

III. MANAGE WATER PRODUCTION

Cooperative operation plans and quantification of California American Water (Cal-Am) and non-Cal-Am water production within the Monterey Peninsula Water Resource System (MPWRS) is necessary for proper water resources management and protection of the natural resources of the Carmel River basin. In the Five-Year Mitigation Program, Riparian Mitigation #1 is based on conservation and "water distribution management to retain water in the Carmel River" (Finding No. 389-A). This section describes various management activities of the District designed to maximize streamflow and groundwater storage in the Carmel River system.

A. Memorandum of Agreement

Description and Purpose

The original Memorandum of Agreement (MOA) between the California Department of Fish and Game (CDFG), Cal-Am and the District was developed in July 1983 to balance CDFG's requirement to conserve and protect the fish and wildlife resources of the state and Cal-Am's responsibility to supply water to the citizens of the communities of the Monterey Peninsula. This MOA is modified each year to reflect specific storage conditions and inflow projections at Los Padres and San Clemente Reservoirs in the Upper Carmel River watershed. Specifically, the MOA addresses the release of water into the Carmel River from San Clemente Reservoir and was originally designed to maximize surface flow to the Narrows during the low-flow season. In addition to specifying minimum flow releases from San Clemente Reservoir, the MOA limits Cal-Am diversions from San Clemente Reservoir to the Carmel Valley Filter Plant (CVFP) and directs how Cal-Am pumps water from the Lower Valley wells. Normally, the MOA is formulated in May and remains in force until the end of December. The agreement may be modified or extended by mutual consent of all the parties.

Implementation and Activities During 2007-2008

- **2007 MOA** – The 2007 MOA was developed on April 13, 2007, approved by the District Board on May 21, 2007 and signed by all the MOA representatives by June 21, 2007.¹ The initial meeting was conducted earlier than normal because of the critically-dry inflow conditions that persisted in the Carmel River Basin during the year. A follow-up meeting was held on April 30, 2009, with representatives from the Carmel River Steelhead Association (CRSA) to discuss the feasibility of expediting the planned drawdown at San Clemente Reservoir to increase streamflow for smolt emigration during May 2007.

Based on storage conditions and expected reservoir inflows, it was agreed that Cal-Am would maintain minimum flows in the Carmel River at the Sleepy Hollow Weir of six cubic feet per second (cfs) in May, four cfs in June and July, and three cfs from August through December 2007. The 2007 MOA included terms to: (a) limit Cal-Am diversions at San Clemente Dam during low-flow periods,

¹ Although all the parties did not sign the 2007 MOA until June 21, 2007, the operations, terms and conditions of the agreement were followed beginning on May 1, 2007, as if the agreement was in effect.

except during an emergency, as defined in SWRCB Order WRO 2002-0002; (b) allow production from Cal-Am's Russell Wells at a maximum rate of 0.5 cfs; (c) limit operation of Cal-Am wells in the Carmel Valley above Robinson Canyon Road Bridge during low-flow periods; and, (d) require Cal-Am to make reasonable efforts to operate the lower Carmel Valley wells in sequence from the most downstream well, progressing upstream as wells are needed and available for production.

As originally executed, the 2007 MOA was effective from May 1, 2007 through December 31, 2007. Because of continued low-flow conditions in the Carmel River Basin during October, November, and December 2007, the MOA group met on December 19, 2007, and agreed to extend the 2007 MOA though January 31, 2008. The group also agreed that Cal-Am would maintain a minimum of 3.5 cfs at the Sleepy Hollow Weir through January 2008 and to meet on January 9, 2008 to assess streamflow and reservoir storage conditions in the Carmel River Basin to determine if the 2007 MOA should be further extended. The group met on January 9, 2008, and, based on improved rainfall and runoff conditions, determined that the 2007 MOA did not need to be extended beyond January 31, 2008.

- **2008 MOA** – The 2008 MOA was developed on May 7, 2008, approved by the District Board on May 19, 2008, and signed by all the MOA representatives by July 18, 2008. Based on storage conditions and expected reservoir inflows, it was agreed that Cal-Am would maintain minimum flows in the Carmel River at the Sleepy Hollow Weir of 11 cfs in June, nine cfs in July, seven cfs during August, five cfs during September, and four cfs during the period from October through December 2008. The 2008 MOA included terms to: (a) limit Cal-Am diversions at San Clemente Dam during low-flow periods, except during an emergency, as defined in SWRCB Order WRO 2002-0002; (b) allow production from Cal-Am's Russell Wells at a maximum rate of 0.5 cfs; (c) limit operation of Cal-Am wells in the Carmel Valley above Robinson Canyon Road Bridge during low-flow periods; and (d) require Cal-Am to make reasonable efforts to operate the lower Carmel Valley wells in sequence from the most downstream well, progressing upstream as wells are needed and available for production.

