BEFORE THE STATE WATER RESOURCES CONTROL BOARD

In the Matter of the State Water Resources Control Board (State Water Board) Hearing to consider Monterey Peninsula Water Management District's (MPWMD) Petitions to Change Permits 7130B and 20808 (Applications 11674B and 27614)	Hearing Date: September 24, 2007 Carmel River in Monterey County

EXHIBIT HS-9

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

Comment letter from Carmel River Steelhead Association on Draft EIR and MPWMD responses to comments in Final EIR on ASR Project

Letter 9

May 4, 2006

Dear Henrietta Stern,

Included below are some of Carmel River Steelhead associations comments on Monterey Peninsula Water Management District Draft Aquifer Storage and Recovery Project. We would like to include more in our comments but time has been short.

Our major concerns are that some of the criteria and thresholds of significance as well as assumptions used to evaluate river and fish response were uncertain. We are concerned that the modeled river and the real time river would not behave as you projected.

A particularly troubling problem is the upstream migration period. The draft EIR points out that in 1991 MPWMD staff found five critical riffles below Schulte Road. Some how they determined that 60 CFS or more was necessary to pass Steelhead freely over these riffles with the substrate conditions they found. The Draft also references D.W. Kelly's 1986 recommendation that 75 CFS are necessary to safely pass Steelhead in the lower Carmel River. Apparently N.O.A.A Fisheries used D.W. Kelly's data to arrive at a minimum flow requirement of 60 CFS. I believe all appreciate the fact that most every year the stream bed topography, location and criticalness of riffles change. Twenty years ago with Kelly and fifteen years age with W.P.W.M.D. staff. The analysis only fit those condition; the river bed has changed. I can personally attest to the various location and varying criticalness of riffles. All good fishermen look for critical riffles because migrating fish can get trapped below them in low flow periods. Eighteen years ago I observed just such a riffle above Garland Park in the River Ranch reach of the Carmel. The flow was above 150 CFS. Two years ago there was a wildly circulated verbal report of 50 plus fish under the most upstream golf cart bridge at Quail Lodge. Nearly two weeks later I personally waded the reach and counted 75 large Steelhead waiting to go upstream. This year I received a call from Maurice Coury who reported 25 large Steelhead under the middle golf cart bridge at Rancho Canada. It was in February and the river was closed to fishing with the flow over 70 CFS.

9-1

These examples of critical riffles interrupting the migration of threatened Steelhead should cause a reconsideration of the 60 CFS criteria you have chosen to use in your model and operations. Since the Steelhead population is in a steep multiyear decline, nothing should be used as operational standard that might push Carmel River Steelhead from threatened to endangered or to extinction. Anything close to minimum flows should be avoided. A fair mitigation or operation that should be taken before every ASR season would included a thorough evaluation of all critical rifles and flows necessary for passage. Once identified the riffles should be constantly monitored. If fish are found to be blocked or delayed A.S.R. should be stopped until either flows increase enough or corrective measures that alleviate the disruption of migration are successful.

A stated assumption was the A.S.R. water would only be removed from the farthest down stream wells. Maximum production below RM5.5 is 8.4 CFS so as the assumption goes the 6.7 CFS ASR water can be taken from the lower wells. If ASR water is coming from the lowest wells the normal Cal-Am production has to go to the upper wells. This increased production upstream will impacting more river miles. It is even doubtful that any ASR water will come from the lower wells because the water from them costs more to pump and needs more mineral removal. Also the lowest wells are supposed to be pumped the most during the dry season and are often broken or serviced during ASR season. Unless there is a MPWMD ordinance that requires it , all the water will come from the cheapest upstream source and all the modeled flows and comparisons are in error for real time operations. 9-2

The draft EIR report that, as a result of modeling unimpaired flows states "that flows during the last 30 years have not been adequate to support a self-sustaining Steelhead population." This seems to indicate that either the models are wrong or the years simulated have too many dry or critically dry years included. More meaningful data, as far as Steelhead are concerned, would more realistically be compared from the 100 years of rainfall and flow information you state is available. 9-3

There are some problems with trusting the conclusion in this draft EIR. ASR logic and assumptions are not necessarily reliable in the real world.
Some examples: There will be uniform distribution of SGB water in the June to November "recovery" period.
- assume ASR wells inject 13.3 AF/day
- assume Cal-Am can move 13.3 AF/day to and from well
- assume annual inflow from upgradiant at 4,955 AF
- assume Cal Am average annual product and ASR at 4,720 AF
"the increased yield in coastal area of the SGB was determined heuristically through a series of CVSIM3 simulations.

