EXHIBIT 18-A

Monterey Peninsula Water Management District

Memorandum

To: MPWMD Board of Directors
From: Darby Fuerst, Interim General Manager DWF
Subject: Increases in Los Padres Reservoir Storage Capacity for Selected Elevations
Date: August 4, 2008

Summary: This memorandum provides estimates of the amount of storage capacity that would be available in Los Padres Reservoir at varying elevations, if Los Padres Dam was raised. These storage capacity estimates are shown in **Attachment 1** for elevations between 1,040 and 1,060 feet above mean sea level. As shown, for each foot that Los Padres Dam is raised between the existing spillway elevation of 1,040 feet and elevation 1,050 feet, storage capacity would be increased by approximately 68 acre-feet (AF). Similarly, for each foot that Los Padres Dam is raised between elevations 1,050 feet and 1,060 feet, storage capacity would be increased by approximately 88 acre-feet (AF). Accordingly, by raising Los Padres Dam 10 feet, storage capacity would be increased by a total of 680 AF and by raising Los Padres Dam 20 feet, storage capacity would be increased by a total of 1,555 AF.

As noted in **Attachment 1**, the storage capacity values for the Los Padres Reservoir site for elevations 1,040 feet to 1,060 feet were taken from the original elevation-area-capacity curve developed in 1947. This curve is included as **Attachment 2**. Also, as noted, all estimated storage capacity increases are based on the existing spillway elevation of 1,040 feet and assume that the current topography between elevations 1,040 feet and 1,060 feet is similar to the topography surveyed in 1947.

Background: Los Padres Dam was completed in 1949 with a storage capacity of approximately 3,070 AF at a spillway elevation of 1,040 feet above mean sea level. The dam, which is located at River Mile 24.8[1] on the Carmel River, is an earth embankment dam that is owned and operated by California American Water (CAW). **Attachment 3**, which is taken from the Draft Supplemental Environmental Impact Report (EIR) for CAW's proposed Carmel River Dam and Reservoir Project, shows the location of the existing Los Padres Dam and Reservoir in relation to Princes Camp and the existing Ventana Wilderness boundary in the Upper Carmel River Basin.

CAW has estimated that Los Padres Dam presently impounds approximately 1,569 AF of water at elevation 1,040 feet. This estimate is based on a survey conducted in 1998. **Attachment 4** summarizes results of storage capacity surveys for Los Padres Reservoir for 1947, 1977, 1978, and 1998. **Attachment 4** also shows the average annual loss in storage capacity for various elevations during selected periods. As shown, the average annual loss in storage capacity at elevation 1,040 feet between 1947 and 1998 was 28.87 AF. It should be noted that this average loss estimate includes the maximum annual loss of 590 AF that was measured in 1978, as a result of the erosion and sedimentation that occurred following the Marble Cone Fire that burned in August 1977 and heavy rains that began in December 1977 and continued through April 1978. Based on this long-term loss rate, storage capacity loss in the 10-year period since 1998 is estimated at 289 AF (28.9 AFY x 10 Years = 289 AF). Accordingly, the current maximum storage capacity in Los Padres Reservoir is probably less than 1,300 AF, i.e., 1,569 AF – 289 AF = 1,280 AF.

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[1] River Miles are measured from the river's mouth and increase in an upstream direction along the river's course.

Discussion: As discussed in the EIR for the District's Phase 1 ASR Project, storage of surface water in Los Padres Reservoir is necessary to maintain releases and streamflow in the lower Carmel River during the typical low-flow season from June through November. If no action is taken, Los Padres Reservoir will continue to fill with sediment, storage capacity will be reduced, reservoir releases will be further constrained, and the quantity and duration of streamflow in the lower Carmel River will be diminished. In this regard, storage capacity in Los Padres Reservoir can be increased by raising the height of Los Padres Dam, dredging Los Padres Reservoir, or a combination of raising the dam and dredging the reservoir.