In addition, language (Paragraph 12) was added to the 2008 MOA that requires Cal-Am to “make every reasonable effort to produce water from the Coastal Subareas of the Seaside Groundwater Basin before producing water from its Carmel River sources to preserve streamflow and instream habitat in the Carmel River for listed species, consistent with the production amounts specified in the Quarterly Water Supply Strategy and Budget for Cal-Am's main distribution system,” whenever Cal-Am has not exceeded its annual production limit from both the Coastal Subareas of the Seaside Groundwater Basin and Carmel River sources.

B. Quarterly Water-Supply Strategy and Budget

Description and Purpose

Under Ordinance No. 19, which was adopted in December 1984, the District was required to develop an annual water-supply strategy. This strategy included estimates of projected demands and proposed production targets for the Cal-Am system. The strategy was designed to limit Cal-Am surface water diversions from the Carmel River to no more than 35 percent of total Cal-Am production. Based on the District strategy, Cal-Am developed a water-supply budget specifying

monthly production targets.

Under Ordinance No. 41, which was adopted in March 1989, development of the water-supply strategy and budget was changed from an annual to a quarterly process, and Cal-Am's annual surface-water diversions were reduced to a goal of no more than 29 percent of total production. Currently, the quarterly strategy and budget values are developed jointly by Cal-Am, the District, and CDFG in conformance with the annual MOA. The strategy is designed to maximize the long-term production potential and protect the environmental quality of the Carmel Valley and Seaside basins. The budget includes monthly production targets for each of Cal-Am's major production sources -- San Clemente Reservoir, Upper Carmel Valley (UCV) Aquifer, Lower Carmel Valley (LCV) Aquifer, and the Coastal Subareas of the Seaside Basin -- which reflect current and expected system conditions. The quarterly strategies and budgets are developed in December, March, June, and September of each year.

Starting in April 2002, the Quarterly Water Supply Strategy and Budgets were fundamentally changed by the State Water Resources Control Board (SWRCB), which adopted Order WRO 2002-0002 on March 21, 2002, and by the National Marine Fisheries Service (NMFS) and Cal-Am, who signed a Conservation Agreement on September 18, 2001. This order and agreement changed the way that Cal-Am operates its diversions and wells upstream of Robinson Canyon Road Bridge. Specifically, Cal-Am was ordered to:

1. Immediately upon issuance of SWRCB Order WRO 2002-0002, cease withdrawal of water from the San Clemente Dam during low-flow periods except during an emergency. For the purpose of the Order, "low-flow periods" are defined as times when stream flow in the Carmel River at the Don Juan Bridge gage (RM 10.8) is less than 20 cfs for five consecutive days.
2. Reduce diversions during low-flow periods, from the Scarlett No. 8 Well, Los Laureles Wells Nos. 5 and 6, Panetta Wells, Garzas Wells Nos. 3 and 4, and the Robles Well. Current diversions are 1-7 days per month at each well. Diversions at these wells shall be reduced to a maximum of two eight-hour days per month, except that those wells that currently operate only one eight-hour day per month shall continue to operate at not more than one eight-hour day per month. To the maximum degree practicable, Cal-Am shall operate these wells at night. In consultation with NMFS, USFWS, CDFG and the District, Cal-Am can operate the Scarlett 8 well incrementally to meet maximum daily demand after using all other available downstream sources at maximum capacity.
3. Install, not later than March 31, 2002, a pump that delivers water from the Begonia Zone to the Carmel Valley Village Zone. The "Begonia Zone" is defined to include water well production facilities in AQ3, AQ4 and the Seaside Groundwater Basin. The "Carmel Valley Village Zone" is defined to include all Cal-Am users upstream from the Del Monte Regulating Station.
4. The Russell Wells shall be limited to a combined total instantaneous diversion rate of not more than 0.5 cfs during low-flow periods.

