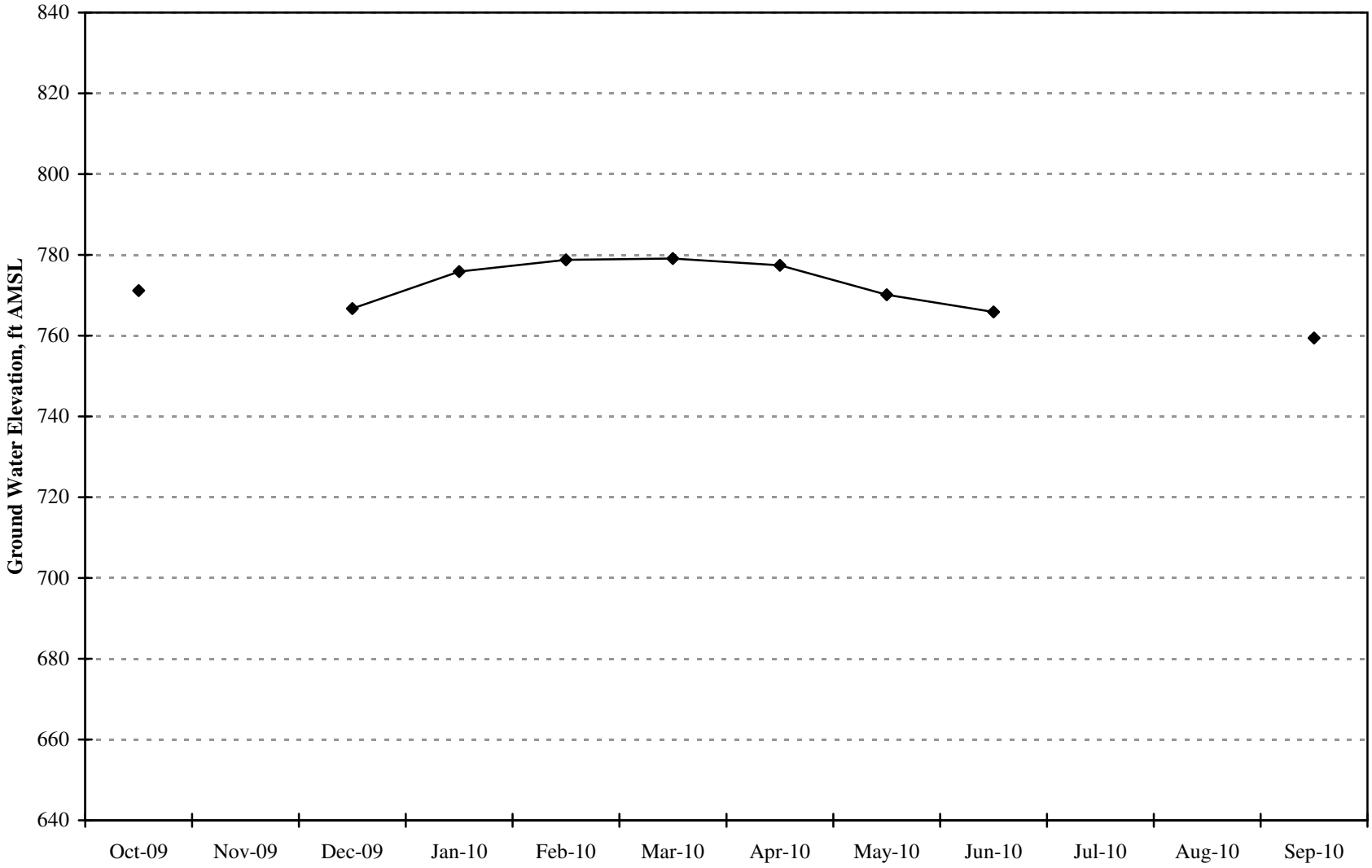
Short-Term Hydrograph - RCWD Well 234



Short-Term Hydrograph - RCWD Well 235



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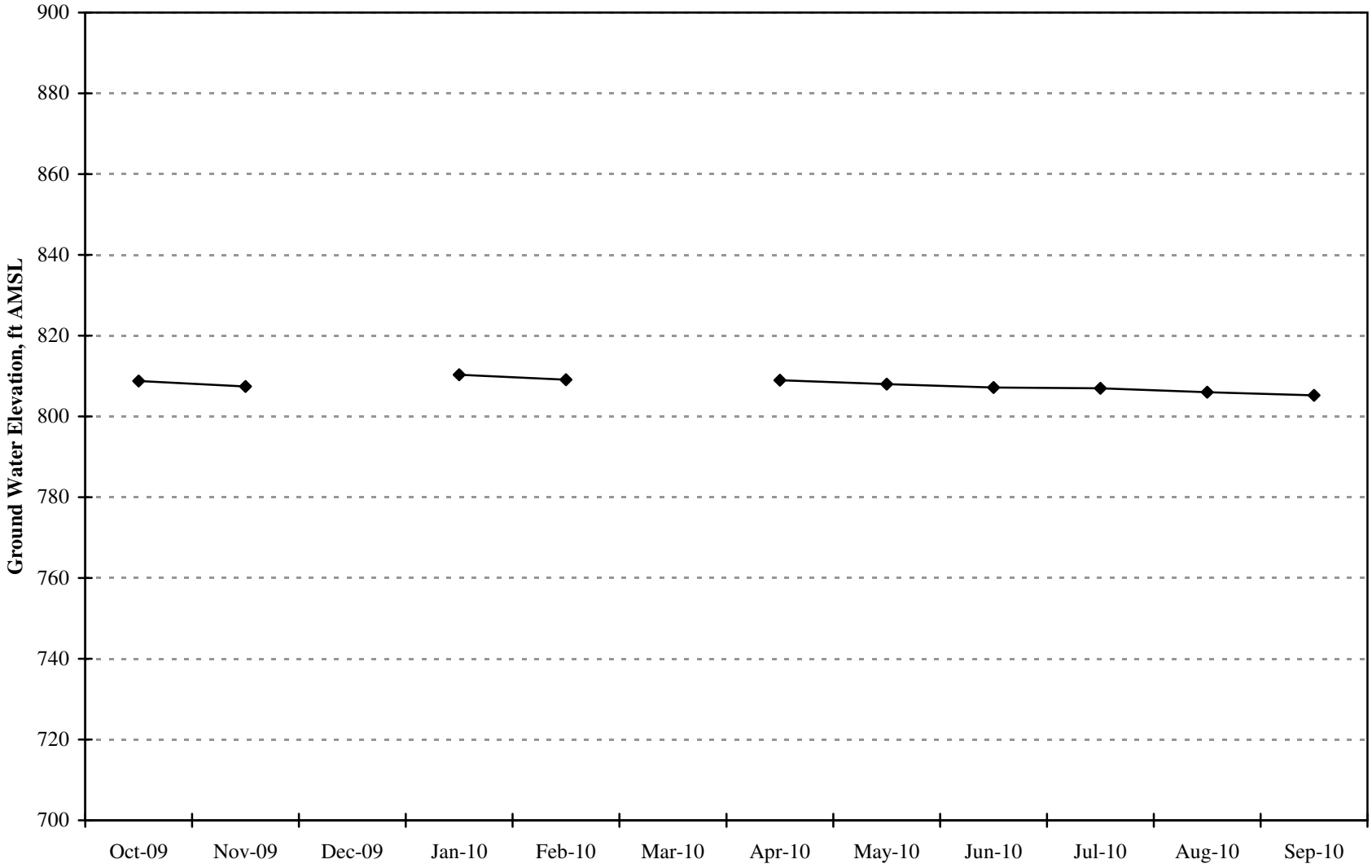