Based on CAW's 1998 estimate of storage capacity (1,569 AF), if Los Padres was dredged to its original capacity (3,070 AF), approximately 1,500 AF of additional storage would be available for release. Similarly, based on the 1947 estimate of storage capacity at elevation 1,060 feet, if Los Padres Dam was raised 20 feet, approximately 1,550 AF of additional storage would be available for release. If both actions were taken, more than 3,000 AF of water would be available for release during the low-flow season, subject to actual inflow conditions. Assuming a six month low-flow season, i.e., June through November, this potential additional storage equates to a continuous flow of approximately eight cubic feet per second (cfs) throughout the low-flow season.

Attachment 5 is taken from CAW's current General Rate Case (GRC) before the California Public Utility Commission (CPUC) and provides justification for a *Dredging Feasibility Study* at Los Padres Reservoir. As described, the *Dredging Feasibility Study* would cost $200,000 and would begin January 2009 and be completed by December 2009. As proposed, this study would include:

- assessment of existing reservoir conditions and data,
- characterization of reservoir sedimentation,
- investigation of dredging, transportation, and disposal methods,
- identification of potential commercial use or disposal sites for dredged sediment,
- formulation of dredging project alternatives,
- conducting preliminary design for dredging project alternatives, including preliminary evaluation for ease of implementation, identification of potential key environmental issues, schedule, and cost estimates,
- identification of potential environmental and permitting requirements,
- evaluation and comparison of dredging project alternatives, and
- conclusions and recommendations.

Recommendation: Consistent with Mitigation Measure AR-2 in the Phase 1 ASR Project EIR, i.e., *Cooperate to Help Develop a Project to Maintain, Recover, or Increase Storage in Los Padres Reservoir*, District staff should work with CAW, California Department of Fish and Game (CDFG), and National Marine Fisheries Service (NMFS) to investigate ways to improve summer flows and the quality of releases from Los Padres Reservoir.

Please review and let me know if you have any questions or need additional information.

Estimated Increases in Los Padres Reservoir Storage Capacity Between Elevations 1,040 and 1,060 Feet

Elevation (Feet)	Elevation Increase (Feet)	Total Storage (Acre-Feet)	Increased Storage (Acre-Feet)	Cumulative Increase (Acre-Feet)
1,040	0	**3,070**	0	0
1,041	1	3,138	68	68
1,042	2	3,206	68	136
1,043	3	3,274	68	204
1,044	4	3,342	68	272
1,045	5	3,410	68	340
1,046	6	3,478	68	408
1,047	7	3,546	68	476
1,048	8	3,614	68	544
1,049	9	3,682	68	612
1,050	10	**3,750**	68	680
1,051	11	3,838	88	768
1,052	12	3,925	88	855
1,053	13	4,013	88	943
1,054	14	4,100	88	1,030
1,055	15	4,188	88	1,118
1,056	16	4,275	88	1,205
1,057	17	4,363	88	1,293
1,058	18	4,450	88	1,380
1,059	19	4,538	88	1,468
1,060	20	**4,625**	88	1,555

Notes:

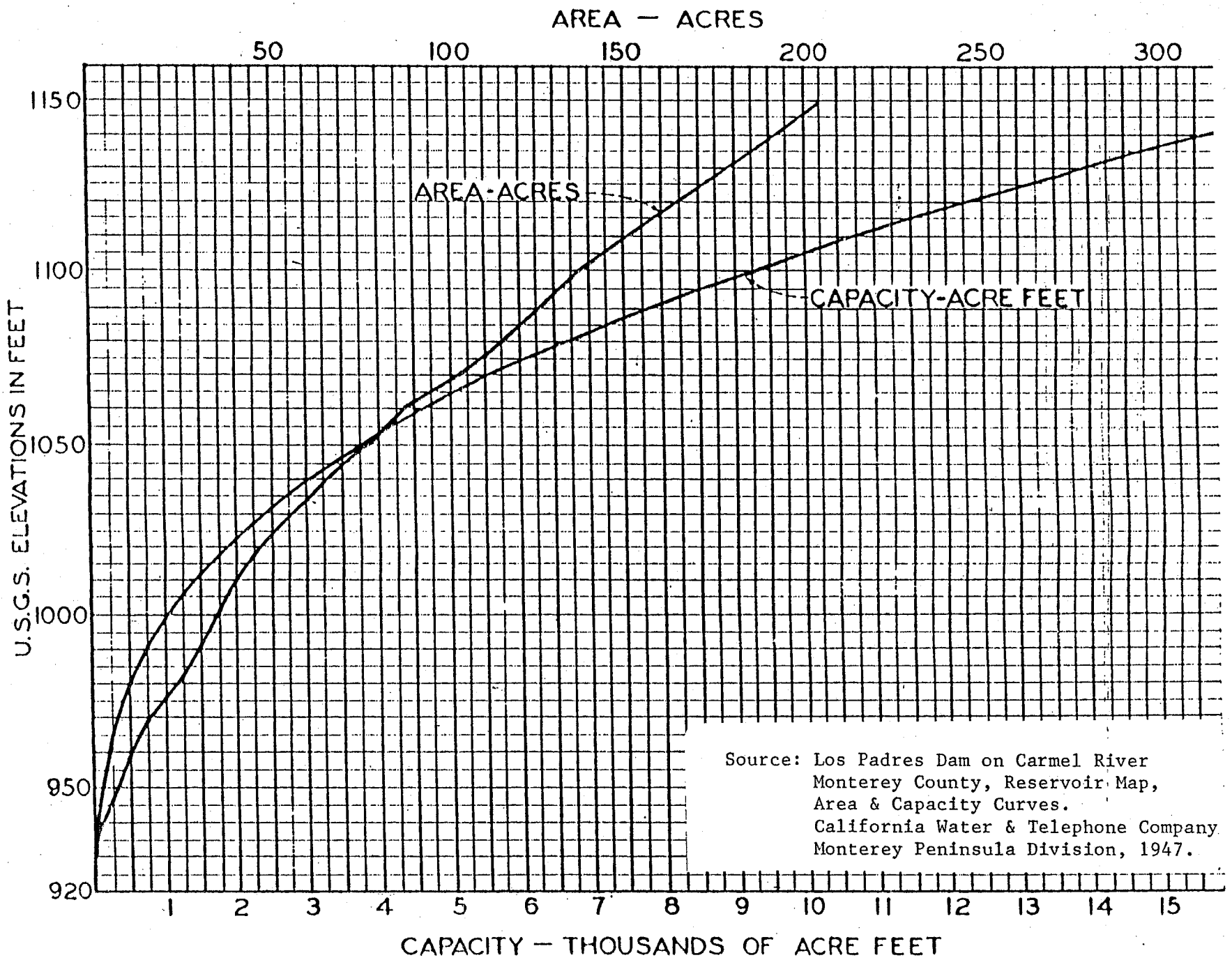
1. Capacity values taken from original elevation-area-capacity curves developed by California Water and Telephone Company, Monterey Peninsula Division, 1947.

