RESOURCE MANAGEMENT SERVICES
440 Harcourt Avenue
Seaside, CA 93955
Telephone (831) 899-6737
FAX (831) 899-6211

June 30, 2015

Andrew Barnsdale
c/o Environmental Science and Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108

Transmitted Via mail and Email

RE: Comments to the DEIR for the Monterey Peninsula Water Supply Project

Dear Mr. Barnsdale:

The City of Seaside has reviewed the above referenced project and offers the following comments to the summary of impacts identified in the DEIR that relate directly to the City of Seaside and its residents:

I. Construction Impacts

Noise

Noise impacts for the construction of the transmission line, terminal reservoirs, ASR wells, and Aquifer Storage and Recovery Project have been described as a significant and unavoidable impact in the DEIR. Due to the construction zone for both the transmission pipeline and terminal reservoir/pump station being placed within residential zones in the City of Seaside, the City requests that the following comments should be included as additional noise mitigation to address construction activity in the City of Seaside:

1. Prior to any construction within the City of Seaside, the applicant must submit a detailed Noise Control Plan to the Planning and Economic Development Services Manager for review and approval. This plan will identify specific measures that shall be taken to ensure compliance with the noise limits specified in the City of Seaside General Plan and Chapter 17.30.060 of the Seaside Municipal Code. An identified noise impact shall not be considered as a significant unavoidable impact until all feasible alternatives have been evaluated by the applicant as part of the noise control plan.

2. A brochure that would be used for the purpose of disseminating essential information to the adjoining residences about the project shall also be submitted to the Planning and Economic Development Services Manager for review and approval.

3. The new pump station and ancillary uses must be designed so that noise levels do not exceed applicable City of Seaside General Plan Policies and ordinances in the Seaside Municipal Code. Prior to installation of machinery and/or noise generating power tools, the applicant must retain an acoustical consultant to provide mitigation measures and to monitor noise levels from the operating facility in compliance with the Noise Control

Plan. If project-generated noise exceeds the noise ordinance performance standards, additional noise attenuation measures will be implemented to meet the standards.

Traffic

Staff has identified the following issues which need to be included in the proposed traffic mitigation for construction activity in the City of Seaside:

1. Prior to construction activity in the City of Seaside, applicant shall provide vehicle operations plan to address permitted vehicular access to the project construction areas and terminal reservoir/ASR Wells at conclusion of project:

    a. Construction Traffic: Transportation route for use of construction vehicles involved with the delivery and pick-up of construction materials shall be submitted to the City Engineer/Public Works Services Manager for review and approval. City streets not included on the transportation plans shall not be used during construction unless applicant receives written permission from the City Engineer/Public Works Services Manager in advance.

    b. Maintenance/Business Operations Traffic: Transportation route through the City of Seaside for purpose of conducting routine maintenance/service calls by employees of the utility service operating the terminal reservoir site shall be submitted to the City Engineer/Public Works Services Manager for review and approval. Use of any City roadway not listed on the approved transportation route and/or outside of the days and hours for an authorized utility vehicle to visit the site shall not be used unless applicant receives written permission from the City Engineer/Public Works Services Manager in advance.

2. Prior to any construction activity commencing in the City of Seaside, applicant must present Traffic Control Plan to the Seaside Fire Chief and Seaside Police Chief demonstrating how access for emergency vehicles must be provided at all times during construction. If lane closures occur, local municipal, state and federal fire and police departments shall be notified of construction locations and alternatives for evacuation and emergency routes during construction periods.

3. Prior to any construction activity beginning in the City of Seaside, a Traffic Control Plan shall be submitted to the City Engineer/Public Works Services Manager to address the following:

    a. Applicant shall demonstrate how access will be provided to private driveways and private roads and noticing that would occur to advise a property owner of any temporary blockage that would occur to a private driveway or private roadway.

    b. Off-street parking plan must be submitted identifying location where construction workers would park and be provided shuttle service to the construction areas. No parking for construction employees within the City of Seaside public right-of-

ways in a residential zone shall be permitted unless permission is granted by the City Engineer/Public Works Services Manager based on specific construction needs associated with the project.

c. Secure pedestrian and bicycle access and circulation along public right-of-ways must be maintained during construction. Applicant must submit detour plan to the City Engineer/Public Works Services Manager for review and approval prior to blocking any roadway or sidewalk within the public right-of-way or on private property.

d. Lane closures (partial or entire), traffic controls, and construction materials delivery will be restricted to between 9:00 AM and 4:00 PM on weekdays to avoid peak-hour traffic morning and evening commute hours.

e. Roadway segments or intersections that are at or approaching Level of Service standards that exceed local standards shall be identified with plan demonstrating how construction activity will either avoid these intersections at peak periods or use different routes.

f. Access to public transit shall be maintained, and movement of public transit vehicles shall not be impeded as a result of construction activities. Coordination with Monterey-Salinas Transit (MST) will be required regarding lane closures (partial or entire) that occur on bus routes and to provide notice of construction that could affect transit service routes so that MST can adjust routes or schedules.

g. Construction area signs shall be posted, in accordance with the Manual of Uniform Traffic Control Devices in advance of the construction area and at any intersection that provides access to the construction area.

h. Written notification shall be provided to appropriate contractors regarding appropriate routes to and from construction sites, and weight and speed limits for local roads used to access construction sites.

i. A sign shall be posted at all active construction sites. This sign shall provide the name and telephone number or electronic mail address of the staff member to contact with complaints regarding construction traffic. The area of the sign shall be at least three feet by three feet.

Air Quality

1. Prior to any grading, excavation, or trenching activity in the City of Seaside, applicant shall coordinate with the Planning and Economic Development Services Manager and City Engineer/Public Works Services Manager on proposed air quality mitigation and monitoring plan and provide contact for construction management regarding complaints.

Lighting

1. Applicant must submit all external light sources that would be used for night-time construction to the Planning and Economic Development Services Manager for review and approval.

Hours of Work

City staff requests that the following mitigation measure should be required for construction in the City of Seaside:

1. Hours of construction activity shall occur between 7 AM and 7 PM, Monday thru Friday, and 9 AM and 5 PM on weekends and holidays. Applicant must submit written request to the Planning and Economic Development Services Manager in advance to conduct construction activity out side of the designated hours of operation. In the event of an emergency or specific requirement of the project necessitating the need for construction outside of the permitted hours of operation, applicant shall be responsible for contacting the Planning and Economic Development Services Manager on the next business work day of emergency and/or special requirement.

Public Roads

City staff requests that the following mitigation measures should be required for construction in the City of Seaside:

1. All roadways and public rights-of-way wherein utilities would be installed below ground or above ground must be reconstructed in accordance with City Engineering Standards for the complete width of the roadway or public right-of-way that would be affected. Partial reconstruction and/or patching of the roadway or sidewalk shall not be allowed.

2. Develop a Quality Assurance Program (QAP) establishing a sampling and testing program that will provide assurance that the materials and workmanship incorporated into the construction project are in conformance with contract specifications. At a minimum the QAP shall outline material acceptance testing, inspection and field verification by qualified individuals and laboratories. Submit QAP to City Engineer for review and approval.

2. An encroachment permit would be required from the City of Seaside for all construction activities located within the public right-of-way and/or requiring access across a public right-of-way in the City.

Hydrology and Water Quality

City staff has following comments regarding hydrology and water quality issues in the City of Seaside:

1. Storm water runoff from construction sites shall not be permitted.

2. Prior to any construction in the City of Seaside, the applicant must submit Storm Water Pollution and Prevention Plan (SWPPP) and Waste Discharger Identification (WDID) approved by the Water Quality Control Board to the City Engineer/Public Works Services Manager. SWPPP shall include requirement to install wheel washers at the exit to construction sites for all exiting trucks to assist with control and clean-up of fugitive dust and debris on local and regional roadways.

3. Per Chapter 8.46 of the Seaside Municipal Code and as established by Resolution R3-2013-0032 of the Central Coast Regional Water Quality Control Board, the Project shall implement Post Construction/Low Impact Development (PCR/LID) requirements for the treatment and infiltration of stormwater generated from the Project. Development projects within the former Fort Ord are required to demonstrate retention of the 100 year design storm in addition to PCR/LID. The DEIR shall include appropriate regulatory citations.

4. The DEIR shall reference Phase II Small MS4 General Permit 2013-0001-DWQ, Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems.

II. Land Use Impacts

The City of Seaside requests that the Land use discussion in DEIR should be amended to address following comments:

General Plan and Zoning Code

1. The DEIR shall identify required entitlement from each jurisdiction for installation of private utility system/infrastructure on private property and/or public right-of-way (e.g. Use Permit, Design Review, Encroachment Permit).

2. The DEIR must be updated to reference the following policies from the Seaside General Plan:

    - Land Use Policy LU-5.1; and
    - Land Use Policy LU-5.2 , and

- Land Use Policy LU-5.4, and
- Land Use Policy LU-8.2; and
- Conservation Policy COS-2.1; and
- Conservation Policy COS-2.2; and
- Conservation Policy COS-2.3

3. All above-ground permanent structures and facilities shall be reviewed and approved by the City's Board of Architectural Review.

Reservoir and ASR Wells

1. City staff has met with representative of California American Water regarding the necessity to secure land use entitlements to conduct work within the City's public right-of-way or install proposed reservoir/pump station, ASR Wells/Pipeline, percolation basin east of Jim Moore Boulevard. Mitigation measure must be included indicating that applicant would be required to meet with the City of Seaside to coordinate placement of all utilities and infrastructure on lands within the City of Seaside and receive required entitlements, including development permits and/or right of entry, easement/land rights, prior to any construction.

2. Prior to construction in the City of Seaside, applicant must provide an encroachment agreement/easement with the applicable public agency for the project sites that would be used for the terminal reservoir, ASR Well sites and any detention backflush detention areas.

3. The land use discussion must indicate that the lands on the former Fort Ord Area for the installation of the ASR system and reservoir/pump station have been annexed by the City of Seaside.

4. Figures 3-7 shows the ASR Well Siting Study Area as a long swath of land generally running north and south along General Jim Moore Blvd from about Coe Avenue to Normandy Road. This study area is adjacent to the northern boundary of the Adjudicated Seaside Groundwater Basin and near the flow divide between the Seaside Groundwater Basin and the Salinas Groundwater Basin. Considering the 1) proximity of sensitive receptors (e.g. housing, schools, and Seaside Resort Development), 2) the potential of groundwater flow from the Seaside Groundwater Basin to the Salinas Groundwater Basin near the northern boundary of the Seaside Basin, and 3) the potential of sea water intrusion near the ocean (see *Seaside Watermaster Basin Management Action Plan*), the ASR Well Siting Study Area should be expanded to consider additional locations. Please consider expanding the ASR Well Siting Study Area to include additional areas to the west along Monterey Road and to the east along Eucalyptus Road. Consideration of potential additional areas for ASR Well siting should be coordinated with the City of Seaside and the Seaside Groundwater Basin Watermaster to minimize impacts to sensitive receptors and to maximize benefits to the Seaside Groundwater Basin.

5 As a project alternative, the DEIR should analyze requiring the installation of underground terminal reservoirs east of Jim Moore Boulevard. The terminal reservoirs are proposed within area designated as low-density residential (RS-8) on the General Plan Land Use Map. Underground reservoirs would allow for the development of open space uses above the reservoirs to minimize the aesthetic impact of the structures and integrate the project into the future residential development with the least disruption to the residential community and roadway infrastructure.

6. The DEIR must provide explanation for containment of water supply within the proposed above-ground reservoirs in the event of rupture.

7. Development of the two ASR wells proposed by the DEIR will involve groundwater pumping. The quantity of water is not specified. Based upon the Groundwater Replenishment Project, it is estimated approximately 20+ acre-feet would be required for development of proposed ASR wells. The Adjudication Decision does not appear to make any provision for this pumping, and makes no allocation of groundwater for this purpose. The DEIR should comment on the significance of this activity and propose mitigation if warranted.

8. Routine back-flushing of the ASR wells is discussed, but no estimate of the quantity of water that will be extracted from the aquifer is provided. The DEIR should provide greater detail on the frequency of flushing and quantity of water generated and propose mitigation measures as warranted.

9. Page 4.4-72 of the DEIR states that ASR Wells No. 5 & 6 will inject/extract from the shallow (Paso Robles) aquifer. Page 3-38 states ASR Wells No. 5 & 6 inject/extract from the deeper Santa Margarita aquifer. DEIR should be consistent and propose mitigations if appropriate.

10. Those portions of the Project on lands in the former Fort Ord have deed restrictions placed upon them regarding development of the land. The Project is required to adhere to Chapter 15.34 of the Seaside Municipal code, including provisions for development of a soil management plan and unexploded ordinance support approved by the State of California, Department of Toxic Substances Control.

III. Water Assessment Needs

City staff requests that the DEIR should be updated to include the following comments in the discussion of growth inducement potential in Chapter 8 as the discussion relates to the City of Seaside:

1. The Water Supply Assessment adopted by Cal-Am in October of 2008 for the West Broadway Urban Village Specific Plan shall be included in discussion and evaluation of the City's future water needs. A net increase of 80 acre feet of water has been estimated above existing water use to accommodate full-build out of the specific plan. Copy of the

Water Supply Assessment prepared for the West Broadway Specific Plan is provided as Attachment 3.

The City of Seaside appreciates the opportunity to provide input on the proposed project. If you have any questions or need additional information regarding the comments listed above, you can contact Tim O'Halloran, City Engineer/Public Works Services Manager at (831) 899-6825 or tohalloran@ci.seaside.ca.us.

Sincerely

Diana Ingersoll
Deputy City Manager-Resource Management Services

Attachments:

Attachment 1. Section 15.05 of the Seaside Municipal Code
Attachment 2. Seaside General Plan Policies applicable to the project
Attachment 3. Water Supply Assessment for West Broadway Urban Village Specific Plan (By email attachment only)

Cc: Mayor and City Council
John Dunn, City Manager
Lisa Brinton, Community and Economic Development Services Manager
Tim O'Halloran, City Engineer/Public Works Services Manager
Rick Reidl, Senior Civil Engineer

Chapter 15.05
DEVELOPMENT PERMITS AND INSPECTIONS

15.05.005 Development permit required.

No building or structure shall be erected, constructed, enlarged, altered, repaired, moved, improved, removed, converted or demolished, or changed from one use to another use, unless and until a development permit has been secured from the building official. The building official is responsible for issuing development permits and is authorized, in consultation with affected departments or divisions, to attach any conditions to the permit consistent with the nature of the development or use and in the interests of health, safety and welfare. (Ord. 827 § 1(part), 1993).

15.05.020 Substantial progress required.

Unless in the opinion of the building official a permit holder has made substantial progress in completing the work authorized by such permit, the development permit shall expire and become null and void. The building official shall so notify the permit holder in writing. Before such work can be recommenced, a new permit shall first be obtained. (Ord. 827 § 1(part), 1993: Ord. 758 § 2(part), 1989).

15.05.030 Final inspection.

If an applicant applies for a development permit, or if the building official determines that a structure or building or use thereof is in violation of any of the uniform codes or the municipal code, and the owner and/or occupant is ordered to secure a development permit to correct the violation(s), all work must be completed and final inspection passed within sixty days of issuance of the permit. (Ord. 827 § 1(part), 1993: Ord. 758 § 2(part), 1989).

15.05.040 Extension of time.

Nothing herein shall preclude the building official from granting a permit holder an extension of time, upon good cause shown, to comply with the provisions of this chapter. (Ord. 758 § 2(part), 1989).

15.05.050 Effect of chapter.

This chapter shall supersede any provisions of the uniform codes which may be in conflict herewith. (Ord. 827 § 1(part), 1993: Ord. 758 § 2(part), 1989).

Policy LU-5.1: Review development proposals to ensure that adequate water supply, treatment, and distribution capacity is available to meet the needs of the proposed development without negatively impacting the existing community.

IMPLEMENTATION PLANS
Implementation Plan LU-5.1.1 Water Checklist. Create a checklist to use during the development review process that will help staff determine if the following steps have been completed:
1) Ensure the water districts approve the planning and design documents which address the potential impact of the project on water supply and distribution and sewer facilities

2) Ensure the project applicant has paid the required water district fees prior to occupancy of any new development.

3) Require water conservation devices and xeriscape landscaping in new public and private development and redevelopment projects and ensure compliance with the water district's water conservation code.

4) Cooperate with the water districts to update population projections, water use and sewer generation formulas, needed improvements, and programs within the Water and Sewer Master Plans.

5) Work with the water districts to expedite the improvement and expansion of water sewer facilities, when necessary.

Responsible Agency/Department: Community Development, Water Districts
Funding: General fund, developer fees
Time Frame: Create checklist in 2004; ongoing application of checklist during development review process

Policy LU-5.2: Work cooperatively with local and regional water suppliers to ensure adequate water reserves.

IMPLEMENTATION PLANS
Implementation Plan LU-5.2.1 MPWMD Water Supply Project. Continue to work with the Monterey Peninsula Water Management District (MPWMD), other water agencies, and other entities to legalize the existing deficit that has been determined by the California Water Resources Control Board Order 95-10 and to augment the water supply to accommodate current and future water needs reflected in this General Plan.

Responsible Agency/Department: Community Development, Public Works, MPWMD, Water Districts
Funding: General fund, developer fees
Time Frame: Ongoing

Implementation Plan LU-5.2.2: Regional Urban Water Augmentation Project: Support efforts by the Marina Coast Water District to provide an augmented water source for the former Fort Ord, which may include desalinated water or recycled water. Once a new water source is created, cooperate with FORA and other agencies to approve the project's water allocation.

Responsible Agency/Department: Community Development, Public Works, MPWMD, MCWD
Funding: General fund, developer fees
Time Frame: Ongoing

Policy LU-5.4: Promote the use of recycled water for irrigation of parks, golf courses, and public landscaped areas in the community.

IMPLEMENTATION PLANS

Implementation Plan LU-5.4.1 Recycled Water. Coordinate with the MPWMD and the MCWD to extend recycled water infrastructure and determine user and connection fees.

Responsible Agency/Department: Community Development, Public Works, Water Districts
Funding: General fund, user fees
Time Frame: Ongoing

Policy LU-8.2: Ensure that developers provide stormwater retention/detention facilities and institute Best Management Practices that regulate runoff and siltation that meets local, State, and federal standards.

IMPLEMENTATION PLANS

Implementation Plan LU-8.2.1 Adequate Drainage Systems. Apply appropriate development standards and fees to improve present drainage systems and provide adequate stormwater detention basins and sedimentary ponds with new construction. To ensure the best flood control facilities are provided and maintained, require new development to provide facilities that are visually attractive and ecologically beneficial. Ensure the development funds the on-going maintenance of the facilities. Require all drainage improvements to be constructed and maintained to the standards of the appropriate agency, and that all necessary encroachment permits are obtained from the City and Caltrans.

Responsible Agency/Department: Public Works, Community Development, Caltrans
Funding: user fees, development fees, private funds
Time Frame: Ongoing

Policy COS-2.1: Work with regional and local water providers to ensure that adequate supplies of water are available to meet existing development and future growth.

IMPLEMENTATION PLANS

Implementation Plan COS-2.1.1 Consult Water Agencies. During the development review process, consult with local and regional water agencies to assess whether the water demand associated with the project is included in the agency's most recent Urban Water Management Plan and whether existing supplies can meet the project's demand for water.

Responsible Agency/Department: Community Development, Planning, Public Works, RWQCB, MCWRA, County of Monterey, MCWD
Funding Source: General Fund, development fees, private developers
Time Frame: Ongoing

Implementation Plan COS-2.1.2 Water Supply Verification. Condition approval of all development plans on verification of an assured long-term water supply.

Responsible Agency/Department: Community Development, Planning, Public Works, water districts, RWQCB, MCWRA, County of Monterey
Funding Source: General Fund, development fees, private developers
Time Frame: Ongoing

Implementation Plan COS-2.1.3 Water Supply Projects. Continue to support efforts by Monterey Peninsula Water Management District (MPWMD) and Monterey County Water Resources Agency (MCWRA) to expand water supply through the development of new water sources, including new wells, desalination, importation of water, and water impoundment sites.

Responsible Agency/Department: Community Development, Planning, Public Works, water districts, RWQCB, MCWRA, County of Monterey
Funding Source: General Fund, development fees, private developers
Time Frame: Ongoing

Policy COS-2.2: Encourage the production, distribution, and use of recycled water.

IMPLEMENTATION PLANS

Implementation Plan COS-2.2.1 Recycled Water. In cooperation with the State, regional, and local water agencies and suppliers, participate in programs that seek to increase potable water supply and to limit the spread of seawater intrusion into the groundwater basins through the recycling of wastewater. Specifically, support the expansion of the use of recycled water for urban irrigation. Cooperate with these agencies to establish

standards, fees, infrastructure provision requirements, and regulations for the use of recycled water in new development and redevelopment projects.

Responsible Agency/Department: Community Development, Planning, Public Works, RWQCB, MCWRA, County of Monterey, MCWD, other jurisdictions
Funding Source: General Fund, development fees, private developers
Time Frame: Ongoing

Policy COS-2.3: Participate in and implement local and regional programs that promote water conservation as a means of improving water supply and water.

IMPLEMENTATION PLANS

Implementation Plan COS-2.3.1 Water Conservation. Encourage water conservation throughout Seaside through the City's municipal code, which requires new public and private development, and redevelopment projects to install and utilize water conservation measures. These measures include:

- The installation of low water-use plumbing fixtures, and low water-use landscape materials in new construction;
- The installation of low water-use plumbing fixtures in existing hotels and motels; and
- The retrofitting of plumbing fixtures in all existing residential buildings at the tie of change of ownership or physical expansion, or in the cases of commercial property, at the time of change of ownership, or change or expansion of use. (See also Implementation Plan LU-5.3.1.)

Responsible Agency/Department: Community Development, Planning, Public Works
Funding Source: General Fund, private developers
Time Frame: Ongoing

Implementation Plan COS-2.3.2 Water Conservation Education. Cooperate with regional water suppliers, local water districts, and school districts to educate the public about water conservation techniques. Provide informational brochures at the public counter and the library, as well as information on the City's website.

Responsible Agency/Department: Community Development, City Manager, local and regional water agencies/districts
Funding Source: General Fund, user fees
Time Frame: Provide information by the end of 2004; ongoing

DRAFT
Water Supply Assessment

of
West Broadway Urban Village Specific Plan

Prepared
for

CITY OF SEASIDE
CALIFORNIA

CALIFORNIA AMERICAN WATER

Prepared
by

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

July 31, 2008

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Appendices

Appendix A: California Superior Court Decision on Seaside Groundwater Basin Adjudication (2006 Decision on Case No. M66343)
Appendix B: State Water Resources Control Board 1995 Order No. WR 95-10

1.0 Introduction

1.1 Background

The City of Seaside (Figure 1) in Monterey County is planning to redevelop the West Broadway Specific Plan Area as a multi-level, mixed-use Urban Village (the Project) where currently exist mostly one-story, single-use structures. The proposed intensification would increase office, public, retail, and residential space within the Project Area, thus increasing water demands.

Water supply is a critical issue, in general, in the arid western states, including California. Within the Monterey Peninsula, various factors – including the natural hydrology, an abundance and variety of natural resources, and heightened concerns for these resources, work together to limit the available water supply for new or intensified urban development. The California Water Code (CWC) requires coordination between land use agencies and public water suppliers to ensure that prudent water supply planning has been conducted and that planned water supplies are adequate to meet both existing and planned project water demands.

Senate Bill 610 (SB610), codified in CWC Section 10910 et seq., became State law on January 1, 2002 and requires the preparation of a Water Supply Assessment (WSA) for any proposed "project" subject to the California Environmental Quality Act (CEQA). The WSA analyzes the sufficiency and reliability of the water supply required to meet the expected demands of the development, while also preserving the supply sources for existing and other projected water demands.

The Project has been determined to be subject to CEQA, and thus the CWC requires a WSA for the Project. Given the intensification of land usage, the Project Area will likely have increased water demands after redevelopment as compared to the existing water usage. A WSA is used to estimate and help plan for the intensified water usage.

The public water system serving the Project Area is owned and operated by California American Water Company (Cal-Am), who is providing this *WSA*. A previous WSA for this Project has not been prepared, although Cal-Am does have an Urban Water Management Plan (UWMP) that has been used to inform this assessment. The following *WSA* satisfies the requirements of CWC Section 10910 and has followed the procedures outlined in the Department of Water Resources guideline published in October 2003.

1.2 Purpose

The purpose of this *Water Supply Assessment* is to document the City of Seaside's existing and future water supplies for the Project Area and compare them to the area's build-out water demands for the next twenty (20) years. This comparison, conducted for both normal and drought conditions, is the basis for an assessment of water supply sufficiency in accordance with the requirements of CWC Sections 10910-10915 (SB610).

The specific objectives of this *WSA* are as follows:

- To document the existing water demands within the Project Area and Cal-Am's Monterey District;

- To estimate future demands within the Project Area - based on the Specific Plan, and within Cal-Am's Monterey District - based on the latest Urban Water Management Plan and other available documents;
- To identify the condition of the existing water supply;
- To compare the future demands to the existing demands;
- To identify any planned water supplies;
- To determine the adequacy of the existing and planned water supplies to meet the Project's water needs, in addition to existing and other planned water demands;
- To describe any actions necessary to increase the available supply to meet the estimated future demand; and
- To assess the availability and reliability of the projected water supply during normal and dry years.

1.3 WSA Layout

The rest of the *WSA* is laid out as follows:

- Section 2: Project Description
- Section 3: Regulatory Environment of Project
- Section 4: Estimated water demands of the Project;
- Section 5: Available water supply estimates;
- Section 6: Projected water supplies available for the Project and other development in the area;
- Section 7: The water supply assessment comparing projected demands and supply;
- Section 8: A conclusion and summary of the previous sections.
- Section 9: Governing body approval of the *WSA*.
- Section 10: References used to inform the *WSA*.

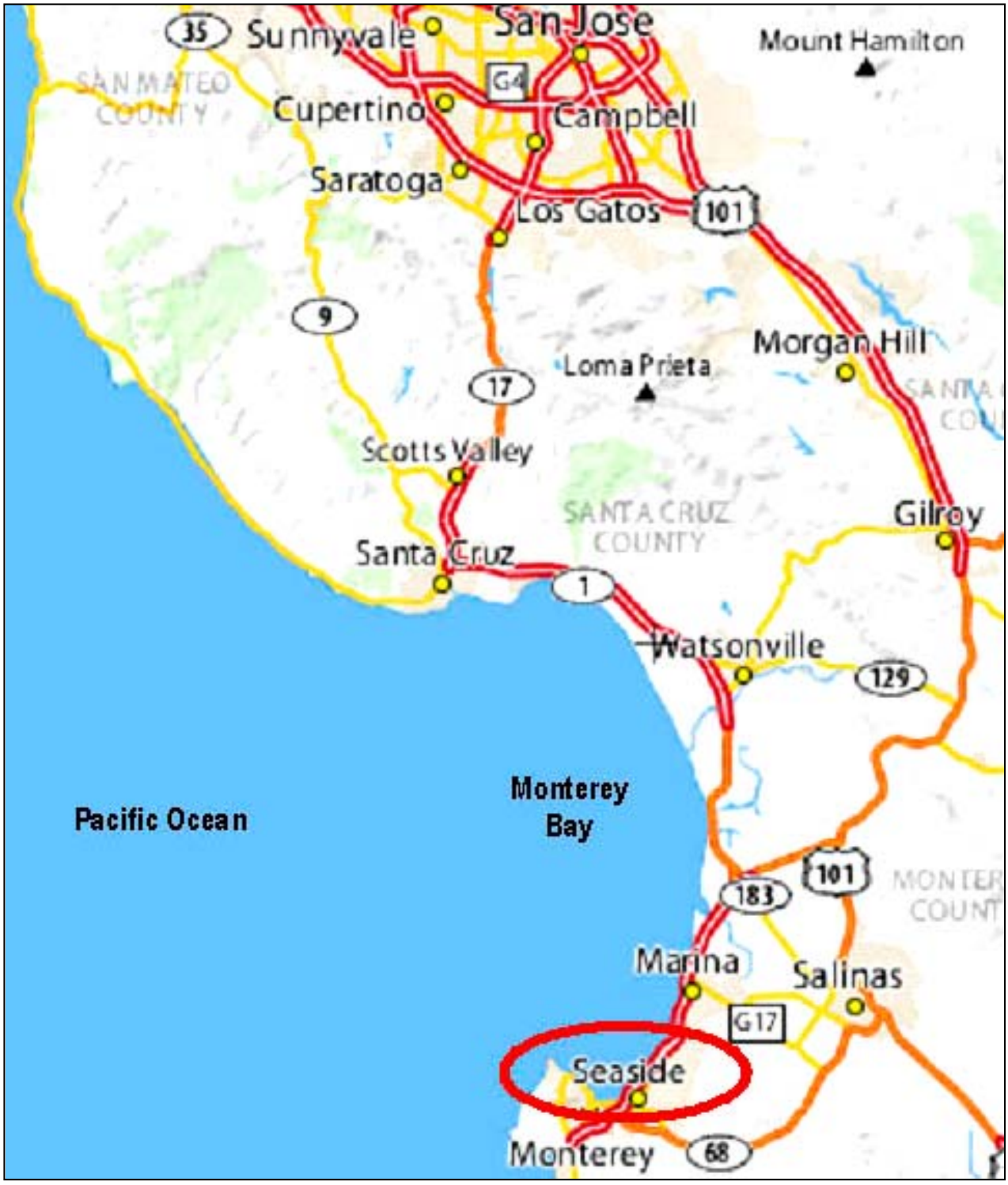


Figure 1 - Seaside Vicinity Map

2.0 Project Area

2.1 Project Description

Seaside, California is located in Monterey County, approximately 50 miles south of San José and 300 miles north of Los Angeles along Interstate 1 at Monterey Bay. The Project Area (Figure 2) encompasses approximately 42 acres, including Broadway Avenue and Palm Avenue west of Fremont Boulevard and a segment of Canyon Del Rey Boulevard south of Del Monte Boulevard.

In Seaside's 2004 General Plan, the City envisions redevelopment of the West Broadway Avenue Specific Plan Area to encourage a vibrant downtown neighborhood and enhance Seaside's economic and cultural value. The Project Area will mix residential and commercial uses, have some public areas, and have areas along Del Monte zoned for transit purposes.

Specifically, the "Full Vision" of the Project is conceived as follows:

- A 48,000 square foot linear park (open space);
- 523 dwelling units, as a mixture of single-family residences (SFR), multi-family residences (MFR), and multi-story live/work units with retail on the bottom floor and living units on upper floors (i.e, mixed-use residential development);
- 406,800 square feet of commercial building footprint, including a 250-room hotel with a footprint of 50,000 square feet and a 20,000 square-foot public library.

Demolition of existing development will occur as necessary to facilitate the Project, and a realignment of the Broadway Ave/Del Monte Blvd interchange is planned. Also, given water shortages and other factors, such as economics, an alternative 80% Construction of the Full Vision has been proposed. The *WSA* addresses the Full Vision and 80% Construction scenarios.

The retail, commercial, and mixed-use developments will primarily line Broadway, Del Monte, and parts of Canyon Del Rey within the Project Area. The library will be located between Olympia and Broadway. The linear park will sit next to Canyon Del Rey between Sonoma and Harcourt, in an area that currently has several vacant residential lots. The rest of the Project Area, along Palm and Imperial, will include single-family and multi-family residences.

The Project will occur over time in phases, which have not yet been fully defined and, indeed, may change over the Project's 25-year timeline. However, a WSA must estimate supply and demand at 5-year intervals, so we have used the following:

- Phase 1 occurs in the first five (5) years (i.e., 2009-2014) and includes the hotel; linear park; public library; 137 housing units; and transit mixed-use office complex (133,800 sq. ft. of total new commercial development).
- Phase 2 occurs ten (10) to fifteen (15) years from the Project start and includes 203,700 square feet of mixed-use development; and 119 housing units.
- Phase 3 occurs twenty (20) to twenty-five (25) years from the Project start and includes the remaining 69,300 square feet of commercial development and 267 housing units.

As long as the total water demands for each phase and at each time period remain similar to what has been estimated for the phases described above, changes in the type and intensity of land uses for each phase should not necessarily change the conclusions of this *WSA*.

Figure 2 - Specific Plan Project Schematic

2.2 Relevant Water Agencies

There are several agencies that manage the quantity and quality of the critical water resources in the Seaside area, including the following, whose roles relevant to the Project are then described:

- Monterey Peninsula Water Management District (MPWMD),
- City of Seaside,
- Fort Ord Reuse Authority (FORA),
- Marina Coast Water District (MCWD),
- California American Water Company (Cal-Am),
- Seaside Groundwater Basin Watermaster,
- California Public Utilities Commission (CPUC),
- State Water Resources Control Board (State Board), and
- Department of Water Resources (DWR).

2.2.1 Monterey Peninsula Water Management District

The MPWMD was created in 1977 and approved by voters in 1978 as a public agency charged with *integrated* management of the ground and surface water resources in the Monterey Peninsula area, including Seaside and the Project Area. The MPWMD's service area includes the Carmel River system and the Seaside Groundwater Basin, with the MPWMD having authority to manage these water bodies. In particular, the MPWMD has permit authority over the creation or expansion of water distribution systems, including the intensification of use on existing water systems, within its service area. Any development or redevelopment that connects or modifies a connection to a water distribution system in the service area must receive a water permit from the MPWMD.

The MPWMD also allocates water supplies to cities and water companies within its jurisdiction. The MPWMD has allocated a certain number of water credits to the City of Seaside, as described later. As the 2004 Seaside General Plan Environmental Impact Report (EIR) indicates, the MPWMD has a limited ability to provide water to the Monterey Peninsula and has thus restricted remaining water allocation credits for the urbanized area of Seaside, including the Project Area.

2.2.2 City of Seaside

The City operates and maintains the Seaside Municipal Water System serving a part of Seaside outside of the Project Area. The City also manages the water allocations on Cal-Am's system within Seaside as they are determined by the MPWMD. The City manages the water allocations by releasing them to various projects within Seaside, including within the Project Area.

2.2.3 Fort Ord Reuse Authority

The FORA was created in 1994 by the State of California to oversee the redevelopment of the former Fort Ord Military base, a 45-square mile facility that includes parts of the Cities of Seaside, Marina, Monterey and Del Rey Oaks. The FORA allocates water within the boundaries of the former Fort Ord area. The Project Area is outside of the former Fort Ord area but can be

influenced by actions taken by the FORA and others on the former Fort Ord. Concerning Seaside's water, areas under the FORA's jurisdiction will receive water mostly from the MCWD.

2.2.4 Marina Coast Water District

MCWD serves potable water to the former Fort Ord, including northern Seaside – comprised of California State University Monterey Bay (CSUMB), some Army housing, and two former Army golf courses – as well as the City of Marina. MCWD does not serve the Project Area.

2.2.5 California American Water Company

Cal-Am, an investor-owned public water company whose rates and operation are regulated by the CPUC, operates the water system serving the Project Area and the non-Fort Ord areas of Seaside. Cal-Am's Monterey District has more than 39,000 service connections to serve approximately 125,000 people, providing over 85% of the urban water supplies for the Monterey Peninsula. Cal-Am serves its customers with surface water from the Carmel River and groundwater from the Carmel River Valley Groundwater Basin and the Seaside Basin near the coast, as described more fully later.

2.2.6 Seaside Groundwater Basin Watermaster

As a result of a lawsuit by Cal-Am, rights to the water of the Seaside Groundwater Basin are now regulated and monitored by the Seaside Groundwater Basin Watermaster. The Seaside Groundwater Basin Watermaster is an organization created in early 2006 to assist the California Superior Court of Monterey County in the administration and enforcement of the now adjudicated Seaside Groundwater Basin. A copy of the adjudication is attached as Appendix 1. The intent is to protect the basin as a perpetual source of water for beneficial uses. The Watermaster is governed by a nine member board appointed by various water users, including Cal-Am, the City of Seaside, and MPWMD, among others. The Watermaster sets allowed yields of the groundwater users, periodically monitors their usage, and administers fines for overpumping. Cal-Am is limited to 3,504 acre-feet per year (AFY) from the Seaside Basin.

2.2.7 State Water Resources Control Board

The State Board regulates water resources throughout California. In particular, after complaints filed with the State Board regarding Cal-Am's diversion of water from the Carmel River, the State Board issued Order No. WR 95-10 (Order 95-10) requiring Cal-Am to substantially reduce water supply diversions from the Carmel River. Appendix B contains a copy of Order 95-10. Cal-Am is currently allowed 11,285 AFY from the Carmel River and its groundwater basin.

2.2.8 State Department of Water Resources

The California DWR is tasked by California State Law with managing the water resources of California in cooperation with other agencies, to benefit the State's people and to protect, restore, and enhance the natural and human environments. The DWR manages water primarily through planning, funding, and data collection and analysis. These functions of the DWR influence the Project most directly through the various other regulatory agencies discussed above. For instance, it is possible for the MPWMD to receive state-level funding and support from the DWR for regional water planning.

3.0 Regulatory Environment of Project

Various regulations and policy documents constrain and influence distribution of the water supplies in the Monterey Peninsula and will, therefore, influence water supplies for the Project.

3.1 SB610

The California Water Code section 10910 (also termed Senate Bill 610 or SB610) requires that a WSA be provided to cities and counties for a project that is subject to CEQA. The cities and counties are mandated to identify the public water system that might provide water supply to the project and then to request a WSA. The WSA documents sources of water supply, quantifies water demands, evaluates drought impacts, and provides a comparison of water supply and demand that is the basis for an assessment of water supply sufficiency. According to the Water Code section 10911, if as a result of the WSA, the public water system concludes that water supplies are, or will be, insufficient, the public water system is required to provide the lead agency with its plans for acquiring additional water supplies. Also, the WSA should be included in the project's environmental documents, which can include an evaluation by the City of any information in the environmental documents. Plans for acquiring additional water supplies may include, but are not limited to, information concerning all of the following:

- Estimated total costs and the proposed method of financing the costs for acquiring the additional water supplies;
- All federal, state, and local permits, approvals, or entitlements to acquire and develop the additional water supplies;
- The estimated timeframes to acquire the additional water supplies.

If the public water system decides that the water supply is insufficient, the lead agency may still approve the project but must include that determination in its findings for the project and must include substantial evidence in the record to support its approval of the project.

The assessment is to specifically include the following:

1. Discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing.
2. Identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts.
3. Description of the quantities of water received in prior years by the public water system under the existing water supply entitlements, water rights or water service contracts.
4. Water supply entitlements, water rights or water service contracts shall be demonstrated by the following:
    a. Written contracts or other proof of entitlement to an identified water supply.

b. Copies of capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

c. Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

d. Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

5. If no water has been received in prior years by the public water system under existing water supply entitlements, water rights, or water service contracts, then the public water system must include an identification of other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system has identified as a source of water supply for the project.

6. If groundwater is included for the supply for a proposed project, the following additional information is required:

   a. Review of any information contained in the UWMP relevant to the identified water supply for the proposed project.

   b. Description of any groundwater basin(s) from which the proposed project will be supplied. Adjudicated basins must have a copy of the court order or decree adopted and a description of the amount of groundwater the public water system has the legal right to pump. For non-adjudicated basins, information on whether the DWR has identified the basin as over-drafted or has projected that the basin will become over-drafted if present management conditions continue, in the most current bulletin of DWR that characterizes the condition of the basin, and a detailed description of the efforts being undertaken in the basin to eliminate the long-term overdraft condition.

   c. Description and analysis of the amount and location of groundwater pumped by the public water system for the past 5 years from any groundwater basin which the proposed project will be supplied. Analysis should be based on information that is reasonably available, including, but not limited to, historic use records.

   d. Description and analysis of the amount and location of groundwater projected to be pumped by the public water system from any groundwater basin which the proposed project will be supplied. Analysis should be based on information that is reasonably available, including, but not limited to, historic use records.

   e. Analysis of sufficiency of the groundwater from the basin(s) from which the proposed project will be supplied.

3.2 Order 95-10 and Cease and Desist Order

Between 1987 and 1991, four complaints were filed with the State Board against Cal-Am for its diversion and use of water from the Carmel River. Cal-Am was at the time diverting approximately 14,000 AFY from the Carmel River to serve the 105,000 Cal-Am Monterey

District residents. Cal-Am's historical use of 14,106 AFY from wells near the Carmel River were ruled to be from underflow of the river.

On July 6, 1995, the State Board adopted Order WR 95-10 (Order 95-10) in response to the complaints against Cal-Am, finding that Cal-Am's diversions were having an adverse effect on: (a) the riparian corridor of the river; (b) wildlife dependant upon instream flows and riparian habitat; and (c) steelhead which spawn in the river.

Order 95-10 requires Cal-Am to terminate unlawful diversions from the Carmel River and to comply with specified conditions, limiting interim extractions to 11,285 AFY and ultimate extractions to 3,376 AFY, effectively reducing withdrawals by 10,730 AFY. Various other conditions, including developing an alternative source, use of the most downstream wells, developing an urban water conservation plan, and increasing withdrawals from the Seaside Groundwater Basin, were also imposed as part of the order. Withdrawals from the Seaside Basin were to increase to 4,000 AFY, although this was later limited by restrictions on the Seaside Basin. There have been subsequent revisions by the State Board to the Order 95-10, further refining the restrictions, in terms of timing of withdrawals but not the total withdrawal amounts.

