SEASIDE BASIN MONITORING AND MANAGEMENT PROGRAM

Approved by the Seaside Groundwater Basin Watermaster Board
May 17, 2006
Revised September 5, 2006

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Seaside Basin Monitoring and Management Program

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Seaside Basin Monitoring and Management Program

I.
Introduction

This Seaside Basin Monitoring and Management Program ("Program") is adopted by the Seaside Basin Watermaster to comply with the Judgment entered in the Seaside Groundwater Basin Adjudication (California American Water v. City of Seaside, Monterey County Superior Court, Case Number M66343) and to ensure that the Seaside Groundwater Basin ("Basin") is protected and managed as a perpetual source of water for beneficial uses.

The Judgment required the preparation of a comprehensive monitoring and management plan for the Seaside Basin (Monitoring and Management Plan") consistent with the criteria set forth in Exhibit A (Appendix 1) of the Judgment. The Technical Committee appointed by the Seaside Basin Watermaster Board has chosen to name this document the "Program" versus the "Plan" referred to in the Judgment. This was necessary to clarify that the tasks and schedule set forth in this document is the program that will create the Seaside Basin Monitoring and Management Plan.

The Program sets forth actions that will be taken to: (a) monitor current overdraft conditions and the present threat of potential seawater intrusion into the Coastal Subarea of the Basin; (b) develop and import supplemental water supplies for the purpose of eliminating Basin overdraft and the associated threat of seawater intrusion, and (c) establish procedures that will be implemented to address seawater intrusion should seawater intrude into the onshore portions of the Basin. All costs of undertaking the actions set forth within this Program shall be paid from the Monitoring and Management Program component of the Watermaster Budget, set forth in Section III.L.3.J.iv of the Judgment. The Court's Decree calls for the Seaside Basin Watermaster to develop a Basin Management Program within one year of the Court's judgment. The following is a description of the scope of work for the management program, the monitoring program and schedule that will be undertaken by the Watermaster over the next 12 to 18 months to complete the Basin Management Program.

II.
Basin Monitoring Program

A. Basin Overview

The Seaside Groundwater Basin has been characterized as underlying an approximately 19 to 24 square mile area at the northwestern corner of the Salinas Valley, adjacent to Monterey Bay. The general location of the basin and its four subareas are shown in **Figure 1**, which is from a study updating the condition of the basin completed by the Monterey Peninsula Water Management District (MPWMD) in 2005 (Yates and others, 2005. *Seaside Groundwater Basin: Update on Water Resource Conditions*. Prepared for MPWMD, April 14, 2005). The basin underlies a hilly coastal plain that slopes northward toward the Salinas Valley and westward toward Monterey Bay. The basin area 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. In addition, the basin underlies most of the land occupied by the former Fort Ord military base. The basin consists of a sedimentary sequence of water-bearing materials that overly the relatively impermeable shales of the Monterey Formation. The two principal geologic units in terms of water supply potential are known as the "Paso Robles aquifer", consisting of interbedded sand, gravel and clay deposits of continental origin, and the underlying "Santa Margarita aquifer", consisting of a loose to weakly-cemented marine sandstone.

B. Basin Monitoring Background

Current water resource monitoring in the Seaside Groundwater Basin can be categorized into the following five principal types: groundwater production monitoring, groundwater level monitoring, groundwater quality monitoring, surface water monitoring, and precipitation monitoring. The history of development and current status of each category is briefly reviewed in this section.

1. Groundwater Production Monitoring

The early history of groundwater development in the Seaside Basin was not well documented. Prior to about 1950, the majority of groundwater extractions in the coastal area were assumed to be associated with small farming operations. The earliest recorded production dates to the mid-1950's, when municipal wells were installed in the coastal area of the basin by several small water systems that were acquired in the mid-1960's and subsequently consolidated into the main California American Water (Cal-Am) system that serves the Monterey Peninsula area. Other early metered production records were kept for wells in the coastal area supplying Fort Ord and the City of Seaside. A coordinated program of collecting and reporting groundwater production in the basin was established by the MPWMD in 1980. This program requires annual reporting of water production (surface water and groundwater) from all sources within the MPWMD's boundary, which encompasses most of the Seaside Basin area. Currently, there is no surface water production from the Seaside Basin, and the only known groundwater