2. All capacity increases are based on the current spillway elevation of 1,040 feet above mean sea level.

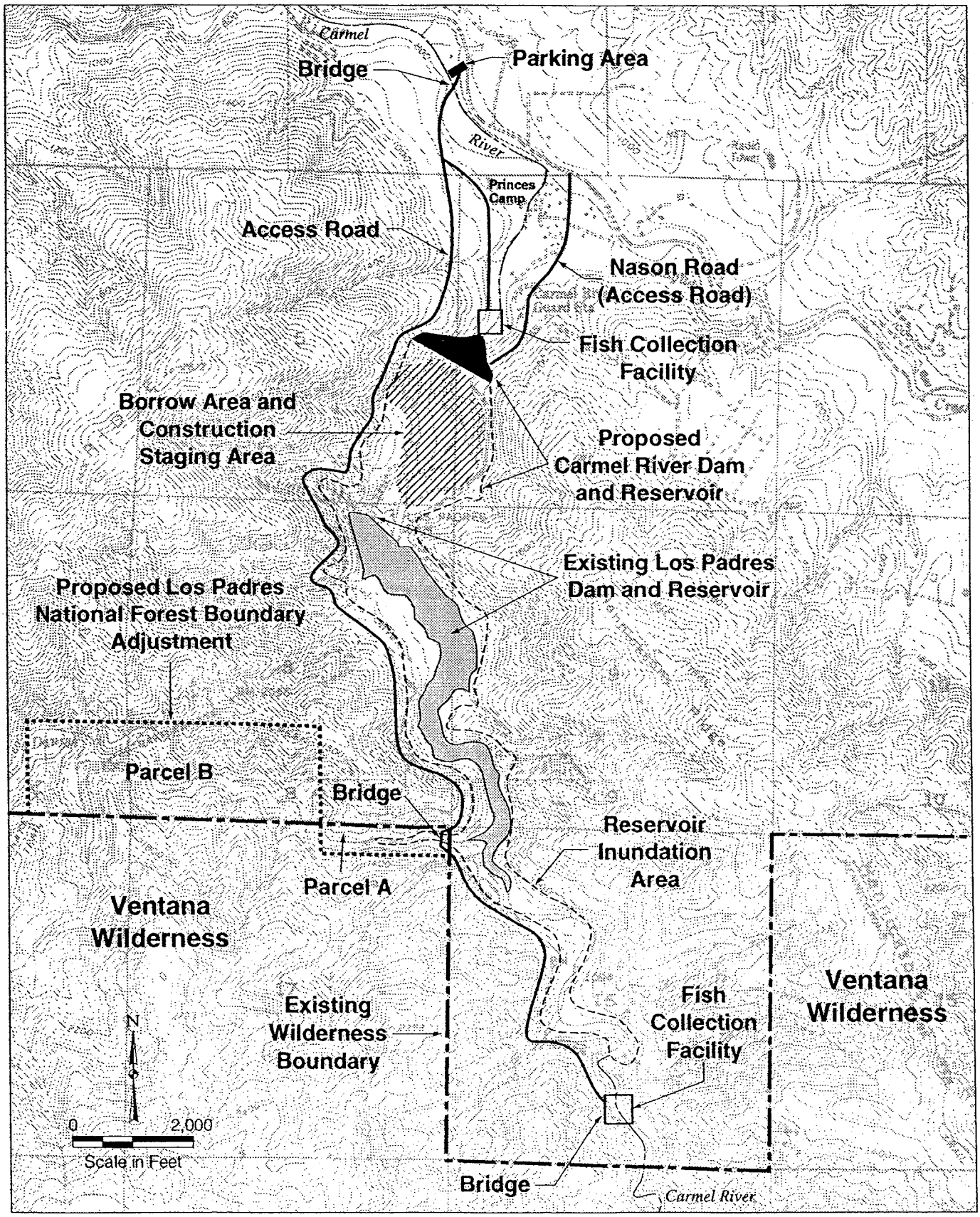
3. All capacity increases assume topography between elevations 1,040 and 1,060 feet is similar to the topography surveyed in 1947.

4. Bold capacity values are surveyed and non-bold values are interpolated.

ELEVATION-CAPACITY-AREA CURVES FOR THE LOS PADRES SITE



Attachment 2



Base map: USGS Carmel Valley 1956 (PR 1984) and Ventana Cones 1956 (PR 1974), California 7.5-minute quadrangles.

Jones & Stokes Associates, Inc.