Since 1995, Cal-Am has implemented an aggressive conservation plan and pursued various water supply options. However, until one of the alternatives materializes, Cal-Am still relies on overpumping from its groundwater sources, thus constraining the region's water supplies.

A draft Cease and Desist Order (CDO) is also currently being considered that would restrain production even further. The draft CDO was issued against Cal-Am on January 15, 2008 for the unauthorized diversion of water from the Carmel River. The draft CDO alleges that since 2000, Cal-Am has illegally diverted at least 7,164 AFY from the Carmel River and that Cal Am's unauthorized diversions continue to have adverse effects on the public trust resources on the river. The CDO, if implemented as drafted, would impose the following changes to Order 95-10:

- limit diversions to 5,642 AFY over the next 7 years;
- 50% reduction of interim goal of 11,285 AFY;
- 33% reduction in current total customer usage

Cal-Am would then likely implement water rationing and a moratorium on new development to reduce water usage. Cal-Am has requested a hearing on the draft CDO. Phase 1 of the hearing was held on June 19, 2008 and Phase 2 of the hearing is scheduled to begin on July 23, 2008.

3.3 Seaside Watermaster

Following Cal-Am's increased production from the Seaside Groundwater Basin, it became apparent that the sustainable yield of the aquifer may be exceeded. In particular, potential seawater intrusion became a concern. Subsequently, the Seaside Groundwater Basin was adjudicated in 2006, and specific production allocations were established. The adjudication decision defines and limits the water rights of water users drawing from the basin to ensure that the basin is protected and managed as a perpetual source of water for beneficial uses. The allocations will eventually be reduced to eliminate existing overdraft and potential seawater intrusion.

The Watermaster was created to manage the withdrawals from the Seaside Basin and to levy and collect annual replenishment assessments for each acre-foot of over-production by overproducing parties.

The adjudication indicated that the Seaside Basin's Operating Yield, the maximum amount of water allowed by the adjucation, as a whole, was set at 5,600 AFY. The Operating Yield of the Coastal Subarea was set at 4,611 AFY, and that of the Laguna Seca Subarea was set at 989 AFY. Per an amended adjucation decision and as indicated in the Watermaster's documents, Cal-Am was eventually allotted 90.6% of the "Standard Product Allocation" of the Operating Yield from the Coastal Subarea (3,868 AFY) and 100.0% of the "Standard Production Allocation" of the Operating Yield from the Laguna Seca Subarea (345 AFY). These allocations imply production for Cal-Am of 3,504 AFY from the Coastal Subarea and 345 AFY from the Laguna Seca Subarea, for an initial, total production allocation of 3,849 AFY. In terms of the present *WSA*, only the Coastal Subarea provides water supply to Cal-Am's system that would serve the Project.

The adjudication decision also included several stipulations. One stipulation was to increase "artificial replenishment" of the basin from non-native water supplies. Another stipulation was a triennial 10-percent reduction in Operating Yield until the Operating Yield is equal to the determined Safe Yield of the aquifer (3,000 AFY per the adjudication decision). Also, a Seaside Basin Monitoring and Management Program was required; the Watermaster Board approved the document describing this Program on May 17, 2006. The main element of the program is the construction of monitoring wells to monitor overdraft conditions and seawater intrusion in the basin. The program will also set forth procedures to address seawater intrusion.

3.4 Cal-Am's Reservoirs and Dams

The San Clemente and Los Padres Reservoirs on the Carmel River have faced several challenges restricting their use. Los Padres originally had a capacity of 3,300 acre-feet. Due to sedimentation, its usable storage has dropped to below 1,600 acre-feet. San Clemente originally had a capacity of 1,425 acre-feet, but its capacity has been reduced by more than 90% due to sedimentation and other factors. For safety purposes, the California District of Safety of Dams notified Cal-Am in 2002 to maintain relatively low maximum water levels, reducing the San Clemente's storage capacity to 140 acre-feet. Although Cal-Am's operations of these reservoirs has continuously been regulated and restricted pursuant to a variety of governmental rules, regulations, and orders; recently these regulations have become increasingly more restrictive. In particular, NOAA Fisheries rulings to protect various aquatic species has further diminished the use of these reservoirs and their dams. The San Clemente Dam is even scheduled to be removed by 2010. To make up for lost storage in these reservoirs, 762 AFY will need to be supplied elsewhere.

3.5 Relationship between WSA and Cal-Am UWMP

In accordance with the California Urban Water Management Planning Act, the Monterey District of Cal-Am adopted a draft UWMP in December of 2004. A subsequent revised UWMP was published in February of 2006 and entitled *Monterey District Urban Water Management Plan and Water Shortage Contingency Plan (UWMP)*. An updated UWMP is not required until 2010.

This *WSA* relies heavily upon data presented in the *UWMP*, especially the projected water demands outside of the Project Area and the projected supply information.

As required, the *UWMP* describes the on-going and programmed water conservation efforts to be implemented and supported by Cal-Am and discusses projected water supplies required to meet future demands through the year 2025. The *UWMP also* describes the existing and planned sources of water available to the supplier over the next 20 years in 5-year increments.

Due to historical water supply conflicts in the Monterey Peninsula area, Cal-Am's *UWMP* does not address any future development beyond some limited urban in-fill for the cities which receive Cal-Am's water in the Monterey Region. Therefore, the *UWMP* does not account for any increased demands in the Project Area.

Overall, the *UWMP* indicates that without a new water supply, Cal-Am may even have trouble serving existing water demands. However, while long-term, large-scale water supply solutions are being pursued, other more modest, short-term projects are underway that would partially augment the existing constrained water supplies.

3.6 WSA Requirement for Project

Due to the Project's potential affect on current and future water supplies, the State of California, through SB610, requires that a Water Supply Assessment be completed for the proposed development. While the Project may combine numerous individual development projects that are anticipated to be less than the threshold of 500 units to comply with development of a Water Supply Assessment, collectively the Project exceeds the threshold. The City has determined that the Project is subject to CEQA and is not accounted for in Cal-Am's latest *UWMP*. Therefore, the City has requested that Cal-Am prepare this *WSA*. Under direction by the City, Cal-Am has chosen to provide this *WSA* regardless of whether or not it is legally required. The following outlines the requirements of SB610.

Section 10912 of the California Water Code defines whether or not a "project" is subject to CEQA. The criteria for a "project" can be met in a number of ways, three of which include:

- a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space
- a proposed residential development of more than 500 dwelling units,
- a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

A 500 dwelling unit project is estimated to require 150 AFY based on a water use rate of 0.30 AFY/unit. Although the Full Vision of the West Broadway Avenue Specific Plan development is estimated to require just about 100 AFY, as described below, the floor space of the Project Area exceeds the 500,000 square feet requirement. Furthermore, the Project may include almost 500 total dwelling units and additional commercial and public development. Therefore, the City of Seaside's Planning Department has determined that the Project is subject to CEQA review and thus the California Water Code requires a WSA for the Project.

4.0 Project Water Demands

The first step in a Water Supply Assessment is estimating existing and projected demands of the Project Area and other users who share the Project's water supplies. This section discusses factors that affect water demands, such as climate and population; describes the estimated water demands; and discusses the phasing of these demands over the Project's development.

4.1 Environmental/Social Setting

There are several unique characteristics of the Monterey Peninsula that affect water demands of any new development. In particular, the climate would seem to encourage relatively high water use for irrigation purposes. On the other hand, a social and regulatory environment encouraging water conservation and low-impact development serve to moderate water demands.

The climate of the Monterey Peninsula, considered a highly desirable aspect of the area, is relatively mild throughout the year, with annual average temperatures ranging from about 43ºF to 71ºF. However, despite these mild temperatures, the available rainfall in the area is low, and much of it is lost to evapotranspiration. Precipitation averages 15 inches a year for the entire existing developed Seaside area, and evaporation averages 36 inches per year, indicating a relatively dry climate. Recorded precipitation varies greatly in the Monterey Peninsula from year to year and from one location to another. Monterey precipitation has a low of 8.95 inches and a high of 41.01 inches with a mean annual precipitation close to 20 inches. Nearly all of the precipitation on the peninsula comes as rainfall, and, generally, the winter time sees substantially more precipitation than the summer, with little to no rainfall and stormwater runoff for much of the year.

Although water supplies on the Monterey Peninsula have been historically constrained, they have become increasingly constrained in the past twenty years as urban development has increased and environmental concerns have become more important to the area's citizens and interest groups.

Both climatologically and social constraints have encouraged thorough water planning, leading to the development and implementation of water conservation measures throughout the Monterey Peninsula. Conservation measures include conversion of water fixtures to low-demand fixtures, use of drought-tolerant and low-water landscaping, and general minimization of non-essential water uses. Given the current extent of conservation practices in the area, it would be problematic to assume that substantial water reductions from existing users could be achieved through further conservation. As some reports indicate, Monterey Peninsula water users already have relatively low water usage rates as compared to other regions of California. In short, the environmental and social climate of the area has served to restrict water use to relatively low per capita amounts (~100 gallons per capita per day).

Regulation of Cal-Am's historical supply has led to increased restrictions of water use throughout Cal-Am's service area, including the Project Area. The Project will be required to continue with the well-established practice of having water-conserving interior plumbing fixtures and following water conservation guidelines for landscape design, implementation, and maintenance.

4.2 Existing Demands in Project Area

Table 1 presents the estimated water demands in the Project Area for existing development. The total demand is given, as well as demands by land use to indicate the extent to which they use water. The bulk of the water demands in the Project Area are due to commercial development, with about a fourth due to single-family and multi-family residential development. In total, the Project Area is estimated to demand an average of 42.0 AFY of potable water.

Table 1 - Existing Project Area Demands

Land Use	*Demands (AFY)*
Commercial	24.2
Single Family Residential (SFR)	7.2
Multi-Family Residential (MFR)	10.6
Total	**42.0**

4.3 Existing Total Demands

Cal-Am has measured existing demands in the Monterey District at 4.500 billion gallons a year (13,800 AFY) for the last several years, with a slightly higher average of almost 14,710 AFY for the last decade. Table 2 presents Cal-Am's data, adjusted to account for varying climate (i.e., rainfall) conditions which affect water use primarily through lawn and ornamental irritation.

Table 2 - Cal-Am's Total Water Demands for Water Years 1996-2006 (Unadjusted and Adjusted)

Year	*Unadjusted Demand (AFY)*	*Normal Year Demand (AFY)*	*Dry Year Demand (AFY)*
1996	16,020	16,367	16,773
1997	16,872	16,975	17,419
1998	14,043	15,021	15,403
1999	14,366	14,686	15,054
2000	14,933	15,127	15,507
2001	14,165	14,226	14,579
2002	14,280	14,272	14,627
2003	14,637	15,182	15,550
2004	15,012	14,884	15,262
2005	13,678	14,642	15,015
2006	13,805	14,660	15,022
Average	**14,710**	**15,095**	**15,474**

4.4 Total Project Demands and Credits

Table 3 updates Table 1 for the Project at buildout (20-25 years), describing demand for both the Full Vision and 80% Construction scenarios. Demands for the Project are estimated as 121.3 AFY for the Full Vision and 97.3 AFY for the 80% Construction Scenario. The 80% Construction would still include the full Linear Park and so would have demands nearly but not exactly 80% of the Full Vision values.

Table 3 - Project Demands (in AFY) by Land Use

Land Use	*Full Vision*	*80% Construction*
Commercial	68.0	54.4
SFR	11.0	8.8
MFR	40.7	32.5
Other (Park, Irrigation)	1.6	1.6
Total	**121.3**	**97.3**

The total Project demands are almost a three-fold increase over existing water demands in the Project Area. However, by completion of the Full Vision of the Project, all existing development will have been redeveloped, theoretically allowing the entire existing demand of 42.0 AFY to be credited towards the Project Area. Based on the MPWMD methodology for commercial and residential water usage, water credits for commercial areas and residential units equivalent to those being redeveloped have been estimated.

Table 4 presents the calculation of net increase in water demands taking into account water credits. The Full Vision would require a net 79.3 AFY of increased water supply. The 80% Construction would require a net 63.4 AFY of increased water supply. The 80% Construction scenario has a lower net water allocation and demand requirement, naturally, as it entails less intensification.

Table 4 - Net Increase (in AFY) Per Development Scenario

Full Vision	*New Demand* (+)	121.3
	Water Credits (-)	42.0
	Net Increase	**79.3**
80% Construction	*New Demand* (+)	97.3
	Water Credits (-)	33.9
	Net Increase	**63.4**

4.5 Phased Project Demands

The WSA legislation requires an analysis of demands per five-year periods. As the Project is planned to be developed in three phases over twenty-five years, estimating the phased demands is relatively straightforward. Based on Project phasing provided by the City and DC&E, estimates of net increases have been estimated for the Full Vision and 80% Construction scenarios. The Project Area's demands are estimated to increase linearly with time over the Project lifetime, not accounting for water credits. In other words, given the planned phasing of the Project, water demand would increase at relatively the same rate until buildout of the Full Vision.

Table 5 and Table 6 present the estimated phasing of demand for the Full Vision and 80% Construction scenarios, respectively. Water Credits have been calculated, as above, based on the MPWMD methodology. Figure 3 also presents the Full Vision demands over the Project's lifetime.

Table 5 - Phased Project Demands (in AFY) for Full Vision of the Project

	Time					
	Phase 1		*Phase 2*		*Phase 3*	
	2009	*2014*	*2019*	*2024*	*2029*	*2034*
New Demand	0	64.0	87.2	95.5	114.7	121.3
Water Credits	0	7.0	15.2	23.4	32.9	42.0
Net Increase	**0**	**57.0**	**72.0**	**72.1**	**81.8**	**79.3**

Table 6 - Phased Project Demands (in AFY) for 80% Construction of the Project

	Time					
	Phase 1		*Phase 2*		*Phase 3*	
	2009	*2014*	*2019*	*2024*	*2029*	*2034*
New Demand	0	51.2	69.8	76.4	91.8	97.3
Water Credits	0	5.6	12.2	18.8	26.3	33.9
Net Increase	**0**	**45.6**	**57.6**	**57.6**	**65.5**	**63.4**

Phase 1 of the Project's Full Vision, in which the bulk of the Project would occur, is estimated to require 64.0 AFY of new demand. After considering the 7.0 AFY of water credits from redeveloped parcels, Phase 1 will required a net increase of 57.0 AFY of supply. Phase 2 is estimated to require a total of 95.5 AFY and have 23.4 AFY of water credits from redeveloped parcels, giving a net demand of 72.1 AFY. By the end of Phase 3, the 79.3 AFY net demand will be required. Interestingly, the peak net water demand is estimated to occur prior to full buildout

of the Project for both scenarios. The Net Increase after 20 years is slightly higher than that at 25 years (i.e., buildout). This higher value (81.8 AFY or 65.5 AFY) will govern the required water supply to meet the Project's needs. The relevance of water allocations to the Project's phasing are discussed later in this report.

4.6 Total System Demands

The combination of existing water supplies and future water supplies will need to meet existing demands, regulatory reductions in current supplies, and future demands on Cal-Am's system. Due to severe constraints on the water supply in Cal-Am's Monterery District, the *UWMP* does not forecast any significant increased demand until 2010, the estimated timeframe for new water supplies during the *UWMP's* preparation. As discussed later, that timeframe may be pushed a few years into the future. Nevertheless, the 2006 Monterey County General Plan and the population estimates of the various jurisdictions indicate that there will be some growth in the Monterey Peninsula. Table 7 summarizes the estimated population in the Monterey Peninsula through 2020, based on the General Plan.

Table 7 - Forecasted Population in the Monterey Peninsula (2005-2020)

Incorporated Areas	*Population*			
	2005	2010	2015	2020
Carmel-by-the-Sea	4,151	4,230	4,292	4,412
Del Rey Oaks	1,709	1,710	1,710	1,710
Monterey	31,017	31,530	32,101	33,148
Pacific Grove	16,050	16,146	16,310	16,349
Sand City	682	941	1,031	1,207
Seaside	34,624	39,078	42,435	45,791
Total	**88,233**	**93,635**	**97,879**	**102,617**

The Monterey Regional Plenary Oversight Group (REPOG), who is examining water supply issues in Monterey County on a regional level, has estimated future, additional water demands for the entire Monterey County as 28,400 AFY, including 17,000 AFY within Cal-Am's service area. The 12,500 AFY regulatory limits on MPWMD's existing supply is included in this 17,000 AFY total. Based on information provided by the various Monterey Peninsula jurisdictions and their respective General Plans, MPWMD has projected demands within Cal-Am's service area as given in Table 8. These demands are for a 20-year projection, approximately to 2026, and include a 20% contingency and some credits for residential retrofits. Table 9 then estimates the phasing of the jurisdictions' demands over this 20-year period, in 5-year increments.

Table 8 - Projected Increased Water Demands and Regulatory (Replacement) in Monterey County Through 2025

Purpose	*Jurisdiction*	*Projected Demands (AFY)*
Replacement	Carmel River	8,498
	Seaside Aquifer	3,989
Non-Cal-Am (Regional) Demands	Marina Coast Water District	2,400
	North Monterey County	9,000
General Plan Projections	City of Carmel-by-the-Sea	288
	City of Del Rey Oaks	48
	City of Monterey	705
	City of Pacific Grove	1,264
	City of Sand City	386
	City of Seaside	582
	Monterey County (unincorporated)	1,135
	Monterey Peninsula Airport District	138
New Cal-Am Demand Subtotal		**4,546**
New Cal-Am Demand + Replacement Total (rounded)		**17,033**
Total (rounded)		**28,400**

Table 9 - Projected Demands in 5-Year Increments

Jurisdiction	*Projected Demands (AFY)*				
	2005	*2010*	*2015*	*2020*	*2025*
City of Carmel-by-the-Sea	0	72	144	216	288
City of Del Rey Oaks	0	12	24	36	48
City of Monterey	44	209	375	540	705
City of Pacific Grove	0	316	632	948	1,264
City of Sand City	0	97	193	290	386
City of Seaside	71	199	327	454	582
Monterey County (unincorporated)	154	399	645	890	1,135
Monterey Peninsula Airport District	0	35	69	104	138
Cal-Am Subtotal	**269**	**1,338**	**2,408**	**3,477**	**4,546**
Other Regional Demands	**15,200**	**17,372**	**19,544**	**21,715**	**23,854**
Total Regional Demands	**15,469**	**18,710**	**21,951**	**25,192**	**28,400**

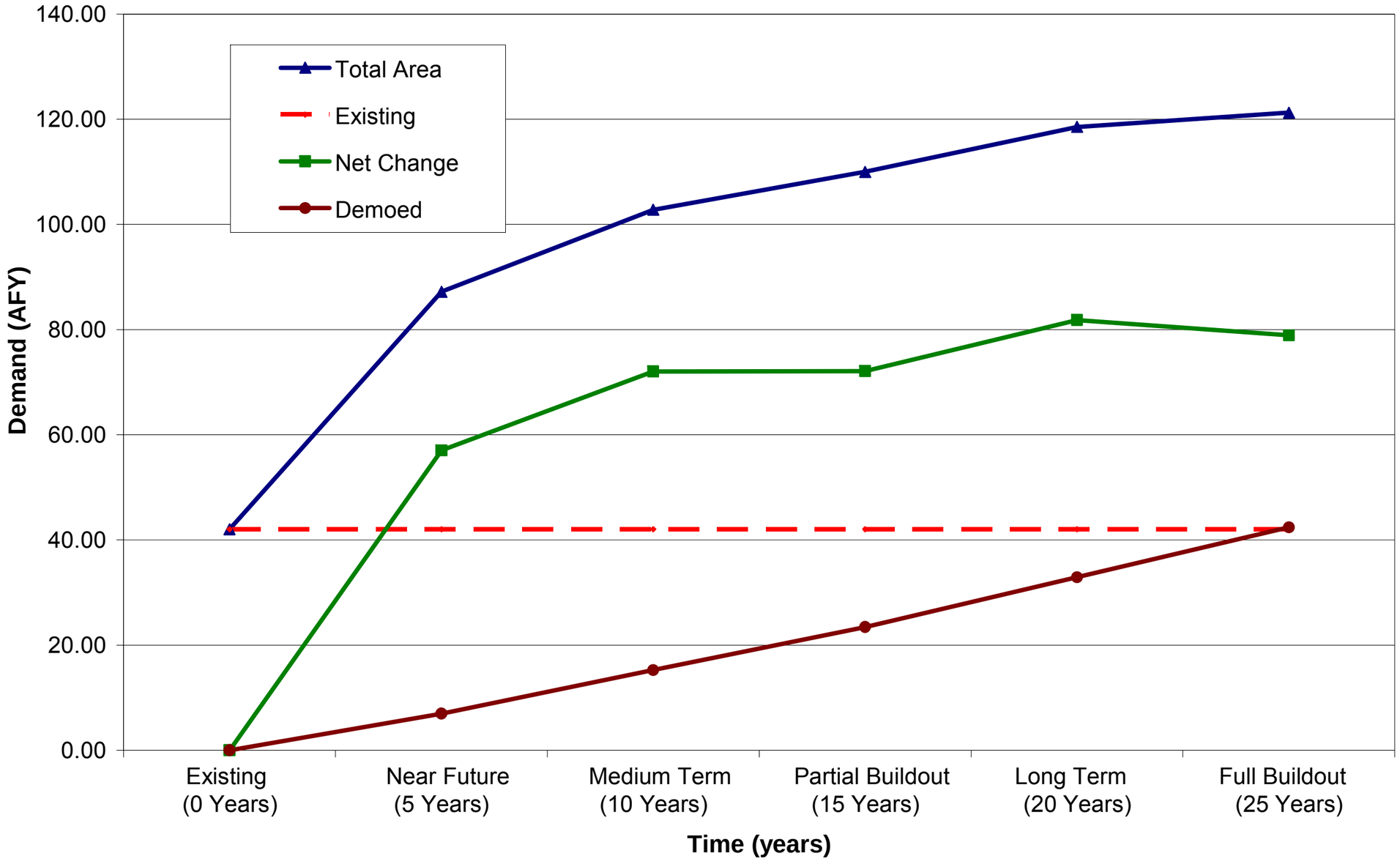


Figure 3 - Phased Project Demands

5.0 Existing Water Supply

Unlike most areas in California, Cal-Am's Monterey System and much of Monterey County water users are dependent upon local water and groundwater supplies and do not receive imported water from other regions of California. There are various water purveyors in Monterey County, including the MCWD and Cal-Am. The City of Seaside also has a groundwater well and distribution system. The Project Area and most of Seaside, however, is served by Cal-Am's Monterey District system. This section discusses Cal-Am's historical water rights, the MPWMD water allocation system, and Cal-Am's historical water supplies.

5.1 Overview of Water Supply

The Monterey Peninsula is served entirely by local, highly variable water sources. Water supply for the City of Seaside, in general, and the Project Area, in particular, has historically been provided from the Carmel River, its groundwater basin, and the Seaside Groundwater Basin. Cal-Am conveys water from these sources to its distribution system serving the Project Area. Cal-Am's total, lawful existing water supply includes 11,285 AFY from the Carmel River and underlying aquifer and 3,504 AFY from the Seaside Basin, for a total of 14,789 AFY. As described above, however, some of these production amounts will be further limited in the future, requiring supplemental supplies to meet existing demands.

In Water Year 2006, Cal-Am produced 14,663 acre-feet (AF) within the Monterey District. About 75% of this supply originated from the Carmel Valley, 22% from the Seaside Groundwater Basin, and 3% from other sources. Since 1997, Cal-Am has averaged approximately 10,900 AFY from the Carmel River. Wells in the coastal subbasins of the Seaside Groundwater Basin make up another 3,700 AFY on average.

5.2 Water Rights

Cal-Am's Monterey District has historically operated its facilities based on prior rights and under permits and notices of appropriation, riparian wavers and actual use by appropriation, diversion, storage and the time of taking, to surface and underground water basins in the Carmel River and Tularcitos Creek watersheds, and to water in the Seaside Groundwater Basin.

The State Board is responsible for administering water rights in the Carmel Valley alluvial aquifer area. In July of 1948, the predecessor agency to the State Board adopted Decision 582 approving Water Right Permit 7130 to Cal-Am's predecessor. This water right approved diversion and use of the existing Los Padres Dam on the Carmel River.

Cal-Am only has rights to 3,376 AFY from the Carmel River. The State Board found that Cal-Am's rights to divert 3,376 AFY from the Carmel River consist of 1,137 AFY under pre-1914 appropriative rights, 60 AFY under riparian rights, and 2,179 AFY under License 11866 (Application 11674A). Cal-Am was determined to have no prescriptive rights to divert water from the Carmel River. These riparian rights apply only to riparian parcels within the Carmel River Valley.

As discussed above, Order 95-10 requires Cal-Am to reduce unlawful diversions from the Carmel River. However, given the consequences of a substantial reduction in Cal-Am's potable water supply, the State Board has allowed Cal-Am to withdraw water in excess of its water rights for several years until a replacement source could be developed. Interim extractions were limited to 11,285 AFY, while an alternative source was to be pursued, with ultimate extractions limited to the final 3,376 AFY. The proposed CDO would set out a timetable to limit interim extractions until a new source is established.

Order 95-10 currently allows Cal-Am to divert 3,376 AFY from the Carmel River and its groundwater basin; however, in recent years, without an alternative source, Cal-Am has diverted approximately 11,000 AFY as described later in Table 11.

The MPWMD has been issued rights associated with main stem reservoirs on the Carmel River (State Board Pemits 20808 and 7130B). As part of the Aquifer Storage and Recovery (ASR) project, which is described later, the State Board also issued annual temporary urgency permits to the MPWMD to divert Carmel River water for injection well testing. In 2001, the MPWMD submitted a Petition for Change to request use of the Seaside Basin to store the diverted Carmel River water. Excess water of 3,435 AFY from the Carmel River has been estimated to be available for diversion through ASR.

Cal-Am owns and operates the San Clemente Dam, Los Padres Dam, and 21 downstream extraction wells on the Carmel River. Los Padres Dam is operated pursuant to License 11866 (Application 11674A) and authorizes a maximum withdrawal of 2,950 AFY.

Cal-Am jointly holds water right Permit 20808A (Application 27614A) with the MPWMD, authorizing the appropriation of up to 2,426 AFY of wintertime supplies of Carmel River water to be diverted to underground storage in the Seaside Groundwater Basin as part of the ASR project. Cal-Am has applied to the State Board to legalize 2,984 AFY, which is currently under review. The State Board has determined that the Carmel River is fully appropriated during the drier season of the year (i.e., May 1 to December 31).

Cal-Am is currently limited to 3,504 AFY from the Seaside Basin. Cal-Am's eventual allocation from the Seaside Basin coastal subareas is limited to 1,494 AFY. Cal-Am currently also removes 466 AFY on average from the Laguna Seca subarea of the Seaside Basin but is allowed no withdrawal from this subbasin in the future.

Rights to desalinated water produced by Sand City's planned desalination plant are also discussed as part of the Seaside Groundwater Basin adjudication. The adjudication does not allocate any desalinated water to the MPWMD because it is assumed the desalination plant uses groundwater from the 180-Foot (Seaside Basin) Aquifer, which is within the jurisdiction of MPWMD.

5.3 Water Allocations

Jurisdictional allocations of water supply, which govern where and what users can utilize the available water supply, are not generally relevant to a WSA. However, there is a particular situation on the Monterey Peninsula with the MPWMD overseeing water allocations and each

City and the County governing how the jurisdictional allocations are then distributed within their respective locations. This water allocation system does not bear directly on the available water supply in the Project Area but does influence the priority in which the Project's increased demands and other new water demands are met by any additional water supplies.

The Seaside Basin Adjudication and Watermaster limit production of water from the Seaside Basin and any other sources that may adversely affect the basin. Each newly proposed source, such as the recently approved Sand City desalination under development, is evaluated on a case-by-case basis to determine an appropriate production rate. One such source is the recently approved Sand City desalination plant under development, whose production was limited primarily for Sand City use even though more capacity may have been physically available.

The MPWMD allocates the water use to all users within all of its jurisdiction. In 1993, the last new water supply allocation was made to the eight jurisdictions. Each of the jurisdictions was given a portion of the water available at that time for new construction and remodels. The cities themselves are then allowed to determine how to use the allotted water within their respective planning areas. Not all of the jurisdictions, including the City of Seaside, have issued all of their allotted water allocations. In other words, some jurisdictions, including Seaside, retain water allocation credits that are available to issue to new development or redevelopment.

Following Order 95-10, MPWMD allowed some development and redevelopment within its jurisdiction by permitting water credit transfers from parcel to parcel. However, a lawsuit was filed against MPWMD to discourage the practice, given that Cal-Am had still not supplemented its supply from the Carmel River. Currently, the MPWMD does not allow water credit transfers between residential parcels. Additionally, until Cal-Am meets the goals of Order 95-10 and an alternative water supply source or sources is operational, the MPWMD is not likely to alter any existing water allocations to Seaside or other cities. Only MPWMD water allocations to Seaside that the City has yet to allocate to particular parcels could be added to the existing Project Area's allocations.

The City of Seaside has instituted within its City Code (Chapter 13.24) a Water Permit Allocation Program to govern water allocation release requests for commercial and institutional properties. As of January 2008, the City of Seaside Public Works presented to the MPWMD Board that Seaside has 57.32 AFY remaining to be released within the urbanized areas of southwest Seaside; MPWMD ordinances limit the total allocation to Seaside to 65.45 AFY, some of which has already been released for intensified water use within the City. Some of these allocations have been reserved for various uses, including the following relevant to the Project Area, as indicated in previous year's Board presentations:

- 10 AFY for West Broadway;
- 10 AFY for Canyon Del Rey/Del Monte Blvd;
- 2.1 AFY for the Seaside Library.

These reserved allocations totaling 22.1 AFY should reduce the total amount of new water supplies demanded by the Project. They could also affect the phasing of the Project, if water supply development becomes a critical element to the Project's implementation.

Apart from any previous MPWMD allocations to the City of Sand City, MPWMD has allotted 206 AFY from the planned Sand City Desalination Facility, which will have a total production capacity of 300 AFY. The remaining 94 AFY of production is to be permanently added to Cal-Am's system and result in a permanent 94 AFY reduction in annual pumping from Cal-Am's current sources – the Seaside Groundwater Basin and the Carmel River system.

5.4 Surface Water Supply

Historical drainage in the former Fort Ord area, given the relatively permeable soils, has not formed many distinct drainage channels or rivers. In other words, most of the stormwater runoff, even that from larger storm events is thought to have percolated into the sandy soils prior to urban development. Development of Fort Ord and surrounding urban development have increased stormwater runoff but also included storm drainage development to capture runoff from at least small rainfall events. The City of Seaside and other entities along the Monterey Bay coast then have typically conveyed stormwater drainage from their storm drain systems to large pipelines that outfall into the Monterey Bay or Pacific Ocean directly. Recent water quality regulation has encouraged treatment or lowering of these stormwater flows to the ocean, so some entities, such as CSUMB, have chosen to use percolation basins to eliminate their stormdrain outfalls, harkening back to historical, natural drainage practices in the area. Overall, however, surface water supplies in the Monterey Peninsula area are limited.

The Salinas River and Carmel River are the two major drainage channels that pass through Monterey County. These rivers also supply the major groundwater basins in the area. Currently, the Salinas River and its groundwater basin are not used as supply sources for Cal-Am's service area and the Project Area.

Cal-Am utilizes water supply from three sources – the Carmel River, its groundwater basin, and the Seaside Groundwater Basin. Figure 4 indicates the relative and numeric values of water supply from these sources. The watershed for the Carmel River is presented as Figure 5. Figures 6 and 7 present the groundwater basins, which are discussed in the next subsection.

The Carmel River flows in a well-defined channel and drains a 225-square mile watershed, originating in the Santa Lucia Mountains and emptying into the Pacific Ocean at Carmel River State Beach in Carmel Bay. Most of the river's watershed (approximately 65 percent) is upstream of the confluence with Tularcitos Creek. Downstream of the Tularcitos confluence, the channel widens from 20 to 150 feet.

As Figure 4 indicates, diversions from the Carmel River have historically been a significant source of water for Cal-Am until Order 95-10 was issued. There has been an average withdrawal of 5,000 AFY since 1915, with peak usage at nearly 10,000 AFY for several decades starting around 1960. Recent diversions from the Carmel River, regulated by the Order 95-10 and monitored by the MPWMD, average only a few thousand AFY.

Nearby the Project Area are the only two significant surface water bodies in the City of Seaside: Roberts Lake and Laguna Grande. Currently, these surface water resources are not used for water supply purposes.