5. During the low-flow periods, except for 0.5 cfs, all water diverted to Carmel Valley Village Zone shall be water that originates from the Begonia Zone (as defined in Paragraph 3 above).

Implementation and Activities During 2007-2008

During 2007 and 2008, the quarterly strategies and budgets were structured to optimize production from the Coastal Subareas of the Seaside Basin and minimize impacts from production in the UCV. Beginning in 1998, the quarterly budgets were formulated with an annual production goal of 11,285 AF during the Water Year from the Carmel River Basin, in conformance with goals and requirements established by SWRCB Orders WR 95-10, WR 98-04, and WRO 2002-0002. Releases from San Clemente Reservoir were maximized throughout the year and groundwater production in the UCV was limited to periods when sufficient streamflow was available to recharge the aquifer.

Starting in March 2006, the annual limit for Cal-Am's production from its wells in the Coastal Subareas of the Seaside Groundwater Basin for customers in its main system used in the quarterly budgets was reduced from 4,000 AF per year to 3,504 AF per year based on the final judgment in the basin adjudication. Accordingly, the total annual limit for Cal-Am from the Carmel River and Seaside Groundwater Basins for its main system was set at 14,789 AF.

It should be noted that the March 2006 Seaside Basin adjudication decision was amended in February 2007. The decision was amended to allow Cal-Am to combine its production allocation from the Coastal Subareas (3,504 AF) with its production allocation from the Laguna Seca Subarea (345 AF). Accordingly, in WY 2008, Cal-Am was allowed to produce a maximum of 3,849 AF from its sources in the Seaside Groundwater Basin.

- **Cal-Am Main System Production in Water Year 2008²** – During Water Year 2008, Cal-Am produced 14,225 acre-feet (AF) of water from all sources for its main system, including 60 AF diverted from the Carmel River Basin and injected into the Seaside Basin by the District. Totals of 595 AF, 10,239 AF (including the 60 AF injected into the Seaside Basin), and 3,390 AF were produced from Cal-Am wells in the UCV, LCV, and Seaside Basin Coastal Subareas, respectively. Of the system total, no water was diverted at San Clemente Dam, which represents the fifth consecutive year this has occurred since Cal-Am's record of diversions began in 1915. Currently, Cal-Am's ability to divert at this site is constrained by: (1) sediment nearly filling the reservoir and blocking the intake structure, (2) higher turbidity standards limiting the duration and period of diversion, (3) the Conservation Agreement with NMFS, and (4) SWRCB Order 2002-0002 that restricts diversions during the low-flow season.

C. Well Registration and Reporting Program

Description and Purpose

² Beginning with the 2002-2003 Mitigation Report, Cal-Am production is reported on a Water Year basis, from October 1 of one Calendar Year through September 30 of the following Calendar Year. This is a change from previous annual reports in which the reporting period was July of one year through June of the following year. This change makes the mitigation report consistent with reporting requirements under SWRCB Order No. WR 95-10.

All owners of wells within the District are required to register and report their annual water production. The purpose of the program is to provide annual aggregate estimates of water production from both Cal-Am and non Cal-Am well owners in the various groundwater production zones in the District. The information provided is used to make decisions regarding management of the limited water resources of the Monterey Peninsula area.

The District began its Well Registration and Reporting Program in 1980. In 1981 and 1982, the first two years of production reporting, well owners were required to report water production twice a year. In subsequent years, this requirement was reduced to an annual basis.

From 1981 through 1990, well owners were allowed to report water production by one of three methods: Water Meter, Land Use, or Power Consumption Correlation. In March 1990, the District adopted Ordinance No. 48 requiring installation of water meters on all large production wells (i.e., those producing 20 or more acre feet per year). In November 1991, District rules were further amended with the adoption of Ordinance No. 56, which extended the metering requirement to all existing medium production wells, defined as those producing between 5 and 20 acre-feet per year (AFY), and all new wells within the District. Ordinance No. 56 also eliminated the Power Consumption Correlation reporting method.

Implementation and Activities During 2007-2008

Tables III-1 and **III-2** show summaries of reported production from Cal-Am and non-Cal-Am wells in WY 2008 and WY 2007, respectively. The report for Water Year 2008 has been revised since it was first presented to the Board on April 20, 2009.