Figure 2-2
Proposed Carmel River Dam and Reservoir

Los Padres Reservoir Storage Capacities: 1947 - 1998

Elevation (FT)	Storage Capacity (AF)				Mean Loss (AFY)		
	1947	1977	1978	1998	1947-77	1978-1998	1947-98
950	125	0	0	0	4.03	0.00	2.40
960	245	90	0	0	5.00	0.00	4.71
965	255	110	4	0	4.68	0.19	4.90
970	315	150	35	19	5.32	0.76	5.69
975	415	200	60	*55*	6.94	0.24	6.92
980	500	280	105	91	7.10	0.67	7.87
985	670	370	170	*143*	9.68	1.29	10.13
990	750	490	240	195	8.39	2.14	10.67
995	880	620	330	*263*	8.39	3.19	11.87
1000	1,040	780	440	331	8.39	5.19	13.63
1005	1,250	930	570	*422*	10.32	7.05	15.92
1010	1,445	1,130	720	513	10.16	9.86	17.92
1015	1,675	1,340	880	*644*	10.81	11.26	19.84
1020	1,875	1,570	1,060	774	9.84	13.62	21.17
1025	2,125	1,840	1,260	*952*	9.19	14.69	22.57
1030	2,415	2,030	1,470	1,129	12.42	16.24	24.73
1035	2,740	2,290	1,700	*1,349*	14.52	16.71	26.75
1040	3,070	2,540	1,950	1,569	17.10	18.14	28.87

Sources:
1. Los Padres Dam on Carmel River in Monterey County, Reservoir Map, Area & Capacity Curves. California Water & Telephone Company, Monterey Peninsula Division, 1947.
2. Letter report to Monterey Peninsula Water Management District from United States Geological Survey summarizing Capacity Studies on Los Padres Reservoir in 1977 and 1978, 1981.
3. Los Padres Area Capacity Curve for 1998 provided by California-American Water Company, 1999.

Note: Italicized capacity values for 1998, i.e., for elevations 975, 985, 995, 1005, 1015, 1025, and 1035, are interpolated.

PROJECT NEED IDENTIFICATION

REGION: Western
WATER COMPANY: California American Water
DISTRICT OR SERVICE AREA: Monterey

PROJECT TITLE: Dredging Feasibility Study – Los Padres Reservoir
Project Number: IP-0540-163

1 1.0SUMMARY

1.1 Need for the Project

The Los Padres Dam was built in 1949 with a capacity of about 3,000 acre feet. About half its capacity has been lost as it filled with silt, rocks and sediment flowing in from the Carmel River leaving only about 1,600 acre feet as of 1998. This figure is closer to about 1200 acre feet of useable storage in 2007. Several regulatory agencies have asked California American Water to address the feasibility of sediment removal to restore the storage capacity

1.2 Recommended Solution

It is recommended that funds be approved for performing a feasibility study for dredging Los Padres Reservoir.

1.3 Estimated Cost

Cash Flow in $:

COMPONENT	TOTAL	2008	2009	2010	2011	Future Years
Dredging Feasibility Study	$200,000	$0	$200,000	$0	$0	TBD
Total Project Costs	$200,000					

1.4 Schedule

- Project Start: January, 2009
- Project Complete: December, 2009

2 2.0SCOPE OF PROJECT

2.1 **Background.** The Los Padres Dam is an earthen dam built in 1949 about six miles upstream of San Clemente Dam. The original function of the dam was to store water during the wet season for release to the Carmel River during the dry season where it would be diverted from the river at San Clemente Dam into the California American Water system for treatment and distribution to California American Water customers in the Carmel Valley and Monterey Peninsula. As a result of SWRCB Order 95-10, California American Water was ordered to reduce pumping from the Carmel River Valley by 10,730 acre feet annually. Order 95-10 also ordered the California American Water to utilize the lower Carmel Valley wells during summer months to minimize the impact on the river in the upper Carmel Valley, with no diversions allowed at San Clemente Dam during dry weather.