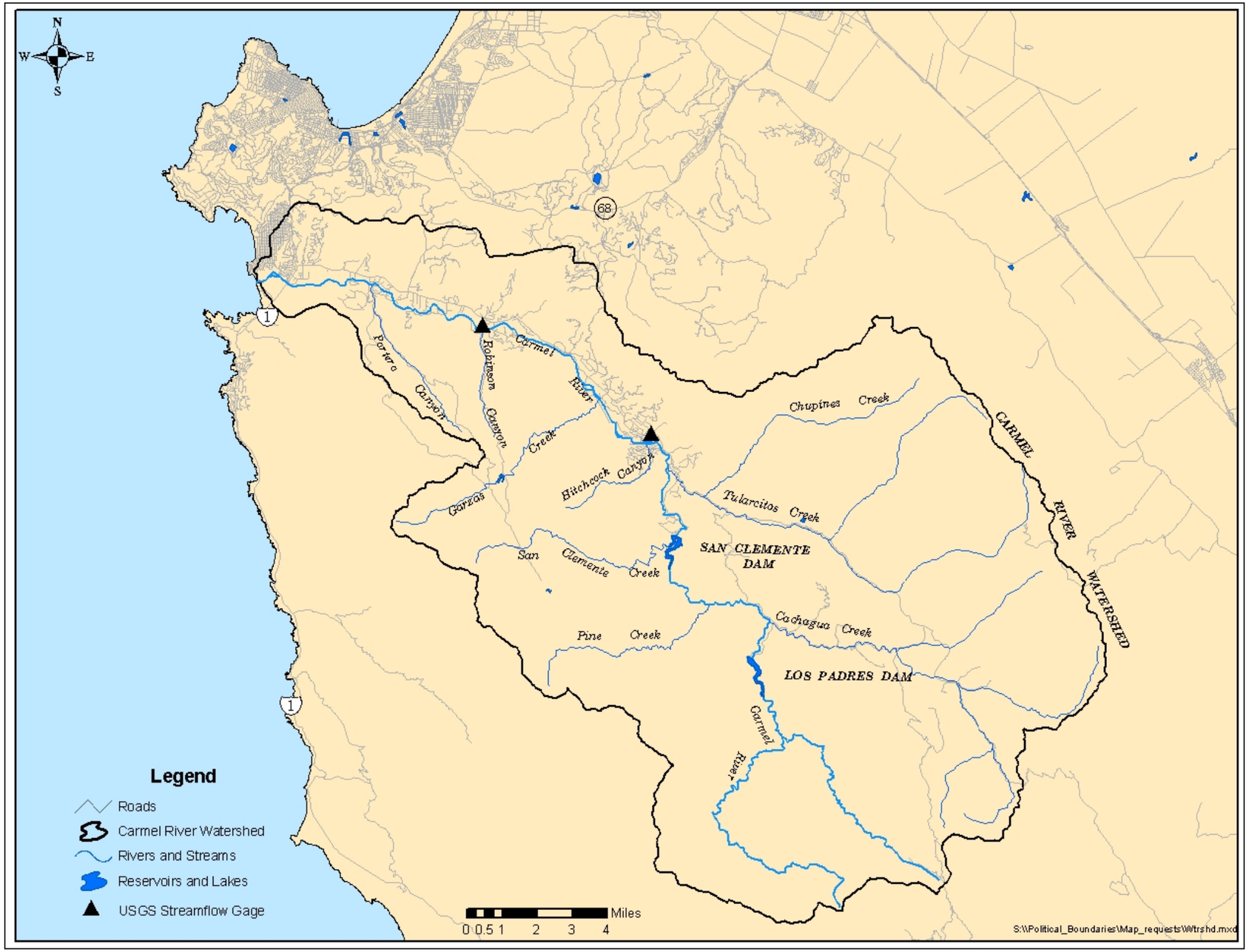


Figure 4 - Carmel River Watershed

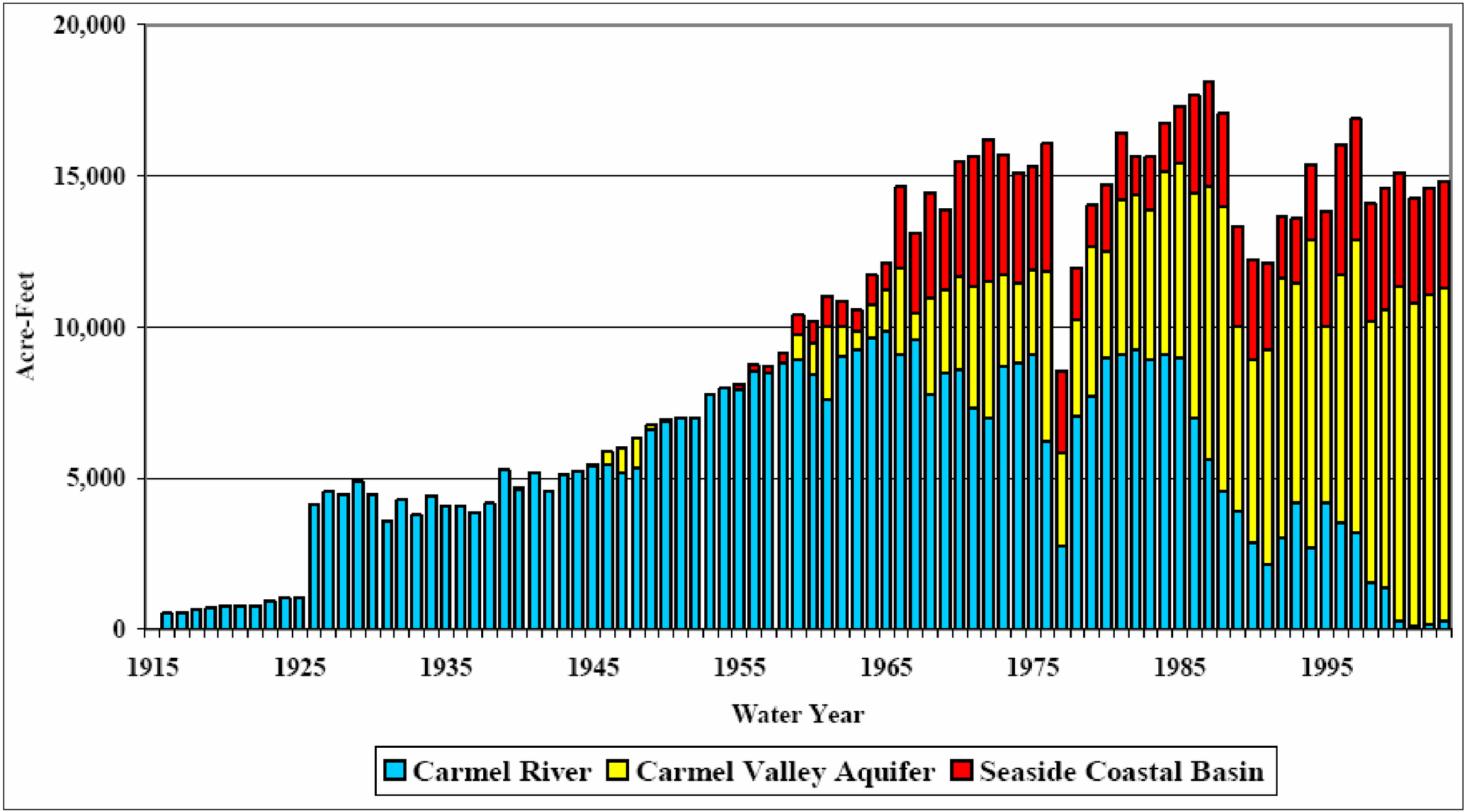


Figure 5 - Cal-Am Water Use

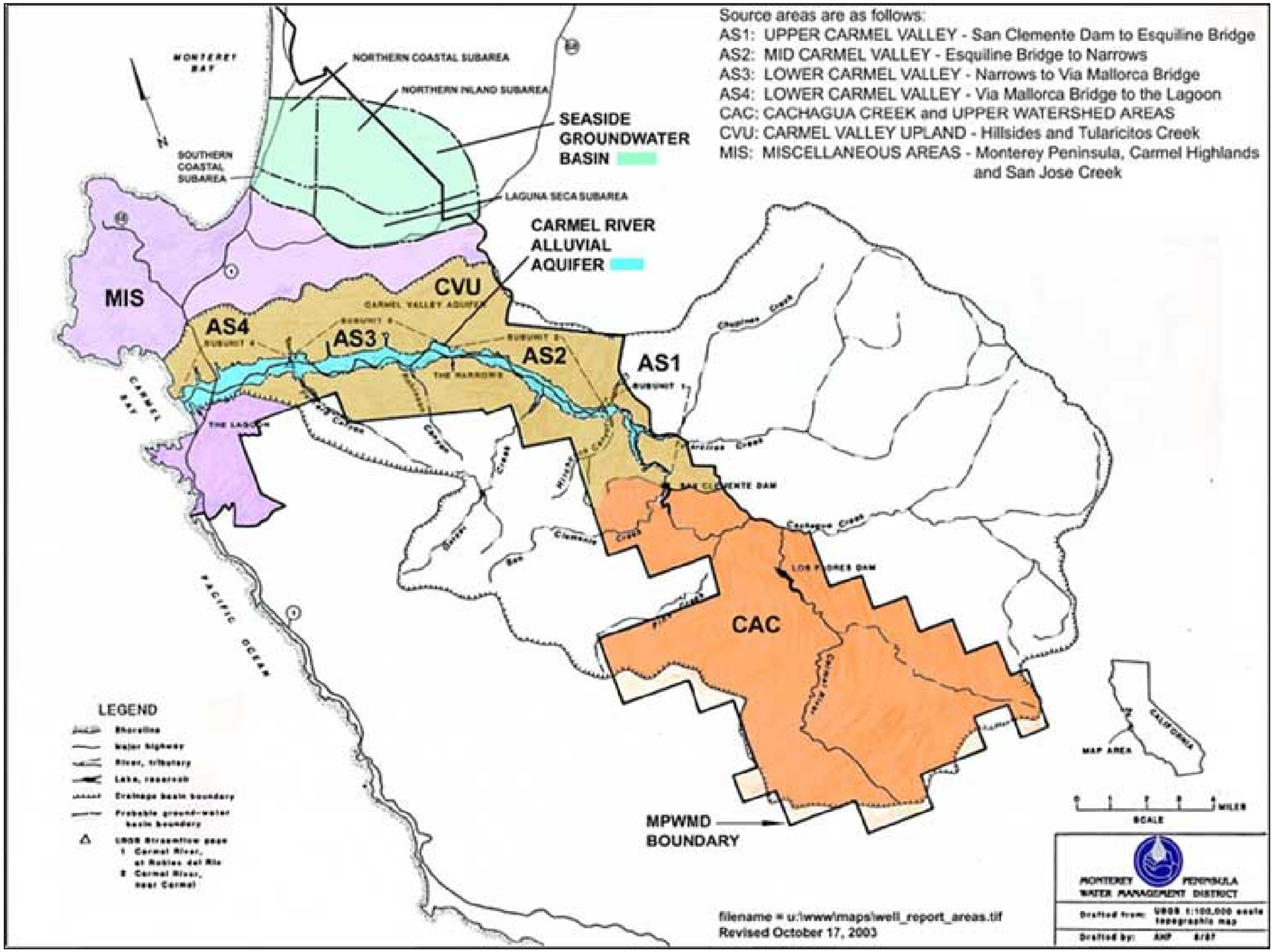


Figure 6 - Carmel Valley Aquifer

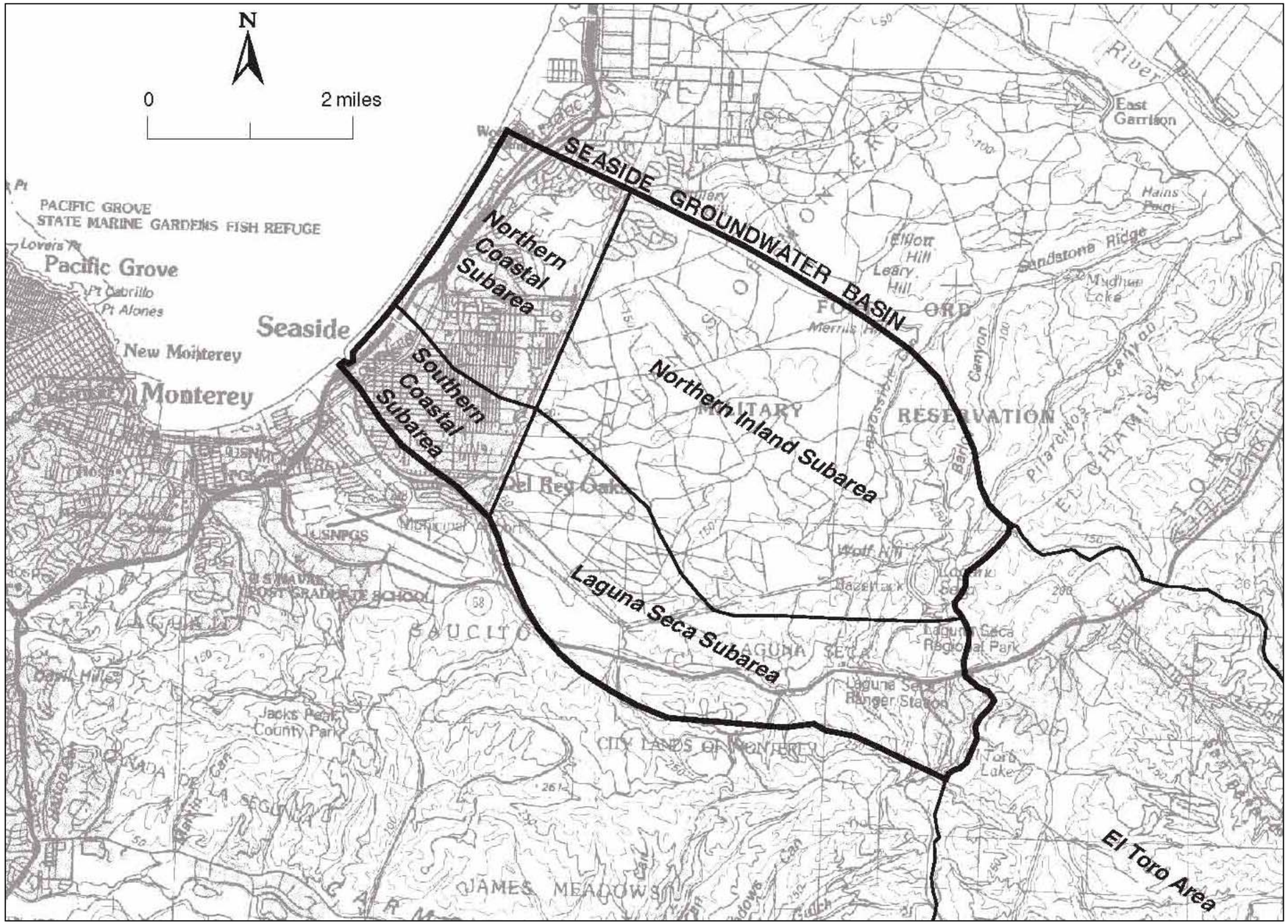


Figure 7 - Seaside Groundwater Basin

5.5 Groundwater Supply

Cal-Am's *UWMP* describes the various groundwater supplies which feed into the Monterey District's water system. There are two major sources of groundwater used by Cal-Am: the Carmel River Valley aquifer (Figure 6) and the Seaside Groundwater Basin (Figure 7). The majority of the water supply comes from fourteen (14) wells located along the Carmel River. Nine (9) of these wells are located in the Lower Carmel Valley aquifer; the remaining five (5) wells are located in the Upper Carmel Valley aquifer. Eight (8) additional wells located in the Seaside Basin aquifer generally provide supplemental supply during the summer demand season.

5.5.1 Carmel Valley Groundwater Basin

Alluvial deposits forming a groundwater basin underlie the downstream reach of the Carmel River. The level of groundwater in this aquifer is influenced by pumping from wells operated by Cal-Am, as well as evapotranspiration of riparian vegetation, seasonal infiltration, and subsurface inflows and outflows.

Annual natural recharge is estimated as 4,200 AFY with secondary recharge of an additional 400 AFY, for a total sustainable yield of 4,600 AFY. Lower values have also been proposed based on various studies. Table 10 describes Cal-Am's wells in the Carmel River Basin, and Table 11 presents the annual production from this source for the last several years.

Table 10 - Carmel River Groundwater Basin Well Data

	Name	*Year Drilled*	*Depth (ft)*	*Diameter (in)*	*Max Pumping Capacity (gpm)*
Upper Aquifer	1. Russel Well 02	1947	84	20	411
	2. Russel Well 04	1947	45	14	228
	3. Robles Well 03	1989	85	16	543
	4. Garzas Well 03	1989	46	12	296
	5. Garzas Well 04	1989	44	12	233
Subtotal					**1,712**
Lower Aquifer	1. Scarlett Well 08	1989	102	16	1,256
	2. Berwick Well 08	1986	4016	16	695
	3. Begonia Well 02	1990	127	16	1,481
	4. Manor Well 02	1989	140	16	269
	5. Schulte Well 02	1996	127	16	1,535
	6. Pearce	1981	160	18	1,701
	7. Cypress	1981	122	18	1,224
	8. San Carlos Well 02	1982	95	16	Out of service
	9. Rancho Canada	1981	148	18	2,500
Subtotal					**10,661**
Total: Upper and Lower Aquifers					**12,373**

Table 11 - Production from the Carmel River System (1986-2003)

Year	*Production (AFY)*	*% from Wells*
1996	11,701	79
1997	12,847	83
1998	10,133	87
1999	10,384	93.8
2000	11,179	98.6
2001	10,721	99.4
2002	10,759	99.4
2003	11,131	98.4
2004	11,094	99[1]
2005	10,675	99[1]
2006	10,542	99[1]
2007	10,343	99[1]
Average	10,959	99[1]
Interim Allocation	11,285	
Eventual Allocation	3,376	

[1]Estimated based on past usage.

5.5.2 Seaside Groundwater Basin

The Seaside Groundwater Basin is characterized as underlying approximately 19 to 24 square miles northwest of the Salinas Valley, adjacent to Monterey Bay. The basin includes Sand City, a portion of Monterey, and much of the cities of Seaside and Del Rey Oaks, as well as a portion of unincorporated Monterey County. The basin also underlies most of the land occupied by the Former Fort Ord military base.

The basin is composed of several smaller subbasins, including the Laguna Seca and Coastal Subareas. The "safe yield" of the Seaside Basin has been estimated as 2,880 AFY, with current demands estimated as 5,600 AFY, comprised of 4,611 AFY from the coastal subareas and 989 from the Laguna Seca subarea. Annual production from the coastal subareas has ranged from a low of 2,500 AFY to a high of 5,400 AFY. The final adjudication of the Seaside Basin specified that Cal-Am could withdraw 3,504 AFY, with a goal of reducing annual extractions to 3,000 AFY, the "natural safe yield."

An ASR project, as described later, is being developed to help replenish the Seaside Basin and potentially increase its annual yield. A test well has been developed by Cal-Am and the MPWMD and is described with Cal-Am's other Seaside Basin wells in Table 12. Table 13 then presents the Cal-Am and other (non Cal-Am) usage from the Seaside Basin for the last several years.

Table 12 - Seaside Basin Well Data

Name	*Year Drilled*	*Depth (ft)*	*Diameter (in)*	*Max Pumping Capacity (gpm)*
1. Darwin	1954	228	14	85
2. LaSalle Well 02	1959	331	18 & 20	250
3. Luzern	1997	290	12	551
4. Military	1963	268	14	82
5. Ord Grove Well 02	1984	481	16	1,254
6. Playa Well 03	1966	228	12	370
7. Plumas Well 04	1998	290	12	204
8. Paralta	1991	820	16	1,730
9. Santa Margarita ASR Test Injection Well (owned by MPWMD)	2001	720	18	1,000 (injection) 2,500 (extraction)
Total				**7,026**

Table 13 - Groundwater Production (AFY) from Seaside Basin Subareas (Water Years 1996-2006)

Year	*Cal-Am Coastal Subareas*	*Cal-Am Laguna Seca Subareas*	*Total Cal-Am Seaside Basin*	*Non Cal-Am Coastal Subareas*	*Non Cal-Am Laguna Seca Subareas*
1996	4,319	583	4,902	318	42
1997	4,025	364	4,389	357	240
1998	3,910	350	4,260	251	147
1999	3,982	331	4,313	252	201
2000	3,754	400	4,154	311	328
2001	3,444	414	3,858	320	714
2002	3,521	487	4,008	315	751
2003	3,507	465	3,972	349	616
2004	3,918	477	4,395	356	671
2005	3,003	435	3,438	333	468
2006	3,263	446	3,709	---	---
Average	**3,695**	**432**	**4,127**	**316**	**418**
Eventual Allocation	**1,494**	**0**	**1,494**	**155**	**608**

5.6 Local and Regional Groundwater Management

Water resource management entails activities and programs designed to protect, maintain, and monitor efficient use of water resources. Various water supply agencies and combinations of agencies in Monterey County have proposed and investigated numerous means to implement

regional and local groundwater management. The MPWMD, in particular, has prepared the *Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Plan* to document and influence regional water supply planning efforts. Overall, there is a substantial amount of data and studies on the surface water and groundwater in the Monterey Peninsula. Figure 8 indicates the planning area of the *Integrated Regional Water Management Plan* and projects discussed as part of the plan.

Cal-Am notes in the *UWMP* that a considerable amount of staff resources is dedicated to supply management due to the extensive water regulation in the Monterey Peninsula. Included in Cal-Am's management is meter maintenance and replacement; leak detection and repair; scheduled water main replacements; and drought management - activities which essentially protect the water supply from being wasted.

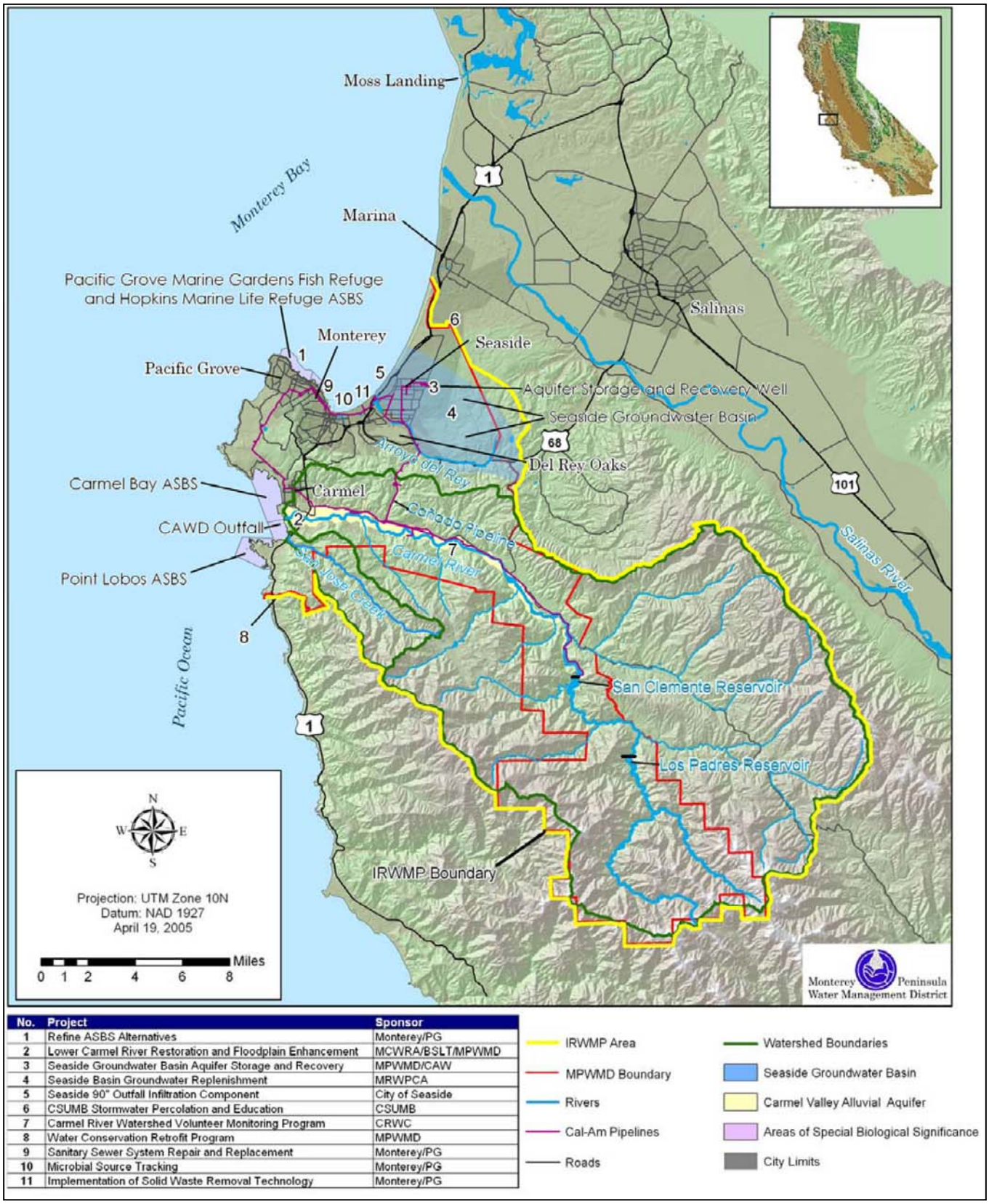
Conjunctive and regional surface water and groundwater management have been investigated to various degrees. Projects considered part of the conjunctive management and that incorporate groundwater management specifically as a strategy include the following, which are at various levels of planning and implementation and described more fully in other reports:

- Seaside Basin Aquifer Storage and Recovery Project;
- Salinas Valley Water Project;
- Seaside 90" Outfall Infiltration Component Project
- Salinas Groundwater Development;
- Granite Ridge Project;
- Potable Treatment Facility (combination of desalination and river diversions);
- Salinas Valley Groundwater Basin Replenishment (with desalinated water); and
- Carmel River in lieu recharge.

5.7 Recycled Wastewater

Recycled wastewater or reclaimed water is not currently provided within the Project Area or Cal-Am's Monterey District. The major source of recycled water for this area would be the MRWPCA Salinas Valley Reclamation Plant (SVRP) located north of Marina, which is currently treating incoming wastewater to a tertiary level and distributing 13,000 AFY of recycled water to agricultural users in the greater Castroville area via the Castroville Seawater Intrusion Project. The MCWD has an agreement in place with the MRWPCA that entitles it to receive tertiary treated water from the SVRP up to the volume of wastewater it sends to the plant for treatment.

The Pebble Beach Community Services District contracts with the Carmel Area Wastewater District for tertiary treated wastewater for irrigation of the Del Monte Forest/Pebble Beach golf courses, athletic fields, and other landscaped areas. The use of recycled water is meant to offset potable water use of about 800 AFY, 300 AFY of which would be allowed by the MPWMD for use as potable water credits. However, this project has not yet realized its full potential. The use of recycled water to meet future demands for the Project is discussed in the next section.



No.	Project	Sponsor
1	Refine ASBS Alternatives	Monterey/PG
2	Lower Carmel River Restoration and Floodplain Enhancement	MCWRA/BSLT/MPWMD
3	Seaside Groundwater Basin Aquifer Storage and Recovery	MPWMD/CAW
4	Seaside Basin Groundwater Replenishment	MRWPCA
5	Seaside 90" Outfall Infiltration Component	City of Seaside
6	CSUMB Stormwater Percolation and Education	CSUMB
7	Carmel River Watershed Volunteer Monitoring Program	CRWC
8	Water Conservation Retrofit Program	MPWMD
9	Sanitary Sewer System Repair and Replacement	Monterey/PG
10	Microbial Source Tracking	Monterey/PG
11	Implementation of Solid Waste Removal Technology	Monterey/PG

Figure 8 - MPWMD Integrated Regional Water Management Planning Region

6.0 Projected Water Supply

In addition to meeting any increased future water demands in the Monterey Peninsula and on Cal-Am's system, existing regulatory restrictions on the Carmel River and Seaside Basin require new water supplies to meet existing water demands on the Monterey Peninsula. Essentially, a water supply deficit exists. Several public input processes are currently occurring to review proposed water supply projects to serve the area. All of the proposed water supply projects are geared primarily towards alleviating the existing water supply restrictions (i.e., 12,500 AFY) and then secondarily to meeting any future increased water demands. The MPWMD has maintained a comparative matrix of proposed water supply projects within the MPWMD service area for the past several years; available matrices and MPWMD reports have been extensively relied upon for this section.

In accordance with the WSA legislation, this section discusses various proposed water supply projects, their costs and financing, as well as identified permits required to implement these projects and approximate schedules for implementation. The costs and schedules, in particular, will influence the viability of these projects to meet the water demands of the Project as it is developed over time.

6.1 Water Augmentation

Since the issuing of Order 95-10, Cal-Am has aggressively pursued alternative water supplies, but has faced challenges. In 1995, a proposal for a new Los Padres Reservoir could not achieve a simple majority vote which would have gained approval to finance dam construction. In 1996, the Carmel River Dam and Reservoir Project, a 24,000 AF reservoir, was proposed but encountered similar legislative resistance.

More recently, Cal-Am has been directing its efforts towards the Coastal Water Project, a combination of the Moss Landing Desalination Plant and the ASR project as a new source of supply. This alternative would satisfy Order 95-10 requirements and reduce demands on the Seaside Groundwater Basin. It is discussed later with other desalination options.

Various alternatives for water supply have been studied in the Monterey Peninsula, primarily as a means to supplement Cal-Am's supply and substitute for the reduced diversions from the Carmel River and reduced pumping from the Seaside Groundwater Basin. Order 95-10 in fact requires any new supply developed by Cal-Am to be first used to offset for the diversion reduction. Once the Order 95-10 is satisfied, Cal-Am can then allocate additional supply to its customers for new uses. The Seaside adjudication also puts a regulatory requirement on any new water supply. The total regulatory requirement of a new water supply is about 12,500 AFY. Increased regional demands added to the regulatory requirement equal between 25,000 AFY and 30,000 AFY, including demands in Salinas. Therefore, regional discussions have focused on meeting the larger regional demands as a long-term water supply goal.

Other possible water supply alternatives that have been investigated include the following, which are discussed at length below:

- Use of Recycled Water;

- ASR (an element of Conjunctive Surface and Groundwater Management;
- Desalination;
- Stormwater Collection and Reuse;
- Non-potable Water Reuse;
- Groundwater Remediation; and
- Conservation.

6.1.1 Recycled Water

Although the Seaside area has an agreement with the MRWPCA to receive recycled wastewater from the MRWPCA's SVRP to an extent proportional to its wastewater generation, Seaside and the Project Area do not currently receive recycled wastewater.

However, a recycled water distribution system is being planned by the MCWD and the MRWPCA and would potentially serve areas of North Seaside, which is within MCWD's service area. To be of benefit to the Project, recycled water would have to be extended into Cal-Am's service area and existing water credits released to then be applied to the Project Area. In some areas of the Monterey Peninsula, there is recycled water available within Cal-Am's service area, such as in Pebble Beach.

The MCWD Regional Urban Water Augmentation Project (RUWAP), as described later, is projected to supply 300 AFY of recycled water to the Monterey Peninsula.

Benefits of recycled water include its reliability; its potential to be combined with ASR or other conjunctive uses; and its relatively low costs. Recycled water is available during dry and wet years due to a relatively constant influx of wastewater.

Challenges of recycled water include the problems of public perception; environmental issues related to groundwater interactions; and regulatory burdens to ensure public safety.

Recycled wastewater, parallel to its source wastewater, has a relatively constant flow throughout the year. Demand for recycled water for irrigation purposes, however, is lower during the winter when temperatures and thus evapotranspiration is lower. Storage of recycled water during the winter is one means to augment limited water resources even further. Storage can be in storage tanks, lined reservoirs, or in groundwater aquifers. While all three options are technically feasible, the first two options have been more traditionally used for recycled water storage. In efforts to protect public and environmental health, the public and public agencies have viewed injecting treated wastewater into groundwater aquifers less favorably because of the potential to degrade or contaminate groundwater. Nevertheless, as long as some form of winter storage is made available for recycled water, recycled water can play a larger role in meeting a community's non-potable water demands, such as for irrigation.

The Seaside 2004 General Plan notes that "[s]ufficient recycled water reserves are available for the City to use for irrigation of the golf courses and other non-potable uses, thus making a larger portion of the [Fort Ord] allocation available to economic development and residential projects"

in North Seaside. However, this water could increase costs for the City or users through high connection fees and moderate use charges or low connection fees and high use charges. Costs for infrastructure to implement recycled water serving Seaside are estimated in the General Plan as $25 million.

The Final EIR of the 2004 General Plan echoes the above language and adds the following:
"The use of recycled water credits is the best option for the City to expand their water allocations in North Seaside should water credits become an impediment to development."

Both of these opinions, however, discuss North Seaside. Use of recycled water credits, as described above, to impact the Project Area is not necessarily indicated but may be feasible, as well.

The MRWPCA is exploring a potential use of recycled water for a Groundwater Replenishment Project (GRP). Similar to the planned ASR, recycled water would be stored in the Seaside Groundwater Basin during the winter and retrieved later for potable reuse. This project has several benefits, including a good use of technology and conservation, redundancy, relative energy efficiency, and applicability to Department of Water Resources funding. Challenges of this project include its relatively high cost and its limited extent. It would need to be combined with other water supply projects to satisfy fully the region's projected demands. The initial project is anticipated to produce 2,400 AFY.

6.1.2 Aquifer Storage and Recovery

Although the Carmel River and the Seaside Groundwater Basin are considered to be hydraulically separated, Cal-Am's distribution system links the two water supply sources. This connection readily allows for water diversions from the surface water river into the groundwater aquifer. The MPWMD, in particular, has for several years advocated for ASR to augment the water supply for the Monterey Peninsula. The MPWMD has been investigating the feasibility of groundwater injection and recovery since 1996. ASR, in general, diverts surplus surface water flows – or potentially recycled water, as described above – and stores them in groundwater aquifers for later recovery during periods of high demand. The MPWMD's ASR project diverts, treats, and conveys excess winter flows from the Carmel River to the Seaside Groundwater Basin for injection and storage. During periods of high demand, a dedicated extraction well or the injection well itself can be used to recover the stored water.

Identified challenges of ASR are that it will not completely meet the Monterey Peninsula water needs; it is relatively expensive; it requires some new infrastructure; and it needs legal management to be enforced.

Another potential drawback of the ASR Project is the regulatory permitting required to introduce untreated water into groundwater aquifers. Care must be taken to prevent degradation of the region's groundwater, in accordance with Regional Board criteria in their Basin Plan. To mitigate this drawback, the water could be treated, but that would also add to the expense of the project.

Identified benefits of the ASR Project include the following:

- Technically feasibility;
- Expandability;
- Flexibility, in terms of water source;
- Creation of a water "savings account";
- Helping prevent saltwater intrusion;
- Protecting the Carmel River ecosystem;
- Not growth inducing;
- Capturing excess flows without adverse environmental impacts;
- Cost effectiveness;
- Use of some existing infrastructure;
- Eligibility for grant funding;
- Non-intrusive aesthetics;
- Relative energy efficiency.

Another large benefit of ASR is that it could ultimately restore groundwater conditions in the Seaside Basin and increase the Basin yield, allowing for reduced extractions from the Carmel River during dry periods.

Based on favorable results of a 1997 reconnaissance-level feasibility study, a pilot-scale test injection well was installed by the MPWMD in 1998, followed by installation of a full-scale test well in 2001. The larger Seaside Basin ASR project for which the pilot-scale test has been collecting data is being jointly pursued by Cal-Am and MPWMD, combined with a desalination project.

In the long run, ASR is projected to store up to 2,426 AFY between December and May to help meet the existing level of Cal-Am's production. Phase 1 of the MPWMD ASR project would only provide 920 AFY. Maximum extraction would be approximately 2,028 AFY, leaving some of the diverted water in the basin to promote recovery of historical groundwater levels.

Total costs for the ASR project include one-time design and permitting costs, one-time construction costs, and ongoing operation and maintenance costs. Initial costs are estimated by the MPWMD as $300,000; construction costs are estimated as $2.3 million. Annual operation and maintenance costs are estimated to be $100,000. Normalized water costs are estimated at $610 per acre-foot.

The MRWPCA is also in the planning stages of the GRP for the Seaside Basin that could supply 2,400 AFY to the aquifer. Costs for this project have not been estimated but a goal of $1,200 per acre-foot has been set. The GRP is anticipated to be completed and operational by the end of 2010.

6.1.3 Desalination

Given the location of Seaside and surrounding communities near the ocean and underlying brackish groundwater in the area, desalination of either seawater or the less salty brackish water is a reasonable water supply option to explore. In fact, several small and large desalination projects are being investigated simultaneously in the area. The MPWMD and other regional water agencies have completed various studies of each proposed desalination option and comparing all of the various options.

The Monterey Bay Aquarium and MCWD both have existing desalination plants on the Monterey Peninsula. The MCWD plant has an operating capacity of 300,000 gallons per day (gpd) but is not currently used for water supply. It may be useful as a testing (i.e., pilot) location for the larger desalination options being planned in the region.

The following projects with desalination as the main or subsidiary element are proposed:

- Cal-Am's Coastal Water Project (CWP) – Local or Regional;
- Monterey Bay Regional Seawater Desalination Project (MBRSDP), previously referred to as the North Monterey County Desalination Project;
- MPWMD's Sand City Desal Project ("Long-term Water Supply");
- Seawater Desalination Vessel (SDV);
- Sand City "Local" Water Supply Project;
- MCWD RUWAP;
- MCWD Pilot Desal Project.

Sand City's "local" desal project would supply 300 AFY total, 150 AFY of which would go towards meeting existing demands that currently draw from overdrafted sources. The City of Sand City has already received permits for and is beginning construction of this project.

REPOG has prepared a Regional Urban Water Supply Evaluation that evaluates the various desalination and other water supply alternatives at a programmatic level. The projects are evaluated for their potential to meet the region's water demands, based on the following criteria:

- Schedule;
- Reliability;
- Permitting;
- Flood management;
- Recreation benefits;
- Public Acceptance;
- Environmental Effects;
- Pollution control;
- Regulatory Impact (on existing water limitations);

- Extent of Supply;
- Estimated Costs;
- Sustainability.

The various desalination proposals are summarized in Table 14. The proposed size of the various projects is reported in millions of gallons per day (MGD), a common unit for treatment plants and desalination plants, as well as AFY.

The primary purpose of all of these projects is to help resolve the shortage due to Order 95-10, so the table also indicates whether the proposed project would fully meet those requirements. Such a purpose indicates that Cal-Am's Monterey District customers would be the primary beneficiaries and rate payers for these projects. Estimated costs per acre-foot are given based on information provided to MPWMD by each of the projects' proponents and are in 2007 dollars. The CWP and MBRSDP projects are sited at Moss Landing to take advantage of existing ocean outfalls for the brine discharge, potentially minimizing permitting and environmental concerns.

Table 14 - Proposed Monterey Regional Desalination Projects

Project	*CWP*		*MBRSDP*	*Long-term Water Supply*	*SDV*
	Local	*Regional*			
Location	Moss Landing	Moss Landing	Moss Landing	Sand City	Off-Shore
Proponent (Public/Private)	Cal-Am (Private)	Cal-Am (Private)	Pajaro-Sunny Mesa CSD (Public)	MPWMD (Public)	Water Standard Company (Private)
Maximum Size	10 MGD	20 MGD	≥ 20 MGD	7.5 MGD	≥ 20 MGD
	11,730 AFY	20,272 AFY	≥ 22,000 AFY	3,900 – 8,400 AFY	≥ 22,000 AFY (up to 85,000 AFY)
Cost (per acre-foot)	$2,190	$1,640	$1,520	$2,710 - $2,910	$1,550 - $1,770
Approximate Timeline (as of May 2007)	4-7 years (2012 - 2015)		2 years (2010)	Unknown, Est. 4-5 years (Est. 2012)	Unknown, at least 3 years (2010 - 2011)
Meets Needs of Order 95-10	Yes	Yes	Yes	No	Yes
Meets Other Regional Demands	No	Yes	Yes	No	Yes
Est. Distance from Project Area	14 mi	14 mi	14 mi	< 1 mi	1 mi
Other Notes	Pilot plant almost complete; includes ASR component of 1,300 AFY		Incorporates solar power; no ASR component	Size dependent on engineering studies.	No pilot plant necessary.

There are also other regional projects that incorporate desalination, such as the RUWAP and the Sustainable Water Supply Program for Monterey County (SWSPMC).

The RUWAP, sponsored by MCWD and MRWPCA, involves a combination of desalination and recycled water. Only 300 AFY of the RUWAP would be designated for Cal-Am's customers. Total projected yields of the RUWAP have varied over time, although currently the project is projected to provide 1,500 AFY in Phase 1 and 3,300 AFY by Phase 2. Total costs are estimated at $54 million for Phase 1, resulting in unit costs, excluding O&M costs, of $1,200 per AF for 30 years.

The SWSPMC, proposed by the CPUC's Division of Ratepayer Advocates (DRA) would include the following diverse projects, including desalination:

- Conservation;
- Stormwater reuse;
- ASR;
- Recycled wastewater for non-potable uses and groundwater injection;
- Brackish water desalination in north Marina;
- Salinas River diversion; and
- Salinas Groundwater Basin withdrawals.

This option is presented as a potentially less expensive alternative to a large, regional desalination project, and is projected to contribute 29,200 AFY to the region. One benefit to the SWSPMC is its diversified approach that allows for a phased and fairly reliable overall project. However, diversity of its components may also foster political and other institutional challenges that hinder its complete development. Various components of this project are being explored by other agencies and may be implemented within 5-20 years.

Challenges of desalination, in general, include its relatively high costs; related high energy demands; environmental concerns with brine disposal and seawater intake; relatively lengthy development and construction timeframe; production of disinfection by-products; and requirements for separate storage facilities.

The environmental impacts of each project would vary and could be a significant factor in determining which project ultimately acquires necessary permits and is implemented. According to the MPWMD's analysis, the CWP proponents have produced the most comprehensive supporting documentation of the projects, including an environmental document completed past the draft level.

Benefits of desalination include its reliability during droughts, scalability, and size. Desalination is essentially a drought-proof water supply, providing a reliable source regardless of climatic influences.

Even one large desalination project could augment the region's water supply by up to 8,000 AFY, and the plants being pursued range from 8,000 to 20,000 AFY, so desalination will likely

play a large role in meeting the water supply needs of the Project and the Monterey Peninsula. All of the larger projects, in fact, are proposed to help or completely meet the 10,730 AFY mandated reductions in Cal-Am's withdrawals from Carmel River. The projects larger than this amount would also include water supply to offset groundwater pumping from the Seaside Groundwater Basin and meet other regional needs.

Overall, desalination would be one of the most reliable, albeit quite costly, water supply alternatives for the Monterey Peninsula.

6.1.4 Stormwater Collection and Reuse

Stormwater collection and reuse is often mentioned as a potential solution to the persistent water supply problems of the Monterey Peninsula. In fact, a recent Monterey County Herald article discussed the City of Pacific Grove's efforts to utilize an old Cal-Am reservoir for storage of nuisance flows and stormwater runoff, partly to improve water quality of the Monterey Bay Marine Sanctuary. The stored, non-potable water could potentially be used for golf course and park irrigation.

MPWMD has also investigated the potential for stormwater capture and reuse within their jurisdiction and outside of the Carmel River watershed. Using an 18 inch annual rainfall and 10% volume capture, 2,400 AFY was estimated to be available in the Carmel River watershed.

In theory, excess stormwater runoff from the Project Area could be stored during the winter and either provided as non-potable water for irrigation or treated and used as potable water. However, stormwater runoff is highly variable and does not necessarily offer a reliable water source. The following factors affect stormwater quantity:

- Environmental demands for stormwater, which restrict Carmel River diversions;
- Seasonal variation in rainfall;
- Annual variation in rainfall;
- Availability of adequate storage.

Benefits of stormwater reuse include the relative abundance of stormwater, the relatively low costs of collection, flooding improvements due to reductions of stormwater runoff, and the potential improvements of downstream water quality from restricting urban runoff.

Challenges of stormwater reuse include public health concerns, large-scale public acceptance, the required size of storage facilities, variability of stormwater, and water rights.

Historical hydrology of the Seaside area, as discussed previously, can vary significantly from season to season and from year to year. There are large floods on record in the area, as well as several multi-year droughts. The collection and reuse of stormwater, therefore, must be seen as only one way to augment the region's water supply and cannot be relied on as a continuous or reliable water source. Of course, conservation and drought regulations in the Project Area have already been developed and are periodically enforced to account for such variation. Such efforts would continue to be necessary if stormwater runoff provides a significant water source for the Project Area and the Monterey Peninsula.

With a mean annual precipitation near 15 inches, an average hourly rainfall of 0.00171 inches is calculated. The whole Project Area (42 acres), if considered 100% impervious with a runoff coefficient of 0.8, would then have an average runoff of 0.057 cubic feet per second (cfs) or a total volume of 42 AFY. However, average annual evapotranspiration in the area is significantly higher than precipitation at 36 inches total, with 17 inches just during the months of May to August. The high rate of evaporation implies that stormwater runoff would have to be covered, stored in a reservoir with a much smaller surface area than the Project Area, or stored underground to retain a significant volume. All of these alternatives add to the costs of stormwater collection and reuse. Furthermore, the annual variation of stormwater is such that during drought years, when stormwater would be by definition scarce, water supply would be severely affected. In other words, stormwater collection cannot be considered a reliable water supply source.

Even when stormwater runoff is of sufficient quantities to divert from environmental demands, the runoff and major irrigation demands are not coincident. There is seasonal variation that must be accounted for. During the summer, when irrigation demands would be highest, only low or intermittent stream flow would be available from local drainage channels and would not provide an adequate or reliable water source. Therefore, seasonal storage is necessary for stormwater reuse. Since there is no significant seasonal storage along the existing drainage ways, off-channel seasonal storage, in either surface water reservoirs or in groundwater aquifers, would be required to reuse the larger, winter stormwater flows.

Small-scale cisterns are often promoted as a feasible means for small-scale, residential stormwater collection and reuse, but these present technical and social challenges. In particular, public health concerns and maintenance of any local stormwater "systems" could introduce significant costs that would offset the benefits of stormwater reuse. Furthermore, non-standard plumbing to support the stormwater reuse systems would require significant public education.

One other consequence of increased stormwater collection and reuse would be a potential reduction of stormwater infiltration in to the underlying groundwater basins. Given historical seawater intrusion problems in the Project Area, it may not be wise to reduce stormwater infiltration simply to augment water supply. A potential water supply solution could effectively worsen another water supply problem.

On the other hand, stormwater reuse continues to become more relevant as stormwater regulations progressively encourage more onsite percolation and treatment versus runoff.

Overall, stormwater collection and reuse may offer small-scale solutions to motivated and educated citizens but does not necessarily offer a significant and viable alternative to the region's water supply problems. It may, in fact, worsen some water supply problems by encouraging seawater infiltration.

6.1.5 Non-potable Water Use

Non-potable water, which can include stormwater runoff, is generally defined as water that does not meet the Monterey Department of Health Standards for drinking water quality. However, water designated as non-potable may actually meet the standards.

As an alternative or supplement to recycled water, non-potable water from existing surface resources, such as Roberts Lake, could be used for irrigation of open space or other park areas. The MPWMD, according to its Rule 131, in fact, may require non-potable or sub-potable water use for irrigation of greenbelt areas.

Laguna Grande Park, located across from Seaside City Hall on Canyon Del Rey Blvd, is reported to have a well that supplies irrigation water at 20-25 AFY. The well draws from alluvium and Monterey Shale. Given the proximity of this park to the planned open space within the Project Area, it may be feasible to use some of the available non-potable groundwater for open space irrigation.

Use of non-potable water would have similar challenges as recycled water or stormwater reuse but some benefits over these, as well.

Challenges include the development of supporting infrastructure, such as pump stations and pipelines, regulatory permitting to divert water from environmental and aesthetic demands, and the necessity to ensure somewhat consistent quality to the diverted water. Ensuring a certain water quality may require treatment facilities, at least at a primary level, to remove sediments and floatables.

Benefits of non-potable water use include reduced costs for the following reasons:

- Lower level of treatment required versus the use of desalination or other potable water source,
- Potentially less infrastructure demands (i.e., shorter distance lengths to existing surface reservoirs than recycled water or desalination locations)

Non-potable water use is not likely to be of a scale large enough to affect regional water shortages but may have some impact on the Project, particularly for landscape irrigation.

6.1.6 Water Conservation

One oft-touted historical and ongoing means of supplementing water supply is water conservation, which is really a means of reducing per capita demand. As mentioned in various places of this report, water conservation may not offer much more savings to the Monterey District, since extensive water conservation measures have already been in place for several years and per capita demand is already relatively low.

In terms of conservation within the Project Area, the MPWMD, Cal-Am, and the City of Seaside all have conservation requirements that would need to be followed, essentially requiring low-water use fixtures for new and redeveloped construction and even upon change of ownership or expansion of existing developments.

To help minimize per capita demands of the Project, existing conservation practices will be required and may even be strengthened as part of the Project. Cal-Am has actually indicated, especially in light of the recent Draft CDO, that conservation practices will be strengthened, which is in line with the *UWMP*. The *UWMP*, by state law, specifies various Best Management Practices (BMPs) to implement the *UWMP* and also manage water shortages.