There is a lot of uncertainty in the above assumptions. 9-4

The following statements from the Draft ERI also create doubts in the conclusions of improvement in conditions for fish. "Actual operations may differ depending on future project objectives". "More storage in SGB could be held in reserve for municipal use during extended dry periods". 9-5

When the water table is drawn down in the summer it takes a certain lag time for fresh surface flow to peculate down to the support level. The draw down is greatest in the lower river especially during dry periods. I believe the effect on surface flow when there is a + or - 1,000 AF draw down out of 10,000AF makes a insignificant difference in most years. I question whether the lag in peculation time was fully appreciated in the models. 9-6

A major flaw in the project as far as the environment is concerned is reflected in this 9-7

statement found in the EIR "the project would allow but not require Cal-Am to decrease river water use during low flow season", June through November. It should be understood that many times low flows extend into late December, and if Cal-Am does not decrease diversions, the project fails for fish. 9-7 cont.

The MPWMD should require by ordinance that Cal-Am be required to use seaside and ASR water only during the dry season as long as that season lasts and reduce by like amounts diversion from the Carmel River.

Sincerely,

Roy L. Thomas, President
Carmel River Steelhead Association

Comment Letter 9—Carmel River Steelhead Association, May 4, 2006

Response to Comment 9-1

The commenter correctly notes that the success of adult upstream migration is affected by the combination of streamflow, channel configuration, and substrate conditions. The commenter correctly notes that NOAA Fisheries bypass flow recommendations were based on past studies under varying streambed conditions and channel configurations. There is agreement that the channel conditions change from year-to-year and that bypass flows should be set to provide adequate minimum passage conditions, recognizing that conditions may change. To this end, the commenter's recommendation for a mitigation measure "to thoroughly evaluate all critical riffles prior to each ASR season and the flows necessary for passage" is reasonable. However, it is not reasonable to constantly monitor each critical riffle during the migration period. Instead, a reference site, such as the MPWMD gaging station at the Highway One Bridge or the USGS Near Carmel gaging station, should be used for this purpose. The commenter's concerns and recommendations parallel those of NOAA Fisheries (Comment 6-2). Please refer to Response to Comment 6-2.

MPWMD agrees that no operational standard should be employed that changes the status of the Carmel River steelhead from threatened to endangered or that results in extinction. MPWMD notes that a primary purpose of the Phase 1 ASR Project is to begin reversing the water extractions that continue to imperil the steelhead population. With the proposed ASR Project, this is accomplished by diverting water during periods of surplus (December through May), storing this water in the Seaside Groundwater Basin, and recovering this water primarily during the summer–fall period. The Phase 1 ASR Project thereby reduces diversions from the Carmel River Basin during periods when existing diversions: (1) severely limit other phases of the steelhead lifecycle, (2) continue to reduce the juvenile population, and (3) threaten the survival of the adult steelhead population.

Response to Comment 9-2

The commenter correctly notes that the analysis in the DEIR assumed that the water diverted from the Carmel River system for injection into the Seaside Basin for the Phase 1 ASR Project would be pumped from Cal-Am's farthest downstream well (i.e., Rancho Cañada well at RM 3.13). MPWMD agrees that this assumption is inconsistent with actual operations and Condition 5 of SWRCB Order No. WR 95-10, which requires Cal-Am to satisfy the water demands of its customers by extracting water from its downstream wells to the maximum practicable extent. To correct this inconsistency and ensure that the modeled flows conformed to actual operations, MPWMD revised its operations model (i.e., CVSIM3) and generated a new simulation for the proposed Phase 1 ASR Project. Specifically, the logic in the model was revised to comply with

Condition 5 of Order 95-10 and require that the water from the Carmel River system needed to meet Cal-Am's customer demand would be produced from Cal-Am's most downstream wells and that the water diverted from the Carmel River system during the high-flow period for injection would be produced from the next upstream wells.