2.2 **Initial Feasibility Studies.** The primary purpose of the dredging feasibility study would be to evaluate several dredging project alternatives for removal, transportation, and disposal of the accumulated sediments in order to restore the water storage capacity of Los Padres Reservoir. The scope of work for the dredge feasibility study will be to:

- An assessment of existing reservoir conditions and data.
- Sedimentation characterization by sampling and testing sediment in the reservoir

- Investigation of dredging, transportation, and disposal methods.
- Identifying potential commercial use or disposal sites for the dredged sediment.
- Formulating dredging project alternatives.
- Conducting preliminary design for dredging project alternatives, including preliminary evaluation for ease of implementation, identifying potential key environment issues, schedule, and cost estimates.
- Identifying potential environmental and permitting requirements.
- Evaluating and comparing dredging project alternatives.
- Conclusions and recommendations.

2.3 **Carmel River Conservation Agreement.** California American Water and National Marine Fisheries Service (NMFS) executed a "Conservation Agreement" in September 2001, which determines the flows in the river downstream of San Clemente Dam. These flows are maintained by controlled releases from Los Padres Reservoir, as the storage capacity of San Clemente Reservoir is only about 100 acre feet and the Department of Water Resources Division of Safety of Dams (DSOD) requires that the water level in San Clemente Reservoir be lowered by 10 feet due to dam safety considerations. This agreement expired in 2004 and was re-negotiated with new terms in 2006. However, legal technicalities on how to implement the new agreement have not been resolved, so the matter of renewal of this Agreement is unresolved. CAW and NMFS continue to operate under the 2001 Agreement.

As a condition of the 2001 agreement, California American Water's water supply has been reconfigured to maximize pumping from the lower Carmel Valley wells during the low flow period in the summer months with no diversion at San Clemente Dam allowed. To achieve this goal, existing wells have been redeveloped and a booster station facility was installed to transfer water within the distribution system. Even with the reduced maximum daily demands due to State Water Resources Control Board Order 95-10 restrictions for the Monterey District's service area, it has become increasingly difficult to meet maximum day demand with the largest Carmel Valley well out-of-service due to deterioration of the well field caused by very high pumping rates from the lower valley wells. Therefore, the San Clemente and Los Padres Dams source of supply remains a vital asset that enhances reliability of the Monterey system when considering deteriorating and declining well yields and mechanical breakdowns. It is planned to continue to utilize Los Padres Dam for storage and San Clemente Dam diversion point as a source of supply in the future during high flow periods to divert water from the Carmel River to Seaside for injection into the Seaside Aquifer as part of the ASR component of the Coastal Water Project and the Seaside Adjudication Compliance Project.

2.4 **Issues.** If this project is not undertaken and California American Water does nothing, there is the risk of possible loss of water rights from the Carmel River, as the SWRCB based California American Water's legal water right in Order 95-10 of 3376 acre feet based on Los Padres Reservoir being able to store about 3000 acre feet.

3.0 ALTERNATIVES

Several alternatives were studied in the San Clemente Dam Seismic Safety Project EIR documents in 1998 and 2000 and the feasibility studies conducted in 2003 including: 1) removal of the dam followed by releasing sediment to river downstream of the dam and; 2) dam removal encompassing sediment disposal in an offsite location. Options involving the release of sediment to downstream of the river were found to be unfeasible due to potential impact on flood plains and the subsequent liabilities. This would also be the case for Los Padres Dam as well.

4.0 PRELIMINARY COST ESTIMATE

Estimated Cost. The estimated cost for the feasibility study is based on the scope of work in above. The actual cost will be determined through a competitive procurement process and will

depend on the specific scope of work in the agreement for the study. The estimated cost is for removing the sediment from Los Padres Reservoir is part of the scope of work for the feasibility study.

5.0 APPENDICES

A. Los Padres Reservoir Silt Study Summary - 1998