production occurring within the basin outside of the MPWMD boundary is limited to production from Monterey County Parks Department wells at the eastern end of the Laguna Seca subarea of the Seaside Basin. In addition to the annual reporting requirement, MPWMD regulations require more comprehensive management for the Cal-Am water distribution system, as this system derives its supply from more than one hydrological management unit (i.e., the Carmel River Basin and Seaside Basin). This is accomplished under MPWMD regulations through the Quarterly Water Supply Budget Strategy program, in which projected production quantities for each of Cal-Am's production sources are developed on a quarterly basis, and actual production is tracked daily.

2. Groundwater Level Monitoring

The earliest groundwater level data collected in the Seaside Basin were from the municipal wells in the coastal area, beginning in the mid-1950's. The coverage was sparse, however, and limited to a small area of the basin. Water level data collection in the coastal area became more consistent when Cal-Am began operations in the mid-1960's, but the lack of long-term, spatially-distributed groundwater level data compromised the ability to rigorously assess the condition of the basin in studies conducted during the 1970's and 1980's. The Monterey County Water Resources Agency (MCWRA) periodically monitored several wells in the basin until that monitoring was curtailed due to budget constraints in the early 1990's. Basic groundwater data collection improved beginning at that same time as the MPWMD undertook a program of installing dedicated monitor wells in each aquifer at key locations in and near the coastal area of the basin. A network of dedicated monitor wells was preferable in that the water level data are more indicative of conditions outside of the direct influence of production wells. The dedicated monitor well network has been expanded since then, and is now comprised of 24 wells at 14 locations in and near the coastal and northern portions of the basin, and an additional 16 wells at 12 locations in and near the Laguna Seca subarea. The locations of monitor and production wells in and near the basin are shown on **Figure 2**. Presently, the MPWMD collects water level data monthly from 19 of the 24 monitor wells in and near the coastal subareas. Seven of these monitor wells are also equipped with automatic dataloggers (i.e., recording pressure transducer units) set to record hourly water levels to complement monitoring as part of the MPWMD Aquifer Storage and Recovery (ASR) program in the basin. The MPWMD collects water level data semi-annually (in Spring and Fall to correspond with anticipated seasonal high and low water levels) from 16 monitor wells in and near the Laguna Seca subarea. In addition to water levels collected by the MPWMD, Cal-Am currently collects and reports to MPWMD monthly water levels from 14 active and inactive production wells in the coastal subareas, and 7 wells in the Laguna Seca subarea. .

3. Groundwater Quality Monitoring

Historically, groundwater quality data were sparse and were not readily available to adequately support characterization of groundwater quality in the basin in the early resource studies conducted in the 1970's and 1980's. In the early 1990's, the MPWMD

began a program to collect groundwater quality data from coastal monitor wells in the basin. This program has been expanded since then and now includes twelve (12) monitor wells at six (6) locations (**Figure 3**). Groundwater quality samples are currently collected annually and analyzed for a suite of inorganic parameters (i.e., general minerals) to assess long-term trends or changes that could indicate seawater intrusion. Based on the assessment of data from the MPWMD coastal monitor wells, there has been no indication of seawater intrusion into either of the basin's principal aquifers – the Paso Robles Formation or Santa Margarita Sandstone. In addition to the groundwater quality data collected by the MPWMD from its coastal wells, both the City of Seaside and Cal-Am collect complete general mineral groundwater quality data at least annually from their municipal production wells that serve water for potable use, as per requirements from the California Department of Health Services.

4. Surface Water Monitoring

Because dune sands cover much of the land area over the basin, precipitation falling on the basin does not produce appreciable surface runoff but directly infiltrates through the sandy soils. The exception is Arroyo Del Rey, which drains a portion of the Laguna Seca subarea. The U.S. Geological Survey measured discharge from this channel at Del Rey Oaks from 1966 to 1978, when this recording station was discontinued. The MPWMD re-established this as a recording station in 2002, and continuous streamflow records are currently maintained for this site.