It should be noted that the bypass flow requirements in the reach between San Clemente Dam and RM 5.5 are greater than the requirements in the reach between RM 5.5 and the lagoon. By moving the diversion point for water for injection from the reach below RM 5.5 to the reach above RM 5.5, less water was available for injection. As originally simulated, an average of 963 AFY was available for injection from the reach below RM 5.5. With the revised logic and the requirement that the water for injection would be pumped from the reach above RM 5.5, an average of 918 AFY was available for injection.

The revised simulation results for the Phase 1 ASR Project were compared with the original simulation results and do not differ significantly. Because the amount of water available for diversion from the Carmel River system for injection is slightly less, less water is injected into the Seaside Basin and available for recovery during the low-flow season.

Response to Comment 9-3

The statement that "flows during the last 30 years have not been adequate to support a self-sustaining steelhead population" refers to the *impaired* flows that have occurred in the Carmel River during the last 30 years (i.e., 1975 through 2005) and the decline in the steelhead population that has been observed. As explained in Appendix A of the draft EIR, *Carmel River/Freshwater Aquatic Life*, the current run of 500 to 1,000 fish has been maintained by implementing efforts to reconfigure Cal-Am's diversions, rescuing juvenile fish, carrying out a brood stock program during the 1987 to 1991 drought, and constraining water production in the Carmel River Basin (page A-13). The impairment to the natural flows in the Carmel River during the 1975 to 2005 period is due primarily to Cal-Am's dam operations and groundwater diversions by Cal-Am and non Cal-Am well owners.

The statement that "flows during the last 30 years have not been adequate to support a self-sustaining steelhead population" is supported by field observations and does not rely on models or the distribution of water year types during the last 30 years. As explained in Chapter 8, "Surface and Groundwater Hydrology and Water Quality," the 45-year period of record used in the impact analyses (i.e., Water Years 1958 to 2002) is considered representative of the range of hydrologic extremes expected over the life of the Proposed Project. Specifically, this period includes a short-duration, severe drought period (Water Years 1976–1977) and a longer duration, less severe drought period (Water Years 1987–1991). The selected period of analysis also includes extremely wet years such as Water Years 1983, 1995, and 1998. Note that the simulation model operates on a *daily* time-step and over the 45-year period covers a span of approximately 16,425 days. In this regard, it is believed that the period is sufficiently long

enough to determine the water supply performance of the proposed Phase 1 ASR Project and its impact on the Carmel River steelhead run.

Response to Comment 9-4

MPWMD acknowledges that there is inherent uncertainty in predicting future events and effects on complex ecosystems like the Carmel River. However, MPWMD believes the conclusions described in the draft EIR are accurate and is confident of the reliability of computer simulation results as relative performance measures. The CVSIM model has been evaluated by independent experts who determined it to be an acceptable predictive tool. Regarding the "reliability" of the five assumptions listed, the following information is provided.

1) The assumption that the amount of injected water in the Seaside Basin that would be available each year for recovery would be uniformly distributed during the June 1 through November 30 "recovery" period was made to facilitate the comparison between the No-Project and Phase 1 ASR simulation results. In reality, it is envisioned that the interagency management group that meets each year to negotiate the MOA governing Cal-Am's operations during the low-flow season (i.e., usually May through December) will also determine the amount of injected water available for recovery and the *daily* distribution that will provide the greatest benefit to the Carmel River system and dependent steelhead resource. Decisions by the MOA group, which is presently composed of staff from Cal-Am, CDFG, NOAA Fisheries, and MPWMD, will be based on current "real-time" conditions. For example, if it is determined that 1,200 AF are available for recovery during the 6-month recovery period, then assuming a "uniform" distribution, 200 AF would be produced each month between June and November and approximately 6.5 AF would be pumped from the coastal portion of the Seaside Basin rather than the from the Lower Carmel each day between June and November. However, based on actual conditions, the MOA group could decide to apply a non-uniform distribution. For example, the 1,200 AF available for recovery could be ramped down with 400 AF pumped in June; 300 AF pumped in July; 200 AF pumped in August; and 100 AF pumped in September, October, and November. Under this distribution, daily pumping from the Seaside Basin would vary from 13.3 AF in June to 3.2 AF in October and would provide greater benefits during the early summer months.