Short-Term Hydrograph - RCWD Well 309



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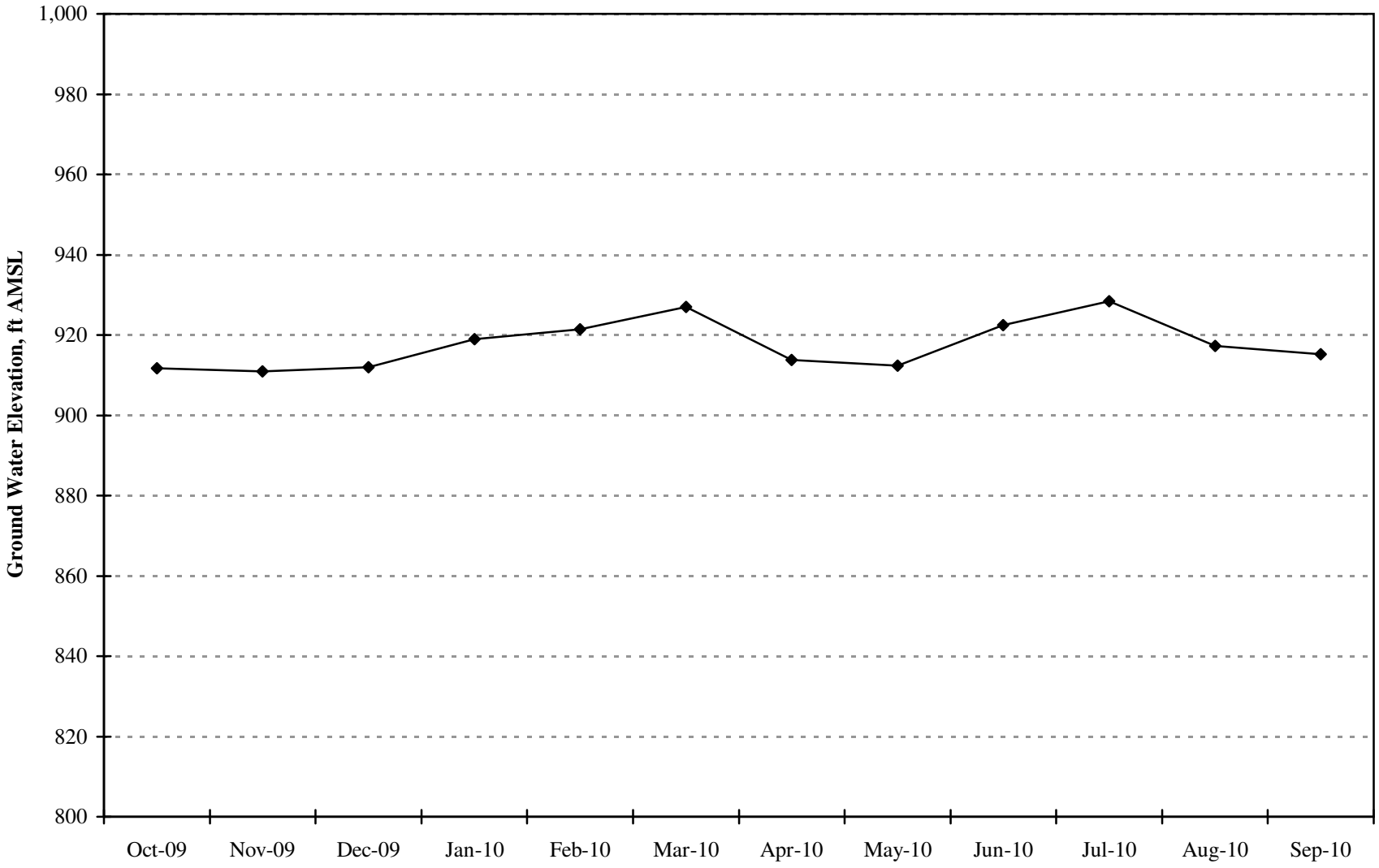
Short-Term Hydrograph - RCWD Well 511 (302)