5. Precipitation Monitoring

There are no long-term records of precipitation from monitoring stations within the Seaside Basin. Accordingly, basin precipitation estimates in previous water resources investigations have been based on records from nearby recording stations. The recent hydrogeologic assessment of the basin conducted for Cal-Am relied primarily on long-term records available from the National Oceanographic and Atmospheric Administration (NOAA) Station #045795 in Monterey (CH2M HILL, 2004, *Hydrogeologic Assessment of the Seaside Groundwater Basin*. Prepared for Somach, Simmons & Dunn and California American Water, January 2004. See page 2-2).

C. Basin Monitor Well Construction Program

1. Purpose

Notwithstanding the current groundwater monitoring efforts as described above, the Court recognizes that the present monitor well network is lacking adequate coverage in and near the Northern Coastal subarea of the basin, considered to be most vulnerable to seawater intrusion. Additionally, there are few existing monitor well control points to adequately define conditions along the northern basin boundary in the Northern Inland subarea. This section describes the Watermaster's planned exploratory drilling and monitor well construction activities that are designed to enhance the efficiency and utility

of the existing basin monitoring network. This program is based on the description provided in Exhibit A of the *Decision*, attached as Appendix 1 of this program. Any proposed departures from that description and the basis for them are also described herein.

To ensure that the coastal area is adequately monitored to detect potential seawater intrusion, exploratory drilling, geophysical surveying and monitor well construction will be undertaken. Based on current knowledge of the availability of existing subsurface control points in and near the coastal area of the basin, monitor wells shall be initially constructed at a minimum of four (4) additional coastal "sentinel" monitor well sites ("*Sentinel" monitor well sites* refers to the network of monitor well sites closest to the coastline in and near the Seaside Basin, which can serve as a first line of defense in detecting potential seawater intrusion) at approximately 3,000 feet spacing, in the area along the coast northeast of existing monitor well "WMD-PCA-W". It is anticipated that the four coastal sites will be selected from the six potential target areas sites that are shown on **Figure 4**. Four sites are in a line near the coastline and two sites are slightly farther from the coastline and in between the most coastal sites, to provide secondary coverage if seawater intrusion should occur in narrow lobes or fingers. The actual locations for the new coastal "sentinel" well sites must be carefully selected based on nearness to the coastline, coastal erosion potential, site logistics, and long-term access constraints.

In addition, two (2) inland sites near the northern basin boundary shall be selected for exploratory drilling and monitor well construction. The recommended target areas for these sites are also shown on **Figure 4**. Information developed from these inland sites will support an improved understanding of the occurrence and nature of the aquifer systems and groundwater levels in the vicinity of the northern basin boundary where there are no existing monitor or production wells, and will support long-term monitoring in the basin.

As a planning goal, it is anticipated that these new monitor well installations can be completed within approximately 18 months of the Court's approval of this document, as shown in **Figure 5**. A breakdown of the proposed schedule by task is also included in Section V. Based on previous experiences by the MPWMD in installing similar coastal and inland monitor wells in the basin, land availability, authorization and access are key issues that must be overcome to successfully site and construct the monitor wells. The optimal locations for the new coastal monitor wells are along the coastal bluffs of the former Fort Ord military base, on land that is currently under the jurisdiction of the U.S. Army, but ultimately planned for transfer to the California Department of Parks and Recreation (CDPR). Accordingly, approval of such activity in this area of former Fort Ord will require the acquisition of a long-term easement, and will likely include authorizations from the Army Base Realignment And Closure (BRAC) office, the Fort Ord Reuse Authority (FORA), the County of Monterey, and the CDPR. As an alternate option, if land use approvals prove too difficult or lengthy for the coastal bluff locations, consideration will be given to siting the new coastal monitor wells along the inactive railroad alignment through the former Fort Ord coastal area. The Transportation Agency

of Monterey County (TAMC) has recently acquired this property from the Union Pacific Railroad. Sites along the railroad alignment are less ideal in that they are approximately 500 to 1,500 feet farther from the coastline than the coastal bluff sites, but the approval process for use of these sites is anticipated to be less time consuming, and the MPWMD has already initiated discussions with TAMC on this issue. In any event, additional documentation from the Court endorsing its order to install the additional coastal monitor wells may be beneficial for the Watermaster to receive timely authorization for these monitor well installations.