2) The assumption that the proposed ASR wells will inject 13.3 AFD, which is equivalent to 3,000 gallons per minute (gpm), is based on experience with MPWMD's existing Santa Margarita Test Injection Well (SMTIW) and proposed improvements to Cal-Am's distribution system. Presently, the SMTIW is capable of injecting up to 1,250 gpm or 5.5 AFD. For the proposed Phase 1 ASR Project, it is planned that a second larger ASR well will be constructed near the existing SMTIW. The second well (i.e., ASR Well #2) will be a larger diameter well with greater capacity and should be able to inject up to 1,750 gpm or 7.7 AFD. As designed, both wells will operate together in the injection mode during the injection season and should be capable of injecting 13.3 AFD into the Seaside Basin.

3) The assumption that Cal-Am can move 13.3 AFD to the proposed Phase 1 ASR site for injection and move 13.3 AFD of recovered water from the Phase 1 ASR site to its distribution system for delivery to its customers is based on discussions with Cal-Am and its consultants, RBF Consulting. RBF has modeled Cal-Am's distribution system and identified areas where potential problems could occur with the proposed Phase 1 ASR Project. Various options have been developed to address these problem areas and ensure Cal-Am's ability to reliably provide water to its customers and to the proposed ASR site for injection and subsequent recovery. As described in the draft EIR, Cal-Am is proposing to construct a temporary aboveground pipeline that would connect the existing SMTIW and proposed ASR Well #2 to the Hilby distribution main (page 2-16). This temporary 16-inch diameter pipeline would be installed parallel and to the west of the existing General Jim Moore Boulevard alignment and would be approximately 6,700 feet in length. A permanent pipeline will be installed once the new road alignment is finalized and other long-term water supply issues are resolved. The temporary pipeline will be in place no more than 5 years and will be sized to transmit 3,000 GPM (13.3 AFD) to and from the site.

4) The assumption that annual subsurface inflow into the coastal area of the Seaside Basin from upgradient inland areas is approximately 4,955 AFY is based on findings from previous hydrogeologic investigations of the Seaside Groundwater Basin. These previous estimates were based on an application of Darcy's Law, which relates subsurface flow to cross-sectional area, gradient, and hydraulic conductivity of the aquifer material. As explained in the DEIR, these earlier subsurface inflow estimates were compared to updated estimates developed for the Seaside Basin adjudication proceedings (i.e., *Seaside Groundwater Basin: Update on Water Resource Conditions* [Yates et al. April 2005]). The subsurface inflow used in previous simulations (i.e., 4,995 AFY) is between the range developed by Yates and others (i.e., 4,000–5,740 AFY) and was retained for the Phase 1 ASR Project simulations.

5) The incremental yield associated with the proposed Phase 1 ASR Project was computed by comparing the Cal-Am's average annual production from the coastal area of the Seaside Basin with the Phase 1 ASR Project (4,720 AFY) with Cal-Am's average annual production from the coastal area of the Seaside Basin with the No-Project (3,670 AFY). The increase in average annual production (i.e., 1,050 AFY) was due to the increased recharge to the basin that resulted from the injection operations. With this increased recharge, it was possible to increase simulated extractions without further depleting storage. The Phase 1 ASR Project yield (4,720 AFY) was determined by a series of trial simulations. In each successive simulation, the "target" parameter for Cal-Am's production from the coastal area of the Seaside Basin was incrementally increased until the amount of usable storage in the coastal area of the basin approximated the minimum usable storage simulated for the No-Project alternative (i.e., 119 AF at the end of November 1991).

Response to Comment 9-5

MPWMD agrees that the two statements noted in the comment are confusing and could create doubt. MPWMD therefore hereby removes these statements from page 8-23 of the draft EIR based on water rights protest dismissal negotiations with CDFG and NOAA Fisheries. These revisions are presented in Chapter 2 of this final EIR.