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APPENDIX C

Western Municipal Water District Wells

Long-Term Hydrographs and Production

January 1981 to September 2010

APPENDIX C

Western Municipal Water District Wells

Long-term Hydrographs and Production

January 1981 to September 2010

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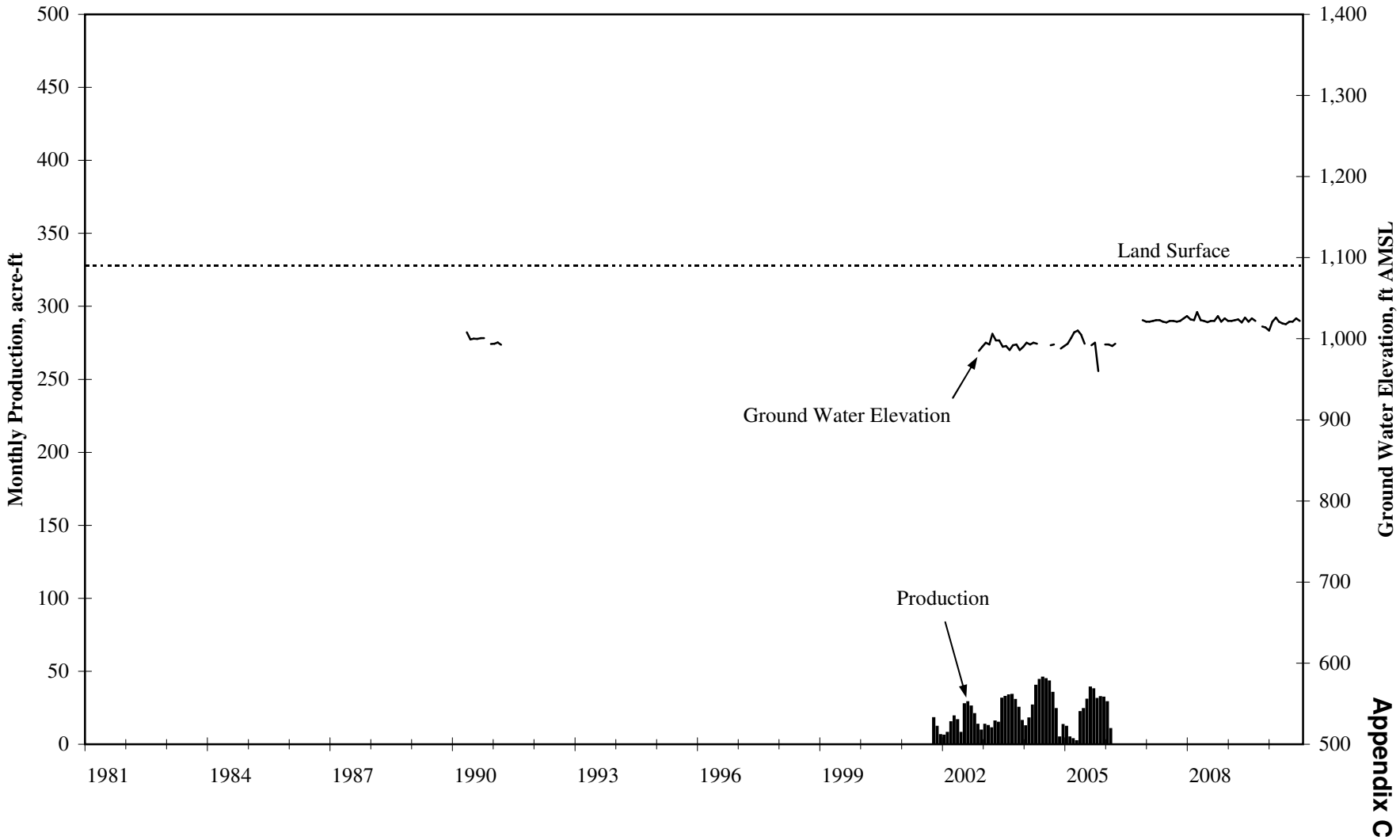