Representative conservation practices include the following:

- repairing existing infrastructure and reducing "unaccounted for" water;
- installing low-flow and low-demand fixtures,
- landscaping with drought-tolerant (i.e., low water use) plants,
- restricting lawn and ornamental watering, and
- restricting water-intensive residential and commercial uses (e.g., swimming pools).

Conservation can include reducing the amount of unaccounted for water in a water system. Unaccounted for is estimated to equal about 8% of production (~300 AFY) for Cal-Am's Monterey District. Generally, unaccounted for water includes water from main leakage and customers without meters or with inaccurate meters. As part of ongoing service efforts, Cal-Am calibrates meters and monitors unaccounted for water. Nevertheless, there may be further opportunities as Cal-Am inspects, maintains, and/or replaces existing infrastructure to reduce possibly wasted water. The *UWMP* identifies reducing unaccounted for water as a major priority for Cal-Am.

Other conservation efforts include the installation of low-flow fixtures in homes and commercial buildings, as well as water sprinkler ordinances that discourage lawn watering during times of high evaporation. The Seaside General Plan discusses having conservation measures in the City's municipal code to require low water-use plumbing fixtures in new construction, as well as to require retrofitting of existing buildings at such time as the ownership changes. Chapter 13.18 of the City's code details these water conservation measures as adopted by the City. The MPWMD and Cal-Am also have their own water conservation programs, which include public awareness campaigns and mandatory, staged rationing under certain conditions, such as a short-term or long-term drought. Although noting that it is difficult to estimate water savings from conservation, the MPWMD estimates a savings of 500 AFY through aggressive water conservation programs. However, the residents in the Monterey Peninsula area have already achieved relatively low water usage rates due to conservation, so a substantial increase in water savings from conservation could be difficult.

6.1.7 Alternatives

Although the discussion above is rather extensive in terms of water supply options, there are conceivably alternative water supply measures that could be taken. One particularly unlikely alternative, given current environmental sensibilities in California and the Monterey Peninsula, is further river diversions. Even if additional river diversions were implemented, they would be seasonally and environmentally constrained. The ASR Project, however, does incorporate river diversions as a component, so such a measure is not entirely improbable.

Groundwater remediation is another theoretical way to augment the region's water supply and is similar to reducing saltwater intrusion. Groundwater remediation is costly and usually contaminant-specific and site-specific. Groundwater remediation would essentially have water supply as an ancillary benefit of increased regulation requiring the decontamination of water resources.

One possible small-scale alternative for Seaside would be to independently develop a water supply that would feed into Seaside's municipal water system or Cal-Am's system under agreement with Cal-Am. There is some precedent for such an alternative, although it may have to endure legal and regulatory challenges before being realized. The project would also have to draw water from non-regulated sources.

6.2 Water Credits

Water credits are related to the MPWMD's allocation of the Monterey Peninsula's water supply. Water credits, by themselves, do not add additional water supply to the region or Project Area but may allow for redevelopment while supplies are otherwise limited.

The MPWMD can issue water credits for the permanent abandonment of some or all of a prior water use on a parcel. In other words, demolished or redeveloped parcels may be able to count some of the existing water use as credits towards the water use of the redevelopment. Rule 25.5 sets forth the MPWMD's criteria for issuing water credits. Water use credits do not require a connection charge.

Water use credits for residential or open space redevelopment are limited to the site on which they originate. Commercial and industrial water use credits, however, may be transferred to other commercial/industrial uses within a jurisdiction, according to Rule 28 of the MPWMD.

MPWMD also issues water credits for the permanent installation of (low-water use) non-mandated water fixtures or appliances. Savings due to mandatory water conservation measures cannot be used for acquiring water credits and instead apply to the 15% conservation requirements of the MPWMD. Further on-site credits for retrofitting fixtures has not been included in this *WSA* since the MPWMD's water demand factors for the Project and other proposed developments take conservation and low-flow water fixtures into account for new development and redevelopment.

6.3 Projected Water Supply Costs and Financing

Cost and financing are also critical factors for public acceptance and regulatory approval of the new water supply. If potential costs are estimated to exceed a project's benefits or the ability of a community to support a project, the projected water supply project will not likely be completed.

Any new water supply will serve a much larger area than the Project Area and its costs allocated through Cal-Am's rate structure via a CPUC process. Ultimately, these costs will be spread over Cal-Am's Monterey District, so specific costs for the Project cannot be estimated at this time. MPWMD and others have estimated impacts to Cal-Am users' bills at a 10-fold increase.

Suggested financing options include development fees, user fees, grants for applicable projects, such as ASR, general or capital improvement funds, revenue bonds, and non-profit and land trust donations.

Although not a direct cost to the Project, there is also a potential opportunity cost (i.e., lost benefits) to the City of Seaside if the Project is delayed by a lack of adequate water supply. The water supply infrastructure and development costs are presumably only a fraction of the benefits that would accrue from the Project.

6.4 Regulatory Permits Needed for Delivery of Projected Water Supply

Diverting surface water has various regulatory constraints, depending on the exact nature and extent of the diversion. Constructing and operating a diversion structure, such as a dam, can require an operational permit from the Department of Dam Safety.

Permits would also need to be acquired from the California State Department of Fish and Game and the State Water Resources Control Board. The Fish and Game permit would entail completing a Form 1600 based on the Fish and Game Code, requiring a biological survey of the surface water source to identify species of fish and amphibians that inhabit the stream and the necessary flow to support their habitat. Appropriative rights from the State Board would need to be acquired to operate a surface water diversion. Property owners whose lands abut the creek or stream may already have water rights that may or may not preclude further diversions.

Any negotiations to acquire Salinas River surface or groundwater would need to be held with Monterey County Water Resource Agency.

Developing a new or expanded water supply system within the MPWMD service area requires MPWMD approval.

Another agency with whom Seaside has historically discussed water supply issues is the Marina Coast Water District. Any connections to or transfers through the MCWD system would, of course, require MCWD negotiations and permission.

Finally, for any desalination project to move forward, there are the following applicable permits related to agencies and regulations, starting with federal agencies, followed by state agencies, then regional, and then local:

- NOAA Fisheries;
- U.S. Army Corps of Engineers;
- Possible U.S. Coast Guard;
- U.S. EPA Power Plant Regulation, Phase II Section 316 (b) (if using existing power plant outfall);
- CPUC;
- State Board and Regional Board;
- California Dept. of Fish and Game;
- California Coastal Commission;
- California Department of Health Services (to operate a public water system);

- Resolution of the California State Lands Commission (for use of power plant intake);
- CEQA/NEPA documentation to the final EIR level;
- California EPA's Air Resources Board;
- Monterey Bay Aquatic Environment organizations (Monterey Bay National Marine Sanctuary, Elkhorn Slough, Moss Landing Harbor);
- FORA (for operations affecting the former Fort Ord);
- Various county agencies (MRWPCA, Monterey County Public Works);
- Any affected local cities and jurisdictions for encroachment and construction permits;

Any easements needed to traverse private or public property with pipelines or other project facilities would also need to be acquired.

One other requirement would be a Water Supply Verification from Cal-Am. Senate Bill 221 (SB221) requires water suppliers, upon request, to provide written verifications of sufficient water supply to serve subdivisions of 500 housing units or more. These verifications amount to commitments to serve and are relied upon by land use planners to ensure an adequate and perpetual water supply for new homes. A water supplier faces great financial loss if its verification becomes unsupportable or fails in the future. For that reason, Cal-Am anticipates that water suppliers will become more reluctant over time to issue verifications.

Because Cal-Am could receive SB221 verification requests for development projects other than the West Broadway Urban Village Project, and because Cal-Am must respond to such requests in the order in which they are received and without discrimination, Cal-Am must reserve the right to issue water commitments to others on a first-file basis.

At the present time, Cal-Am has not been asked to provide, nor has it delivered, a written verification of supply to any proposed subdivision of 500 or more customers. Based upon current conditions, Cal-Am is prepared to consider and issue a water supply verification for the Project. Cal-Am must reserve the right, however, to review and assess all water supply verification requests should implementation of the Project proceed in a serial manner.

6.5 Summary of Projected Water Supply

Monterey regional water supply options are currently reaching a significant turning point. The MPWMD is currently and actively prioritizing water supply alternatives. Discussions and agreements with Cal-Am to expand the ASR Project, in particular, are slated for this summer (August 2008).

The Monterey REPOG has evaluated various combinations of proposed water supply projects and determined an optimum combination to meet the current regulatory and long-term regional demands.

The determined optimum combination to meet the 12,500 AFY current regulatory limits on MPWMD's existing supply is comprised of the following:

- 300 AFY from recycled water;
- 2,500 AFY from groundwater replenishment;
- 920 AFY through ASR/in-lieu recharge;
- No additional water from the Salinas River;
- No additional water from the Seaside Groundwater Basin;
- 150 AFY from conservation;
- 300 AFY from stormwater reuse; and
- 8,300 AFY from desalination of seawater or brackish groundwater.

The optimum combination to meet the 28,000 AFY estimated long-term, regional demands is comprised of the following:

- 3,000 AFY from recycled water;
- 2,500 AFY from groundwater replenishment;
- 1,400 AFY through ASR/in-lieu recharge;
- 7,800 AFY from the Salinas River;
- 4,300 AFY from the Seaside Groundwater Basin;
- 300 AFY from conservation;
- 500 AFY from stormwater reuse; and
- 8,600 AFY from desalination of seawater or brackish groundwater.

Recommended for immediate implementation are the conservation, stormwater reuse, Seaside ASR, and Sand City desalination projects, most of which build upon already ongoing efforts. The 300 AFY from the Sand City local desalination project is included in the total water supply from desalination above.

Projects slated for implementation in the next several years include recycled water delivery for irrigation, increased Salinas Basin groundwater use and Salinas River diversion, Seaside Basin replenishment with recycled water, and regional desalination efforts. There are currently no public plans for further interbasin or interregional transfers (i.e., importing water) from outside of Monterey County, although this option has previously been investigated since at least 1988. Transfers have generally been found to be economically or environmentally infeasible. For instance, a pipeline tie-in with the Pajaro Valley Water Management Agency (PVWMA) was investigated but rejected in the 1990s for financial reasons. Subsequently, PVWMA consumers approved Measure D in 1998 requiring the PVWMA to investigate local solutions and not imported solutions for 10 years.

In addition, as recycled water or other alternative non-potable water supplies, such as harvested rainwater, become available, potable water demands of the Project may be reduced. However, given the uncertainty in these sources, the Project's development should not be tied to them.

Given these various efforts, it is reasonable to assume that various water supply projects will be implemented to meet the existing and projected water demands of the Monterey Peninsula and the Project. Table 15 summarizes the various proposed projects discussed above, their estimated water supply contribution (i.e., size), and their estimated unit costs and timelines.

Table 15 - Summary of Proposed Projects

Project	*Type*	*Size (AFY)*	*Proponent*	*Cost ($/AF)*	*Est. Timeline*
ASR Phase I	ASR	920	MPWMD	$610	Current (Phase II by 2012)
GRP	Recycled Water + Groundwater	2,400 - 2,800	MRWPCA	NR[1] ($1,500[2])	2011
RUWAP	Desalination + Recycled Water	2,400 – 3,300	MCWD/MRWPCA	NR ($1,200[2])	2009
Conservation	Conservation	300 - 1,300	MPWMD/Cal-Am	NR	2009-2020
Recovery of unaccounted for water	Conservation	75-375	Cal-Am	NR	2012-2020
Golf course reduction	Conservation + Recycled Water	130	Cal-Am	NR	2009
CWP	Desalination + ASR	11,700	Cal-Am		2015
Sand City	Desalination	3,900 - 8,400	MPWMD		
Sand City	Desalination	300	City of Sand City		
Stormwater reuse	Non-potable	300		NR	2020
Other non-potable	Non-potable	Varies	Varies	NR	Varies
Water Credits	Reuse	Est.	Cal-Am	No additional	As Project proceeds
SWSPMC	Varies	17,000 - 29,200	CPUC/DRA (REPOG)	NR	2005-2020
Total (excluding large desal)	**Non-desalination**	**1,725 – 5,825**			

[1] NR = Not Reported.
[2] Estimated based on reported capital and O&M costs and 30-year financing.

6.6 Phasing of Projected Water Supply

The estimated timeline of implementing additional water supplies is important in assessing how demand will be met over time.

6.6.1 Phasing of Regional Water Supply

Table 16 lays out the projected phasing of water supplies in 5-year increments, based on information described above.

Table 16 - Phasing of Projected Water Supply

	Project	*2009 – 2014*	*2014 – 2019*	*2019 – 2024*	*2024 – 2029*
Existing Firm Supply	Carmel River System – Firm Water Rights	3,376	3,376	3,376	3,376
	Carmel River System – Interim Supply	7,909	0	0	0
	Seaside Basin, Coastal subarea	3,576	2,218	1,607	1,607
	Seaside Basin, Laguna Seca subarea	446	401	325	325
Non-desal Projected Supply	ASR Phase I	400	920	920	920
	Golf course reduction	130	130	130	130
	Stormwater reuse	300	300	300	300
	Water Credits	N/A	N/A	N/A	N/A
	Other non-potable	N/A	N/A	N/A	N/A
	Conservation	300	900	1,000	1,300
	Recovery of unaccounted for water	75	150	300	300
Subtotal excluding desal		**16,512**	**8,395**	**7,958**	**8,258**
Local Desal	Sand City	300	280	260	94
Regional Desal (and related)	GRP		2,400	2,400	2,400
	RUWAP	700	2,400	2,400	3,000
	CWP		11,400	11,400	11,400
	Sand City		8,400	8,400	8,400
Subtotal of desal		**1,000**	**24,880**	**24,860**	**25,294**
Total with large desalination		**17,512**	**33,275**	**32,818**	**33,552**

6.6.2 Phasing of Water Allocations

As the next section shows, meeting the regional water demands with projected supplies will correspondingly meet the Project's water demands, which are proportionately small. Nevertheless, one crucial element to the Project's phasing will be the availability of MPWMD and Seaside water credits, assuming these are still in place through the Project development.

Table 5 and Table 6 are repeated here as Table 17 and Table 18 for reference.

Table 17 - Phased Project Demands (in AFY) for Full Vision of the Project

	Time					
	Phase 1		*Phase 2*		*Phase 3*	
	2009	*2014*	*2019*	*2024*	*2029*	*2034*
New Demand	0	64.0	87.2	95.5	114.7	121.3
Water Credits	0	7.0	15.2	23.4	32.9	42.0
Net Increase	**0**	**57.0**	**72.0**	**72.1**	**81.8**	**79.3**

Table 18 - Phased Project Demands (in AFY) for 80% Construction of the Project

	Time					
	Phase 1		*Phase 2*		*Phase 3*	
	2009	*2014*	*2019*	*2024*	*2029*	*2034*
New Demand	0	51.2	69.8	76.4	91.8	97.0
Water Credits	0	5.6	12.2	18.8	26.3	33.9
Net Increase	**0**	**45.6**	**57.6**	**57.6**	**65.5**	**63.1**

As these tables indicate, the first 5-years of the Project require at maximum 57.0 AFY of new water supply and credits. A portion of this supply can be served from Seaside's reserve of 22.1 AFY for the Project Area. Demands beyond Seaside's 22.1 AFY reserve would need to be met either through credits now reserved for other Seaside areas or from expanded credits issued by the MPWMD once new water supplies allow for such. Assuming all of the 57.32 AFY of credits remaining in Seaside's allocation were used for the Project, the Project could proceed through Phase 1 for either the Full Vision or the 80% Construction. For buildout, the 80% Construction scenario would be just 5.8 AFY short of total water required and the Full Vision scenario would fall 22.0 AFY short. The available credits are estimated to be exceeded by several AFY at the 20-year mark. However, by 20-25 years in the future, one of the large-scale projects, which should be online for Phase 2 of the Project, should serve to eliminate the water allocation concerns for the City.

7.0 Sufficiency of Water Supply

Cal-Am's historical and projected water demands and supply in the Monterey District have been thoroughly explored in this *WSA*. Based on these values, and assuming no material change in circumstances or conditions, Cal-Am's projected water supply available during normal, single dry, and multiple dry years during a 20-year projection will meet the projected water demands of the Project in addition to meeting the existing and other planned water demands. These projections consider water development programs and projects, as well as water conservation, as described in Cal-Am's *UWMP*, as well as other policy documents, such as the MPWMD's various analyses.

Analysis of single-dry and multiple-dry year scenarios demonstrate Cal-Am's ability to meet or exceed demand during the 20-year planning period, even under reduced groundwater pumping conditions. Additionally, Cal-Am will have the opportunity to alter the supply and demand balance, if extraordinary circumstances warrant, through the following measures:

1) interim imported water purchases;

2) implementation of staged water rationing; and

3) increased desalination of seawater.

7.1 Comparison of Project Demands to Projected Supply

Table 19 summarizes the regional water demands in the Monterey Peninsula. In total, projected regional water demands amount to almost 23,000 AFY. The Project's demands are incorporated into Seaside's total.

Table 20 presents the projected water supply in 5-year increments and compares the projected supply with the estimated demands at each time period. A subtotal of water supply options excluding desalination is first given, since desalination is being pursued at various government levels (local and regional) and by various agencies. It is difficult to anticipate the particular proposal that will supply the Project. However, it should be assumed that the variety of attempts to augment the Monterey Peninsula's water supply will ultimately result in one or more large-scale solution within the next five to ten years.

As Table 20 indicates, the regional and Project water demands will be met over time with a large-scale project, such as the desalination and regional combination projects proposed.

Table 19 - Total Regional Demands

Existing Demands	Regulatory Replacement	9,626 AFY
	Current Replacement Projects	(-3,119 AFY)
	Seaside Aquifer Replacement	426 AFY
	Subtotal	6,510 AFY
General Plan Amounts	City of Carmel-by-the-Sea	288 AFY
	City of Del Rey Oaks	48 AFY
	City of Monterey	705 AFY
	City of Pacific Grove	1,264 AFY
	City of Sand City	386 AFY
	City of Seaside	582 AFY
	Monterey County (unincorp.)	1,135 AFY
	Monterey Peninsula Airport Dist.	138 AFY
	Subtotal	4,546 AFY
Non-Cal-Am Needs	MCWD	2,400 AFY
	North Monterey County	9,013 AFY
	Subtotal	11,413 AFY
	Regional Total	**22,469 AFY**

Table 20 - Water Supply Assessment (in AFY)

	2009-2014	*2014-2019*	*2019-2024*	*2024-2029*
Required replacement (includes Project)	18,003	21,773	24,675	28,417
Projected Non-Desal Supply	16,512	8,395	7,958	8,258
Shortfall without Desalination	1,491	13,378	16,717	20,159
Contribution from Desalination (including GRP and RUWAP)	1,000	24,880	24,860	25,294
Shortfall with Desalination	491	None	None	None

7.2 Reliability of Water Supply

Reliability of the Cal-Am's water supply depends on the continued implementation of the various groundwater basin plans, as well as the maintenance of any new surface water or desalination treatment plants brought into operation.

7.2.1 Normal Year

As indicated above, Cal-Am and the MPWMD have developed plans and are implementing projects to ensure an adequate water supply for existing and planned Monterey Peninsula users.

The information provided in this *WSA* indicates that with implementation of planned water supply projects, there would be adequate supplies to serve the Project and existing and other planned uses. If planned projects are developed as indicated, no shortages are anticipated within Cal-Am's service area in a normal year through 2020.

7.2.2 Single-Year and Multiple-Year Droughts

The MPWMD has indicated that dry years can be expected to occur approximately 25% of the time. The *UWMP* indicates, based on General Plan growth, that regional demand would reach a level approximately equal to the projected supply by 2015. However, the analysis in this *WSA*, based on more recent estimates of projected supplies, indicates that supply will exceed demand until at least 2029. Full production of a large-scale desalination facility should be available by as early as 2012. Such a facility would essentially "drought-proof" the region's water supply, which would be about 30,358 AFY at that time. Accordingly, the *UWMP* indicates that Cal-Am's production would maintain a constant level even during single-dry or multiple-dry years. Table 21 presents Cal-Am's drought scenarios and is adapted from Table 12 of the UWMP.

Table 21 - Cal-Am's Drought Scenarios (2015-2025)

	Single Dry Year	*Multiple Dry Years*			
		Year 1	*Year 2*	*Year 3*	*Year 4*
MPWMD Rationing Stage	None	None	None	None	None
Cal-Am Production (AFY)	30,358	30,358	30,358	30,358	30,358
Monterey District Reduction (%)	0%	0%	0%	0%	0%

The precise scope of the drought-tolerance of the projected water supply is uncertain at this time. The larger a role that desalination plays, the less droughts should affect the water supply of the Monterey Peninsula. Accordingly, water supply to the Project will be more or less affected by a multiple-year drought.

Cal-Am's UWMP makes this point in the following way:

> "Once the Coastal Water Project begins operation, the Monterey District will be much less dependent on fluctuations in rainfall, because desalination, groundwater and ASR supplies will be virtually "drought-proof" and the Company [i.e., Cal-Am] will be able to supply water at levels approximating the current total supplies, even in the third year of a multi-year drought (pg. 41)."

Regardless of whether the CWP is ultimately the desalination project implemented, as long as one of the large-scale desalination projects is implemented, the assessment of a drought-proof supply should apply.

7.3 Sufficiency of Groundwater Supply to Meet Project Demand

The California Water Code Section 10910(f)(5) requires an analysis of the sufficiency of the groundwater from the basins which are proposed to supply the project to meet the projected water demand associated with the proposed project. Although groundwater from both the Carmel Valley Groundwater and Seaside Groundwater Basins plays a role in the overall water supply for Cal-Am's Monterey District and will continue to do so, any increased water demands, such as those for the Project, will not be supplied from increased production from the groundwater basins. Indeed, as Table 16 indicates, the role of these aquifers to meet Cal-Am's system demands is planned to decrease over time.

As the water supply discussion in the previous section indicated, additional water supply for the region and for the Project will be met through a combination of sources, none of which will require additional groundwater supply from these basins. Therefore, the question of sufficiency to meet proposed demands is equivalent to the questions of whether the groundwater basins have sufficient supply to meet existing demands. As has been addressed above, the Carmel River basin is under intense scrutiny and the Seaside Basin has already been adjudicated to regulate their use for water supply. These basins will be operated according to the regulations, once an alternate supply is brought online, and should then, by definition, be sufficient to meet their regulated demands.

8.0 Conclusion

The *WSA* estimates whether existing and projected water supplies will be adequate to meet the water demands of the Project and other planned developments, in addition to supplying existing demands. Water agencies in the Monterey Peninsula are pursuing various small-scale and large-scale water supply options to augment existing supplies, not only to meet projected future demands but also to replace current water supplies that are increasingly restricted by government regulation.

By the State of California's WSA statutes, Cal-Am finds and declares that its total projected water supplies available during normal, single-dry, and multiple-dry years during a 20-year projection will meet the projected water demands associated with the Project, in addition to the existing and other planned water demands on Cal-Am's sources. This finding is valid as of the date of this *WSA*. However, the *WSA* rests upon assumptions of new potable and/or non-potable water sources being brought into operation within certain time frames.

This *WSA* of sufficient supply is provided pursuant to California Water Code section 10914, which states that nothing in this part (Water Code section 10901 et seq.) is intended to create a right or entitlement to water service or any specific level of water service, and that nothing in this part is intended to either impose, expand, or limit any duty concerning the obligation of a public water system to provide certain service to its existing customers or to any future potential customers.

9.0 Governing Body Approval

According to California Water Code Section 10910(g)(1), a Water Supply Assessment is incomplete if not presented to the water supplier's governing board and approved at a regular or special meeting.

By resolution of _____ I am authorized to execute this Water Supply Assessment effective as of _____ 2008.

Dated: _____

_____
XXXXX, Chairman and
Chief Executive Officer

10.0 References

Association of Monterey Bay Area Governments. *2004 AMBAG Population, Housing Unit & Employment Forecasts.* Adopted April 14, 2004.

California American Water Company. *Report on Results of Operations and Revenue Requirements*. April 15, 2002.

California American Water Company. *Annual Report of District Water System Operations*. March 30, 2004.

California American Water Company. *Monterey System Urban Water Management and Water Shortage Contingency Plan. 2006-2010.* February 2006.

California American Water Company. *California American Water Monterey District Comprehensive Planning Study – 2004*. Prepared by RBF. April 2005.

California Irrigation Management Information System (CIMIS). *Monthly Average ETo Report (Castroville, Station 19)*. wwwcimis.water.ca.gov/. Viewed on April 16, 2008.

Fuerst, Darby W. Draft. MPWMD Technical Memorandum 2006-02. *Existing Water Needs of Cal-Am Customers Within MPWMD Boundaries and Non Cal-Am Producers Within the Seaside Groundwater Basin Adjusted for Weather Conditions During Water Years 1996 Through 2006.* October 2006.

Fugro West, Inc. *Draft. City of Monterey Water Supply Study*. Provided in email to David Foote, Schaaf & Wheeler. February 1999.

GEI/Bookman Edmonston. *FINAL REPORT. Evaluation of Seawater Desalination Projects Proposed for the Monterey Peninsula.* Submitted to MPWMD. February 20, 2008.

GEI/Bookman Edmonston. *DRAFT. Evaluation of Seawater Desalination Projects Proposed for the Monterey Peninsula.* Submitted to MPWMD. February 20, 2008.

Laredo, David C., MPWMD Council. *Memo Re: Water Rights Relating to Sand City Desalination Projects.* To: Andrew Bell, District Engineer, MPWMD. June 22, 2006.

Michael Brandman Associates. Monterey County 2006 General Plan. Draft Program Environmental Impact Report. Prepared for Monterey County Planning and Building Inspection Department. August 18, 2006.

Monterey County Herald. *Stormwater Reuse*. March 25, 2008.

MPWMD, Monthly Allocation Report (Exhibit 28-A), MPWMD Board Meeting. January 24, 2008.

MPWMD. *Seaside's Remaining Water Allocations.* January 24, 2008 MPWMD Board Meeting.

Present Operations. Exhibit A, Chapter 3, Section 1 in *California American Water Monterey District 2008 General Rate Case* before the Public Utilities Commission of the State of California. *Final Application of California-American Water Company (U210W) for Authorization to Increase its Revenues for Water Service in its Monterey District* etc.

Project Summary. Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Plan and Integrated Coastal Watershed Management Plan. Seaside Groundwater Basin Aquifer Storage and Recovery (ASR), Phase 1. July 14, 2005.

RMC. Monterey Regional Plenary Oversight Group. *Regional Urban Water Supply Evaluation.* August 29, 2007.

Seaside Groundwater Basin Watermaster. *Seaside Basin Monitoring and Management Program*. Approved by the Seaside Groundwater Basin Watermaster Board. May 17, 2006.

Timothy J. Durbin, Inc. *Groundwater Flow and Transport Model. Seaside Groundwater Basin. Monterey County, California*. Prepared for RBF Consulting. October 26, 2007.

Water Management Group. *Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Plan*. November 2007.

Appendix A: Seaside Groundwater Basin Adjucation

FILED

MAR 27 2006

LISA M. GALDOS
CLERK OF THE SUPERIOR COURT
D. VALENZUELA DEPUTY

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF MONTEREY

CALIFORNIA AMERICAN WATER,

Plaintiff,

vs.

CITY OF SEASIDE; CITY OF MONTEREY; CITY OF SAND CITY; CITY OF DEL REY OAKS; SECURITY NATIONAL GUARANTY, INC.; GRANITE ROCK COMPANY, INC.; D.B.O. DEVELOPMENT COMPANY NO. 27, INC.; MURIEL E. CALABRESE 1987 TRUST; ALDERWOODS GROUP (CALIFORNIA), INC.; PASADERA COUNTRY CLUB, LLC; LAGUNA SECA RESORT, INC; BISHOP MC INTOSH & MC INTOSH, a general partnership; THE YORK SCHOOL, INC.; COUNTY OF MONTEREY; and DOES 1 through 1,000, Inclusive,

Defendants.

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT,

Intervenor.

MONTEREY COUNTY WATER RESOURCES AGENCY,

Intervenor.

AND RELATED CROSS-ACTIONS

Case No. M66343

DECISION

Action Filed: August 14, 2003
Trial Date: December 13, 2005
Dept.: 21

(Assigned to Hon. Roger D. Randall, Ret.)

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I. INTRODUCTION

This Decision sets forth the adjudicated rights of the parties to this lawsuit (with certain exceptions noted in section I.D. below), including Plaintiff California American Water, and Defendants the City of Seaside, the City of Monterey, the City of Sand City, the City of Del Rey Oaks, Security National Guaranty, Inc., Granite Rock Company, D.B.O. Development Company No. 27, Muriel E. Calabrese 1987 Trust, Alderwoods Group (California), Inc., Pasadera Country Club, LLC, Laguna Seca Resort, Inc., Bishop, McIntosh & McIntosh, and The York School, Inc. (hereinafter "Water User Defendants") to use the water resources of the Seaside Groundwater Basin ("Seaside Basin" or "Basin") and provides for a physical solution for the perpetual management of the Basin, which long-term management will provide a means to augment the water supply for the Monterey Peninsula.

A. Seaside Groundwater Basin.

The Seaside Basin is located in Monterey County and underlies the Cities of Seaside, Sand City, Del Rey Oaks, Monterey, and portions of unincorporated county areas, including the southern portions of Fort Ord, and the Laguna Seca Area. The boundaries of the Basin are depicted in Exhibit B of this Decision. Generally, the Seaside Basin is bounded by the Pacific Ocean on the west, the Salinas Valley on the north, the Toro Park area on the east, and Highways 68 and 218 on the south. The Seaside Basin consists of subareas, including the Coastal subarea and the Laguna Seca subarea in which geologic features form partial hydrogeologic barriers between the subareas.

B. The Parties.

1. Plaintiff California American Water ("Plaintiff" or "California American") is an investor-owned public utility incorporated under the laws of the State of California. (*See* Pub. Utilities Code, §§ 1001 et seq. and 2701 et seq.) California American produces groundwater from the Seaside Basin and delivers it for use on land within its certificated service area that both overlies portions of the Seaside Basin, and is located outside of the Seaside Basin Area, all within the County of Monterey.

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2. Defendant City of Seaside ("Seaside") is a general law city situated in the County of Monterey. Seaside produces groundwater from the Seaside Basin (1) for use on two city-owned golf courses that overly the Basin, and (2) for municipal water service to its residents. (*See* Call. Const., Art. XI, § 9; Gov. Code, § 38730.)

3. Defendant City of Sand City ("Sand City") is a charter city situated in the County of Monterey. Sand City produces groundwater from the Seaside Basin and delivers it for use on private and publicly owned lands within its incorporated boundaries, all of which overlie the Seaside Basin. (*See* Cal. Const., Art. XI, § 9; Gov. Code, § 38730.)

4. Defendant City of Del Rey Oaks ("Del Rey Oaks") is a general law city situated in the County of Monterey. Land within Del Rey Oaks' incorporated boundaries overlies the Seaside Basin. The two wells Del Rey Oaks presently operates for irrigation of public lands are located outside the Seaside Basin area and are, therefore, excluded from this Stipulation. (*See* Cal. Const., Art. XI, § 9; Gov. Code, § 38730.)

5. Defendant City of Monterey ("Monterey") is a charter city situated in the County of Monterey. Monterey owns and controls land that overlies the Seaside Basin area.

6. Defendant Security National Guaranty, Inc. ("SNG") is a California corporation with its principal place of business in the City and County of San Francisco. SNG's primary business activity is real estate development. As part of its operation, SNG and/or its predecessors-in-interest have produced groundwater from the Seaside Basin. SNG also owns land overlying the Seaside Basin.

7. Defendant Granite Rock Company ("Granite") is a California corporation with its principal place of business in the County of Santa Cruz. Granite's primary business activity is the production and sale of concrete aggregate and building materials. As part of its Seaside concrete and building materials plant, Granite has produced groundwater from the Seaside Basin. Granite also owns land overlying the Seaside Basin.

8. Defendant D.B.O. Development No. 27 ("D.B.O."), erroneously sued herein as D.B.O. Development Company, is a California limited liability company with its principal place of business in the County of Monterey. D.B.O.'s primary business activity is the ownership and

development of real property for commercial, industrial, residential, and public uses. As part of their ownership and development of land overlying the Seaside Basin, D.B.O. and/or its predecessor in interest have produced groundwater from the Basin. D.B.O. also owns and controls land overlying the Seaside Basin.

9. Defendant Muriel E. Calabrese 1987 Trust ("Calabrese") is an irrevocable trust that holds property in the County of Monterey. Calabrese and/or its predecessor in interest have produced groundwater from the Seaside Basin in relation to the operation of its paving, grading and construction business and operation of a concrete batch plant in Sand City. Calabrese also owns and controls land overlying the Seaside Basin.

10. Defendant Alderwoods Group (California), Inc. ("Alderwoods Group"), DBA Mission Memorial Park ("Mission Memorial") is a California corporation with its principal place of business in the County of Monterey. Mission Memorial's primary business activity is the operation of a cemetery in the City of Seaside. As part of maintenance of the cemetery, Mission Memorial has produced groundwater from the Seaside Basin. Mission Memorial also owns land overlying the Seaside Basin.

11. Defendant Pasadera Country Club, LLC ("Pasadera") is a California limited liability company with its principal place of business in the County of Monterey. Pasadera's primary business activity is the operation of a private golf course. As part of its golf course operations, Pasadera has produced groundwater from the Seaside Basin. Pasadera also owns land overlying the Seaside Basin.

12. Defendant Bishop, McIntosh & McIntosh ("Bishop") is a general partnership, with its principal place of business in the County of Monterey. Bishop owns land overlying the Laguna Seca Subarea of the Seaside Basin. Defendant Laguna Seca Resort, Inc.("Laguna Seca") is a California corporation with its principal place of business in the County of Monterey. Laguna Seca's primary business activity is the operation of a public golf course on land owned in fee by Bishop. Laguna Seca operates the golf course pursuant to a lease with Bishop. As part of the golf course's operations, groundwater is produced from the Laguna Seca Subarea of the Seaside Basin for irrigation purposes. Laguna Seca filed a cross-complaint against California

American, and Bishop filed a cross-complaint against California American and all defendants other than Laguna Seca Defendants Laguna Seca Resort, Inc. and Bishop, McIntosh & McIntosh shall collectively be referred to as "Laguna Seca/Bishop." However, the pumping allocation established in Section III.B., below, is held only by Bishop, as the overlying property owner. Laguna Seca is a Water User Defendant now exercising Bishop's pumping allocation and operating the golf course facilities. The damages provided for in Section III.G. shall be based on the Average Gross Annual Income of the entity operating thee golf course facilities, which is now Laguna Seca (Bishop's lessee).

13. Defendant County of Monterey owns land on which is operates the Laguna Seca Park. County of Monterey has produced groundwater from the Seaside Basin for use at Laguna Seca Park. County of Monterey owns land overlying the Seaside Basin.

14. Intervenor Monterey Peninsula Water Management District ("MPWMD") is a district formed pursuant to Water Code Appendix sections 118-1 et seq. MPWMD intervened as a party defendant as against California American, cross-complained against the other parties as a plaintiff, and is a defendant in a cross-complaint filed by Seaside and joined in by City defendants.

15. Intervenor Monterey County Water Resources Agency ("MCWRA") is a duly constituted Water Resources Agency created pursuant to California Water Code Appendix section 52-3 et seq. MCWRA intervened inn this action as a plaintiff as against all parties.

16. Defendant The York School, Inc. ("York" or "York School"), is a nonprofit corporation, founded in 1959 as an independent day school providing college preparatory education. Its primary activity is the operation of a school. York leases approximately 31.4 acres of property from the United States, Department of the Army, on the former Fort Ord. This property is located immediately north of the main campus, across York Road, and is a portion of a larger parcel, approximately 107 acres in size, that is scheduled to be transferred as a public benefit conveyance to York from the federal government. This parcel overlies the Seaside Basin and is subject to this Decision. York has produced groundwater from the Seaside Basin. York is not an agent of the United States, nor can York bind the United States to this Decision.

C. The Complaint.

On or about August 14, 2003, Plaintiff filed a complaint against Defendants and Does 1 through 1,000 requesting a declaration of Plaintiff's and Defendants' individual and collective rights to groundwater and a mandatory and prohibitory injunction requiring the reasonable use and coordinated management of groundwater within the Seaside Basin pursuant to Article X, Section 2 of the California Constitution. The pleadings further allege that Plaintiff and Defendants collectively claim substantially all rights of groundwater use, replenishment and storage within the Seaside Basin area, that the Natural Safe Yield (as defined in Section III.A.) is being exceeded, and that absent a physical solution and coordinated groundwater management strategy, the Seaside Basin is in imminent risk of continued lowering of water levels, increased pump-lifts, diminution of water supply and quality, seawater intrusion, and possible land subsidence. Accordingly, Plaintiff requested: (1) a determination of the Seaside Basin's safe yield; (2) an operating plan for the management of the Basin; (3) a declaration of the rights of the parties named in this Complaint; (4) a declaration and quantification, as part of a physical solution, of the parties' respective rights to make use of the Seaside Basin's available storage space; and (5) the appointment of a Watermaster to administer the Court's Decision. Subsequently, Plaintiff has twice amended its complaint and the operative complaint is now the Second Amended Complaint, which sets forth the same general allegations as the original complaint.

D. Defendants' Responses.

Water User Defendants in this action have all responded to the Complaint pursuant to Answers. In addition, they have all joined in a motion seeking Court approval of a Stipulated Judgment. The Monterey Peninsula Water Management District and the County of Monterey, including the Monterey County Water Resources Agency, did not join in the Stipulation.

On or about September 24, 2003, Intervenor MPWMD filed a complaint in intervention against the defendants named in the Complaint. Defendants to that complaint responded to the cross-complaint pursuant to an Answer, containing a general denial and affirmative defenses.

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Seaside, on or about January 9, 2004, filed a cross-complaint against MPWMD. MPWMD responded to the cross-complaint by filing an Answer, containing a general denial and affirmative defenses.

Laguna Seca, on or about April 23, 2004, filed a cross-complaint against California American. California American responded to the cross-complaint pursuant to an Answer, containing a general denial and affirmative defenses.

Bishop, on or about September 23, 2004, filed a cross-complaint against California American and against all defendants other than Laguna Seca. California American, Granite, Sand city, Alderwoods Group, York School, D.B.O., Monterey, MPWMD, Seaside, and Pasadera responded to the cross-complaint pursuant to Answers containing general denials and affirmative defenses.

SNG, on or about July 26, 2005, filed a cross-complaint against MPWMD. MPWMD responded to the cross-complaint by filing an Answer, containing a general denial and affirmative defenses.

At the conclusion of argument on December 22, 2005, the various defendant cross-complainants agreed that the relief they had sought via their cross-complaints had been subsumed in the litigation of the complaint and complaints in intervention, the answers thereto, and the Settlement Agreement and General Mutual Release executed by all parties save the intervenors and the County of Monterey.

E. Joint Motion for Entry of Judgment.

Plaintiff and Water User Defendants filed a Motion for the Entry of Judgment along with a Stipulation for Entry of Judgment, which was opposed by both intervenors. The Motion for Entry of Judgment requested that the Court approve the Stipulation and enter the Judgment. The motion was heard by this Court on December 12, 2005. At the request of the moving parties, it deferred its ruling until it had taken evidence in the trial of this matter.

Having now received the evidence, and having considered written and oral argument from the various parties, the Court denies the Motion for Entry of Judgment. The Court accepts the stipulation of certain of the parties entitled "Settlement Agreement and General Mutual Release"

filed with the Court during trial insofar as the stipulation does not conflict with the ruling set forth herein.

F. Jurisdiction. This Court has jurisdiction to enter a Judgment declaring and adjudicating Plaintiff's and Water User Defendants' rights to the reasonable and beneficial use of groundwater in the Seaside Basin Area, including the imposition of a physical solution, pursuant to Article X, Section 2 of the California Constitution.

II. FINDINGS

A. Importance of Groundwater. Groundwater is an important water supply source for businesses, individuals and public agencies that overlie or Extract groundwater from the Seaside Basin. The overwhelming majority of the groundwater appropriated from the Seaside Basin has been and continues to be dedicated to a public use in accordance with the provisions of the California Constitution, Article X, Section 5. The Plaintiff and the Water User Defendants rely upon continued availability of groundwater to meet their demands. The intervenors, MPWMD and MCWRA, have a legislatively mandated interest in the preservation and enhancement of groundwater in the Basin.

B. Status of the Groundwater Basin.

1. Perennial Natural Safe Yield. The Perennial Natural Safe Yield (as defined in Section III.A. and hereinafter referred to as "Natural Safe Yield") of the Seaside Basin is solely the result of natural percolation from precipitation and surface water bodies overlying the Basin. The Court finds that the Natural Safe Yield of the Basin as a whole, assuming no action is taken to capture subsurface flow exiting the northern boundary of the Basin, is from 2,581 to 2,913 acre feet per year. The Natural Safe Yield for the Coastal Subarea is estimated from 1,973 to 2,305 acre feet peer year, and the Natural Safe Yield for the Laguna Seca Subarea is 608 acre feet per year.