As part of these discussions, additional assurances have been made to ensure benefit to the Carmel River as the primary purpose of the Phase 1 ASR Project. These are reflected in revised text and mitigation measures in the final EIR as well as recommended conditions on a water rights permit for the Phase 1 ASR Project to be issued by the SWRCB. MPWMD's objective is to divert excess water from the Carmel River system during high-flow winter and spring months for injection and storage in the Seaside Groundwater Basin so that increased pumping from the Seaside Basin is possible and allows corresponding reductions in diversions from the Carmel Valley alluvial aquifer during the low-flow summer and fall months to maintain groundwater storage and surface water flow in the lower Carmel Valley. Similarly, the excess water diverted from the Carmel River system during high-flow periods should be used exclusively to benefit the Carmel River system and dependent resources during low-flow periods. By utilizing the water injected in the Seaside Basin and reducing diversions by Cal-Am from the Carmel River system for customer water demand during the low-flow season, groundwater storage in the Carmel Valley will be maintained and Carmel River streamflow will last longer and flow farther. This increased flow will provide both immediate and long-term benefits to the Carmel River steelhead run (e.g., less time to refill the aquifer and initiate flow to the ocean in the fall).

Response to Comment 9-6

In CVSIM3, percolation of Carmel River streamflow through the bed of the Carmel River was simulated using a relationship between streamflow and infiltration losses developed by the USACE in their *Feasibility Report on Water Resources Development for the Carmel River* (May 1981, Volume II, Appendix C, *Hydrology and Hydraulics*). The relationship was developed for the reach between San Clemente Dam and the Carmel River near the Carmel gaging station. The monthly relationship is represented by a family of three curves that relate to aquifer storage: (1) zero percolation rate when the aquifer is full, (2) medium percolation rate when the aquifer is drawn down 1,000 AF, and (3) maximum percolation rate when the aquifer is drawn down more than 3,000 AF. As an example, when the aquifer is drawn down 1,000 AF and monthly streamflow is 2,000 AF, monthly percolation is estimated to be approximately 600 AF. Similarly, when the aquifer is drawn down more than 3,000 AF and monthly streamflow is 2,000 AF, monthly percolation is estimated to be 1,700 AF. Thus, the lag time in percolation has been taken into account in the simulation model.

Response to Comment 9-7

The commenter's concern is that Cal-Am would not be required to reduce its diversions from the Carmel River during low-flow periods when injected water in the Seaside Basin is available for recovery and, as a result, the Proposed Project would not benefit the Carmel River steelhead as described in the draft EIR/EA. This concern is similar to concerns expressed by NOAA Fisheries (see Response to Comment 6-3) and CDFG (see Response to Comment 2-4). To address these concerns, the MPWMD, in cooperation with CDFG and NOAA Fisheries, has developed a set of explicit rules to govern the proposed recovery operations. These rules "tie" the amount of water that can be recovered in a year to the amount of water that was injected during the year plus injected water in storage and provides an explicit accounting procedure to track water injected, stored, and recovered over time. These rules will be included as a condition in the new water right for the Phase 1 ASR Project that will be issued by the SWRCB and held jointly by Cal-Am and the MPWMD.

The determination of the amount of water available for recovery will be made at the end of May each year. In the simulation, the determination would be made on June 1 each year. In real time, it is envisioned that the determination will be made in May by the MOA group (Cal-Am, CDFG, NOAA Fisheries, and the MPWMD) as part of the MOA process. In the simulation, once the determination is made, the daily amount of injected water that is targeted for recovery is taken *before* Cal-Am operates its Carmel Valley wells to meet customer demand. This logic ensures that Cal-Am will reduce its diversions from the Carmel River during the low-flow season when injected water is being recovered for Cal-Am customer use. In real time, it is envisioned that the targeted recovery amounts that have been determined will be incorporated into the *Quarterly Water Supply Strategy and Budgets* for Cal-Am that the MOA develops each year in September, December, March, and June. Based on actual conditions, it should be noted that the MOA group could decide to extend the recovery period into December. This decision would be subject to the availability of injected water in storage.