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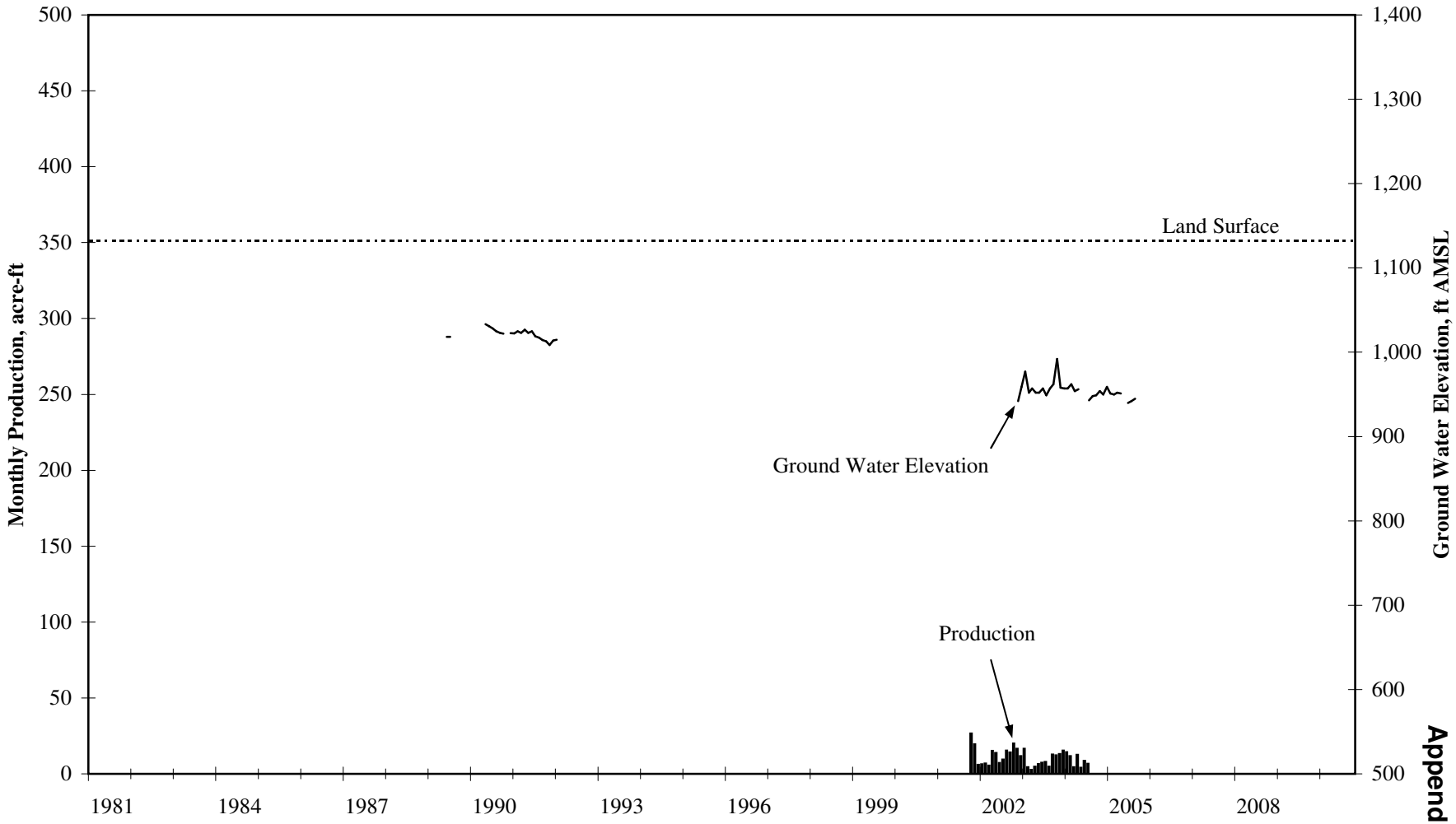
Long-Term Hydrograph and Production - WMWD House Well