As explained above, given the complexity of land use constraints and jurisdictional authority in the local setting, it is not likely that the exploratory drilling program can be conducted in the precise fashion described in Exhibit A of the *Decision*. Additionally, it is not envisioned that the exploratory drilling and geophysical surveys will be conducted as separate advance activities to facilitate subsequent siting of the new monitor well locations. Rather, monitor well clusters shall be installed at each of the carefully selected sites described above, with monitor well design and number of wells at each site guided by the lithologic and geophysical data to be collected in the manner described below. This is based on the MPWMD's past experience with exploratory drilling in the basin, wherein the actual occurrence of, and lithologic conditions within, each aquifer were variable from site to site, making it difficult to presume the monitor well designs and number of wells to be completed in advance. It is also noted that timely completion of the exploratory drilling and monitor well installation program described herein will require specialized drilling contractor services that may not be available locally, and could be limited by contractor availability.

2. Exploratory Borehole Drilling Program

A pilot borehole shall be constructed at each site, with the total depth targeted for the top of the Monterey Formation, which represents the effective base of the freshwater bearing formations at nearby locations in the basin. Total drilling depth at each site is anticipated to be 1,500 to 2,500 feet. Borehole lithologic samples (i.e., grab samples) shall be collected at ten-foot intervals (with the exception of any depths in the borehole at which continuous core samples can be collected). All collected lithologic samples shall be prepared and placed into labeled cases for storage and future inspection.

3. Geophysical Surveys

Upon completion of pilot drilling to the total depth, a complete suite of open borehole geophysical logs shall be run, including resistivity, spontaneous potential, caliper, temperature, gamma ray, and electromagnetic conductivity (EM) logs. These geophysical logs will provide a basis for describing the distribution of aquifers, occurrence of fine-grained interbeds and confining units between aquifers, water quality variations with depth, and the nature of groundwater flow and potential seawater intrusion, as was completed for a recent similar deep coastal monitor well construction project to the north of the Seaside Basin in the City of Marina (Hanson and others, 2002.

Geohydrology of a Deep-Aquifer System Monitoring-Well Site at Marina, Monterey County, California. U.S. Geological Survey Water-Resources Investigations Report 02-4003. Prepared in cooperation with the Monterey County Water Resources Agency (see page 12 for geophysical data description). In addition to the borehole geophysical logs, additional geophysical logging shall be conducted on the deepest cased well at each site and shall include gamma ray and EM logs. This additional logging will allow for comparisons with future annual geophysical logging surveys at each site as part of the ongoing monitoring program for early detection of salinity changes (i.e., potential seawater intrusion) into discrete zones within the aquifer system, that may otherwise go undetected by standard water quality sample collection.

5. New Monitoring Wells

Monitor well design shall be by multiple-well clusters at each site, either in the same or separate boreholes, unless an alternate well construction technique is authorized. Where present at each site, separate well casing strings shall be constructed with screened intervals within each recognized aquifer of the basin (e.g., Aromas Sand, Paso Robles, Santa Margarita) to provide a detailed vertical characterization of water levels and quality through the aquifer system. If observed conditions warrant, more than one well casing may be installed in each aquifer to more discretely characterize variable conditions in specific zones within the aquifer; however, this cannot be determined in advance of the exploratory drilling, as described above. For estimating purposes, it is assumed that four (4) wells will be installed at each well site cluster. The screened interval of each casing string shall be separated from other well completions by isolation seals if multiple wells are constructed in the same borehole. Each monitor well casing shall be a minimum two-inch inside diameter, and the deepest casing string at each well cluster shall be a minimum three-inch inside diameter to accommodate cased well geophysical logging tools.

D. Comprehensive Basin Production, Water Level and Water Quality Program

1. Purpose

The comprehensive monitoring program described herein is intended to guide ongoing data collection efforts in the basin to efficiently and economically provide the pertinent groundwater resource data that will establish a defensible basis for future decision-making by the Watermaster. Monitoring data collection tasks are described according to well location in or near the Seaside Basin. Coastal “sentinel” monitor wells refers to the closest monitor well sites to the coastline. Inland monitor wells refers to the monitor well locations in and near the Northern Inland and Laguna Seca subareas, and those monitor wells in the Southern and Northern Coastal subareas that are not included in the coastal sentinel monitor well network. “Production wells” refers to such wells in all four subareas of the basin.