Figure III-1 compares reported production from Cal-Am and non-Cal-Am wells and surface diversions located within the MPWRS in WY 2008 with production limits set by the District's Water Allocation Program. The MPWRS includes the Carmel River Basin, Carmel Valley Alluvial Aquifer and the Coastal Subareas of the Seaside Groundwater Basin. With respect to the District's Water Allocation Program limits, Cal-Am production³ from the MPWRS in WY 2008 was 14,225 acre-feet, or 3,416 acre-feet (19.4%) less than the Cal-Am production limit of 17,641 acre-feet that was established with the adoption of Ordinance No. 87 in 1997. Non Cal-Am production within the MPWRS in WY 2008 was 2,966 acre-feet (including surface diversions), or 80 acre-feet (2.6%) less than the non Cal-Am production limit of 3,046 acre-feet established by Ordinance No. 87. Combined production from Cal-Am and non Cal-Am sources within the MPWRS was 17,191 acre-feet in WY 2008, which is 3,496 acre-feet (17.0%) less than the 20,687 acre-feet production limit set for the MPWRS as part of the District's Water Allocation Program.

During WY 2008, District staff inspected 25 new water-meter installations to ensure compliance with the District's water-meter installation standards and guidelines. In addition, staff received copies of 28 permits for construction of new wells within the District from the Monterey County Health Department, eight of which constituted permits for replacements of older wells, and advised

³ The Cal-Am well production values for WY 2008 include 60 AF that were produced from its Carmel Valley wells for "diversion" to storage in the Seaside Basin in the winter, and 60 AF that were "recovered" from Seaside Basin storage in the summer.

the permittees that MPWMD permits were also needed.

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Prepared by Water Resources Division
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Table III-1
Revised Draft District-Wide Water Production Summary for Water Year 2008

October 1, 2007 - September 30, 2008

SOURCE AREAS ^{1,2}	NON CAL-AM (NON CAL-AM) WELLS						CAL-AM (CAL-AM) WELLS		AQUIFER SUBUNIT TOTALS	
	WATER METER		LAND USE		SUB-TOTAL		WATER METER		NO. OF WELLS	PRODUCTION (AF)
	NO. OF WELLS	PRODUCTION ³ (AF)	NO. OF WELLS	PRODUCTION (AF)	NO. OF WELLS	PRODUCTION (AF)	NO. OF WELLS	PRODUCTION (AF)		
AS1	7	144.2	1	0.1	8	144.3	2	471.6	10	615.9
AS2	41	171.9	36	38.0	77	209.9	3	124.0	80	333.9
AS3	115	1,035.7	52	58.0	167	1,093.8	8	8,760.8	175	9,854.6
AS4	28	552.3	7	2.4	35	554.7	1	1,478.7	36	2,033.4
SCS	9	929.5	1	1.1	10	930.7	5	3,389.8	15	4,320.5
CAC	6	35.8	8	11.7	14	47.5	0	0.0	14	47.5
CVU	250	626.8	42	42.5	292	669.3	0	0.0	292	669.3
LSS	8	523.4	2	2.7	10	526.1	4	533.9	14	1,059.9
MIS	85	581.4	11	8.8	96	590.3	0	0.0	96	590.3
ACTIVE	549	4,601.0	160	165.3	709	4,766.3	23	14,758.9	732	19,525.2
INACTIVE	304		34		338		20		358	
NOT REPORTING	50		23		73		0		73	
METHOD TOTALS:	903	4,601.0	217	165.3	1,120	4,766.3	43	14,758.9	1,163	19,525.2

NOTES:	DISTRICT-WIDE PRODUCTION
1. Shaded areas indicate production within the Monterey Peninsula Water Resources System. The LSS was added to the Monterey Peninsula Water Resources System in September 2008. Future reports will include the LSS in the Monterey Peninsula Water Resources System.	SURFACE WATER DIVERSIONS:
2. CAL-AM - California American Water	CAL-AM Diversions (San Clemente Dam): 0.0
3. Source areas are as follows: AS1 - UPPER CARMEL VALLEY - San Clemente Dam to Esquiline Bridge AS2 - MID CARMEL VALLEY - Esquiline Bridge to Narrows AS3 - LOWER CARMEL VALLEY - Narrows to Via Mallorca Bridge AS4 - LOWER CARMEL VALLEY - Via Mallorca Bridge to Lagoon SCS - SEASIDE COASTAL SUBAREAS CAC - CACHAGUA CREEK and UPPER WATERSHED AREAS CVU - CARMEL VALLEY UPLAND - Hillsides and Tularcitos Creek Area LSS - LAGUNA SECA SUBAREA (Ryan Ranch Area is within LSS) MIS - PENINSULA, CARMEL HIGHLANDS AND SAN JOSE CREEK AREAS	Non Cal-Am Diversions: 32.4
4. Any minor numerical discrepancies in addition are due to rounding.	CAL-AM WELLS:
	SEASIDE: 3,389.8
	CARMEL VALLEY: 10,835.1
	Within the Water Resources System: 14,225.0
	Outside the Water Resources System: 533.9
	CAL-AM TOTAL, Wells and Diversion: 14,758.9
	NON CAL-AM WELLS:
	Within the Water Resources System: 2,933.2
	Outside the Water Resources System: 1,833.1
	NON CAL-AM TOTAL, Wells and Diversion: 4,798.8
	GRAND TOTAL: 19,557.6