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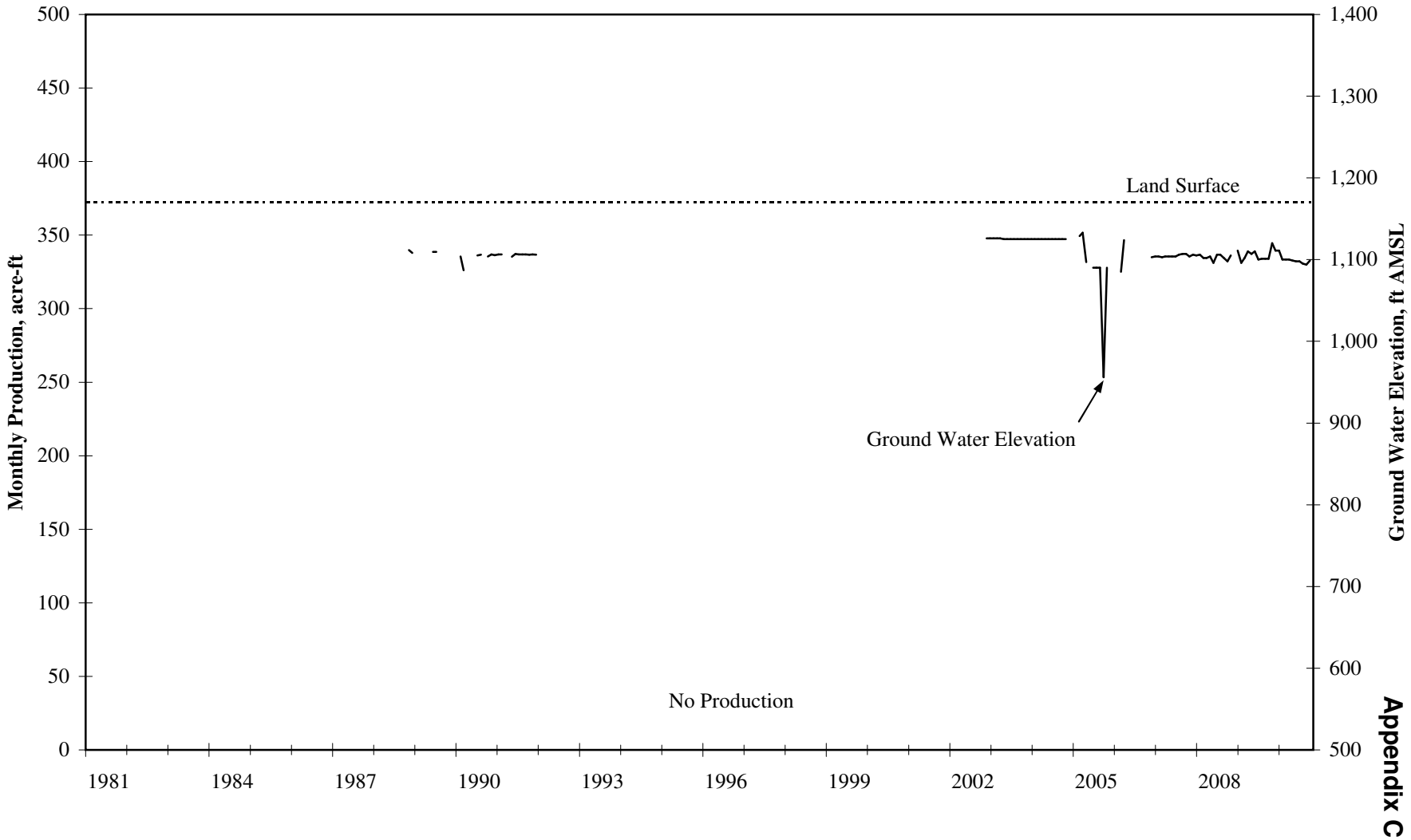