2. Groundwater Production. Production records demonstrate that the cumulative annual groundwater production of the Parties from the Seaside Basin area in each of the five (5) years immediately preceding the filing of this action has been between approximately 5,100 and 6,100 acre feet. Therefore, the Court finds that groundwater production has exceeded the Natural

Safe Yield during the preceding five (5) years throughout the Seaside Basin and in each of its subareas. While no one can predict with precision when it will occur, all parties agree continued indefinite production of the Basin Groundwater in excess of the Natural Safe Yield will ultimately result in seawater intrusion, with deleterious effects on the Basin. The evidence demonstrates that the stage is set for such an occurrence in the foreseeable future.

C. Legal Claims.

1. Groundwater Rights. Certain Parties allege that they have produced groundwater openly, notoriously, continuously, and without interruption in excess of the Natural Safe Yield of the Basin for more than five (5) years. As a result, these Parties allege that they have accrued prescriptive rights as articulated by the California Supreme Court in *City of Pasadena v. City of Alhambra* (1948) 33 Cal.2d 908. In defense of these claims, other Parties deny that the elements of prescription have been satisfied, and further allege the affirmative defense of "self help" as recognized in *Pasadena, supra*, 33 Cal.2d at pp. 932-32. Those Parties responsible for public water service also raise Civil Code section 1007 as an affirmative defense against prescription.

The Court finds that there is merit to the claim that certain prescriptive rights have accrued, but also finds that there is merit to the aforementioned affirmative defenses. Accordingly, the Court finds that the Parties collectively possess a variety of rights based in prescription and other original rights (including overlying and appropriative rights). Each Party's right to produce naturally occurring groundwater from the Seaside Basin therefore reflects the amount of their historical production from the Basin, and respects the priority of allocations under California law. The physical solution set forth by this Decision is intended to ultimately reduce the drawdown of the aquifer to the level of the Natural Safe Yield; to maximize the potential beneficial use of the Basin; and to provide a means to augment the water supply for the Monterey Peninsula.

2. Storage Rights. The Court finds that the public interest is served by augmenting the total yield of the Seaside Basin through artificial groundwater recharge, storage, and recovery. It is well established that an entity which artificially recharges a groundwater basin with the intent to later recapture that water maintains an exclusive right to recapture that quantity of water by which said recharge augments the retrievable water supply of the groundwater basin, so long as

such recharge and recapture (i.e., storage) does not materially harm the groundwater basin or any other entity's prior rights associated with the groundwater basin. (*City of Los Angeles v. City of San Fernando* (1975) 14 Cal.3d 199, 264; *City of Los Angeles v. City of Glendale* (1943) 23 Cal.2d 68, 76-77; see also Water Code, § 7075.) The Court finds, therefore, that the right to store and recover water from the Seaside Basin shall be governed by the provisions of the Decision, and the rules and regulations promulgated by the Seaside Basin Watermaster, the basic provisions of which are described in Section III.H.

3. *De Minimis* Production. The Court finds that production of groundwater by any person or entity less than five (5) acre feet per year is not likely to significantly contribute to a Material Injury (as defined in Section III.A.) to the Seaside Basin or any interest related to the Seaside Basin. Accordingly, this Decision is not intended to govern the production of groundwater by any person or entity that produces a total quantity of groundwater that is less than five (5) acre feet peer year. However, to the extent the Court determines in the future that this exemption has contributed to or threatens to contribute to a Material Injury to the Seaside Basin or any interest related to the Seaside Basin, including any contribution caused by production subject to this exemption in combination with all other production from the Seaside Basin, the Court will modify or eliminate this exemption as it deems prudent pursuant to its reserved jurisdiction provided in Section III.O.

4. Transferability of Seaside Basin Rights. The Court finds that maximum beneficial use of the Seaside Basin's resources is encouraged by the ability to sell and lease production allocations. Such transferability will also provide necessary flexibility to satisfy future water supply needs. Accordingly, the Court finds that production allocations should be assignable, subject to the rules and regulations promulgated by the Watermaster, and subject to certain Parties' participation in the Alternative Production Allocation, described in Section III.B.3, which election will restrict their transfers of water.

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III. DECISION

IT IS HEREBY ORDERED, ADJUDGED AND DECREED:

A. Definitions.

1. "Administrative Year" is the twelve (12)month period from January 1 through December 31.

2. "Alternative Production Allocation" is the amount of Groundwater that a Producer participating in this allocation method may Produce from a Subarea of the Seaside Basin as provided in Section III.B.3.

3. "Artificial Replenishment" means the act of the Watermaster, directly or indirectly, engaging in or contracting for Non-Native Water to be added to the Groundwater supply of the Seaside Basin through Spreading or Direct Injection to offset the cumulative Over-Production from the Seaside Basin in any particular Administrative Year pursuant to Section III.L.3.j.iii. It shall also include programs in which Producers agree to refrain, in whole or in part, from exercising their right to produce their full Production Allocation where the intent is to cause the replenishment of the Seaside Basin through forbearance in lieu of the injection or spreading of Non-Native Water.

4. "Base Water Right" is the percentage figure or the fixed amount assigned to each Party as provided in Section III.B.2, which is used to determine various rights and obligations of the Parties as provided in Sections III.B.2, III.B.3, III.L.3.c, and III.L.3.j.iii.

5. "Brackish Water" means water containing greater than 1,000 parts of chlorides to 1,000,000 parts of Water.

6. "Carryover" means that portion of a Party's Production Allocation that is not Extracted from the Basin during a particular Administrative Year. Each acre-foot of Carryover establishes an acre-foot of Carryover Credit.

7. "Carryover Credit(s)" means the quantity of Water established through Carryover, that a Party is entitled to Produce from the Basin pursuant to Section III.F.

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8. "Coastal Subarea" means those portions of the Seaside Basin that are west of North-South Road, and further as shown on the Basin map attached as Exhibit B to this Decision.

9. "Direct Injection" means a method of Groundwater recharge whereby Water is pumped into the Basin through wells or other artificial channels.

10. "Extraction," "Extractions," "Extracting," "Extracted," and other variations of the same noun or verb, mean pumping, taking, diverting or withdrawing Groundwater by any manner or means whatsoever from the Seaside Basin.

11. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

12. "Groundwater" means all Water beneath the ground surface in the Seaside Basin, including Water from Natural Replenishment, Artificial Replenishment, Carryover, and Stored Water.

13. "Laguna Seca Subarea," or "Laguna Seca Area," means those portions of the Basin that are east of the Southern Coastal Subarea and south of the Northern Inland Subarea, as shown on the Seaside Basin map attached as Exhibit B to this Decision.

14. "Landowner Group" means all Producers that own or lease land overlying the Seaside Basin and Produce Groundwater solely for use on said land, except California American, Seaside (Municipal), Monterey, Del Rey Oaks, and Sand City.

15. "Material Injury" means a substantial adverse physical impact to the Seaside Basin or any particular Producer(s), including but not limited to: seawater intrusion, land subsidence, excessive pump lifts, and water quality degradation. Pursuant to a request by any Producer, or on its own initiative, Watermaster shall determine whether a Material Injury has occurred, subject to review by the Court as provided for in Section III.N.

16. "Natural Replenishment" means all processes by which Water may become a part of the Groundwater supply of the Seaside Basin without the benefit of the Physical Solution and the coordinated management it provides. Groundwater that occurs in the Seaside Basin as a

result of the Physical Solution, which is not Natural Replenishment, includes, but is not limited to Storage, Carryover, and Artificial Replenishment.

17. "Natural Safe Yield" or "Perennial Natural Safe Yield" means the quantity of Groundwater existing in the Seaside Basin that occurs solely as a result of Natural Replenishment. The Natural Safe Yield of the Seaside Basin as a whole, assuming no action is taken to capture subsurface flow exiting the northern boundary of the Basin, is from 2,581 to 2,913 acre feet per year. The Natural Safe Yield for the Coastal Subareas is from 1,973 to 2,305 acre feet per year. The Natural Safe Yield for the Laguna Seca Subarea is 608 acre feet per year.

18. "Non-Native Water" means all Water that would not otherwise add to the Groundwater supply through natural means or from return flows from surface applications other than intentional Spreading.

19. "Overdraft" or "Overdrafted" refers to a condition within a Groundwater basin resulting from long-term depletions of the basin over a period of years.

20. "Operating Safe Yield" means the maximum amount of Groundwater resulting from Natural Replenishment that this Decision, based upon historical usage, allows to be produced from each Subarea for a finite period of years, unless such level of production is found to cause Material Injury. The Operating Safe Yield for the Seaside Basin, as a whole, is 5,600 acre feet. The Operating Yield is 4,611 acre feet for the Coastal Subarea and 989 acre feet for the Laguna Seca Subarea. The Operating Yield established here will be maintained for three (3) years from the date of this Decision or until a determination is made by the Watermaster, concurred in by this Court, that continued pumping at this established Operating Yield will cause Material Injury to the Seaside Basin or to the Subareas, or will cause Material Injury to a Producer due to unreasonable pump lifts. In either such event the Watermaster shall determine the modified Operating Yield in accordance with the Principles and Procedures attached hereto as Exhibit A, and through the application of criteria that it shall develop for this purpose.

21. "Over-Production" and other variations of the same term means (1) with regard to all Production from the Seaside Basin, that quantity of Production which exceeds an initially assumed Natural Safe Yield of 3,000 afy (or such adjusted calculation of Natural Safe Yield as

further study of the Basin by the Watermaster shall justify); or (2) with regard to each Producer, that quantity of Water Produced in any Administrative Year in excess of that Producer's Base Water Right, as applied to an initially assumed Natural Safe Yield of 3,000 afy (subject to adjustment as further study shall justify). For a Party producing under the Alternative Production Allocation, the calculation shall be based upon the Base Water Right assigned to them in Table 1, infra, only to the extent that Party has elected to convert all or part of an Alternative Production Allocation into a Standard Production Allocation, pursuant to Section III.B.3.e.

22. Operating Yield Over-Production means pumping of Native Water by Producers in excess of their Standard Production Allocation or Alternative Production Allocation, as discussed in Section III.L.3.j.iii.

23. "Person" or "Persons" includes individuals, partnerships, associations, governmental agencies and corporations, and any and all types of entities.

24. "Physical Solution" means the efficient and equitable management of Groundwater resources within the Seaside Basin, as prescribed by this Decision, to maximize the reasonable and beneficial use of Water resources in a manner that is consistent with Article X, Section 2 of the California Constitution, the public interest, and the basin rights of the Parties, while working to bring the Production of Native Water to Natural Safe Yield.

25. "Produce," "Produced," or "Production" means (1) the process of Extracting Water or (2) the gross amount of Water Extracted.

26. "Producer" means a Party possessing a Base Water Rights.

27. "Production Allocation" is the amount of Groundwater that a Producer may Produce from a Subarea of the Seaside Basin based on the Parties' election to proceed under either the Standard Production Allocation or the Alternative Production Allocation set forth in Sections III.B.2 and III.B.3, respectively.

28. "Replenishment Assessment" means an assessment levied by the Watermaster per each acre-foot of Over-Production against each party Over-Producing Groundwater in the previous Administrative Year. The amount of the assessment shall be sufficient to cover the cost of Artificial Replenishment in an amount necessary to off-set that Producer's Over-Production,

and levied as provide in Section III.L.3.j.iii. The assessment must of necessity be initially determined based upon the estimated cost of providing Non-Native water to replenish the Basin, as determined by the Watermaster.

29. "Seaside Basin" is the underground water basin or reservoir underlying the Seaside Basin Area, the exterior boundaries of which are the same as the exterior boundaries of the Seaside Basin Area.

30. "Seaside Basin Area" is the territory depicted in Exhibit B to this Decision.

31. "Spreading" means a method of introducing Non-Native Water into the Seaside Basin whereby Water is placed in permeable impoundments and allowed to percolate into the Seaside Basin.

32. "Standard Production Allocation" is the amount of Groundwater that a Producer participating in this allocation method may Produce from a Subarea of the Seaside Basin as provided in Section III.B.2, which is determined by multiplying the Base Water Right by the Operating Yield.

33. "Storage" means the existence of Stored Water in the Seaside Basin.

34. "Storage Allocation" means that quantity of Stored Water in acre feet that a Party is allowed to Store in the Coastal Subarea or the Laguna Seca Subarea at any particular time.

35. "Storage Allocation Percentage" means the percentage of Total Usable Storage Space allocated to each Producer proceeding under the Standard Production Allocation. Producers proceeding under the Alternative Production Allocation are not allocated Storage rights and, consequently, their share of the Total Usable Storage Space is apportioned to the Producers proceeding under the Standard Production Allocation. Pursuant to the terms of Section III.B.3, Parties proceeding under the Alternative Production Allocation enjoy a one-time right to change to the Standard Production Allocation. Due to the recalculation of the Storage Allocation Percentage necessitated when a Party changes to the Standard Production Allocation, the Watermaster will maintain the up-to-date Seaside Basin Storage Allocation Percentages.

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36. "Storage and Recovery Agreement" means an agreement between Watermaster and a Party for Storage pursuant to Section III.L.3.j.xx.

37. "Store" and other variations of the same verb refer to the activities establishing Stored Water in the Seaside Basin.

38. "Stored Water" means (1) Non-Native Water introduced into the Seaside Basin by a Party or any predecessors-in-interest by Spreading or Directly Injecting that Water into the Seaside Basin for Storage and subsequent Extraction by and for the benefit of that Party or their successors-in-interest; (2) Groundwater within the Seaside Basin that is accounted for as a Producer's Carryover; or (3) Non-Native water introduced into the Basin through purchases by the Watermaster, and used to reduce and ultimately reverse Over-Production.

39. "Stored Water Credit" means the quantity of Stored Water augmenting the Basin's Retrievable Groundwater Supply, which is attributable to a Party's Storage and further governed by this Decision and a Storage and Recovery Agreement.

40. "Subarea(s)" means either the Laguna Seca Subarea or the Coastal Subarea.

41. "Total Useable Storage Space" means the maximum amount of space available in the Seaside Basin that can prudently be used for Storage as shall be determined and modified by Watermaster pursuant to Section III.L.3.j.xix, less Storage space which may be reserved by the Watermaster for its use in recharging the Basin.

42. "Transfer" and other variations of the same verb refers to the temporary or permanent assignment, sale, or lease of all or part of any Producer's Production Allocation, Storage Allocation, Carryover Credits, or Stored Water Credits. Pursuant to Section III.B.3., Transfer does not include the use of Water on properties identified in Exhibit C for use under an Alternative Production Allocation.

43. "Water" includes all forms of Water.

44. "Watermaster" means the court-appointed Watermaster pursuant to Section III.L. of this Decision for the purpose of executing the powers, duties, and responsibilities assigned therein.

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45. "Watermaster Rules and Regulations" means those rules and regulations promulgated by the Watermaster consistent with the terms of this Decision.

B. Physical Solution.

1. Groundwater Rights. The Parties have Produced Groundwater from the Seaside Basin openly, notoriously, continuously, and without interruption, which Production has been determined to be in excess of the Natural Safe Yield of the Seaside Basin and each of its Subareas for more than five (5) years. Accordingly, Parties have accrued mutual prescriptive rights and/or have preserved their overlying, appropriative, and prescriptive rights against further prescription by self-help. These individual and competitive rights, whether mutually prescriptive, appropriative or overlying rights, can be most efficiently exercised and satisfied by the implementation of this Physical Solution and in the manner expressly set forth herein.

2. Standard Production Allocation. Each Producer is authorized to Produce its Production Allocation within the designated Subarea in each of the first three Administrative Years. Except for those certain Parties electing to proceed under the Alternative Production Allocation, as set forth in Section III.B.3., each Producer's Production Allocation for the first three Administrative Years shall be calculated by multiplying its Base Water Right, as set forth in Table 1 below, by that portion of the Operating Yield which is in excess of the sum of the Alternative Production Allocations. The Operating Yield for the Seaside Basin, as a whole, is set at 5,600 acre feet annually ("afa"). The Operating Yield for the Coastal Subarea is 4,611 afa, with 743 afa committed to Alternative Production Allocations and 3,868 afa committed to Standard Production Allocations. The Operating Yield for the Laguna Seca Subarea is 989 afa, with 644 afa committed to Alternative Production Allocations and 345 afa committed to Standard Production Allocations. The Operating Yield established here will be maintained for three (3) Administrative Years from the date Judgment is granted or until a determination is made by the Watermaster, concurred in by this Court, that continued pumping at this established Operating Yield will cause Material Injury to the Seaside Basin or to the Subareas or will cause Material Injury to a Producer due to unreasonable pump lifts. In the event of such Material Injury the Watermaster shall determine the modified Operating Yield in accordance with the Principles and

Procedures attached hereto as Exhibit A, and through the application of criteria that it shall develop for this purpose.[1]

Commencing with the fourth Administrative Year, and triennially thereafter the Operating Yield for both Subareas will be decreased by ten percent (10%) until the Operating Yield is the equivalent of the Natural Safe Yield unless:

a. The Watermaster has secured and is adding an equivalent amount of Non-Native water to the Basin on an annual basis; or

b. The Watermaster has secured reclaimed water in an equivalent amount and has contracted with one or more of the Producers to utilize said water in lieu of their Production Allocation, with the Producer agreeing to forego their right to claim a Stored Water Credit for such forbearance; or

c. Any combination of a and b which results in the decrease in Production of Native Water required by this decision; or

d. The Watermaster has determined that Groundwater levels within the Santa Margarita and Paso Robles aquifers are at sufficient levels to ensure a positive offshore gradient to prevent seawater intrusion.

TABLE 1[2]

Standard Production Allocations

Party:	Percentage of Operating Yield Coastal Subarea
California American Water	77.55%
City of Seaside (Municipal)	6.36%
City of Seaside (Golf Courses)	10.47%
City of Sand City	0.17%

[1] If the Operating Yield changes, Standard Production Allocations will be calculated by multiplying the portion of the changed Operating Yield committed to Standard Production Allocations by the Standard Producers' Base Water Rights. This calculation will result in a remaining quantity of water already committed to Standard Production Allocations (due to the Base Water Right percentages assigned to Alternative Producers but which are not used to calculate the Standard Production Allocations), which will be further allocated to the Standard Producers in proportion to their Base Water Rights until no quantity remains unallocated.

[2] Certain Parties including Seaside (Golf Courses), Sand City, SNG, Calabrese, Mission Memorial, Pasadera, Bishop and York School hold an Alternative Production Allocation in the fixed amount shown in Table 2. If any of these Parties subsequently elects to convert to the Standard Production Allocation, then the Base Water Right shown in Table 1 for such converting Party will be used to determine that Party's Standard Production Allocation consistent with the terms provided in Section III.B.3.c.

Granite Rock Company	0.60%
SNG	2.89%
D.B.O. Development No. 27	1.09%
Calabrese	0.27%
Mission Memorial Park	0.60%

Producer:	**Percentage of Operating Yield for Laguna Seca Sec area**
California American Water Company	45.13%
Pasadera Country Club	22.65%
Bishop	28.88%
York School	2.89 %
Laguna Seca County Park	0.45%*

* Because the County of Monterey has not joined in the Settlement Agreement and General Mutual Release, its right to Produce water will be governed by the provisions made for those Producers selecting Alternative Production Allocations.

3. Alternative Production Allocation. The following Parties, which all assert overlying Groundwater rights, have chosen to participate in an Alternative Production Allocation: Seaside with regard to the Groundwater that it Produces for irrigation of its golf courses; Sand City, SNG, Calabrese, Mission Memorial, Pasadera, Bishop, York School, and Laguna Seca.

The Alternative Production Allocation provides the aforementioned Parties with a prior and paramount right over those Parties Producing under the Standard Production Allocation to Produce the amount set forth in Table 2 in perpetuity, and said Alternative Production shall not be subject to any reductions under Section III.B.2 or at such times as the Watermaster determines to reduce the Operating Yield in accordance with Section III.L.3.j.ii., subject to the following terms:

a. The Alternative Production Allocation may not be transferred for use on any other property, but shall be limited to use on the respective properties (including subdivisions thereof) identified in Exhibit C;

b. The Party electing the Alternative Production Allocation may not establish Carryover Credits or Storage rights;

c. The Party electing the Alternative Production Allocation is obligated to adopt all reasonably Feasible Water conservation methods, including methods consistent with generally accepted irrigation practices;

d. In the event a Party electing the Alternative Production Allocation is required to utilize reclaimed Water for irrigation purposes, pursuant to the terms of sections 13550 and 13551 of the California Water Code, that Party shall have the first opportunity to obtain and substitute reclaimed Water for its irrigation demands. Should that Party not pursue such substitution with due diligence, any other Party may provide reclaimed Water for the irrigation purpose pursuant to the terms of sections 13550 and 13551 of the California Water Code. Under either circumstance, the Party providing the reclaimed Water for substitution shall obtain a credit to Produce an amount of Groundwater equal to the amount of substituted reclaimed Water in that particular year, provided that such credit shall be reduced proportionately to all reductions in the Operating Yield in accordance with Section III.L.3.j.ii. The Alternative Production Allocation of the Party utilizing the reclaimed Water shall be debited in an amount equal to the reclaimed Water being substituted.

e. In the event that this Court, the Watermaster, or other competent governmental entity requires a reduction in the Extraction of Groundwater from the Seaside Basin or either of its Subareas, then Parties exercising a Standard Production Allocation in the affected subarea shall reduce their Groundwater Extractions *pro rata* to accommodate the required reduction. Only after such Parties exercising a Standard Production Allocation reduce their Extractions to zero, may Parties exercising an Alternative Production Allocation in the affected subarea be required to reduce their Groundwater Extractions. In such case, those Parties exercising an Alternative Production Allocation shall reduce their pumping in an amount correlative to each other in accordance with the California law pertaining to allocation of rights to Overdrafted Groundwater basins between overlying landowners.

TABLE 2

Alternative Production Allocations

Party:	Coastal Subarea
Seaside (Golf Courses)	540 afa
SNG	149 afa
Calabrese	14 afa
Mission Memorial	31 afa
Sand City	9 afa

Producer:	Alternative Production Allocation
Pasadera	251 afa
Bishop	320 afa
York School	32 afa
Laguna Seca County Park	41 afa*

* The County of Monterey possesses certain water rights based upon its use of water from the aquifer for maintenance of Laguna Seca Park. Its historic Production of Groundwater has averaged 41 afy. It has not joined in the stipulation of the other Producers, but is entitled to draw up to 41 afy from the Laguna Seca Subarea as if it were a party to the Alternative Production Allocations.

At any time prior to the expiration of the initial three-year operating period of this Decision, as designated in Section III.B.2, any of the aforementioned Parties, except the County of Monterey, may choose to change all or a portion of their Alternative Production Allocation to the Standard Production Allocation method set forth in Section III.B.2 and shall be entitled to all of the privileges associated with said Production Allocation as set forth herein (e.g., transferability, Storage rights, and Carryover rights). A Party choosing to change to the Standard Production Allocation shall do so by filing a declaration with the Court, and serving said declaration on all other parties. Once a Party chooses to change to the Standard Production Allocation method set forth in Section III.B.2, that Party shall not be allowed to thereafter again choose to participate in the Alternative Production Allocation. The Parties under the Standard Production Allocation shall not be allowed at any time to change from the Standard Production Allocation to the Alternative Production Allocation.

C. Production of Brackish Water. Sand City shall have the right to Produce Brackish Water from the brackish Groundwater aquifer portion of the Coastal Subarea of the Seaside Basin for the purpose of operating its proposed desalinization plant, said Production being limited to the Aromas Sands Formation, so long as such Production does not cause a Material Injury. Upon receiving a complaint supported by evidence from any Party to this Decision that the Production of Brackish Water by Sand City is causing a Material Injury to the Seaside Basin or to the rights of any Party to this Decision as set forth herein, the Watermaster shall hold a noticed hearing. The burden of proof at such hearing shall be on the Party making the complaint to show, based on substantial evidence, that the Production of Brackish Water by Sand City is causing a Material

Injury. If the Watermaster determines, based on substantial evidence, that the Production of Brackish Water by Sand City is causing a Material Injury to the Seaside Basin or to the rights of any Party to this Decision as set forth herein, the Watermaster may impose conditions on such Production of Brackish Water that are reasonably necessary to prevent such Material Injury.

D. Injunction of Unauthorized Production. Each Producer is prohibited and enjoined from Producing Groundwater from the Seaside Basin except pursuant to a right authorized by this Decision, including Production Allocation, Carryover, Stored Water Credits, or Over-Production subject to the Replenishment Assessment. Further, all Producers are enjoined from any Over-Production beyond the Operating Yield in any Administrative Year in which Watermaster has declared that Artificial Replenishment is not available or possible.

E. No Abandonment. It is in the interest of reasonable beneficial use of the Seaside Basin and its Water supply, that no Producer be encouraged to take and use more Water in any Administrative Year than is actually required, Therefore, failure to Produce all of the Water to which a Producer is entitled hereunder for any amount of time shall, in and of itself, not be deemed to be, or constitute an abandonment of such Producer's Base Water Right or Production Allocation, in whole or in part. The Water unused by any Party (either as Production or Carryover) will otherwise contribute to the ongoing efficient administration of the Decision and the Physical Solution.

F. Right to Carryover Unused Production Allocation; Carryover Credits. Except for those certain Parties electing to proceed under the Alternative Production Allocation, as set forth in Section III.B.3., for the first three Administrative Years each Producer who, during a particular Administrative Year, does not Extract from the Basin a total quantity equal to such Producer's Standard Production Allocation for the particular Administrative Year may establish Carryover Credits, up to the total amount of that Producer's Storage Allocation; provided, however, in no circumstance may the sum of a Producer's Storage Credits and Carryover Credits exceed that Producer's available Storage Allocation. Use (Extraction) of Carryover Credits shall be governed as otherwise provided in this Decision and the Watermaster Rules and Regulations. In

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consideration of the Seaside Basin's hydrogeologic characteristics, the Watermaster may discount the quantity of Water that may be Extracted pursuant to a Carryover Credit.

G. Damages and Prohibition on Enjoining Municipal Pumping. The Parties recognize that California American's pumping is for municipal purposes, including drinking Water supplies for most of the Monterey Peninsula, including within all of the Defendant Cities and to all of the Defendant landowners. In this context, if California American's Groundwater pumping causes an "Intrusion" upon a Water User Defendant's Production Allocation, then it shall compensate the Water User Defendant for damages caused by this Intrusion. An "Intrusion" occurs when a Water User Defendant exercising an Alternative Production Allocation is directed by the Watermaster, this Court or any other competent governmental entity to reduce its Groundwater pumping to a level below that Water User Defendant's Alternative Production Allocation, while California American continues pumping Groundwater from the same subarea. This damages provision does not alter the priority of the Alternative Production Allocation over the Standard Production Allocation pursuant to Section III.B.3, and is intended to address potential exigent circumstances that might arise regarding California American's municipal water service.

1. Damages from an Intrusion shall be calculated based upon the losses incurred by the Water User Defendant that are caused by the Intrusion. These losses may include the loss of crop yield and associated income, measured against the average achieved over the preceding five (5) years from the date of the loss. Where an Intrusion occurs with respect to a Water User Defendant's exercise of an Alternative Production Allocation for golf course irrigation (i.e., an Intrusion to a "Golf Course Water User"), the Intrusion may cause discoloration, thinning and damage to the golf course turf and may require replacement of golf course turf and other golf course landscaping. Such conditions may, in turn, cause the loss of income from reduced golf course facilities usage and loss of good will. It may be difficult to quantify such damages to a sum certain. Accordingly, where a Golf Course Water User demonstrates that an Intrusion caused discoloration, thinning or loss of golf course turf, the following criteria shall be utilized to determine damages for an Intrusion to a Golf Course Water User.

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a. Lost Income.

i. The Golf Course Water User's "Average Gross Annual Income" shall be determined by summing its gross annual income from each of the five (5) years preceding the year of the Intrusion and dividing that sum by five, except where a Golf Course Water User (Pasadera) has not been in operation for seven (7) years at the time of the Intrusion, the Average Gross Annual Income shall be determined by summing the gross annual income from each of the three years preceding the year of the Intrusion and dividing that sum by three;

ii. The Golf Course Water User's gross annual income during the year of an Intrusion shall be subtracted from its Average Gross Annual Income, with the resulting difference constituting the amount of lost income damages for that year of Intrusion; and

iii. If an Intrusion occurs in two or more years within a five-year period, damages shall be calculated using an Average Gross Annual Income based on the last consecutive five-year period preceding the first year of Intrusion, or if a Golf Course Water User (i.e., Pasadera) has not been in operation for a full seven (7) years at the time of the Intrusion, damages shall be calculated using an Average Gross Annual Income based on the last consecutive three-year period proceeding the first year of Intrusion. Gross Annual Income shall not be calculated based upon a year in which an Intrusion occurred.

iv. Water User Defendants shall make Feasible efforts to mitigate damages caused by an Intrusion (e.g., including use of evapotranspiration rates to schedule turf grass irrigation).

b. Property Damage/Out-of-Pocket Repair Costs.

i. Actual costs of repairing and/or replacing golf course turf and/or other golf course landscaping and associated labor costs shall be added to the lost income damages calculated as set forth in subparagraph (1), above.

ii. The Golf Course Water User shall make Feasible efforts to mitigate damages by employing the best irrigation practices, including use of evapotranspiration rates to schedule turf grass irrigation.

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2. A damages Claim with all substantiating gross annual income data shall be provided to California American within 120 days after December 31 of the year in which the Intrusion occurred. California American shall accept or reject the Claim within 30 days thereafter. If within 35 days after receipt of a Claim, California American fails to notify the claimant of California American's acceptance or rejection of that Claim, such Claim is deemed accepted. If the Claim is affirmatively accepted, payment will be made at the time of Claim acceptance. If the Claim is deemed accepted by California American's failure to timely accept or reject the Claim, payment will be made within 30 days after the date the Claim is deemed accepted. If the Claim is rejected, all or in part, the Water User Defendant may proceed to a hearing before the Court to determine the appropriate damages, considering the above referenced criteria. The hearing shall be by motion with all supporting documentation and contest thereto submitted and supported by declaration.

H. Allowed Storage.

1. Public Resource. Underground Storage within the Seaside Basin is and shall remain a public resource. Subject to this paramount public right, the Parties hereto shall be permitted to utilize available Storage space for bona fide Groundwater Storage projects. This use shall be subject to the supervision of the Watermaster and this Court and shall be governed by the following more specific provisions.

2. In General. Except for those certain Parties electing to proceed under the Alternative Production Allocation as set forth in Section III.B.3., each Producer is entitled to Store Water in the Basin as provided for in this Decision and Watermaster's Rules and Regulations up to the amount of their Storage Allocation. Each Producer's Allowed Storage Allocation in each Subarea shall be calculated by multiplying its Storage Allocation Percentage by the Total Useable Storage Space, less space reserved by the Watermaster as herein below set forth. The initial Storage Allocation Percentages are equal to the Base Water Rights, Table 1, less Storage reserved for the Watermaster and certain public agencies. Parties with an Alternative Production Allocation are entitled to their Storage Production Allocation when they elect to change to Standard Production Allocation

3. California American Storage Allocation. All Storage Allocation held by California American shall be held in trust by California American: (i) first for the benefit of California American's retail Water service customers within its service territory on the Monterey Peninsula and the County of Monterey and cities within its service territory which it serves; and (ii) then for other purposes as California American deems appropriate. In the event of a reduction in service from the Seaside Basin, California American will allocate service, including that which is associated with its Storage Allocation, in a manner that is consistent with and proportionate to its historic deliveries to all then current customers. Further, to the extent that California American has excess Storage Allocation available after meeting its responsibilities to its retail Water service customers within its service territory on the Monterey Peninsula and the cities which it serves, upon request by the County of Monterey, Monterey, Seaside, Sand City, or Del Rey Oaks, California American shall make available portions of its Storage Allocation within the Coastal Subarea for use by the requesting city in the Coastal Subarea as provided herein. Specifically, the city's request shall be made in writing and generally describe the public purpose and proposed use of the Storage Allocation by the requesting city. California American shall not deny the request unless making the requested portion of the Storage Allocation available to the city would unreasonably interfere with California American's ability to operate its system or to otherwise provide service to its customers. Should California American not be able to accommodate all requests by all cities without unreasonably interfering with its operations and service responsibilities, first priority to excess Storage Allocation shall be given to each respective city requesting the use of a portion of the Storage Allocation up to an amount equal to the percentage that the total quantity of Water delivered by California American for retail service to the requesting city bears to the total quantity of Water delivered to all cities at the date the Decision is entered. Notwithstanding the paramount rights of each city described in this section, 5 percent of any Storage Allocation held in trust by California American will be reserved for *de minimis* Storage opportunities and made available for the benefit of any requesting city on the basis of first in time, first in right. Additionally, provision of Storage Allocation by California American to a requesting city shall not be construed as a waiver of California American's rights under

section 1501 et seq. of the California Public Utilities Code or consent to duplication of its retail Water service. Moreover, California American shall not charge any fee for use of its Storage Allocation by Monterey, Seaside, Sand City, or Del Rey Oaks. However, the capital or other value of California American's Storage Allocation shall belong to California American. Finally, no city may request use of California American's Storage Allocation unless it has first used all of its own Storage Allocation as provided herein.

4. Determination of Total Useable Storage Space. Watermaster shall determine and declare the Total Useable Storage Space in the Basin, and may annually adjust the Total Useable Storage Space pursuant to Section III.L.3.j.xix of this Decision. If and when Watermaster adjusts the Total Useable Storage Space in the Basin, each Producer's Storage Allocation shall be adjusted accordingly.

Each Storage Allocation is of the same legal force and effect, and each is without priority with reference to any other Producer's Storage Allocation. Watermaster shall, however, consider each proposal to Store Water independently pursuant to Section III.L.3.j.xx.

5. Carryover. Each Producer operating under the Standard Production Allocation shall have the right to use their respective Storage Allocation to Store any Carryover Water subject to the provisions of this Decision. Unused (not Extracted) Stored Water Credits and Carryover Credits shall be carried over from year to year for the first three Administrative Years. Thereafter Carryover Water withdrawal is subject to a percentage decrease consistent with percentage decreases in the Operating Yield, according to the terms of this Decision. Due to the hydrogeologic characteristics of the Seaside Basin, naturally occurring losses of stored Water may require Watermaster to discount the percentage of Stored Water that may be Extracted. Watermaster shall study the efficiencies of Storage in the Seaside Basin and set a uniform percentage for withdrawals of Stored Water.

6. Injection and/or Spreading. Each Producer operating under the Standard Production Allocation, and the Watermaster, and certain public agencies, shall have the right to Store Water by Direct Injection, Spreading, or other artificial means so long as such Storage does not cause Material Injury to any other Party. Except as provided in Section III.H.5., no Producer

herein granted a Storage Allocation may Store Water in the Seaside Basin without first executing a Storage and Recovery Agreement with Watermaster, pursuant to Section III.L.3.j.xx. Each Storage and Recovery Agreement shall further define the terms and conditions by which a Producer may exercise its Storage Allocation and associated Stored Water Credits.

I. Injunction Against Unauthorized Storage. Each Producer is enjoined and restrained from Carrying Over or Storing any quantity of Water in the Seaside Basin greater than that Producer's Storage Allocation. Further, each Producer is enjoined from Storing any Water in the Seaside Basin except as provided in Section III.H.5. (establishment of Carryover Credits) or as authorized by a Storage and Recovery Agreement issued by Watermaster pursuant to Section III.L.3.j.xx.

J. Measurement of Extractions and Storage. All Producers shall install, maintain, and use adequate measuring devices on all Groundwater Production facilities as directed by Watermaster and report accurate measurements of all Groundwater Produced from the Seaside Basin in the manner required by Watermaster's Rules and Regulations. Such measuring devices shall not conflict with any monitoring devices required by MPWMD. All Producers shall comply with the provisions for measurement of any Storage of Water in the Seaside Basin, as provided in Watermaster's Rules and Regulations, and as may be further provided for in a Storage and Recovery Agreement issued by Watermaster for such Storage.

K. Order of Accounting for the Production of Groundwater. Unless otherwise requested by a Producer in writing to Watermaster, Watermaster shall account for all Production of Water form the Seaside Basin by a Producer in any Administrative Year as follows: Production shall first be deemed Production of that Producer's Production Allocation up to that Producer's total Production Allocation, and thereafter shall be deemed Production of that Producer's Carryover Credits, if any, and thereafter shall be deemed Production of that Producer's Stored Water Credits, if any. So long as consistent with this section, Watermaster may prescribe administrative rules within its Rules and Regulations concerning the method and manner of accounting for the Production of Groundwater.

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L. Appointment of Watermaster; Watermaster Administrative Provisions.

1. Establishment of Watermaster. A Watermaster shall be established for the purposes of administering and enforcing the provisions of this Decision and any subsequent instructions or orders of the Court. The Watermaster shall consist of thirteen (13) voting positions held among nine (9) representatives. California American, Seaside, Sand City, Monterey, and Del Rey Oaks shall each appoint one (1) representative to Watermaster for each two-year term of Watermaster. The Landowner Group shall appoint two (2) representatives to Watermaster for each two-year term of Watermaster. The MPWMD shall have one (1) representative and the MCWRA shall have one (1) representative. The representatives elected to represent the Landowner Group shall include one (1) representative from the Coastal Subarea and one (1) representative from the Laguna Seca Subarea. The California American representative shall possess three (3) voting positions; the Seaside, MPWMD, and MCWRA representatives shall each possess two (2) voting positions; and every other representatives shall posses one (1) voting position. Each representative from the Landowner Group shall carry one-half of the Landowner Representative vote. Each representative under the Landowner Group may also act as an alternate for the other.

The right to assign a representative to Watermaster and the representative's respective voting power shall only transfer upon permanent sale of 51 percent or more of the Party's Base Water Right, but not upon the lease of any portion of the member's Base Water Right.

2. Quorum and Agency Action. A minimum of six (6) representatives shall be required to constitute a quorum for the transaction of Watermaster affairs. Unless otherwise provided herein, the affirmative vote of seven (7) voting positions shall be required to constitute action by Watermaster.

3. Qualification, Nomination, Election, and Administrative Procedures.

a. Qualification. Any duly authorized agent of the entities or groups provided for in Section III.L.1. is qualified to serve as a representative on the Watermaster board.

b. Term of Office. Each new Watermaster board shall assume office at the first regular meeting in January of every second year. Each Watermaster board member shall

serve for a two-year term, subject to the retained jurisdiction of the Court. Should a vacancy arise on the Watermaster board for any reason, the respective entity or group from which that vacancy arises shall appoint a replacement representative in the manner prescribed by Watermaster Rules and Regulations. Such replacement shall complete the remainder of the term of the vacated office. Within 30 days of the appointment of any new Watermaster board member, any Party may file a motion with the Court challenging the appointment The Court, acting *sua sponte*, may reject any Watermaster board appointment within the 30-day period. Challenges shall be based on allegations that the appointed board member does not possess the requisite skills necessary to effectively serve as a member of the Watermaster board.

c. Nomination and Election of Landowner Representative. The nomination and election of the Landowner Group representatives shall occur in November of every second year in the manner designated by Watermaster Rules and Regulations. The nomination and election of the Landowner Group representatives shall be by cumulative voting with each member of the Landowner Group entitled to one (1) vote for each acre-foot of annual entitlement under the member's Alternative Production Allocation. Voting rights may only be transferred upon permanent sale of 51 percent or more of the Landowner Party's Base Water Right.

d. Organization. At he first meeting of each newly comprised Watermaster board, the Watermaster shall elect a chairman and a vice-chairman from its membership. It shall also select a secretary, a treasurer and such assistant secretaries and assistant treasurers as may be appropriate, any of whom may, but need not, be representatives appointed to Watermaster.

e. Minutes. Minutes of all Watermaster meetings shall be kept and shall reflect a summary of all actions taken by the Watermaster. Copies thereof shall be furnished to all Parties and interested Persons as provided for inn Section III.P.2. Copies of minutes shall constitute notice of any Watermaster action therein reported.

f. Regular Meetings. The Watermaster shall hold regular meetings at places and times to be specified in the Watermaster Rules and Regulations. Its first meeting must be held within 15 days from the date Judgment is granted in this case. Notice of the scheduled or

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regular meetings of the Watermaster and of any changes in the time or place thereof shall be mailed to all Parties and interested Persons as provided for in Section III.P.2.

g. Special Meetings. Special meetings of the Watermaster may be called at any time by the chairman or vice chairman or by any three (3) representatives appointed to Watermaster by written notice delivered personally or mailed to all Parties and interested Persons as provided for in Section III.P.2., at least twenty-four (24) hours on a business day before the time of each such meeting in the case of personal delivery, and five (5) days' notice prior to such meeting in the case of mail if the special meeting is being called under urgent circumstances. If a special meeting is called and no urgent circumstance exists, then at least ten (10) days' notice must be provided to all Parties. The notice shall specify the time and place of the special meeting and the business to be transacted at such meeting.. No other business shall be considered at such meeting.

h. Meeting Procedures. Watermaster shall designate the procedure for conducting meetings within its Rules and Regulations. Rules and regulations for conducting meetings shall conform to the procedures established for meetings of public agencies pursuant to the California Open Meetings Law ("Brown Act"), California Government Code section 54950 et seq., as it may be amended from time to time.

i. Appointment of the Initial Watermaster Board. The initial Watermaster board, which shall take office immediately from the date Judgment is granted, shall be composed of the duly authorized representatives of California American, Seaside, Sand City, Del Rey Oaks, Monterey, MCWRA, MPWMD, and two individuals to be designated by the landowners as the initial representatives of the Landowner Group for the Coastal and Laguna Seca Subareas, respectively.

j. Duties, Powers and Responsibilities of the Watermaster. To assist the Court in the administration and enforcement of the provisions of this Decision, the Watermaster shall have and is limited to the following duties, powers, and responsibilities:

i. Preparation of Monitoring and Management Plan. Within sixty (60) days from the date Judgment is granted, Watermaster will prepare a comprehensive

monitoring and management plan for the Seaside Basin ("Monitoring and Management Plan"). The Monitoring and Management Plan must be consistent with the criteria set forth in Exhibit A.

ii. Declaration of Operating Yield. Based upon the evidence at trial concerning historic Production in the Basin, the Court sets the Operating Yield for the Seaside Basin, as a whole, as 5,600 acre feet. The Operating Yield for the Coastal Subarea is 4,611 acre feet and 9889 acre feet for the Laguna Seca Subarea. The Operating Yield established here will be maintained for three (3) years from the date Judgment is granted, or until a determination is made by the Watermaster, concurred in by this Court, that continued pumping at this established Operating Yield will cause Material Injury to the Seaside Basin or to the Subareas or will cause Material Injury to a Producer due to unreasonable pump lifts. In that event, the Watermaster shall determine the modified Operating Yield in accordance with the Principles and Procedures attached hereto as Exhibit A, and through the application of criteria that it shall develop for this purpose.

iii. Artificial Replenishment and Replenishment Assessments. Each Administrative Year, the Watermaster will determine a Replenishment Assessment for Artificial Replenishment of the Seaside Basin necessary to offset the cumulative Basin Over-Production (as defined in Section III.A.21.), and levy a Replenishment Assessment. Said Replenishment Assessment does not apply to Production under an Alternative Production Allocation so long as such Production is within the fixed amount established for that Producer in Table 2 of Section III.B.3. Funds so generated may be accumulated for multiple Administrative Years, if necessary, and shall be utilized solely for replenishment of the Basin Groundwater supply with Non-Native water.