**Table III-2
District-Wide Water Production Summary for Water Year 2007**

SOURCE AREAS ^{1,2}	NON CAW (NON CAL-AM) WELLS						CAW (CAL-AM) WELLS		AQUIFER SUBUNIT TOTALS	
	WATER METER		LAND USE		SUB-TOTAL		WATER METER		NO. OF WELLS	PRODUCTION (AF)
	NO. OF WELLS	PRODUCTION ³ (AF)	NO. OF WELLS	PRODUCTION (AF)	NO. OF WELLS	PRODUCTION (AF)	NO. OF WELLS	PRODUCTION (AF)		
AS1	7	121.3	1	1.2	8	122.5	2	373.9	10	496.5
AS2	45	175.0	37	38.6	82	213.6	1	86.7	83	300.3
AS3	119	1,206.6	47	55.5	166	1,262.1	8	7,986.5	174	9,248.6
AS4	28	690.5	7	2.4	35	692.8	1	2,038.4	36	2,731.2
SCS	8	720.3	2	1.6	10	721.8	6	3,626.0	16	4,347.8
CAC	7	35.4	9	14.3	16	49.7	0	0.0	16	49.7
CVU	235	588.4	44	42.8	279	631.2	0	0.0	279	631.2
LSS	9	506.0	2	3.5	11	509.5	4	435.0	15	944.5
MIS	84	373.5	14	28.6	98	402.1	0	0.0	98	402.1
ACTIVE	542	4,417.0	163	188.4	705	4,605.4	22	14,546.6	727	19,152.0
INACTIVE	281		32		313		20		333	
NOT REPORTING	57		22		79		0		79	
METHOD TOTALS:	880	4,417.0	217	188.4	1,097	4,605.4	42	14,546.6	1,139	19,152.0

NOTES:	DISTRICT-WIDE PRODUCTION
1. Shaded areas indicate production within the Monterey Peninsula Water Resources System	SURFACE WATER DIVERSIONS:
2. CAW - California American Water	CAW Diversions (San Clemente Dam): 0.0
3. Source areas are as follows: AS1 - UPPER CARMEL VALLEY - San Clemente Dam to Esquiline Bridge AS2 - MID CARMEL VALLEY - Esquiline Bridge to Narrows AS3 - LOWER CARMEL VALLEY - Narrows to Via Mallorca Bridge AS4 - LOWER CARMEL VALLEY - Via Mallorca Bridge to Lagoon SCS - SEASIDE COASTAL SUBAREAS CAC - CACHAGUA CREEK and UPPER WATERSHED AREAS CVU - CARMEL VALLEY UPLAND - Hillsides and Tularcitos Creek Area LSS - LAGUNA SECA SUBAREA (Ryan Ranch Area is within LSS) MIS - PENINSULA, CARMEL HIGHLANDS AND SAN JOSE CREEK AREAS	Non Cal-Am Diversions: 105.8
4. Any minor numerical discrepancies in addition are due to rounding.	CAW WELLS:
	SEASIDE: 3,626.0
	CARMEL VALLEY: 10,485.5
	Within the Water Resources System: 14,111.5
	Outside the Water Resources System: 435.0
	CAW TOTAL, Wells and Diversion: 14,546.6
	NON CAW WELLS:
	Within the Water Resources System: 3,012.9
	Outside the Water Resources System: 1,592.5
	NON CAW TOTAL, Wells and Diversion: 4,711.2
	GRAND TOTAL: 19,257.8

Figure III-1