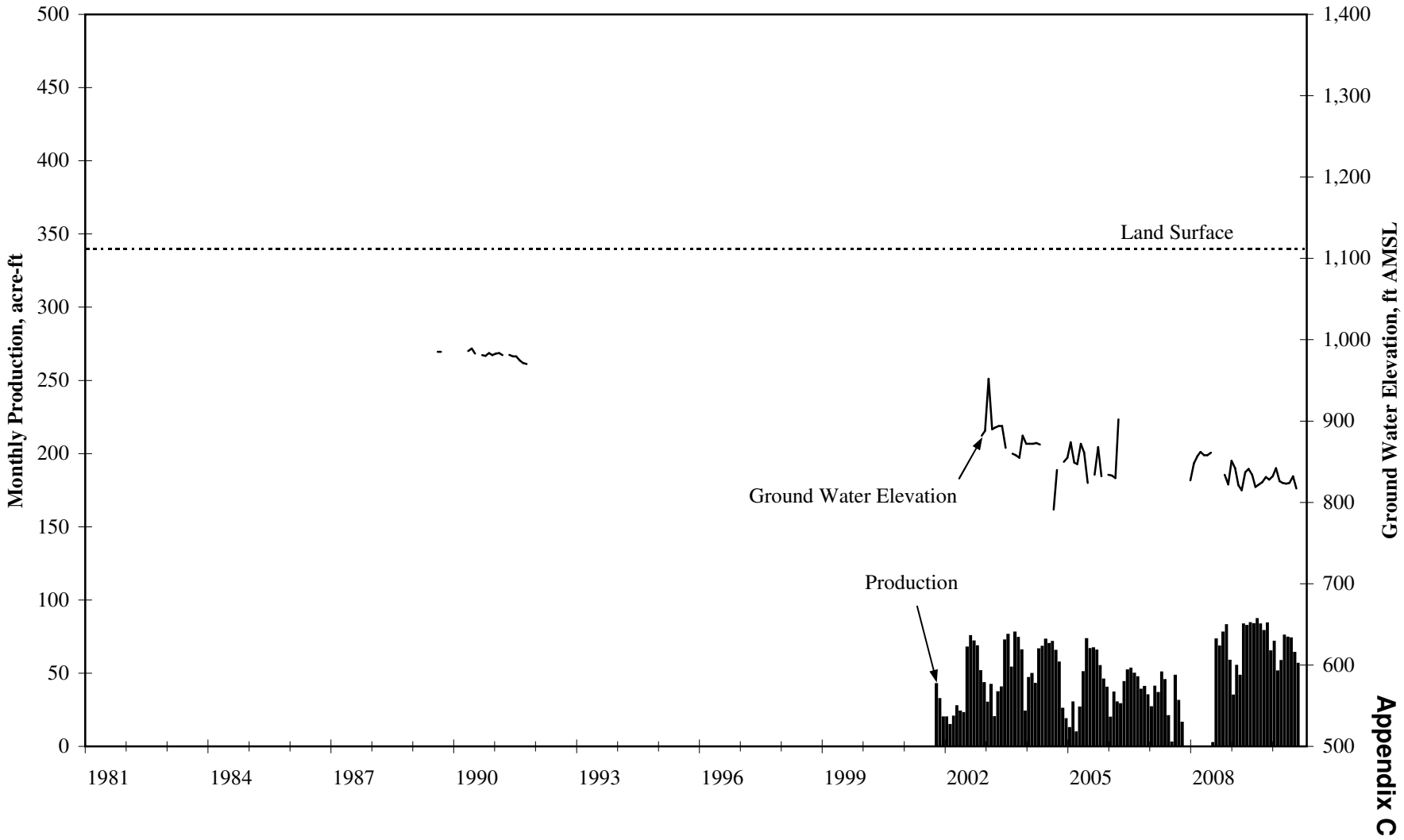
Long-Term Hydrograph and Production - WMWD Lynch Well