An additional Watermaster Replenishment Assessment shall be levied after the close of each Administrative Year against all Producers that incurred Operating Yield Over-Production during the Administrative Year. Said assessment shall be in addition to the Replenishment Assessment addressed in Section III.A.21. The Replenishment Assessment based upon Operating Yield Over-Production shall be levied against the Parties participating in the Alternative Production Allocation for only such Production that exceeds the Parties' respective fixed

Alternative Production Allocation identified on Table 2. In the event Watermaster cannot procure Artificial Replenishment Water to offset Operating Yield Over-Production during the ensuing Administrative Year, the Watermaster shall so declare in December and no Operating Yield Over-Production then in effect may occur during the ensuing Administrative Year. Funds generated by the Operating Yield Over-Production Assessment shall be utilized by the Watermaster to engage in or contract for Replenishment of the Operating Yield Over-Production occurring in the Preceding Administrative Year as expeditiously as possible.

Replenishment Assessments based on Over-Production and on Operating Yield Over-Production shall be assessed on a per acre-foot basis on each acre-foot, or portion of an acre-foot, of Over-Production. The per acre-foot amount of the Replenishment Assessments shall be determined and declared by Watermaster in January of each Administrative Year in order to provide Parties with advance knowledge of the cost of Over-Production in that Administrative Year.

Payment of the Replenishment Assessment shall be made by each Producer incurring a Replenishment Assessment within 40 days after the mailing of a statement for the Replenishment Assessment by Watermaster. If payment by any Producer is not made on or before said date, the Watermaster shall add a penalty of 5 percent thereof to such Producer's statement. Payment required of any Producer hereunder may be enforced by execution issued outside of this Court, by order of this Court, or by other proceedings by the Watermaster or by any Producer on the Watermaster's behalf. All proceeds of Replenishment Assessments shall be used to procure Non-Native water, including, if appropriate, substitute reclaimed water.

iv. Budget Assessments. The Watermaster budget for each Administrative Year, and for the initial funding of the Monitoring and Management Plan, shall be funded by Budget Assessments. The Watermaster budget will be composed of three separate budgets. The first budget is solely for the funding of the Monitoring and Management Plan. The initial, one-time funding for the Monitoring and Management Plan shall not be in excess of $1,000,000. The annual budget for the Monitoring and Management Plan shall not be in excess of $200,000 for the first Administrative Year, and thereafter as determined by the Watermaster.

The Budget Assessment for the Monitoring and Management budget shall be assessed against each Producer (except those in the Landowner Group) by multiplying the amount of the Monitoring and Management Plan budget for the ensuing Administrative Year by the following percentages:

(1)	California American	91%
(2)	City of Seaside	7%
(3)	Granite Rock Company	1%
(4)	D.B.O. Development No. 27	1%

At such times as a Party within the Coastal Subarea chooses to change its Alternative Production to a Standard Production Allocation that Party will be assessed a proportionate share of the Budget Assessment for the Monitoring and Management Plan Budget based upon a modification of the percentages to include any new Standard Production.

The administrative budget shall be fixed at $100,000 annually for the first Administrative Year, and thereafter as determined by the Watermaster. The Budget Assessment for the administrative budget shall be assessed against each Producer (except those inn the Landowner Group) by multiplying the amount of the budget for the ensuing Administrative Year by the following percentages:

(1)	California American	83%
(2)	City of Seaside	14.4%
(3)	City of Sand City	2.6%

The Replenishment Budget shall be calculated based upon the anticipated cost of obtaining replenishment water, and shall be assessed as set forth in Section III.A.21, and in Section III.L.3.j.iii.

Except for the initial Budget Assessment which shall be due 30 days from the date Judgment is granted, payment of the Budget Assessment, subject to any adjustment by the Court as provided in Section III.N., shall be made by each Producer prior to the beginning of the Administrative Year to which the Budget Assessment relates, or within 40 days after the mailing of the tentative budget, whichever is later. If such payment by any Producer is not made on or

before said date, the Watermaster shall add a penalty of 5 percent thereof to such Producer's statement. Payment required of any Producer hereunder may be enforced by execution issued outside of this Court, by order of this Court, or by other proceedings by the Watermaster or by any Producer on the Watermaster's behalf.

v. Reports, Information, and Records. The Watermaster will require Parties to furnish such reports, information, and records as may be reasonably necessary to determine compliance or lack of compliance by any Party with the provisions of this Decision.

vi. Requirement of Measuring Devices. The Watermaster will require all Parties owning or operating any Groundwater Extraction and/or Storage facilities to install appropriate Water measuring devices, and to maintain said Water measuring devices at all times in good working order at such Party's own expense. Such devices shall not interfere with any measuring gauges required by MPWMD.

vii. Inspections by the Watermaster. The Watermaster will make inspections of Water Production facilities and measuring devices at such times and as often as may be reasonable under the circumstances, and to calibrate or test such devices.

viii. Collection of Arrears. The Watermaster will undertake any and all actions necessary to collect the arrears of any Party with regard to any and all components of the Budget Assessment and/or the Replenishment Assessment.

ix. Hearing Objections; Review and Approvals. The Watermaster will hear all objections and/or review and determine approval or denial of the action(s) of any Party as provided for by any other provision of this Decision.

x. Annual Report. The Watermaster will prepare, file with the Court and mail to each of the Parties on or before the 15th day of February, an annual report for the preceding Administrative Year, the scope of which shall include but not be limited to the following:

- Groundwater Extractions;
- Groundwater Storage;
- Amount of Artificial Replenishment, if any, performed by Watermaster;

- Leases or sales of Production Allocation;
- Use of imported, reclaimed, or desalinated Water as a source of Water for Storage or as a Water supply for lands overlying the Seaside Basin;
- Violations of the Decision and any corrective actions taken;
- Watermaster administration costs;
- Replenishment Assessments;
- All components of the Watermaster budget; and
- Recommendations.

xi. Annual Budget and Appeal Procedure in Relation Thereto. The Watermaster will annually adopt a tentative budget for each Administrative Year stating the anticipated expense for administering the provisions of this Decision, including reasonable reserve funds. The adoption of each Administrative Year's tentative budget shall require the affirmative vote of seven (7) voting positions. The Watermaster shall mail a copy of said tentative budget to each of the Producers hereto at least 60 days before the beginning of each Administrative Year. The Landowner Group representative shall not participate in any vote concerning the approval of the Watermaster budget. If any Producer hereto has any objection to said tentative budget, it shall present the same in writing to the Watermaster within 15 days after the date of mailing of said tentative budget by the Watermaster. If no objections are received within said period, the tentative budget shall become the Final budget. If objections are received, the Watermaster shall, within 10 days thereafter, consider such objections, prepare a Final budget, and mail a copy thereof to each Producer, together with a statement of the amount assessed to each Producer (Administrative Assessment). Any Producer may apply to the Court within 15 days after the mailing of such Final budget for a revision thereof based on specific objections thereto in the manner provided in Section III.N. The Producer challenging the budget shall make the payments otherwise required of them to the Watermaster, despite the filing of the request for revision with the Court. Upon any revision by the Court, the Watermaster shall either remit to the Producers their pro rata portions of any reduction in the budget, or credit their accounts with respect to their Administrative Assessment for the next ensuing Administrative Year, as the Court

shall direct. The amount of each Producer's Budget Assessment shall be determined as provided in Section III.L.3.j.iv.

Any money in Watermaster's budget not expended at the end of any Administrative Year shall be applied to the budget of the succeeding Administrative Year.

xii. Rules and Regulations. The Watermaster will adopt and amend from time to time such Rules and Regulations as may be reasonably necessary to carry out its duties, powers and responsibilities under the provisions of this Decision. The Rules and Regulations and any amendments thereto, shall be effective on such date after the mailing thereof to the Parties as is specified by the Watermaster, but not sooner than thirty (30) days after such mailing. The Watermaster shall adopt initial Watermaster Rules and Regulations within ninety (90) days from the date Judgment is granted.

xiii. Acquisition of Facilities. The Watermaster may purchase, lease, acquire and hold all necessary property and equipment as necessary to perform the duties, powers, and responsibilities provided to Watermaster by this Decision; provided, however, that Watermaster shall not acquire any interest in real property in excess of year-to-year tenancy for necessary quarters and facilities.

xiv. Employment of Staff and Consultants. The Watermaster may employ such administrative, engineering, geologic, accounting, legal, or other specialized personnel or consultants as may be deemed appropriate to the carrying out of its duties, powers, and responsibilities and to require appropriate bonds from all officers and employees handling the Watermaster funds.

xv. Investment of Funds. The Watermaster may hold and invest any and all funds that the Watermaster may possess in investments authorized from time to time for public agencies in the State of California.

xvi. Borrowing. The Watermaster may borrow in anticipation of receipt of assessment proceeds an amount not to exceed the annual amount of assessments levied but uncollected.

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xvii. Contracts. The Watermaster may enter into contracts for the performance of any administrative power herein granted.

xviii. Cooperation with Public and Private Entities. The Watermaster may act jointly or cooperate with any public or private entity to the end that the purposes of the Physical Solution may be fully and economically carried out. Where it is more economical to do so, Watermaster is directed to use such facilities of a public or private entity as are available to it to execute the duties, powers, and responsibilities provided to Watermaster under this Decision.

xix. Declaration of Total Usable Storage Space. The Watermaster will declare the Total Useable Storage Space and periodically issue adjustments to the same.

xx. Review of Storage Applications; Regulation of Storage; Issuance of Storage and Recovery Agreements. The Watermaster will review applications for Storage in the Seaside Basin, regulate the Storage of Non-Native Water in the Seaside Basin, and issue Storage and Recovery Agreements, all as provided below. All applications for Storage in the Seaside Basin shall be considered and voted on before a noticed meeting of the Watermaster. However, all such applications shall be approved absent the issuance of findings that a Material Injury to the Seaside Basin or Producers will or is likely to occur as a result of the proposed Storage program and no reasonable conditions could be imposed to eliminate such risk. If a Storage application is approved, the Watermaster shall issue a Storage and Recovery Agreement. The Storage and Recovery Agreement may include, among other possible elements and/or provisions, the following conditions to avoid Material Injury: (1) the quantity of Water authorized to be Spread or Directly Injected into the Seaside Basin, (2) the location of the authorized Spreading or Direct Injection, (3) the location(s) where the Water may be recaptured, (4) the particular Water quality characteristics that are required pursuant to the Storage and Recovery Agreement, (5) the amount of Water that may be recaptured pursuant to the Stored Water Credits calculated by Watermaster, (6) any other terms and conditions deemed necessary to protect the Seaside Basin and those areas affected by the Seaside Basin. Such Storage and Recovery Agreements may provide for different locations for introduction and Extraction of Stored Water if deemed appropriate by the Watermaster.

xxi. Monitoring and Study of the Seaside Basin and All Seaside Basin Activities. The Watermaster will monitor and perform or obtain engineering, hydrogeologic, and scientific studies concerning all characteristics and workings of the Seaside Basin, and all natural and human-induced influences on the Seaside Basin, as they may affect the quantity and quality of Water available for Extraction, that are reasonably required for the purposes of achieving prudent management of the Seaside Basin in accord with the provisions of this Decision.

xxii. Relocation of Authorized Production Locations. The Watermaster will order relocation of the authorized quantity of Production pursuant to any Producer's Production Allocation from a specific location or from a specific aquifer within the same Subarea of the Seaside Basin, provided that it allows equivalent Production from any other location/aquifer in the Seaside Basin within the same Subarea that would not also create a reasonable potential for Material Injury. Watermaster may only order relocation of Production after issuing findings that a Material Injury has occurred or is likely to occur as a result of the then-authorized quantity and geographic distribution of Production. Watermaster may not order the relocation of Production by any Producer that is a member of the Landowner Group.

xxiii. Water Quality. The Watermaster will take any action within the Seaside Basin, including, but not limited to, capital expenditures and legal actions, which in the discretion of Watermaster is necessary or desirable to accomplish any of the following:

- Prevent contaminants from entering the Groundwater supplies of the Seaside Basin, which present a significant threat to the Groundwater quality of the Seaside Basin, whether or not the threat is immediate;
- Remove contaminants from the Groundwater supplies of the Seaside Basin presenting a significant threat to the Groundwater quality of the Seaside Basin;
- Determine the existence, extend, and location of contaminants in, or which may enter, the Groundwater supplies of the Seaside Basin;
- Determine Persons responsible for those contaminants; and
- Perform or obtain engineering, hydrologic, and scientific studies as may be reasonably required for any of the foregoing purposes.

xxiv. Other Specified Powers Pursuant to Decision Terms. The Watermaster will undertake any other powers, duties, or responsibilities provided through any other provision of this Decision.

xxv. No Power to Alter Allocation or Rights. Watermaster has no power to adjust any Producer's Base Water Right or the formula for determining Production Allocation, except to accommodate the intervention of a new Party pursuant to Section III.O.1.b. However, should an adjustment of Base Water Right and/or Production Allocation within a Subarea be required to accommodate the intervention of a new Party, no adjustment shall be made to the Base Water Right or Production Allocations possessed by any Party operating under the Alternative Production Allocation within the Landowner Group until the Production Allocations for that Subarea possessed by Parties operating under the Standard Production Allocation have been reduced to zero.

xxvi. Effect of Non-Compliance by Watermaster With Time Provisions. Failure of the Watermaster to perform any duty, power or responsibility set forth in this Decision within the time limitation herein set forth shall not deprive the Watermaster of authority to subsequently discharge such duty, power, or responsibility, except to the extent that any such failure by the Watermaster may have rendered some otherwise required act by a Party impossible.

xxvii. Public Records. Watermaster shall conform to the procedures established under the California Public Records Act, California Government Code section 54950 et seq., as it may be amended from time to time.

M. Additional Provisions of Physical Solution.

In order to provide flexibility to the injunctive provisions set forth in Section III.D of this Decision, and to assist in a Physical Solution to meet Water requirements in the Basin, the determination of rights and responsibilities, and the injunctive provisions so set forth are subject to the following provisions:

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1. California American Obligation to Augment Water Supply

a. Long-Term Supplemental Water Supplies. California American shall undertake all reasonable best efforts to promptly and diligently pursue, and if necessary collaborate with other entities, to obtain and develop sufficient long-term supplemental Water supplies to augment the Water supply available for its service territory within Monterey County.

b. Interim Supplemental Water Supplies. During the interim period, until long-term supplemental Water supplies are available, California American shall undertake all reasonable best efforts to ensure that it has sufficient Water supplies to meet all present Water supply needs, including the Water credits allocated to the various political subdivisions pursuant to the MPWMD's Water Allocation Program, in such quantities as set forth in Exhibit D, and the Water credits issued to various properties pursuant to the MPWMD's Water Allocation Program.

c. Regulatory Authorization. California American's duties under Sections III.M.1.a and III.M.1.b above will be measured and construed in the context that there are various regulatory approvals that must be obtained for California American to successfully implement the measures reasonably contemplated to secure supplemental Water. For example, it is acknowledged and understood that California American's ability to complete a supplemental Water supply project will require approvals and authorizations from the State Water Resources Control Board ("SWRCB") and the California Public Utilities Commission ("CPUC"). Accordingly, California American will not be considered in default under this Section III.M.1 if it uses reasonable best efforts to obtain the required approvals and authorizations.

d. Credit Toward Replenishment Assessment. California American's expenditures for water supply augmentation may also provide replenishment water for the Basin. Accordingly, on an annual basis, California American will provide the Watermaster with an accounting of all expenditures it has made for water supply augmentation that it believes ~~have~~ has or will ~~also~~ result in replenishment of the Basin. The Watermaster shall review

these expenditures and reduce California American's Replenishment Assessment obligation, for that year, by an amount equal to the amount claimed by California American. To the extent that the Watermaster ~~disputes~~ any of the claimed amounts, it shall provide California American with an explanation ~~of its contest~~ and allow California American an opportunity to meet and confer on the disputed amount. In the event that the Watermaster and California American cannot ~~resolve their dispute~~, the matter ~~will~~ be referred to the Court through a request filed by ~~the Watermaster~~.

2. Assignment and Transfer of Production Allocation. Subject to other provisions of this Decision, and any applicable Watermaster Rules and Regulations, the Parties may assign and transfer any portion of their respective Production Allocation either on an annual Administrative Year basis or in perpetuity to any Person for use within the Basin.

The Parties may also assign and transfer the right to Extract any quantity of Water associated with an existing Stored Water Credit or Carryover Credit, subject to other provisions of this Decision, and any applicable Watermaster Rules and Regulations.

3. Export of Groundwater Outside of Subarea or Seaside Basin.

a. Exports Authorized from the Coastal Subarea. Producers may export Water Produced from the Coastal Subarea for reasonable and beneficial uses within another Subarea of the Seaside Basin. Only California American may export water outside the Basin, and then only to provide water to its current customers. This means that, in any Administrative Year, any Producer may export from the Coastal Subarea up to, but not in excess of, a quantity equal to the sum of that Producer's Production Allocation, plus Stored Water Credits, plus Carryover Credits. Export of Groundwater in excess of a Producer's total rights (Production Allocation, plus Stored Water Credits, plus Carryover Credits), however, is prohibited.

b. Exports of Natural Replenishment Water Prohibited from the Laguna Seca Subarea. Exports from the Laguna Seca Subarea of Natural Replenishment Water and Carryover Credits not caused by Artificial Replenishment are prohibited.

//

c. Portability Authorized Within Subareas; Portability Prohibited Between Subareas. Any Producer may change the location of its Production facilities within its respective Subarea or join other Production facilities within its Subarea, so long as such relocation does not cause a Material Injury or threat of Material Injury to the Basin or interfere with the Production by any pre-existing Production facilities operated by another Producer(s). No Party may Produce Groundwater from the Coastal Subareas pursuant to any right recognized by this Decision in the Laguna Seca Subarea, and *vice versa.*

N. Watermaster Decision Review Procedures. Any action, decision, rule or procedure of the Watermaster pursuant to this Decision shall be subject to review by the Court on its own motion or on timely motion by any Party, as follows:

1. Effective Date of the Watermaster Action. Any order, decision or action of the Watermaster pursuant to this Decision on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

2. Notice of Motion. Any Party may, by a regularly noticed motion, petition the Court for review of the Watermaster's action or decision pursuant to this Decision. The motion shall be deemed to be filed when a copy, conformed as filed with the Court, has been delivered to the Watermaster together with the service fee established by the Watermaster sufficient to cover the cost to photocopy and mail the motion to each Party. The Watermaster shall prepare copies and mail a copy of the motion to each Party or its designee according to the official service list which shall be maintained by the Watermaster according to Section III.P.2. A Party's obligation to serve notice of a motion upon the Parties is deemed to be satisfied by filing the motion as provided herein. Unless ordered by the Court, any such petition shall not operate to stay the effect of any Watermaster action or decision that is challenged.

3. Time for Motion. A motion to review any Watermaster action or decision will be filed within thirty (30) days after such Watermaster action or decision, except that motions to review Budget Assessments and Replenishment Assessments hereunder shall be filed within fifteen (15) days of mailing of notice of the Assessment.

4. De Novo Nature of Proceedings. Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

O. Reserved Jurisdiction and Other Remedies.

1. Continuing Jurisdiction.

a. Jurisdiction Reserved. Full jurisdiction, power and authority are retained by and reserved by the Court upon the application of any Party or by the Watermaster, by a noticed motion to all Parties, to make such further or supplemental orders or directions as may be necessary or appropriate for interpretation, enforcement, or implementation of this Decision. The Court may also modify, amend or amplify any of the provisions of this Decision upon noticed motion to all the Parties. The Court, through its reserved and retained jurisdiction, however, shall not have the authority to adjust any Producer's Base Water Right or Production Allocation, except to accommodate the intervention of a new Party pursuant to Section III.O.1.b. However, should an adjustment of Base Water Right and/or Production Allocation within a Subarea be required to accommodate the intervention of a new Party, no adjustment shall be made to the Base Water Right or Production Allocations possessed by any Party operating under the Alternative Production Allocation within the Landowner Group until the Production Allocations within that Subarea possessed by Parties operating under the Standard Production Allocation have been reduced to zero.

b. Intervention After Decision. Any non-party who is Producing or proposes to Produce Groundwater from the Seaside Basin in an amount equal to or greater than five (5) acre feet per year, may seek to become a Party to this Decision through (1) a stipulation for intervention entered into with the Watermaster or (2) any Party or the Watermaster filing a complaint against the non-party requesting that the non-party be joined in and bound by this Decision. The Watermaster may execute said stipulation on behalf of the other Parties herein, but such stipulation shall not preclude a Party from opposing such

intervention at the time of the Court hearing thereon. A stipulation for intervention must be filed with the Court, and the Court will then consider an order confirming said intervention following thirty (30) days' notice to the Parties. Thereafter, if approved by the Court, such intervenor shall be a Party bound by this Decision and entitled to the rights and privileges accorded under the Physical Solution herein.

2. Reservation of Other Remedies.

a. Claims By and Against Non-Parties. Nothing in this Decision shall expand or restrict the rights, remedies or defenses available to any Party in raising or defending against claims made by any non-party. Any Party shall have the right to initiate an action against any non-party to enforce or compel compliance with the provisions of this Decision.

b. Claims Between Parties on Matters Unrelated to the Decision. Nothing in this Decision shall either expand or restrict the rights or remedies of the Parties concerning any subject matter that is unrelated to the use of the Seaside Basin for Extraction and/or Storage of Water as allocated and equitably managed pursuant to this Decision.

P. General Provisions.

1. Decision Constitutes Inter Se Adjudication. This Decision constitutes an inter se adjudication of the respective rights of all Parties.

2. Service Upon and Delivery to Parties and Interested Persons of Various Papers. This Decision and all future notices, determinations, requests, demands, objections, reports and other papers and processes Produced from this Court shall be served on all Parties by first class mail, postage prepaid, addressed to the designee and at the address designated for that purpose in the list attached as Exhibit E to this Decision, or in any substitute designation filed with the Court.

Each Party who has not heretofore made such a designation, within thirty (30) days from the date Judgment is granted, shall file with the Court, with proof of service of a copy upon the Watermaster, a written designation of the Person to whom, and the address at which, all future notices, determinations, requests, demands, objections, reports and other papers and

processes to be served upon that Party or delivered to that Party are to be so served or delivered.

A later substitute designation filed and served in the same manner by any Party shall be effective from the date of the filing as to the then future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon or delivered to that Party.

Watermaster shall maintain at all times a current list of Parties to whom notices are to be sent and their address for purposes of service. Copies of such lists shall be available to any Person. If no designation is made, a Party's designee shall be deemed to be, in order of priority: (a) the Party's attorney of record; (b) if the Party does not have an attorney of record, the Party itself at the address on the Watermaster list.

Watermaster shall also maintain a list of interested Persons that shall include all Persons whom, by written request to Watermaster, request to be added to Watermaster's list of interested Persons. All notices, determinations, requests, demands, objections, reports and other papers and processes required to be delivered to interested Persons shall be delivered to all Parties and all Persons on Watermaster's list of interested Persons.

Delivery to or service upon any Party or interested Person by Watermaster, by any other Party, or by the Court, of any document required to be served upon or delivered to a Party under or pursuant to this Decision shall be deemed made if made by deposit thereof (or by copy thereof) in the mail, first class postage prepaid, addressed to the designee of the Party and at the address shown in the latest designation filed by that Party.

Any Party desiring to be relieved of receiving deliveries from Watermaster may file a waiver of notice on a form to be provided by Watermaster.

3. Decision Binding on Successors. All provisions contained in this Decision are applicable to and binding upon and inure to the benefit of not only the Parties to this action, but also to their respective heirs, executors, administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in fact of any such Persons.

//

Q. The Complaints in Intervention

The Complaint in Intervention of MPWMD seeks declaratory relief regarding its statutory right to manage and control pumping in the Basin, to store water in and Extract water from the Basin, to store and use reclaimed water, to manage all water distribution facilities within the Basin, and "the quantification and prioritization of its water and storage rights". It also sought a Physical Solution for the management of the Basin's water resources, with MPWMD being appointed as Watermaster to administer the Court's judgment. It also sought parallel injunctive relief against the parties to the lawsuit.

The Complaint in Intervention of MCWRA sought declaratory and injunctive relief regarding its right to manage and control water resources including, inter alia, those within the boundaries of the Seaside Basin, and a permanent injunction prohibiting any party to the lawsuit from exercising control "in any fashion" of the Basin in contravention of its water management authority.

On December 12, 2005, the Court asked the parties to brief the issue of whether MPWMD should be designated as Watermaster. Briefs were submitted by MPWMD , Plaintiff, Cal Am, and the City of Seaside. The court had previously received an Amicus brief from the Sierra Club which dealt with the issue of the powers of MPWMD land the effect on those powers if the court were to appoint a Watermaster other than MPWMD. The Court has read and considered each submitted brief. It has also read the Act which created MPWMD (Water Code Appendix, Chapter 118), and has had the benefit of the arguments of the parties concerning the subject. Being so informed it has concluded that the appointment of a collaborative Watermaster does not interfere with the powers of the District.

The District has argued that appointment of a Watermaster other than itself would violate the Separation of Powers doctrine. It urges that the legislature has vested it with the power to regulate pumping, and therefore only it is qualified to serve as Watermaster. On the other hand, the District has asked the Court to adopt a Physical Solution for the Basin. In so arguing, it necessarily concedes that this Court possesses power to regulate use of the Basin beyond any power the District currently possesses. Furthermore, the undisputed evidence in this case has

shown that, although the District is empowered to adopt a Groundwater management plan it has never done so. The language of Water Code Section 10753 is instructive regarding the issue of the Separation of Powers:

> "(a) Any local agency, whose service area includes a groundwater basin...that is not subject to groundwater management pursuant to...a court order, judgment, or decree, may...adopt and implement a groundwater management plan."
>
> (Emphasis added.)

Pursuant to the quoted provisions of the foregoing section, the District will not be able in the future to adopt a Groundwater management plan for the Seaside Basin. Clearly the legislature contemplated that courts had the power to develop management plans for aquifer management even if a water management district already existed in a geographical area.

The District further argues that if the Court appoints a Watermaster other than itself, the authority of the Watermaster must not conflict with the MPWMD's authority. It is certainly true that the District possesses certain authority, which it is free to exercise according to the legislative mandate which created it. However, it is apparent the legislature did not intend that all of the powers it granted to the District be held exclusively by the District, else it would not at a later time have created the Monterey County Water Resources Agency and endowed it with many of the powers granted to the MPWMD. Rather, in creating the MCWRA, the legislature mandated that the two agencies cooperate with one another (Water Code Appendix Section 52-85). Similarly, the judgment contemplated in this Decision requires the Watermaster to "...act jointly or cooperate with any public...entity to the end that the purposes of the Physical Solution may be fully...carried out." (Section III.L.3.j.xviii)

On pages 15-16 of its brief, the District lists 9 powers and asserts those powers would "encompass the duties of any appointed watermaster." The Court has compared those 9 asserted powers and has concluded that those powers, to the extent that they exist or are currently being utilized by the District, do not encompass all the duties of a Watermaster appointed by the judgment. Furthermore, to the extent the Watermaster may be given powers akin to those of the District, this Court retains jurisdiction to determine any conflict which may arise in the future.

For example, the Decision directs that any metering of Production wells by the Watermaster shall be done in a way which does not conflict with the MPWMD gauging already in place on all producing wells. The MPWMD is still able to develop water resources within its boundaries and can store water for the benefit of the District in the Basin, although it has not to date done either of those things with regard to the Seaside Basin.

One asserted power deserves more precise attention: the asserted "...power and duty to manage and regulate the transferability of the water among users- (Water Code Appendix) Section 328(g)." The plain reading of the referenced section does not encompass the right asserted. Furthermore, to the extent those that section purports to grant the District the power to "...declare rights in the natural flow of any subterranean supply of water..." it is apparent that the legislature did not intent to interfere with the ultimate right of the courts to determine the water rights of parties claiming such rights. To read the section otherwise would be to create a true Separation of Powers issue.

In fairness to the District, it had, of necessity, to confine its analysis of the duties of the proposed Watermaster to those set forth in the Proposed Stipulated Judgment. The Decision, while obviously relying on the structure and format of the Stipulated Judgment, does not track all provisions of said Judgment. For example, many of the concerns of the District revolve around its statutory right to store water in subterranean reservoirs. The Decision preserves that right. Similarly, while the Decision allows the assignment of Production rights (which the District is not empowered to affect by its referenced legislation, Water Code Section 328(g)), it does not provide for the transferability of Storage rights, a matter which might be of concern to the District under certain circumstances.

The District argues that the proposed powers of the Watermaster regarding maintenance and modification of the Operating Safe Yield would conflict with the District's authority. Much of its argument is addressed to language in the Proposed Stipulated Judgment which does not appear in the Decision. The Decision grants certain rights of control to the Watermaster for the purpose of maintaining the viability of the aquifer. However, it does not purport to forbid any regulation of the Basin which may be required by a public agency possessing the power to

impose such regulation. In this regard it should be noted that the complaint in this case first raised the issue of the Overdraft status of the Basin, and the initial pleadings of the District stated that it did not know if that were true or not. The Decision does not conflict with any procedure or plan currently in place by the District to establish an Operating Yield for the Basin.

Of concern to the District is the fact that the Watermaster will be empowered to augment the underground water supply. While Water Code Section 118-343 gives the District the power to levy a Groundwater charge for the purpose of augmenting underground water supplies, in fact from the time of its creation in 1977 to the present the District has established no such charge, and has not augmented the underground water supply of the Basin. The fact that the Watermaster is authorized in the contemplated judgment to assess charges for replenishment of the Basin does not prevent the District in the future from undertaking such augmentation, if it determines it is appropriate to do so.

Based upon the evidence adduced at trial, which demonstrated that a collaborative Watermaster will likely provide more tangible results than any single individual or entity Watermaster, the Court has decided to appoint a collaborative board as Watermaster.

The prayer of MPWMD for injunctive relief is denied, except insofar as the court will issue injunctive relief as set forth in the Decision at the request of all parties. The prayer that the Court adopt a Physical Solution for the Seaside Basin is granted. The request for declaratory relief is granted to the extent that the court finds that the statutory rights of MPWMD are not in conflict with the Physical Solution and the appointment of a Watermaster in this proceeding.

The Complaint in Intervention of MCWRA also seeks declaratory and injunctive relief, but does not urge the appointment of itself or any other entity as Watermaster. The request for injunctive relief is denied as moot, since the lawsuit does not challenge the statutory authority of the Agency. The request for declaratory relief is granted to the extent that the Court finds that the statutory rights of MCWRA are not in conflict with the Physical Solution adopted by the Court in this proceeding.

A statement of decision, if requested by any party, will be prepared by Plaintiff. If no party within ten days of the filing of this Decision specifies controverted issues or makes

proposals not covered in the Decision this Decision shall become the Statement of Decision, and Plaintiff shall prepare a judgment thereon.

Dated: ~~February~~ March 22, 2006

By_____

Honorable _____
Roger D. Randall

Appendix B: Order 95-10

Order on Four Complaints Filed Against The California-American Water Company

Carmel River
Monterey County

Order No. WR 95-10

JULY 6, 1995

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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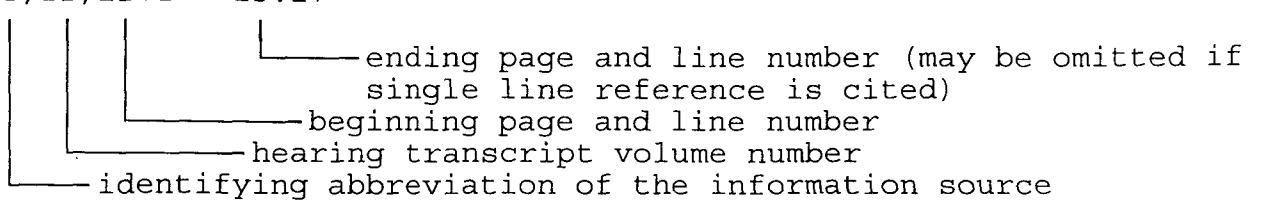
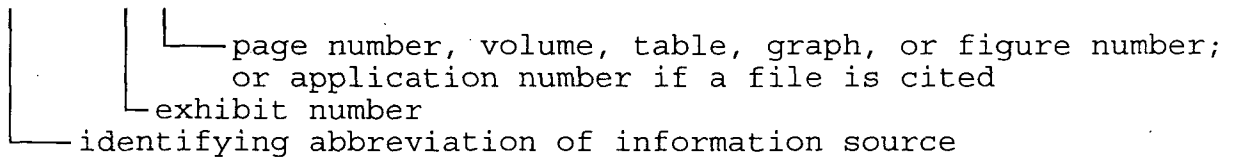
CITING THE RECORD

When citing evidence in the hearing record, the following conventions have been adopted:

Information derived from the hearing transcript:



Information derived from an exhibit:



Abbreviations of information sources:

AC	Archeological Consulting
ACOE	U.S. Army Corps of Engineers
CAL-AM	California American Water Company
CRSA	Carmel River Steelhead Association
CSPA	California Sportfishing Protection Alliance
DISTRICT or MPWMD	Monterey Peninsula Water Management District
DFG	California Department of Fish and Game
ESSELEN TRIBE	Esselen Tribe of Monterey County
ESSELEN NATION	Esselen Nation of United Families of the Central Coast of CA
EVANS	Willis Evans
PARK	Monterey Peninsula Regional Park District
PHBr	Post-Hearing Brief
SWRCB	State Water Resources Control Board
SIERRA CLUB	Ventana Chapter of the Sierra Club
T	Hearing Transcript

Other commonly used abbreviations:

af	Acre-feet
afa	Acre-feet annually
cfs	Cubic feet per second
CEQA	California Environmental Quality Act
gpm	Gallons per minute
RM	River mile, measured from river mouth
USGS	United States Geologic Survey

ORDER FINDING AGAINST RESPONDENT, IN PART, AND DIRECTING CORRECTIVE ACTIONS

SYNOPSIS

The California-American Water Company (Cal-Am) currently diverts water from the Carmel River and supplies the water, primarily, for use outside of the watershed to users on the Monterey Peninsula. Four complaints were filed with the State Water Resources Control Board (SWRCB) against Cal-Am for its diversion of water from the Carmel River. The complaints generally allege that Cal-Am: (a) does not have the legal right to divert water from the river and (b) diversions are adversely affecting public trust resources within the river. The SWRCB concludes that Cal-Am: (a) does not have legal right for about 10,730 acre-feet annually which is currently diverted from the river (about 69 percent of the water currently supplied to Cal-Am users) and (b) diversions are having an adverse affect on the public trust resources of the river. This order directs Cal-Am to: (a) diligently proceed in accord with a time schedule to obtain rights to cover its existing diversion and use of water and (b) implement measures to minimize harm to public trust resources. Measures to minimize harm to public trust resources require Cal-Am to reduce the quantity of water which is currently being pumped from the river. Because water is not available for appropriation by direct diversion in the river during summer months, Cal-Am must either obtain the right to additional water supplies from: (a) sources other than the river, (b) a storage project similar to the New Los Padres (NLP) project proposed by the Monterey Peninsula Water Management District (District), or (c) contract with the District for supply from the proposed NLP project.