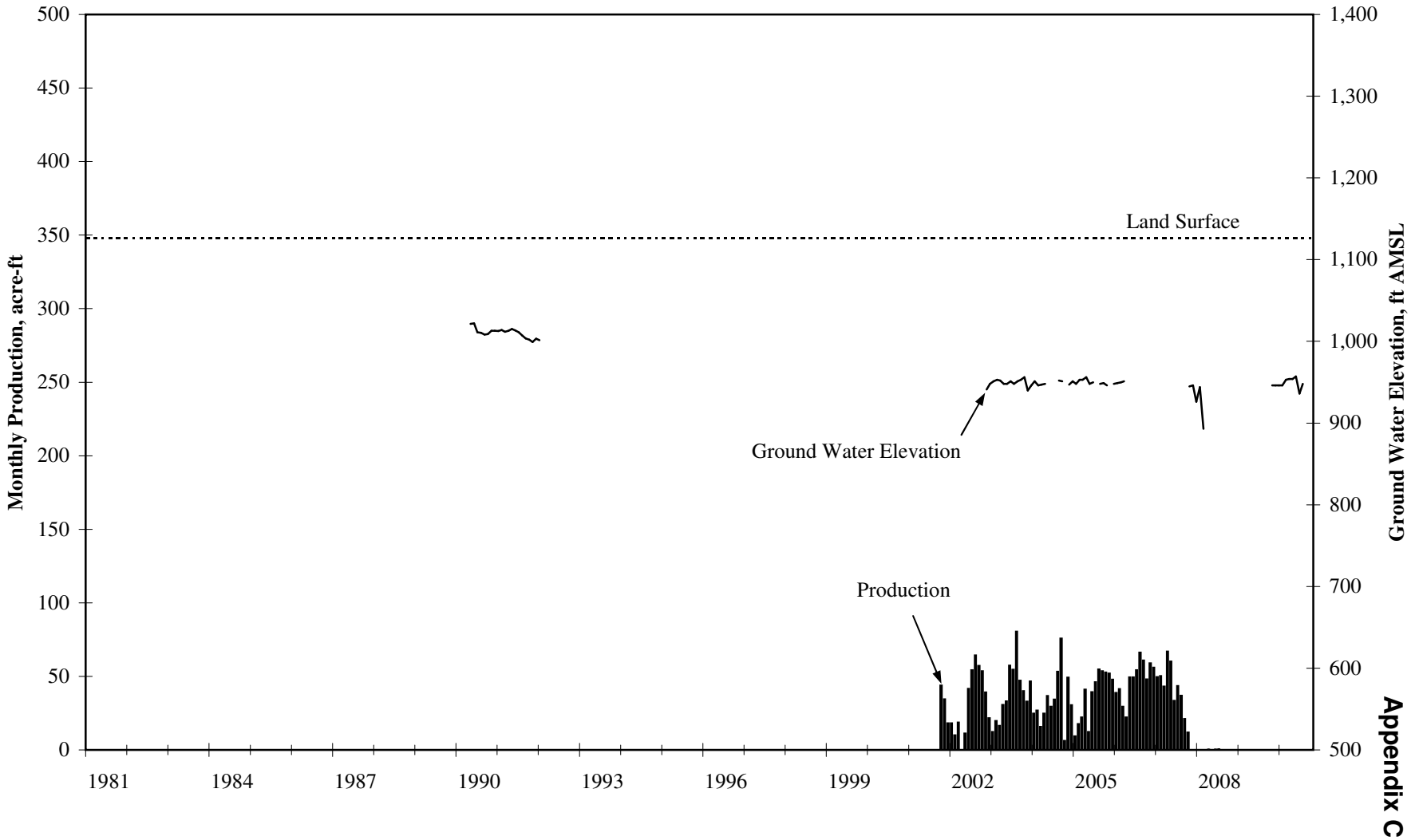
Appendix C

Long-Term Hydrograph and Production - WMWD North Well



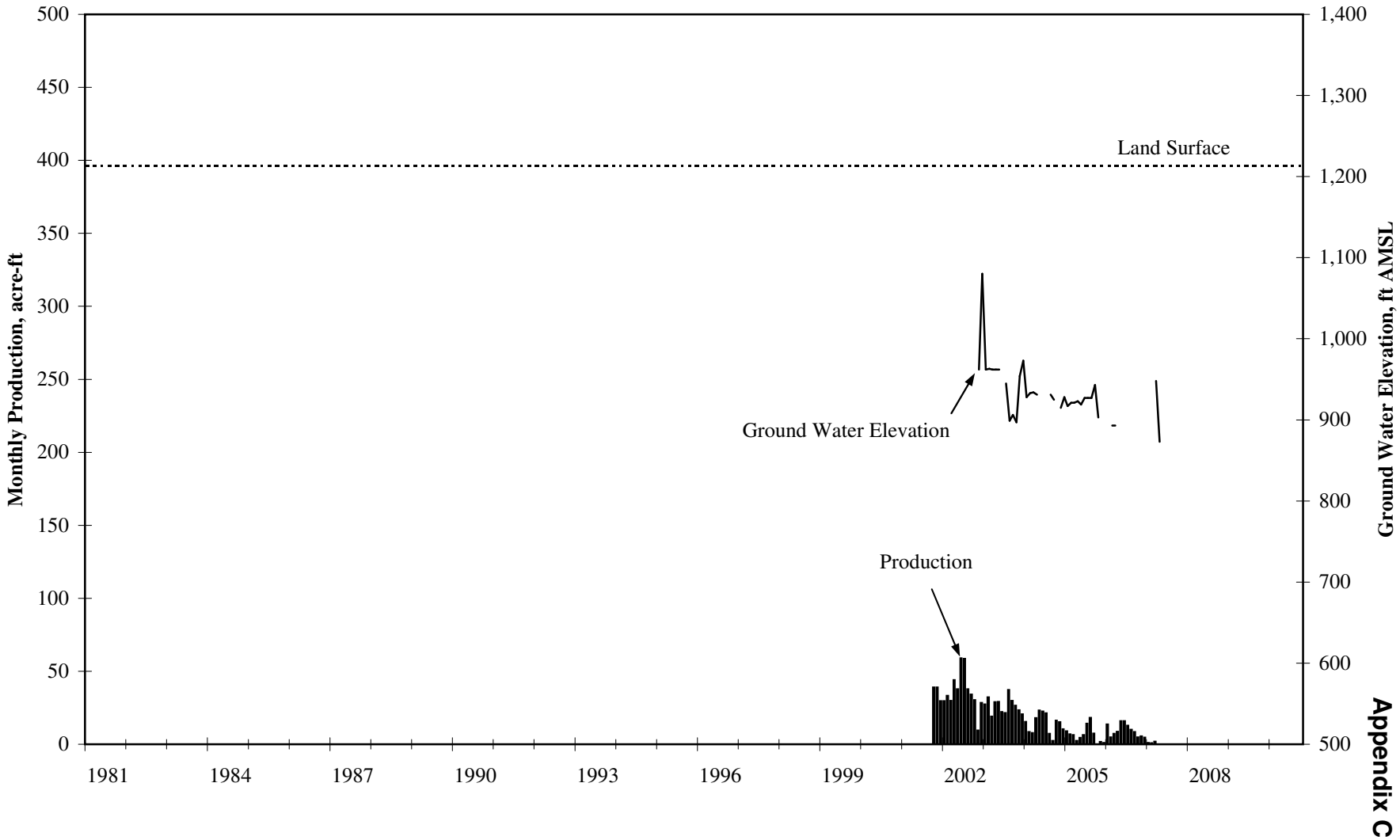
Appendix C

Long-Term Hydrograph and Production - WMWD South Well



Appendix C

Long-Term Hydrograph and Production - WMWD Alson Well



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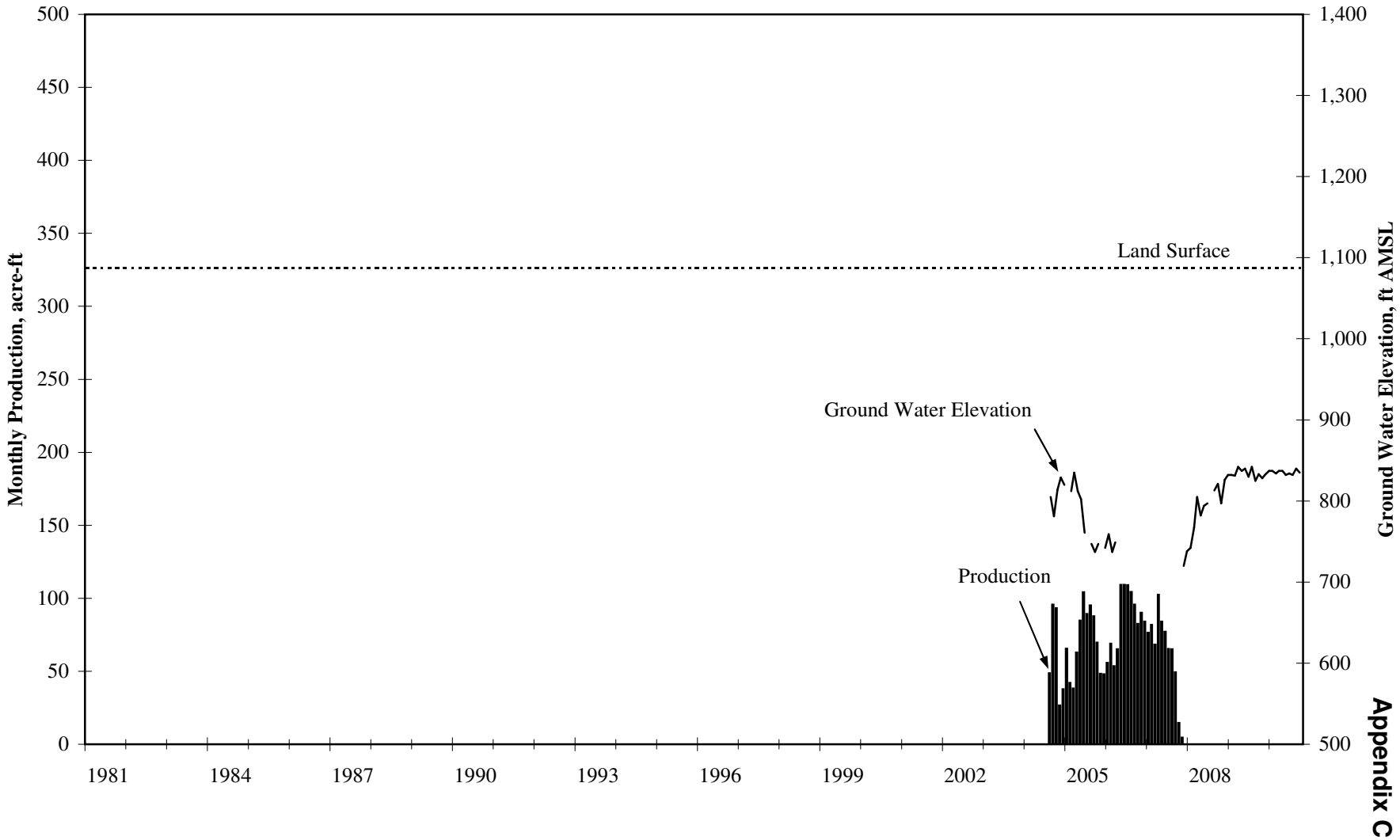
Long-Term Hydrograph and Production - WMWD New Clay Well



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