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Complaints Against Diversion and Use of Water by the **CALIFORNIA-AMERICAN WATER COMPANY,** Respondent, **CARMEL RIVER STEELHEAD ASSOCIATION, RESIDENTS WATER COMMITTEE, SIERRA CLUB, CALIFORNIA DEPARTMENT OF PARKS AND RECREATION,** Complainants.	ORDER:	WR 95-10
	SOURCE:	Carmel River Tributary to Pacific Ocean
	COUNTY:	Monterey

ORDER FINDING AGAINST RESPONDENT, IN PART, AND DIRECTING CORRECTIVE ACTIONS

BY THE BOARD:

Complaints having been filed against Cal-Am for its diversion and use of water from the Carmel River by Carmel River Steelhead Association, Residents Water Committee, Sierra Club, and Department of Parks and Recreation; a hearing having been held on August 24, 25, 26, 31, September 1, 8, and 9, October 19 and 21, and November 7, 8, and 22, 1994; the complainants, Cal-Am, and other interested persons having been provided opportunity to present evidence; closing briefs having been filed; the evidence and briefs having been duly considered; the Board finds as follows:

1.0 CAL-AM, CAL-AM FACILITIES AND CAL-AM OPERATIONS

Cal-Am is an investor-owned public utility subject to the jurisdiction of the California Public Utilities Commission. (T,Sept. 9, 1992, 95:1-95:7; T,I,49:14-49:22.) Cal-Am currently diverts about 14,106 afa of water from the Carmel River and

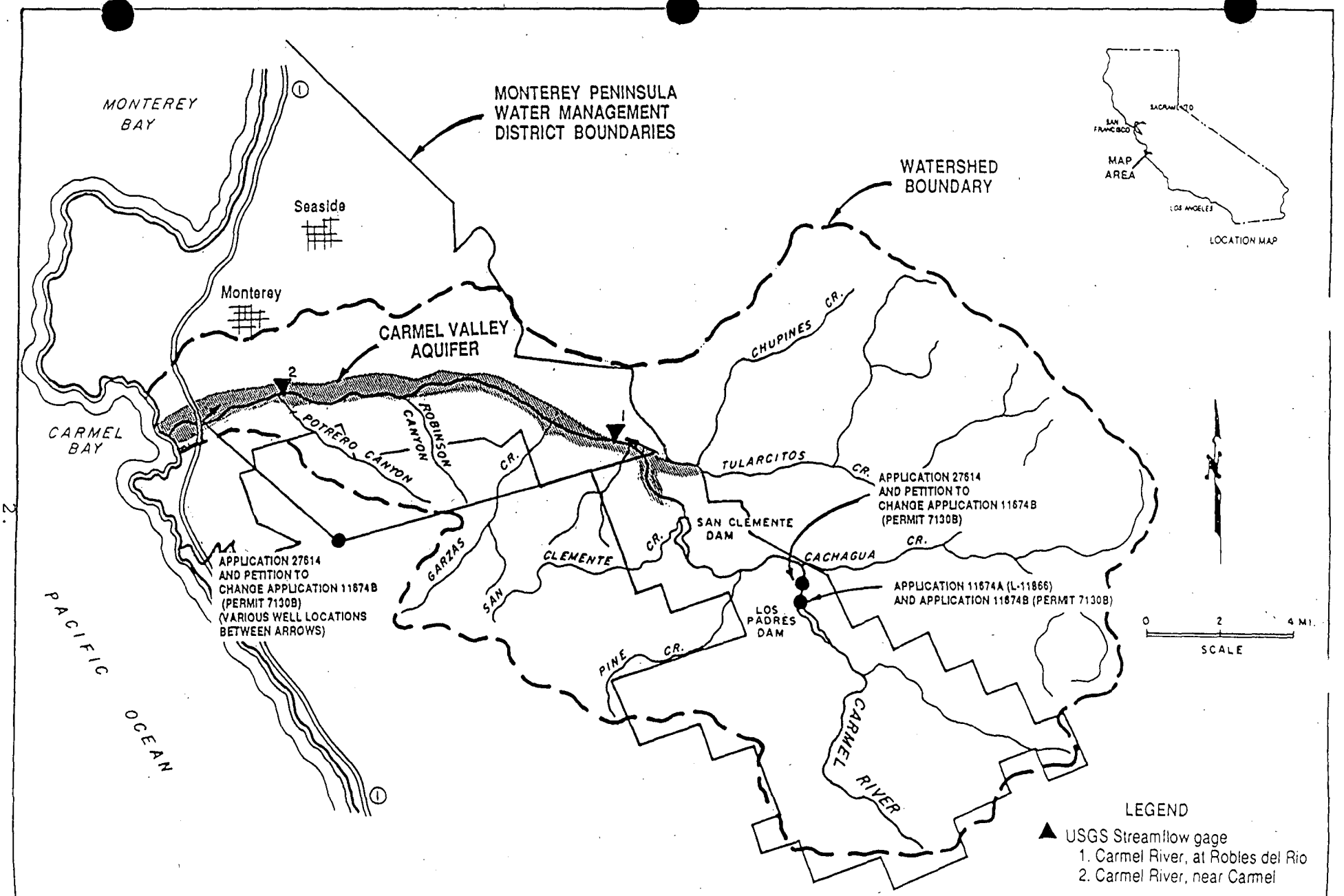


FIGURE 1
CARMEL RIVER WATERSHED

Dwg. 3448

FIGURE 2

EXTENT OF CARMEL VALLEY
ALLUVIAL GROUNDWATER BASIN
AS DETERMINED BY THE U.S. GEOLOGICAL SURVEY (USGS)
(see area defined by the bold lines)

USGS WATER INVESTIGATIONS REPORT 83-4280
JUNE 1984

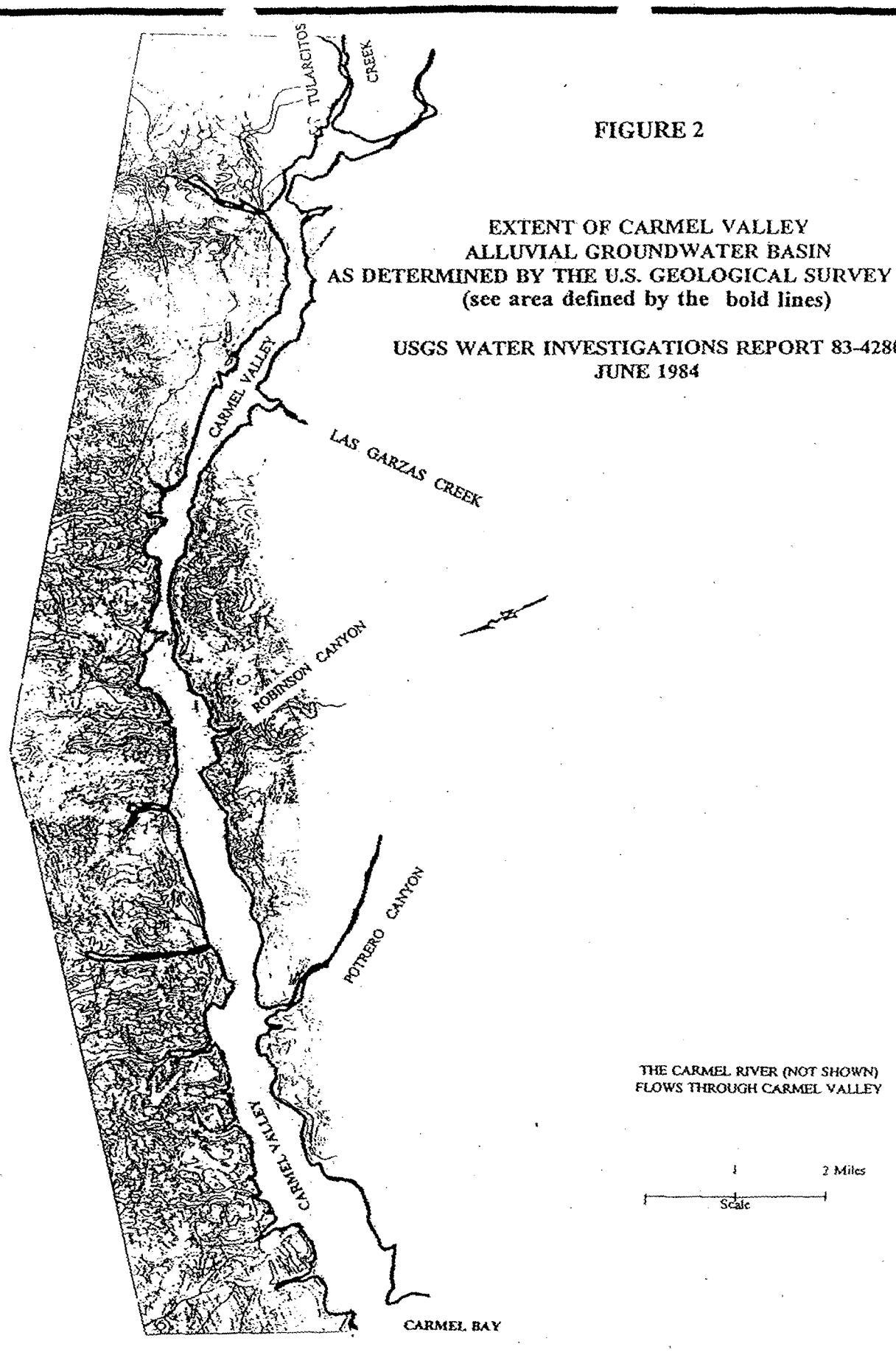
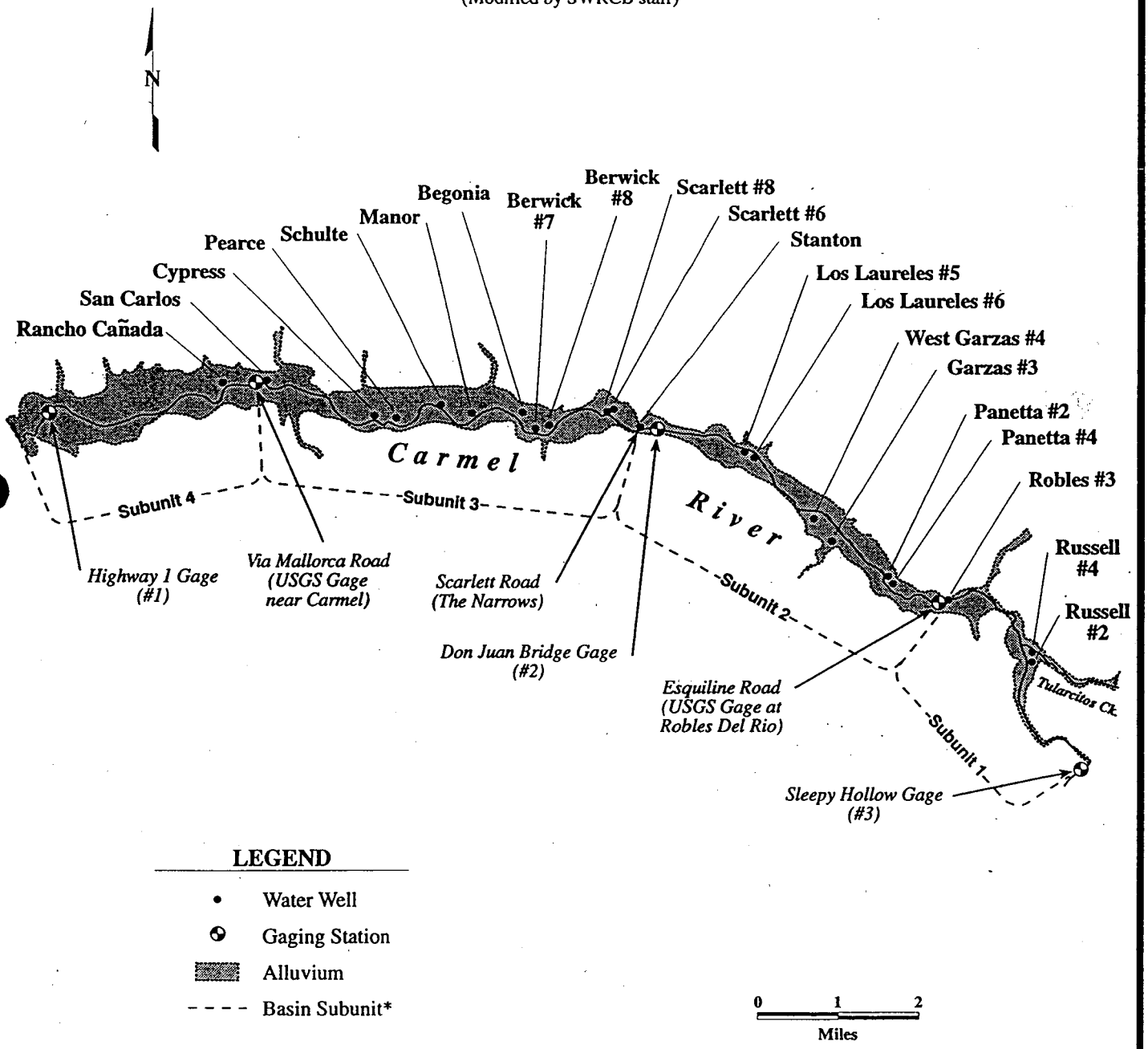


FIGURE 3

ALLUVIAL GROUNDWATER BASIN SHOWING THE LOCATION OF THE CALIFORNIA-AMERICAN WATER COMPANY WELLS

Information obtained from MPWMD Exhibit 287 - Figure 7-2
(Modified by SWRCB staff)

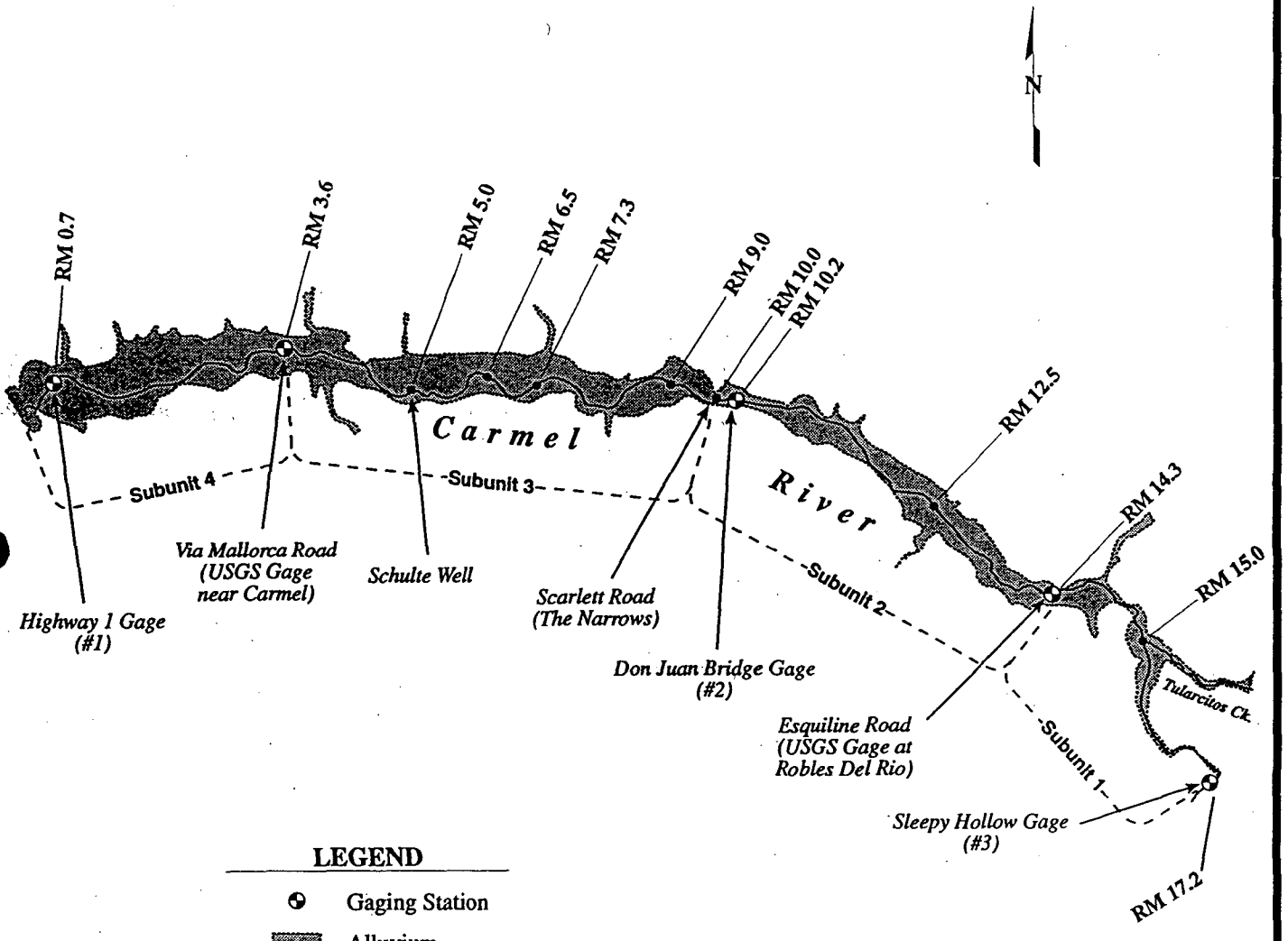


* Subunits 1-4 form the Carmel Valley Groundwater Basin. The subunit boundaries are: 1. Via Mallorca Road (USGS Gage Near Carmel), 2. Scarlett Road (The Narrows), 3. Esquiline Road (USGS Gage at Robles Del Rio), 4. Sleepy Hollow Gage.

Streamgaging will occur at the Highway 1 Gage (#1), Don Juan Bridge Gage (#2), and Sleepy Hollow Gage (#3).

FIGURE 4

ALLUVIAL GROUNDWATER BASIN
IDENTIFYING RIVER MILES (RM)



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Streamgaging will occur at the Highway 1 Gage (#1), Don Juan Bridge Gage (#2), and Sleepy Hollow Gage (#3).

supplies the water, primarily, for use outside of the watershed to users on the Monterey Peninsula.[1] About 105,000 persons are provided service by Cal-Am, most are supplied water from the Carmel River. (T,I,48:1-48:18.)

The primary source of water supply for Cal-Am customers is 21 wells situated on the lower Carmel River. (CAL-AM:91.) These wells supply about 69 percent of the water needs of Cal-Am customers. The balance of the water delivered to Cal-Am customers is supplied from: (1) San Clemente and Los Padres reservoirs in the upper reaches of the Carmel River and (2) pumped ground water in the City of Seaside.[2] (T,I,131:1-19.)

San Clemente Dam has a storage capacity of approximately 2,140 af. Water is stored in this facility under claim of pre-1914 appropriative right.[3] (Statement of Water Diversion and Use No. 8538.) Los Padres Dam is operated pursuant to License 11866 (Application 11674) and authorizes maximum annual withdrawal of 2,950 af. Stored water is released from Los Padres to the river and it is rediverted for use at San Clemente Dam. (T,I,130:16-24.) Sedimentation has reduced the combined usable storage at the

---

[1] *Cal-Am supplies about 17,000 af during a normal year . This estimate is obtained by adding the 2,700 af which is supplied from the wells in Seaside (T,I,131:1-19) to the 14,106 af which is obtained from the Carmel River. (CAL-AM:90.) The 14,106 af represents the recent average, non-drought use (average use from 1979 through 1988, based upon Cal-Am Exhibit 90). (14,106 + 2,700 = 16,806 af, or approximately 17,000 afa.)*

[2] *In addition to supplies from the Carmel River and pumped ground water in the area of Seaside, reclaimed wastewater is available to some Cal-Am users from the Carmel Area Wastewater District/Pebble Beach Community Services District Wastewater Reclamation Project. The Project will provide 800 acre-feet of reclaimed water for the irrigation of golf courses and open space in the Del Monte Forest. In return for financial guarantees, the Pebble Beach Company and other sponsors, received a 380 af potable water entitlement from the District, based upon issuance of an appropriative right permit to the District, for development within Del Monte Forest. As of the end of fiscal 1993-1994, the District had not allocated the remaining 420 af of project yield. (MPWMD,337,25.)*

[3] *Diversion at San Clemente Dam was the sole supply for the Monterey Peninsula until the 1940s when wells at the upper end of the Carmel Valley began producing water to meet summer demand (SWRCB:1, A-27614, Folder 6A).*

reservoirs to about 2,600 af, about one-half of their combined original capacity. The reservoirs supply about 15 percent of Cal-Am's estimated normal year customer demand. (MPWMD:106,7.) Finally about 2,700 afa is produced from wells in Seaside, California.

2.0 COMPLAINTS

Between 1987 and 1991, the SWRCB received four complaints regarding Cal-Am's operations in the Carmel River watershed. The complaints are summarized below:

2.1 Carmel River Steelhead Association (CRSA)

On July 27, 1987 CRSA filed a complaint alleging that Cal-Am diversions from the underflow of the Carmel River are unauthorized and are destroying the public trust resources of the river, including steelhead. As a possible solution, the CRSA recommended rescue and rearing in ponds of fish stranded by the unauthorized diversions, irrigation of riparian vegetation affected by the unauthorized diversions, and release of more water from San Clemente Dam for rediversion through wells downstream. (SWRCB,1,a, Complaint File, Monterey Co., 27-01; CSRA:10,35-28.)

2.2 Resident's Water Committee (RWC)

On August 9, 1989 RWC filed a complaint with the Public Utilities Commission alleging that the supply of water needed to serve Cal-Am's customers exceeded available supply.[4] RWC also alleges that Cal-Am diversions from the Carmel River will reduce steelhead in the Carmel River to remnant levels. RWC recommends that Cal-Am be prohibited from serving new customers until an additional supply of water is obtained. (SWRCB:1, A-27614, Folder G.)

2.3 Ventana Chapter of the Sierra Club (Sierra Club)

On March 5, 1991, the Sierra Club filed a complaint alleging: (1) Cal-Am's pumping from the subsurface flow of the Carmel River

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[4] *A copy of the complaint was received by the SWRCB around the same time.*

is unauthorized and (2) Cal-Am's diversion from San Clemente Reservoir during low-flow periods is an unreasonable method of diversion. The Sierra Club's proposed solution includes the following: (1) Cal-Am should be enjoined from diverting water during periods of low flow, (2) Cal-Am and Water West should apply for appropriative water rights from the SWRCB, (3) Cal-Am and Water West should be required to pay for development and implementation of a program to restore public trust resources affected by their diversions,[5] and (4) Cal-Am should be required to release all diversions at San Clemente Reservoir down the Carmel River for collection at downstream wells, instead of diverting water at San Clemente. (SWRCB:1,A-27614, Folder J.)

2.4 California Department of Parks and Recreation (DPR)

On March 8, 1991, DPR filed a complaint alleging that Cal-Am's diversion of water from the underflow of the Carmel River is: (1) unauthorized, (2) results in mortality to mature riparian forests along a 4,000-foot length of river within the Carmel River State Beach, and (3) interferes with DPR's riparian right to divert water from the Carmel River for irrigation purposes. DPR's proposed solution is for Cal-Am to apply for an appropriative water right with the SWRCB and be subject to conditions to protect riparian, wetland, and aquatic resources in the lower Carmel River, and lagoon and riparian rights along the lower Carmel River. (SWRCB:1, A-27614, Folder J.)

2.5 Monterey Peninsula Water Management District

On May 5, 1992, the District petitioned to intervene in the complaints against Cal-Am because of its interest in assuring an appropriate balance between competing demands for the use of the limited water supply. (SWRCB:1, A-27614, Folder K.)

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[5] *Water West is a water company owned by Cal-Am. Water West has rights to divert and use water at about one-half mile below San Clemente Dam. The complaint was directed at only Cal-Am's diversions. Although Water West is not a party to this proceeding, its diversions are analyzed as diversions under the control of Cal-Am.*

2.6 Interested Persons

In addition to the complainants and the District, other persons participated in the hearing. Participation was directed at the effect Cal-Am diversions were having on the instream resources of the Carmel River and measures which might be taken to mitigate such effects. Such participants included the DFG, Willis Evans, John Williams, Charity Crane and others appearing on their own behalf.

3.0 DESCRIPTION OF THE WATERSHED

The Carmel River drains a 255-square mile watershed tributary to the Pacific Ocean. Its headwaters originate in the Santa Lucia Mountains at 4,500 to 5,000-foot elevations, descend and merge with seven major stream tributaries along a 36-mile river course, and discharge into Carmel Bay about 5 miles south of the City of Monterey. Above the confluence of Tularcitos Creek, the Carmel River constitutes about 65 percent of the watershed. Downstream from RM 15, the river has a 40 feet per mile gradient where the river flows to the bay are over and within an alluvium-filled Carmel Valley floor.

Carmel River flow is in a well-defined channel. The channel in the lower 15 river miles ranges from 20 to 150 feet wide. (SWRCB:19.) The channel changes progressively from cobble to gravel between RM 15 and RM 7, from gravel to sand between RM 7 and RM 2.5 and consists entirely of sand from RM 2.5 to Carmel Bay. (DFG:4,2.)

Downstream from RM 15, alluvial deposits comprise a ground water basin which underlies the river flow in the Carmel Valley portion of the watershed. The legal classification of the ground water basin is discussed in Section 3.2 *infra*. Local ground water levels within the aquifer are influenced by pumping or production at supply wells, evapotranspiration by riparian vegetation, seasonal river flow infiltration and subsurface inflow and outflow.

During the dry season, pumping of wells has caused significant declines in the ground water levels. The Carmel River surface flow

decreases due to pump-induced infiltration which recharges the seasonally-depleted ground water basin. During normal water years, surface flow in the lower Carmel Valley is known to become discontinuous or non-existent. Downstream from RM 3.2, there was no river runoff between April 1987 and March 1991. (MPWMD:287, 2-8.)

3.1 Geologic Setting

The principal hydrogeologic units (from oldest to youngest) along the Carmel River alluvial basin that are significant include: (1) pre-tertiary metamorphic and igneous rocks, (2) tertiary sedimentary rocks comprised primarily of sandstone beds (Paleocene and Miocene age) and Monterey shale (Miocene age), (3) older alluvium (Pleistocene age), and (4) younger alluvium (Holocene age). (SWRCB:19.)

Metamorphic (mainly schist and gneiss) and igneous (granitic) rocks form the basement complex which is extensively exposed along or near the river upstream from RM 10 at the downstream extremity of the river narrows. Tertiary sandstone units, which overlie the basement rocks, are exposed primarily along the southern flank of the alluvial valley from about RM 1.5 to 3 and 5.5 to 12.5. The Monterey Shale formation overlies the sandstone. It is exposed extensively along the north side of the Carmel Valley alluvium from approximately RM 2 to 12 and surficially borders the southern side of the valley from about RM 3 to 5.5 (in the vicinity of Potrero Canyon) and RM 14.5 to 15.5 (in the community of Carmel Valley). The older alluvium, consisting mainly of gravel and sand, form remnant terraces which directly overlie the Monterey shale and/or basement complex rocks. These terraces are laterally discontinuous patches along the north side of the valley alluvium from RM 1 to 16 and along both sides from about RM 16.5 to 18. The basement complex and the shale formation are considered to be non-water bearing. The sandstone has no subsurface hydrologic significance and the older alluvium is found on terraces above the level of

The younger alluvium, which formed the valley floor, consists principally of boulders, cobbles, gravel, and sand (which contains silt and clay layers of limited horizontal and vertical extent downstream from the river narrows). This alluvium was deposited by river flows (along the lowermost 18 miles of the drainage basin) within a canyon that was incised (by earlier flows) into the shale formation, sandstone units, and basement complex rocks. Its thickness varies from less than a foot at RM 18 to approximately 200 feet in the vicinity of the river mouth. These deposits comprise the most important aquifer in Carmel Valley (MPWMD:105,3) because of their ability to transmit significant amounts of subsurface water to wells.

3.2 Physical (Hydrologic) Characteristics of the Carmel Valley Aquifer

Carmel River surface flow is generally within the well-defined 20- to 150-foot wide channel over the alluvial deposits that form the valley floor. These deposits are the younger alluvium that comprise the Carmel Valley aquifer.

On behalf of the District, Thomas M. Stetson reviewed District Exhibit 108 and SWRCB Exhibits 19, 24, 27, and 29 in connection with his evaluation of the physical aspects of the subsurface water in Carmel Valley. Mr. Stetson also reviewed hydrographs of Carmel Valley aquifer water levels obtained at numerous wells. (MPWMD:107.) In addition, he reviewed Carmel River streamflow hydrographs for the USGS Robles Del Rio and Carmel gaging stations. By superimposing surface and subsurface water level hydrographs, Mr. Stetson established that there is a direct relationship between recovery of seasonally-lowered subsurface water levels at wells and recurrent river flow increases during ensuing wet periods. On this basis, Mr. Stetson concluded that surface flow recharges river underflow and, consequently, causes a rise in Carmel Valley aquifer water levels. (MPWMD,107,4.)

Mr. Stetson provided written testimony that such underflow is only through the younger alluvium within a known and definite channel

along the entire length of Carmel Valley. (MPWMD:107,4.) Mr. Stetson supported his testimony utilizing the following information: (1) essentially nonwater-bearing rocks (described in Section 3.1) border and underlie the younger alluvium or Carmel Valley aquifer and (2) the average hydraulic conductivity of the younger alluvium is about 60 feet per day (ft/day), as compared to the hydraulic conductivity of the rocks which is in the order of 0.1 to 0.0001 ft/day or less. (MPWMD:107,6.) Mr. Stetson concluded that the hydraulic conductivity difference is substantial and renders the aquifer a "pipeline" for subsurface flow. (MPWMD:107,6.)

Mr. Stetson's testimony is consistent with the findings of SWRCB staff. Ms. Laudon submitted testimony and evidence that the relatively impermeable granitic and sedimentary rocks form the bed and banks of a known and definite channel which restricts the flow of subsurface water to the alluvium. (SWRCB:7&8.) This information is further supported by evidence regarding the subsurface occurrence of granitic or sedimentary rocks beneath the Carmel Valley aquifer at all well installations throughout the valley.

Except where water levels have been influenced by drawdown due to pumping, the general down valley or westerly subsurface flow direction within the aquifer is the same as that of the Carmel River flow. The subsurface flow has a pattern which demonstrates that it is within a known and definite channel rather than that of a diffused body of percolating ground water. (MPWMD:107,6.)

Cal-Am and other parties did not contest the testimony and evidence which describes the subsurface flow of the Carmel River as a subterranean stream flowing through a known and definite channel. Nor did Cal-Am or other parties offer evidence that the ground water in the alluvial basin should be classified as percolating ground water not within the SWRCB's permitting jurisdiction. Accordingly, we find that downstream of RM 15 the aquifer underlying and closely paralleling the surface water course of the

Carmel River is water flowing in a subterranean stream and subject to the jurisdiction of the SWRCB.

3.3 Location of Cal-Am Wells

The locations of Cal-Am's wells are described in the following table:

CAL-AM CARMEL RIVER WELLS (CAL-AM EXHIBIT 91)			
Well Name	*Well Location*	*Depth To Water Static/ Pumping*	*Date Drilled*
Los Laureles #5	NE¼ of SE¼ of Sect.29,T16S,R2E	18 feet/44 feet	1947
Los Laureles #6	SE¼ of SE¼ of Sect.29,T16S,R2E	16 feet/43 feet	1977
Robles #3	NE¼ of NE¼ of Sect.10,T17S,R2E	12 feet/30 feet	1989
Russell #4	SW¼ of SE¼ of Sect.11,T17S,R2E	16 feet/35 feet	1947
Russell #2	SE¼ of SE¼ of Sect.11,T17S,R2E	16 feet/35 feet	1947
Scarlett #6	SW¼ of SW¼ of Sect.19,T16S,R2E	20 feet/26 feet	1963
Scarlett #8	SW¼ of SW¼ of Sect.19,T16S,R2E	20 feet/35 feet	1989
Manor #2	NE¼ of SW¼ of Sect.23,T16S,R1E	30 feet/65 feet	1989
Schulte	SW¼ of NW¼ of Sect.23,T16S,R1E	15 feet/58 feet	1967
Stanton	NW¼ of NE¼ of Sect.30,T16S,R2E	3 feet/35 feet	1977
Begonia #2	NW¼ of SW¼ of Sect.24,T16S,R1E	not listed	1990
Berwick #7	SW¼ of SW¼ of Sect.24,T16S,R1E	23 feet/63 feet	1981
Berwick #8	SE¼ of SW¼ of Sect.24,T16S,R1E	20 feet/50 feet	1986
Rancho Cañada (aka Cañada)	NE¼ of SW¼ of Sect.17,T16S,R1E	15 feet/49 feet	1981
San Carlos	NE¼ of SE¼ of Sect.17,T16S,R1E	16 feet/55 feet	1982
Pearce	SE¼ of NW¼ of Sect.22,T16S,R1E	16 feet/50 feet	1981
Cypress	SW¼ of NW¼ of Sect.22,T16S,R1E	15 feet/48 feet	1981
Continued to next page			

CAL-AM CARMEL RIVER WELLS (CAL-AM EXHIBIT 91)			
Well Name	*Well Location*	*Depth To Water Static/ Pumping*	*Date Drilled*
Continued from previous page			
Panetta #1	NW¼ of NW¼ of Sect.03,T17S,R2E	13 feet/16 feet	1989
Panetta #2	NW¼ of NW¼ of Sect.03,T17S,R2E	16 feet/22 feet	1989
Garzas #3	SW¼ of SE¼ of Sect.33,T16S,R2E	13 feet/16 feet	1989
Garzas #4	NE¼ of SW¼ of Sect.33,T16S,R2E	12 feet/16 feet	1989

In addition, the location of these wells in relation to the Carmel River and the aquifer associated with the river is shown by Figure 3. The depth to water for each well is identified in the above table. Figure 3 and the table demonstrate that Cal-Am's wells are extracting water from the subterranean stream associated with the Carmel River.

4.0 ANALYSIS OF CAL-AM'S WATER RIGHTS

Among the issues noticed for hearing is the following:

> "Does [Cal-Am] have a legal right to divert water from wells located adjacent to the Carmel River?" (SWRCB 1, June 1992 Hearing Notice.)

Cal-Am extracts, on average, 14,106 afa via 21 wells from the alluvial aquifer along the Carmel River. Cal-Am claims the right to divert and use this water under pre-1914 appropriative, riparian, prescriptive, and rights acquired under License 11866. (CAL-AM:92,1,10-27; October 1, 1992 letter to SWRCB from Cal-Am transmitting supplemental exhibits.) During the hearing, Cal-Am's representatives presented testimony and numerous exhibits in support of its claimed rights to divert water from the river. The following sections analyze Cal-Am's rights to divert and use water from the Carmel River.

4.1 Applicable Water Law

The following sections set forth the law applicable to the water rights claimed by Cal-Am.

4.1.1 *Pre-1914 Appropriative Rights*

Prior to 1914, an appropriative right for the diversion and use of water could be obtained two ways.[6] First, one could acquire a nonstatutory (common law) appropriative right by simply diverting water and putting it to beneficial use. (Haight v. Costanich (1920) 194 P. 26, 184 Cal. 426.) Second, after 1872, a statutory appropriative right could be acquired by complying with Civil Code Sections 1410 et seq. (*Id.*) Under the Civil Code, a person wishing to appropriate water was required to post a written notice at the point of intended diversion and record a copy of the notice with the County Recorders Office which stated the following: the amount of water appropriated, the purpose for which the appropriated water would be used, the place of use, and the means by which the water would be diverted. (Cal. Civil Code Sections 1410-1422, now partially repealed and partially reenacted in the Water Code; Wells A. Hutchins, The California Law of Water Rights (1956) at 89.)

Generally, the measure of an appropriative right is the amount of water that is put to reasonable beneficial use, plus an allowance for reasonable conveyance loss. (Felsenthal v. Warring (1919) 40 Cal.App. 119, 133, 180 P. 67.) The quantity of water to which an appropriator is entitled, however, is not necessarily limited to the amount actually used at the time of the original diversion. Rather, under the doctrine of "progressive use and development", pre-1914 appropriations may be enlarged beyond the original appropriation. (Haight, 194 P. 26 at 28-29; Hutchins at 118; 62 Cal.Jur. at 370.)

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[6] *After 1914, an appropriative right could only be obtained by complying with the provisions of the California Water Code for the appropriation and use of water. (Water Code Section 1225; Stats. 1913, C. 586, p. 1012, Section 1(c).)*

Under the progressive use and development doctrine, the quantity of water to which an appropriator is entitled is a fact-specific inquiry. According to Haight, "this right to take an additional amount of water reasonably necessary to meet increasing needs is not unrestricted; the new use must have been within the scope of the original intent, and additional water must be taken and put to a beneficial use in keeping with the original intent, within a reasonable time by the use of reasonable diligence...." (194 P. at 29.) Thus, the progressive use and development doctrine allows an appropriator to increase the amount of water diverted under a pre-1914 right, provided: (a) the increased diversion is in accordance with a plan of development and (b) the plan is carried out within a reasonable time by the use of reasonable diligence. (Senior v. Anderson (1896) 115 Cal. 496, 503-504, 47 P. 454; Trimble v. Heller (1913) 23 Cal.App. 436, 443-444, 138 P. 376.)

4.1.2 *Riparian Rights*

The riparian doctrine confers on the owner of land abutting a watercourse the right to the reasonable and beneficial use of water on the land. California riparian rights have the following general characteristics. The riparian right is part and parcel of land which abuts a river, stream, lake, or pond. The riparian right may be used only for direct diversion of naturally occurring flow. Unless adjudicated, the riparian right is unquantified and extends to the use of as much water as can reasonably and beneficially be used on riparian lands. A riparian right is a shared right and, therefore, a riparian has a right to the use of the watercourse in common with the equal and correlative rights of other riparians. Finally, the riparian right generally is paramount to all other rights, and must be satisfied before appropriative rights are exercised. (CEB Manual, Water Rights, Water Supply, & Water Related Law (1987) at 7.)

4.1.3 *Prescriptive Rights*

Generally, "prescription" means the taking of another person's property by adverse use. With regard to water, prescription can only be accomplished by the adverse diversion and use of water that

other private persons are entitled to use under the law. Subsequent to 1914, prescription will not lie against the State for the unappropriated waters of the State. (Water Code Sections 102 and 1225; Stats. 1913, C. 586, p. 1012, Section 1(c); Crane v. Stevinson (1936) 5 Cal.2d 387; People v. Shirokow (1980) 26 Cal.3d 301.)

As to private persons, prescription can be accomplished only by adverse possession that is actual, open and notorious, continuous and uninterrupted, exclusive, hostile and adverse, and under claim of right or color of title for a period of not less than five years. (Locke v. Yorba Irr. Co. (1950) 35 Cal.2d 205; City of Pasadena v. City of Alhambra (1949) 33 Cal.2d 908.) Even though some private rights may be prescripted, the unappropriated waters of the State and post-1914 appropriative water rights cannot be prescripted unless they are supported by a permit. (Shirokow.)

4.1.4 *Licenses*

Under the California permit system, once a permittee has completed construction of a diversion structure and applied the water to beneficial use, the SWRCB investigates to confirm completion and compliance. The SWRCB will issue a license confirming the amount of water found to have been perfected by reasonable beneficial use subject to the terms and conditions included in the permit and required by statute and California case law. (Water Code Sections 1600, et seq.)

4.2 Analysis of Cal-Am's Water Right Claims

Sections 4.2.1 though 4.2.4, *infra*, analyze the evidence introduced in support of Cal-Am's claimed water rights. For purposes of this order when evaluating Cal-Am's claims, the evidence in the hearing record is considered in the light most favorable to Cal-Am due to the difficulty, at this date, of obtaining evidence that specific pre-1914 appropriative claims of right were actually perfected and have been preserved by continuous use.

4.2.1 *Analysis of Pre-1914 Appropriative Rights*

The lower Carmel River Valley, Monterey Peninsula, and surrounding areas were settled and developing before 1800. Many of Cal-Am's predecessors in interest developed or acquired appropriative water rights to divert water from the Carmel River and its subsurface waters prior to 1914. (CAL-AM:93, Attachment 1.) Cal-Am's predecessors in interest included: C.P. Huntington, Pacific Improvement Company, Monterey County Water Works, the Monterey County Water Works, Del Monte Properties Co., and California Water and Telephone Company. (*Id.*) Some of these appropriative rights were initiated and probably acquired in accordance with Civil Code Sections 1410, et seq. Other appropriative rights were acquired by the nonstatutory method of simply taking the water and putting it to reasonable beneficial use. (See 4.1.1, *supra*.)

Cal-Am submitted over 100 documents, including deeds and notices of appropriations by Cal-Am's predecessors, "which represent virtually all title documents bearing upon Cal-Am's water rights and chain of title." (CAL-AM, PHBr at 14:15-18.) Cal-Am Exhibit 93 (Attachment 1) summarizes the deeds and notices of appropriation pertaining to Cal-Am's appropriative rights. Nevertheless, Cal-Am did not present nor does the record contain any evidence which would enable the SWRCB to determine for each claimed pre-1914 appropriative right:[7] (1) whether diversion works were actually constructed, (2) whether water was ever diverted and used under any claimed right prior to 1914 or pursuant to a notice given in accordance with Civil Code Section 1410, or (3) the quantity of water which was put to reasonable beneficial use and maintained by continuous use by Cal-Am's predecessors.

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[7] *Despite the fact that Issue #2 was clearly noticed for hearing, Cal-Am asserted throughout the proceedings that the complaint proceedings were not the proper forum to evaluate Cal-Am's appropriative rights. (October 1, 1992 letter to Messrs. Stubchaer and Samaniego from Leonard G. Weiss transmitting supplemental exhibits at 1, n.1; CAL-AM Post-Hearing Brief, 13:14-18.) Nonetheless, Cal-Am submitted extensive evidence of its water rights based on deeds, notices of appropriation, and other documents.*

Cal-Am submitted two categories of documents to establish the total quantity of water used under all of its pre-1914 appropriative rights. These are:

> "(1) Direct evidence of actual usage in 1913 and earlier; and (2) Material dating back to the 1880s which demonstrate ... the existence of the water company's physical plant, dollar volumes of sales, and the like, prior to 1914." (CAL-AM, PHBr at 15:6-11; October 1, 1992 letter to SWRCB from Cal-Am transmitting supplemental exhibits.)

Several parties objected to the admissibility of the above exhibits on the ground that they are hearsay. (E.g., Carmel Valley Water Users, Closing Brief, 5-8.)

Title 23, California Code of Regulations, Section 761(d) provides, in part, that in a hearing before the SWRCB:

> "The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant, non-repetitive evidence shall be admitted *if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs.* Hearsay evidence may be used for the purpose of supplementing or explaining any direct evidence but shall not be sufficient by itself to support a finding *unless it would be admissible over objection in civil actions* ...." (Emphasis added.)

Cal-Am exhibits are admissible under Section 761(d) because: (a) it is the sort of evidence on which responsible persons are accustomed to rely and (b) the exhibits would likely be admissible over objection in a civil action.[8] Moreover, these exhibits

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[8] *The SWRCB is of the opinion that those exhibits pertaining to proceedings of the California Railroad Commission would be admissible over objection in a civil trial. It is difficult to find a clear statement in the California Evidence Code or cases specifically addressing this evidentiary issue. However, there are multiple theories, including: the official notice doctrine, the official records exception to the hearsay rule, and other "residual" exceptions to the hearsay rule that support this conclusion.*

Official notice may be taken of the existence of any specific record of the California Railroad Commission. While official notice generally may not be taken of the truth of the Railroad Commission's factual findings (see Sosinsky v. Grant (1992) 8 Cal.Rptr.2d 552, 558-59), the factual statements within such exhibits are admissible under the official records exception (continued

likely are the best, if not the only, evidence available for events which occurred over eighty years ago. Thus, the SWRCB will allow Cal-Am's exhibits as evidence for the purpose of evaluating its pre-1914 appropriative claims.

These documents, however, do not show the amount of water that was actually used beneficially or maintained by continuous beneficial use by Cal-Am's predecessors under any specific pre-1914 appropriative rights. Thus, Cal-Am has not demonstrated that the

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[8] *(...continued)*
the hearsay rule. Section 1280 of the Evidence Code provides:

> *"Evidence of a writing made as a record of an act, condition, or event is not made inadmissible by the hearsay rule when offered to prove the act, condition, or event if:*
>
> > *(a) The writing was made by and within the scope of duty of the public employee;*
> >
> > *(b) The writing was made at or near the time of the act, condition, or event; and*
> >
> > *(c) The sources of information and method and time of preparation were such as to indicate its trustworthiness."*

In this case, those exhibits pertaining to proceedings of the California Railroad Commission generally satisfy the requirements of Section 1280. However, some courts have held that the public employee must have had personal knowledge of the act, condition, or event, or received the information recorded from someone in the agency who had personal knowledge in order for the official records exception to apply. (See People v. Parker (1992) 8 Cal.App.4th 114.) Because it is unclear whether any public official had personal knowledge of the quantity of water allegedly being used by Cal-Am's predecessor, it is possible that a court may find such information inadmissible under the official records exception. Nonetheless, the SWRCB concludes that these exhibits should be admitted under the official records exception because "the sources of information and method of time of preparation were such as to indicate [the exhibits'] trustworthiness." (See Cal. Evidence Code Section 1280(c).)

Alternatively, these exhibits would likely be admissible under one of the "residual" exceptions to the hearsay rule that allow California courts to recognize hearsay exceptions "in addition to those exceptions expressed in the statutes." (In re Malinda S, 51 Cal.3d 368, 376 (1990).) For example, evidence of a statement contained in a writing more than 30 years old is admissible if "the statement has been since generally acted upon as true by persons having an interest in the matter." (Cal. Evidence Code Section 1331.)

The deeds are admissible for the purpose of demonstrating chain of title. (Cal. Evidence Code Sections 1330 and 1600.) Finally, Exhibit 93 (Schematic of Chain of Title) is also admissible, but only to the extent the information therein is confirmed by the underlying documents which it purports to summarize.

notices of appropriation were ever perfected into appropriative rights.[9]

The best evidence regarding the amount of water actually put to reasonable beneficial use prior to 1914 by Cal-Am's predecessors is found in Cal-Am Exhibits 126, 131 and 133. The following sections briefly describe these exhibits:

(a) Exhibit 126 is a copy of a "Petition of the Monterey County Water Works For an Increase of its Water Rates," (MCWW) Application No. 950, filed before the California Railroad Commission on or about January 14, 1914. Exhibit "C" of this petition shows that in 1913 the MCWW sold a total of 314,879,755 gallons (966 afa) of water to its customers.

(b) Exhibit 131 is an MCWW brief to the Railroad Commission dated June 29, 1914, supporting its position for increased water rates. Page 6 of this brief discusses various estimates of water use and presents a likely total annual water use of 370,515,000 gallons (1,137 afa).

(c) Exhibit 133 is a January 27, 1915, engineer's report to the MCWW about the impact of the Railroad Commission's Decision regarding the MCWW's petition for a rate increase. Table 1A of this exhibit presents the MCWW's annual use of water in 1913-1914 as 43,444,600 cubic feet (997 afa).[10]

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[9] *Cal-Am's claimed pre-1914 appropriative rights could not possibly have been perfected and maintained for the face value of the rights being claimed. Assuming that the appropriative rights conveyed to Cal-Am were all perfected and maintained by continuous reasonable beneficial use, the maximum quantity which could be diverted from the Carmel River would be 751,608 afa, an amount which vastly exceeds the amount of water available in the river during even the wettest years of record. (MPWMD:199, Attachment 1 (showing maximum unimpaired Carmel River flow of approximately 325,000 afa).)*

[10] *The record contains other contradictory evidence as to the amount of water used prior to 1914. For example, less than 507 afa is reported as having been used in 1916. (CAL-AM:90.)*

These exhibits shed some light on the amount of water used by Cal-Am's predecessor in interest around 1914. These exhibits are inconclusive as to the actual amount of water used by the MCWW around 1914 due to the different water use figures. For purposes of this analysis and order, the 1,137 afa figure is used because: (1) the range between the high and low values is only fifteen percent and (2) it is reasonable to use the maximum annual water use estimate of 1,137 afa to establish the baseline quantity of water being used under pre-1914 appropriative claims.

In addition to the actual quantity of water used by Cal-Am's predecessors prior to 1914, Cal-Am might have been entitled to an additional quantity of water under the progressive use and development doctrine. However, Cal-Am neither asserted such a claim nor presented evidence which might support findings that it is entitled to additional water under the doctrine.[11] In addition, the diversion of a large amount of the water currently taken from the river or its underflow was not initiated until rapid growth occurred on the Monterey Peninsula, which commenced after 1960. (T,I,48:1-9; T,I,38:12-18; CAL-AM,90.) Cal-Am drilled 18 of its 21 wells after 1960. (CAL-AM:91.) Thus, Cal-Am is not entitled to additional water under the progressive use and development doctrine. Cal-Am's pre-1914 rights, therefore, should be limited to the estimated actual use by Cal-Am's predecessors in 1913, an amount which does not exceed 1,137 afa.[12]

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[11] *Indeed, Cal-Am requested that the Board "decline to attempt to quantify Cal-Am's rights until it hears Cal-Am's pending applications for permits." (CAL-AM's Post Hearing Brief at 21:9-11.) This request is rejected because this issue was noticed for this proceeding and Cal-Am had an opportunity to present evidence on the issue.*

[12] *Pre-1914 appropriative claims for San Clemente Dam. Persons diverting water under pre-1914 claims or right are required to file Statements of Diversion and Use with the SWRCB. (Water Code Sections 5100, et seq.) Cal-Am filed its first statements for San Clemente Dam in 1975. Cal-Am contends that this right was established under four Notices filed under the Civil Code. (CAL-AM, Exhibit A, pp.3 and 4; CAL-AM exhibits 4, 5, 6 and 8.)*

The first statements included water diverted for years 1972 through 1975. The statements indicate that Cal-Am was able to divert 1,529 af to storage at San Clemente Reservoir and that Cal-Am was claiming the right to divert up to 20 cfs by direct diversion. Over succeeding years, Cal-Am has

(continued...)

4.2.2 *Analysis of Riparian Rights*

Cal-Am's riparian claims are limited to the use of water on only those parcels which adjoin the surface water course of the river or which overlie water flowing in the subterranean channel.[13] Clearly, Cal-Am wells extract water flowing in the subterranean channel. Cal-Am also presented testimony indicating that 60 afa were used to irrigate riparian habitat along the river. (T,I,54:3-10.) Nevertheless, Cal-Am did not identify any specific parcels for which riparian claims were asserted. In summary, although Cal-Am did not submit testimony or exhibits in support of any specific riparian claim, it appears that Cal-Am has riparian rights and it is not unlikely that such rights are being exercised to divert 60 af to irrigate riparian vegetation along the Carmel River.[14]

4.2.3 *Analysis of Prescriptive Rights*

Cal-Am bases its claim to prescriptive water rights on the alleged fact that the claimed combined diversions of two of Cal-Am's predecessors depleted the flow in the Carmel River (CAL-AM: October 1, 1992 letter to SWRCB from Cal-Am transmitting supplemental exhibits, pp. 7 and 8; CAL-AM:136,2) during some years and the fact that the Carmel River often has no surface flow. (CAL-AM:132,14.) Assuming the truth of these facts, Cal-Am's post-1914 claims of prescriptive rights are, nevertheless, not supported

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[12] *(...continued)*
stated that it has approximately diverted between 1,200 to 8,000 af per year under this claim. (SWRCB, Files, Statements of Diversion and Use, Statement 8538.) More recent information indicates the dam can only store between 320 and 800 af. (MPWMD:287,4-49.) Amounts which are currently directly diverted are taken at the Carmel Valley Filter Plant about one-half mile below the San Clemente Dam.

San Clemente Dam was constructed in 1921, seven years after the modern Water Code respecting appropriation became effective. No evidence was presented: (1) as to which, if any, Notice is the basis for the pre-1914 claim of right, (2) that work was commenced on facilities to divert water prior to 1914, or (3) that water was diverted and used prior to 1914 or within a reasonable time thereafter under any Civil Code Notice.

[13] *Cal-Am does not claim that water being diverted from the subterranean channel associated with the Carmel River can be served to persons on the Monterey Peninsula under riparian rights claims. (T,I,91:13-92:8.)*

[14] *Cal-Am does not claim that water served outside the valley can be diverted from the river under riparian right claims. (T,I,91:13-92:8.)*

by the record because Cal-Am failed to introduce other essential evidence necessary to support prescriptive claims. Cal-Am did not: (1) demonstrate that the basic elements of prescription were met and (2) identify any specific persons, lands, or types of water rights that were allegedly prescripted. Thus, there is no basis for finding that Cal-Am is entitled to divert any water from the river under the doctrine of prescription.

4.2.4 *Analysis of Rights Under License 11866 (Application 11674A)*

On February 14, 1986, Cal-Am was issued License 11866 (Application 11674A) to divert 3,030 afa to storage from October 1 to May 31 from the Carmel River for municipal, domestic, industrial, and recreational uses. (SWRCB:1,b.) The maximum annual withdrawal under this right, however, is 2,950 afa. The above analysis of appropriative, riparian, and prescriptive rights does not affect the rights exercised under License 11866.

4.3 Conclusions Regarding Cal-Am's Claimed Water Rights

In summary, Cal-Am has valid pre-1914 appropriative rights to divert no more than 1,137 afa, based upon the amount of water actually used by Cal-Am's predecessors prior to 1914. Cal-Am is not entitled to additional water under the progressive use and development doctrine because Cal-Am did not present evidence of a plan of development carried out within a reasonable time.

Cal-Am has riparian rights for use within the Carmel River Valley on only those parcels which adjoin the surface watercourse of the river or which overlie water flowing in the subterranean channel. It is not unlikely that such rights are being exercised to irrigate the riparian vegetation along the Carmel River. Such rights do not extend to water that is served outside the valley or water served to non-riparian parcels located within the valley.

Cal-Am is not entitled to any prescriptive water rights because Cal-Am did not identify the persons, lands, or types of water rights that are allegedly prescripted. Cal-Am has an appropriative

right to divert 3,030[15] afa of water to storage in Los Padres Reservoir from October 1 to May 31 pursuant to the conditions imposed by License 11866. Thus the total quantity of water which Cal-Am is presently using under legal rights is 3,376 afa.[16]

Because the amount of water to which Cal-Am is legally entitled under the appropriation and riparian doctrines, pre-1914 storage rights, and License 11866 is much less than the amount Cal-Am presently is diverting, Cal-Am is diverting about 10,730[17] afa from the Carmel River or its underflow without a valid basis of right. Accordingly, Cal-Am should be required to diligently develop and implement a plan for obtaining water from the Carmel River or other sources consistent with California water law.

5.0 EFFECT OF CAL-AM DIVERSION ON INSTREAM BENEFICIAL USES

The following sections will discuss the effects of Cal-Am's diversions on the instream beneficial uses of the Carmel River. Such effects include the loss of riparian habitat in the lower river and the near extinction of the Carmel River steelhead run. Cal-Am diversions, standing alone, are not the sole cause of current conditions in the Carmel River. Other causes include the diversion and use of water by other persons and, significantly, a series of dry and critically dry years during the late 1980s and early 1990s. Nevertheless, Cal-Am's combined diversions from the Carmel River constitute the largest single impact to the instream beneficial uses of the river.

5.1 Vegetative Resources

Three vegetation communities are found within the Carmel River watershed: coastal wetlands within the Carmel River Lagoon,

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[15] *The actual diversion is limited to 2,179 af due to siltation.*

[16] *1,137 afa, pre-1914 appropriative + 60 afa, riparian + 2,179 afa, license 11866 = 3,376.*

[17] *10,730 afa represents Cal-Am's total diversions from the Carmel River minus that amount which appears to be legally diverted. (14,106 - 3,376 = 10,730.)*

riparian communities along the river itself, and upland vegetation on the upper alluvial terraces and hills surrounding the valley. Mature multistoried riparian vegetation supports a wide diversity of plant and animal species, including a number of which are protected pursuant to federal and state endangered species acts.

Historically, riparian vegetation was more extensive than at present, particularly in the lower nine river miles. Prior to 1956, losses were primarily attributable to agricultural development. Since that time, the decline has coincided with the increasing export of ground water to meet growing urban demand on the Monterey Peninsula. (SWRCB:17; SWRCB:42,III-28.) Were it not for the extensive riparian corridor irrigation efforts of the District and Cal-Am, it is estimated that current ground water pumping would severely stress approximately 59 percent of the existing riparian vegetation in the upper portion of Aquifer Subunit 3 (see Figure 2) in normal water years, and nearly all vegetation during critically dry years. (MPWMD:289,9G-1.)

The Carmel River Lagoon contains a mixture of freshwater and salt marsh vegetation. Coastal salt marsh is considered one of the most fragile and rapidly disappearing habitats in California. The Carmel River coastal wetland represents some of the last remaining habitat of this type on the Central Coast. (SWRCB:42,III-32.)

Upland vegetation within the watershed is composed of a mixture of coastal scrub, hardwood forest, coastal dune, chaparral, and closed-cone coniferous forest. Cal-Am's diversions have no direct effect on such resources.

5.2 Wildlife Resources

Carmel River riparian and wetland communities support a diverse group of resident and migratory wildlife. A number of amphibian and reptile species occur within the riparian and wetland zones as well, including the red-legged frog and the western pond turtle. These are, respectively, a proposed and candidate species for listing under the Federal Endangered Species Act. A more detailed

description of these resources is found in the District's EIR/EIS. (MPWMD:287-290.)

5.3 Fishery Resources

The Carmel River supports populations of at least ten resident freshwater and anadromous fish species. Of these fishes, the steelhead (*Onchrhynchus mykiss*) has been considered the most important, and extensive studies have been performed to define its ecology in the river. (SWRCB:42,III-41.)

Adult steelhead live in the ocean and migrate into the upper reaches of the Carmel River to spawn. Migration may begin in the fall after the Lagoon sandbar is breached by artificial means or by the first major storm and when sufficient flow is established in the lower river to allow upstream passage.

Typically, in early January the adults spawn and migrate back to the ocean. After approximately three to eight weeks of incubation, depending on water temperature, the eggs hatch and fry soon emerge from the gravel. These fry continue development in the river until fall. By fall, fry will have developed into juveniles and begin moving downstream. They remain in the lower reaches of the river and the lagoon adapting to brackish water until late spring. In late spring, as high river flows are receding, they migrate out into the Pacific Ocean. Some juveniles and adults remain in the river for one or two additional years before migrating to the ocean, hence these life stages may be found in the river throughout the entire year. (SWRCB:42,III-42.)

5.4 Extent of the Steelhead Resource

When first seen by Spanish explorers in 1603, the Carmel River supported a spectacular steelhead run, believed to have been well in excess of 12,000 fish annually. (CSRA:5,2.) Heavy fishing in the 1850s through the 1870s diminished the fishery. Fish planting began in 1910 and continued through the 1940s. (MPWMD:289,8-8.)

When San Clemente Dam was constructed in 1921 (RM 18.5), a fish ladder was also built. (MPWMD:289,8-8.) Access to a major portion of the steelhead spawning and rearing habitat was effectively eliminated in 1949 with the construction of Los Padres Dam at RM 23.5. (CSRA:5,2.) Although a fish trap was installed downstream of the dam and captured adults transported into the reservoir, the facility proved ineffective at maintaining steelhead populations. (MPWMD:289,8-8.)

Annual counts of steelhead passing through the San Clemente fishway began in 1961. The critical dry years of 1976-77 and 1987-92, drought, and diversion by Cal-Am from its wells have combined to reduce water available to steelhead and have also reduced the steelhead population to remnant levels. Only one fish was recorded in 1991 and 15 fish in 1992. (MPWMD:337,49.) Past reviews of Carmel River environmental problems have identified flow reduction and habitat alteration as major factors associated with steelhead decline. (SWRCB:42,III-44.)

Paralleling the declining steelhead population during this period was the rising urban demand for water. Originally, the Monterey Peninsula water supply was diverted entirely from the two reservoirs and from surface flow. When demand exceeded the developed surface resources, wells drilled in the Carmel Valley alluvium aquifer were added to supplement supply. In recent times, dry season surface flows below the Narrows at RM 10 have been depleted in most years as a result of heavy ground water pumping. This results in the stranding and death of many juvenile fish as surface flow recedes. (DFG:4,32.)

5.5 The Effect of Cal-Am Diversions Should be Mitigated

To summarize, Cal-Am diversions have historically had an adverse effect on: (1) the riparian corridor along the river below RM 18.5, (2) wildlife which depend on riparian habitat, and (3) steelhead and other fish which inhabit the river. Measures should be adopted requiring Cal-Am to mitigate the effect of its diversions on the environment until such time as it is able to

obtain water from the Carmel River or other sources consistent with California water law.

6.0 MITIGATING EFFECTS OF CAL-AM DIVERSIONS

The following sections identify the measures which are in effect to mitigate the effect of Cal-Am's diversions in the instream beneficial uses of the Carmel River. Many significant measures to protect the instream beneficial uses of the river have been initiated and are being carried out by the Monterey Peninsula Water Management District. In order to avoid confusion, an explanation of the District's role is necessary.

The District was created by special act of the Legislature in 1977. (Water Code Appendix Section 118-2.) The District is responsible for managing available surface and ground water sources to supply water within the District and to protect the environmental quality of the area's water resources, including the protection of fish and wildlife resources. (*Id.*; MPWMD:16,1-2.) Much of the watershed of the Carmel River is within the District's boundaries (Figure 1) and the District has broad powers over the use and distribution of water within its boundaries, including the operations of Cal-Am. (Water Code Appendix Sections 118-2, 118-102.)

6.1 Interim Relief Program

In 1988, as a result of the complaint filed by the CRSA (Section 2.1), the District formed an Environmental Advisory Committee. The committee was composed of citizen groups and public agency representatives, including representatives from Cal-Am and DFG. (MPWMD:53;3&4.) Their efforts resulted in an Emergency Relief Program and an Interim Relief Program, both designed to address chronic environmental degradation in the lower Carmel River. (MPWMD:53.)

The focus of the Interim Relief Program was on rescuing stranded steelhead during critically dry years, preserving the riparian corridor, and enhancing aquatic habitat by increasing streamflow. Specifically, the District undertook to: (1) limit surface

diversion at San Clemente Dam to 29 percent of total Cal-Am production, (2) hire fishery professionals to assess habitat and coordinate steelhead rescue efforts, and (3) monitor the health of riparian vegetation and install, operate, and maintain drip irrigation systems along the lower Carmel River. The provisions of the program expired in November 1993, but are carried forward as elements of the Water Allocation EIR mitigation program of the District. (MPWMD:53; SWRCB:42.)

6.2 Water Allocation Mitigation Program

In 1981, the District established an annual Water Allocation Program to apportion water to each of its member jurisdictions. In 1990, a Water Allocation Program EIR was completed and certified by the District. (SWRCB:42; MPWMD:16.) The EIR analyzed the environmental and socioeconomic impacts of varying levels of water production from the Monterey Peninsula Water Resource System, including the Carmel River. The document found that the amount of water which could be produced without significant environmental impact was less than previous estimates. As a result, the Cal-Am allocation was reduced from 18,600 to 16,744 afa.[18] Even at the reduced level, diversion of water from the Carmel River was found to have significant adverse environmental impacts on fisheries, riparian vegetation and wildlife, and the Lagoon. Therefore, the District also approved the Water Allocation Mitigation Program and committed itself to implement the mitigation program. The Program provides for the following mitigation measures:

Fisheries (MPWMD:16,55)

- Continue Interim Relief Program
- Expand program to capture emigrating smolts in spring
- Prevent stranding of early fall and winter migrants
- Rescue juveniles downstream of Robles Del Rio in summer

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[18] *The quantity of water which the District allocated to Cal-Am was not based on the amount of water diverted by Cal-Am and not on Cal-Am's legal right to divert water.*

- Modify spillway and transport juveniles around Los Padres Dam

Riparian Vegetation and Wildlife (MPWMD:16,64)

- Continue Interim Relief Program
- Conservation and water distribution management to retain water in the Carmel River
- Prepare and oversee a Riparian Corridor Management Plan (MPWMD:69)
- Implement the Riparian Corridor Management Plan
- Expand monitoring programs for soil moisture and vegetative stress

Lagoon Vegetation and Wildlife (MPWMD:16,72)

- Continue Interim Relief Program
- Assist with Lagoon Enhancement Plan investigations
- Expand long-term monitoring program
- Identify feasible alternatives to maintain adequate Lagoon volume

The program was adopted and funded by the District for an initial five-year period, due to expire in late 1995, after which allocations are to be reassessed based on results of monitoring studies. Annual progress reports have been prepared by the District and submitted to the SWRCB. (SWRCB:43; MPWMD:307-308.) Funded primarily by user fees and taxes, the program costs will slightly exceed $6.5 million over five years. (MPWMD:309.)

The effectiveness of this mitigation program and the degree to which the District has implemented the mitigation program was the subject of considerable testimony during the SWRCB hearing. Both the CSRA and the DFG expressed dissatisfaction with the implementation of the program. (CRSA:94-1,3; T,X,100:2.) Further, DFG stated that it was the Department's position that fish rescue is inappropriate as a long-term mitigation measure and that provision of adequate instream flow is the preferable alternative. (T,IX,8:2.)

6.3 Other District Actions

In addition to the above programs, the District has engaged in a number of other activities to lessen the impact of water extraction on the Carmel River system. These measures include:

- Limitation on total system production
- Mandatory rationing and moratoriums
- Conservation and community education programs
- Development of Seaside aquifer
- Wastewater reclamation

Although these programs have been effective in reducing demand on the Carmel River, their combined effect is inadequate to reverse severe environmental degradation. It is the position of the District and DFG wildlife experts that river flow is the critical element in reversing this degradation. The District has also concluded that a firm municipal supply and water for environmental restoration cannot be provided without additional water storage upstream of Cal-Am's existing well field. (MPWMD:287,2-8.)

6.4 Conditions On the Operation of Los Padres and San Clemente Dams

In 1948 the SWRCB adopted Decision 582 approving an appropriative right for the Los Padres Dam. The Decision and Permit 7130 require, in general, that Cal-Am maintain a flow of not less than 5 cfs in the channel of the Carmel River directly below the outlet structure of the Los Padres Dam at all times during which water is being stored under this permit.

Diverting under a claim of pre-1914 appropriative right, San Clemente Dam has no bypass requirement and, until the early 1980s, the entire summer streamflow was diverted into the filter plant downstream of San Clemente Dam. (DFG:4,8.) During the 1980s, DFG and Cal-Am began negotiating year-to-year agreements for the release of some water at San Clemente Dam to benefit fish in the river. Bypass flows have generally been in the range of 3.5 to 5 cfs. Under more normal hydrologic conditions, the bypass

maintains flow in the stream to the Narrows at RM 10. This habitat below San Clemente Dam is considered significant steelhead habitat.

6.5 Interim Measures to Mitigating Effects of Cal-Am Diversions Should Continue to be Implemented

As previously stated, Cal-Am's diversions have an adverse effect on the instream beneficial use of the river. Although the interim measures discussed herein are beneficial, they are by no means sufficient to offset the total effect of Cal-Am's diversions. Thus, these measures should be continued until such time as Cal-Am is able to obtain water from the Carmel River or other sources consistent with California water law.

That most interim measures have been undertaken by the District and not Cal-Am is a matter of concern. There is no assurance that the District will indefinitely continue to mitigate the effects of Cal-Am's diversions. Furthermore, there is no basis for the SWRCB to order the District to continue implementing the interim measures on behalf of Cal-Am. Thus, a condition should be adopted requiring Cal-Am to implement these interim measures in the event the District fails to continue with its programs.

7.0 OTHER PROPOSALS FOR MITIGATING THE EFFECTS OF CAL-AM DIVERSIONS FROM THE CARMEL RIVER

In addition to the interim mitigation measures being implemented by the District, the Complainants, DFG, and Mr. Evans contend that additional mitigation measures should be implemented by Cal-Am. Some of these measures are discussed in the following sections.

7.1 Maximize Production in Seaside Aquifer, Minimize Production from Carmel River

Several parties advanced the concept that production from the Seaside aquifer should be increased and diversions from the Carmel River should be reduced. Cal-Am produces about 2,700 afa from the Seaside ground water basin from wells in Seaside, California. The Seaside northern and southern coastal ground water subbasins have a usable storage capacity of 4,700 af. (MPWMD:101,6,144.) The long-term yield of the Seaside ground water subbasin, however, is

estimated to be 3,300 afa, using the practical rate of withdrawal method. (SWRCB:1, "Hydrology Update, Seaside Coastal Ground Water Basins, Monterey County, California", Staal, Gardner & Dunne, Inc., 1990, p.22.) A new well became available to Cal-Am and its customers during 1994, the Peralta Well, which is located in the Seaside aquifer. The well is capable of producing approximately 1,000 afa. The District has allocated the potential production from the Peralta Well for purposes which include water for community benefit and among eight jurisdictions for new connections, remodeling, and additions. (MPWMD,291,4:1-17; MPMD,3378,28,Figure 10.) By more fully utilizing water available in the Seaside aquifer, Cal-Am can reduce its diversions from the Carmel River and the effects of such diversions on public trust values. Thus, we find that Cal-Am should be required to maximize production from the Seaside aquifer and reduce diversions from the river to the greatest practicable extent.

7.2 Maximize Production from the Most Downstream Wells

Several parties advanced the proposal that by maximizing production from the most downstream wells that surface water in the Carmel River could be extended farther downstream.[19] The benefit of operating the wells in this manner would be to provide more habitat for fish during some years and seasons. (T,IV,248:24-251:3.) Testifying for DFG, Keith Anderson indicated that Cal-Am was already operating in this manner pursuant to an agreement with DFG. (T,IX,17:2-10.) Testimony did indicate, however, that too much pumping of wells nearer to the Lagoon might result in water quality degradation and adversely affect supply of water to other wells. Thus, we find that Cal-Am should be required to satisfy the water demands of its customers outside of the Carmel River watershed by extracting water from its most downstream wells to the maximum practicable extent.

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[19] *Some parties advocated drilling more wells farther down the river as near to the Lagoon as possible. The feasibility of this proposal was not demonstrated. Testimony and exhibits indicated that such wells and pumping could result in: (a) poorer water quality for Cal-Am customers, (b) dewatered wells used by other persons in the area, and (c) seawater intrusion into the lower aquifer. (T,IV,251:4-254:4; 258:5-269:4; 272:14-284:2.)*

7.3 Supply Water to the Carmel Village Filter Plant from Wells

The Carmel Village is supplied water from a filter plant located downstream of the San Clemente Dam. The filter plant is supplied water from the dam via a pipeline. Several parties advanced the proposal that more surface flow could remain in the river if the filter plant was supplied water from wells instead of the dam. The water diverted to storage at the dam could then be released to the river for fish and to recharge the subterranean stream from which the downstream wells extract water. No evidence was presented to demonstrate the feasibility of the proposal. Indeed the evidence indicates that it is not feasible to supply water to the filter plant from the most downstream wells. No evidence was introduced which would indicate whether the filter plant could be supplied from more nearby wells and thus keep more water at the surface of the stream for some additional distance. We find that Cal-Am should be required to conduct a reconnaissance level study of the feasibility, benefits, and costs of this proposal.[20]

7.4 Bypass Early Storm Runoff at the Dams

On behalf of DFG, Keith Anderson suggested that runoff from early storms be passed by the Los Padres and San Clemente Dams. (T,IX,21:4-22:6.) This proposal can result in recharging the subterranean stream and restoring surface water flows in the river at an earlier date. An earlier reestablishment of surface flows would increase the likelihood that steelhead could successfully migrate up and down the stream to complete their life cycle. The record does not include any evidence which demonstrates the feasibility of this suggestion; however, the storage capacity of the dams is so small that it appears likely that this suggestion could be implemented in even the driest water years and the

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[20] *The SWRCB recognizes that the wells nearest the filter plant are not the most downstream wells. The feasibility of supplying the filter plant may depend upon supplying the plant via the nearest wells. Supplying the filter plant from nearby wells would, implicitly, conflict with the principle that water be supplied to Cal-Am customers via the most downstream wells to the maximum practicable extent. Nevertheless, we find that the feasibility, benefits, and costs of this proposal should be evaluated.*

reservoirs could still be refilled. We find that Cal-Am should be required to study the feasibility of this proposal.

7.5 Modify Critical Stream Reaches to Facilitate Fish Passage

In the context of this section, a critical stream reach means any portion of the river which, due to low flow, acts as a barrier to migrating steelhead. Such barriers interfere with the ability of steelhead to successfully complete all life stages and to reproduce in the river. Testifying for DFG, Keith Anderson expressed the opinion that modifying critical stream reaches was an action which could be taken to mitigate the effect of Cal-Am's diversions from the river. (T,IX,20:24-21:3.) Thus, we find that Cal-Am should be required to conduct a study of the feasibility, benefits, and cost of this proposal.

7.6 Remove Boulder Below Los Padres Dam

A large boulder or rock outcrop is situated below the spillway of Los Padres Dam. A significant percentage of steelhead juvenile fail to survive downstream migration during low water conditions over the spillway because they fall upon the rock. Removal of the rock could improve the survival rate of steelhead juvenile moving downstream from Los Padres Dam. Accordingly, Cal-Am should be required to remove the rock or implement some other reliable measure to assure safe passage for fish over or around the rock.

8.0 ENFORCEMENT OPTIONS

Three enforcement options are available to the SWRCB for the unlawful diversion and use of water. First, Water Code Section 1052 declares that the unauthorized diversion of water is a trespass. Such diversions may be referred to the Attorney General for injunctive relief. (Section 1052(c).) Persons committing a trespass may be liable for up to $500 for each day in which a trespass occurs. (Section 1052(d).)

Second, Water Code Sections 1055 and 1052 authorizes the SWRCB to impose administrative civil liability for the unlawful diversion and use of water. Persons committing a trespass may be liable for

up to $500 for each day in which a trespass occurs. (Section 1052(b).) Persons committing a trespass may be liable for up to $500 for each day in which a trespass occurs.

Finally, Sections 1825, et seq. authorizes the SWRCB to adopt cease and desist orders for violation of conditions in permits and licenses. Cease and desist orders may require compliance forthwith or in accordance with a time schedule. (Section 1831.) Diversion of water in excess of the quantity authorized by permit or license can be treated as a violation subject to enforcement under Section 1831. Persons failing to comply with a cease and desist order are liable for $1,000 for each day in which violation occurs.

This proceeding was not noticed under any of the enforcement provisions and the SWRCB cannot, at this time, proceed directly to an order under Sections 1055 or 1830. The SWRCB, however, can request the Attorney General to take action under Section 1052. Alternatively, the SWRCB can suspend such a referral provided that Cal-Am takes appropriate actions to: (a) mitigate the effect of its diversions on the environment and (b) develop and diligently pursue a plan for obtaining water from the Carmel River or other sources consistent with California water law.[21]

8.1 Considerations Mitigating Against the Use of Punitive Enforcement Options

In the short term, Cal-Am cannot significantly reduce its extraction from the wells along the Carmel River. As previously stated, most of Cal-Am's supply is obtained from the Carmel River and most of that supply is provided by the wells along the river. The people and businesses on the Monterey Peninsula must continue to be served water from the Carmel River in order to protect public health and safety.

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[21] *Cal-Am could satisfy this requirement by contracting with MPWMD for the supply from its proposed project or by proposing to develop water under applications to appropriate water from the Carmel River by storage or from other sources.*

Cal-Am introduced exhibits during the hearing which show that during 1980 and 1981, on the basis of available information, the SWRCB was not of the opinion that the water pumped by the wells would require a permit from the SWRCB. (CAL-AM, F and G.) Further, Cal-Am does not contend that the wells are not extracting water from a subterranean stream. (CAL-AM, Closing Brief, 20.) Indeed, Cal-Am has filed an application to appropriate water with the SWRCB. (Application 30215.)[22]

Cal-Am also supports the New Los Padres Project proposed by the District as one means for providing a reliable and legal water supply for its customers. (CAL-AM, Closing Brief, 2:4-12.) Finally, Cal-Am has cooperated with the District, DFG, and others to develop and implement measures to mitigate the effect of its diversions on the instream resources of the river. (MPWMD:287,2-15.)

Under circumstances such as these, the imposition of monetary penalties make little sense. Rather, the SWRCB's primary concern should be the adoption of an order which, until a legal supply of water can be developed or obtained, will require that Cal-Am: (1) minimize its diversions from the Carmel River, (2) mitigate the environmental effects of its diversions, and (3) prepare a plan setting forth: (a) specific actions to develop or obtain a legal supply of water and (b) the dates specific actions will have occurred so that progress on the plan can be objectively monitored.

9.0 SUMMARY AND CONCLUSIONS

To summarize the foregoing, we find that:

1. Downstream of RM 15 of the Carmel River, the aquifer underlying and closely paralleling the surface water course of the Carmel River is water flowing in a subterranean stream and subject to

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[22] *Administrative notice is taken that on May 29, 1992, Cal-Am submitted Application 30215 to the SWRCB. The application is for the direct diversion of 42 cfs from its wells along the river.*

the jurisdiction of the SWRCB. Cal-Am's wells are drawing water from the subterranean stream associated with the Carmel River.

2. Cal-Am is diverting about 10,730 afa from the Carmel River or its underflow without a valid basis of right. In addition, Cal-Am does not have a pre-1914 right to divert and use water at San Clemente Dam. Cal-Am should be required to diligently develop and implement a plan for obtaining water from the Carmel River or other sources consistent with California water law.

3. Cal-Am diversions are having an adverse effect on: the riparian corridor along the river below San Clemente Dam at RM 18.5, wildlife which depend on instream flows and riparian habitat, and steelhead which spawn in the river. Interim measures mitigating the effects of Cal-Am diversions undertaken by the District should continue to be implemented. Cal-Am should be required to implement interim measures in the event the District fails to continue with its program. In addition, Cal-Am should be required to implement other mitigation measures. Cal-Am should be required to mitigate the effect of its diversions until such time as it is able to obtain water from the Carmel River or other sources consistent with California water law.

4. The SWRCB can request the Attorney General to take action under Section 1052. Alternatively, the SWRCB can suspend such a referral provided that Cal-Am takes appropriate actions to: mitigate the effect of its diversions on the environment and develop and diligently pursue a plan for obtaining water from the Carmel River or other source consistent with California water law. The SWRCB's primary concern should be the adoption of an order requiring Cal-Am to: (1) prepare a plan setting forth (a) specific actions which will be taken to develop or obtain a legal supply of water and (b) the dates specific actions will have occurred so that progress on the plan can be

objectively monitored, (2) minimize its diversions for the Carmel River, and (3) mitigate the environmental effects of its diversions.

ORDER

NOW THEREFORE, IT IS HEREBY ORDERED that Cal-Am shall comply with the following conditions:

1. Cal-Am shall forthwith cease and desist from diverting any water in excess of 14,106 afa from the Carmel River, until unlawful diversions from the Carmel River are ended.

2. Cal-Am shall diligently implement one or more of the following actions to terminate its unlawful diversions from the Carmel River: (1) obtain appropriative permits for water being unlawfully diverted from the Carmel River, (2) obtain water from other sources of supply and make one-for-one reductions in unlawful diversions from the Carmel River, provided that water pumped from the Seaside aquifer shall be governed by condition 4 of this Order not this condition, and/or (3) contract with another agency having appropriative rights to divert and use water from the Carmel River.

3. (a) Cal-Am shall develop and implement an urban water conservation plan. In addition, Cal-Am shall develop and implement a water conservation plan based upon best irrigation practices for all parcels with turf and crops of more than one-half acre receiving Carmel River water deliveries from Cal-Am. Documentation that best irrigation practices and urban water conservation have already been implemented may be substituted for plans where applicable.

   (b) Urban and irrigation conservation measures shall remain in effect until Cal-Am ceases unlawful diversions from the Carmel River. Conservation measures required by this Order in combination with conservation measures required

by the District shall have the goal of achieving 15 percent conservation in the 1996 water year and 20 percent conservation in each subsequent year.[23] To the extent that this requirement conflicts with prior commitments (allocations) by the District, the Chief, Divison of Water Rights shall have the authority to modify the conservation requirement. The base for measuring conservation savings shall be 14,106[24] afa. Water conservation measures required by this order shall not supersede any more stringent water conservation requirements imposed by other agencies.

4. Cal-Am shall maximize production from the Seaside aquifer for the purpose of serving existing connections, honoring existing commitments (allocations), and to reduce diversions from the Carmel River to the greatest practicable extent. The long-term yield of the basin shall be maintained by using the practical rate of withdrawal method.

5. Cal-Am shall satisfy the water demands of its customers by extracting water from its most downstream wells to the maximum practicable extent, without degrading water quality or significantly affecting the operation of other wells.

6. Cal-Am shall conduct a reconnaissance level study of the feasibility, benefits, and costs of supplying water to the Carmel Valley Village Filter Plant from its more nearby wells downstream of the plant. The objective of supplying water from the wells is to maintain surface flow in the stream as far downstream as possible by releasing water from San Clemente Dam for maintenance of fish habitat. The results

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[23] *Each water year runs from October 1 to September 30 of the following year.*

[24] *14,106 afa represents Cal-Am's total diversions from the Carmel River.*

of the study and recommendations shall be provided to the District and DFG for comment.

7. Cal-Am shall evaluate the feasibility of bypassing early storm runoff at Los Padres and San Clemente Dams to recharge the subterranean stream below San Clemente Dam in order to restore surface water flows in the river at an earlier date. The results of the study and recommendations shall be provided to the District and DFG for comment.

8. Cal-Am shall conduct a study of the feasibility, benefits, and costs of modifying critical stream reaches to facilitate the passage of fish. The study shall be designed and carried out in consultation with DFG and the District. The results of the study and recommendations shall be provided to the District and DFG for comment.

9. The studies required by conditions 6, 7, and 8 shall be carried out by persons with appropriate professional qualifications. The studies required by condition 7 shall be completed and submitted to the Chief, Division of Water Rights, within 5 months from the date of this order. The Chief, Divison of Water Rights may extend the time for performing the study required by condition 8 upon making a finding that adequate flows were not available to perform the study. The studies required by conditions 6 and 8 shall be completed and submitted to the Chief, Division of Water Rights, within 12 months from the date of this order. The Chief, Division of Water Rights may extend the time for performing the study required by condition 8 upon making a finding that adequate flows were not available to perform the study. The report (or reports) transmitting the results of the study (or studies) shall describe the action (or actions) which Cal-Am will undertake to correct the problems addressed by the studies. Cal-Am shall provide a written response to any comments received on the study. If no action (or actions) will be taken to correct the underlying problem (or problems),

Cal-Am's report shall provide written justification why corrective action is not appropriate. Based upon the results of the studies, recommendations, comments by the District and DFG, and Cal-Am responses, the Chief, Division of Water Rights, shall determine what actions shall be taken by Cal-Am consistent with this Order and establish reasonable times for implementation.

10. Cal-Am shall remove the large rock immediately below the spillway of the Los Padres Dam which results in substantial loss of juvenile steelhead or implement some other reliable measure (or measures) to assure safe passage for fish over or around the rock. Prior to removing the rock Cal-Am shall consult with DFG and obtain any streambed alteration permit required by Fish and Game Code Section 1601. If Cal-Am leaves the rock in place, it shall consult with DFG when evaluating what other measures can be used to assure safe fish passage. Cal-Am shall comply with this measure within 4 months.

11. Cal-Am shall be responsible for implementing all measures in the "Mitigation Program for the District's Water Allocation Program Environmental Impact Report" not implemented by the District after June 30, 1996.[25] Not later than August 30, 1996, Cal-Am shall submit a report to the Chief, Division of Water Rights, identifying mitigation measures which the District does not continue to implement after June 30, 1996. At the same time, Cal-Am shall submit a plan for the approval of the Chief, Division of Water Rights, detailing how it will implement mitigation measures not implemented by the District. The Chief, Division of Water Rights, may excuse Cal-Am from implementing specific mitigation measures only upon making a finding that Cal-Am has demonstrated that it does not have

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[25] *On November 5, 1990 the District adopted a mitigation program to be carried out for five years. The plan is summarized in Section 6.2, infra. There is no assurance the District will continue with any or all of the elements of its mitigation program after November of 1995. (MPWMD:289, Vol. III, Appendix 2-D.)*

adequate legal authority to implement the ability to finance such measures or demonstrates that such measures are demonstrably ineffective.

12. Within 90 days of the date of this order, Cal-Am shall submit for the approval of the Chief, Division of Water Rights:

(a) A compliance plan detailing the specific actions which will be taken to comply with condition 2 and the dates by which those actions will be accomplished;

(b) An urban water conservation plan; and

(c) An irrigation management plan.

13. Starting with the first full month following adoption of this order, Cal-Am shall file quarterly with the Chief, Division of Water Rights:

(a) Reports of the monthly total amounts being: (1) pumped from wells; and (2) diverted from the Carmel River,

(b) Reports of the progress being made in complying with the schedule submitted to comply with condition 11, and

(c) Reports of the progress being made in complying with conditions 6, 7, 8, and 9.

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14. The Chief, Division of Water Rights, is authorized to refer any violation of these conditions to the Attorney General for action under Section 1052 or to initiate such other enforcement action as may be appropriate under the Water Code.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on July 6, 1995.

AYE: John P. Caffrey
Mary Jane Forster
Marc Del Piero
James M. Stubchaer
John W. Brown

NO: None

ABSENT: None

ABSTAIN: None

Maureen Marché
Administrative Assistant to the Board