2. Creation of Consolidated Basic Groundwater Resource Database

Currently, groundwater resource monitoring within the Seaside Basin is being conducted by several entities as described above in Section B. Basin Monitoring Background. A consolidated database will allow pertinent groundwater data to be more efficiently organized, managed and housed in a single location to facilitate: (a) ongoing data collection efforts, (b) data storage and retrieval, (c) distribution of basic data to Watermaster members and other interested parties, and (d) preparation of annual and periodic reports to the Watermaster. A database shall be created to contain all pertinent historical basic groundwater resource data (i.e., well production, level, quality) with proper annotations as to data sources, as well as all ongoing groundwater resource data collected on behalf of the Watermaster. The database will also include pertinent information on well type, location and construction details. In addition to the data organizational benefit, the consolidated database is intended to resolve any differences or discrepancies in existing datasets that have been compiled by separate entities. The MPWMD currently maintains a groundwater database that includes some of the features described herein. The Watermaster will need to determine if the MPWMD's database should be expanded or a new database should be created for this purpose. A breakdown of the proposed schedule by task is shown on Figure 5, and also is included in Section V.

3. Monitoring of Coastal "Sentinel" Monitor Wells

a) Water Level Monitoring

All coastal sentinel monitor wells (existing and proposed) shall be monitored on at least a monthly interval to record manual water level measurements. In addition, all coastal sentinel monitor wells shall be equipped with automatic dataloggers to continuously record groundwater levels in each aquifer measured. The dataloggers will be set to record no less frequently than a daily interval and will be downloaded at least quarterly. The dataloggers will be calibrated/confirmed initially and on at least a quarterly basis with the manual water level measurements. All collected data will be entered into the consolidated groundwater resource database on a quarterly basis.

b) Water Quality Monitoring

All coastal sentinel monitor wells (existing and proposed) shall be sampled on a quarterly interval by extraction of water samples (using standard sampling protocols) for chemical analysis by a state-approved laboratory. Parameters to be analyzed will at a minimum include the full general inorganic mineral suite. All collected water quality data will be entered into the consolidated groundwater resource database on a quarterly basis. Proposed new monitor wells may be sampled on a more frequent basis during the first year after construction to establish water quality variability at these locations. In addition, all coastal sentinel monitor wells (existing and proposed) shall be equipped with automatic dataloggers to continuously record groundwater quality (electrical conductivity and/or chloride) in each aquifer measured. The dataloggers will be set to record no less frequently than a daily interval and will be downloaded at least quarterly. The dataloggers will be calibrated/confirmed initially

and at least quarterly with the chemical analysis data collected at each monitor well. On an annual basis, geophysical logs will be run at the deepest well at each of the new coastal sentinel monitor well sites. Also, an existing inactive Cal-Am production well in the Northern Coastal subarea, known as the "Del Monte Test" well, will be evaluated for possible inclusion with the coastal sentinel monitor well network.

4. Monitoring of Inland Monitor Wells

a) Water Level Monitoring

All inland monitor wells (existing and proposed) shall be monitored for water levels on at least a quarterly interval (This is an increased frequency from the semi-annual to annual water level monitoring recommended in the report: Yates and others, 2002, *Laguna Seca Subarea, Phase III Hydrogeologic Update*, prepared for MPWMD, November 2002 (see page 65)). In addition, at least two monitor well sites in the Laguna Seca subarea shall be equipped with automatic dataloggers to continuously record groundwater levels in each aquifer measured (This follows from a recommendation to instrument monitor wells to better understand water level variations in the report: Yates and others, 2002, *Laguna Seca Subarea, Phase III Hydrogeologic Update*, prepared for MPWMD, November 2002. See page 65). The dataloggers will be set to record no less frequently than a daily interval and will be downloaded at least quarterly. The dataloggers will be calibrated/confirmed initially and on at least a quarterly basis with the manual water level measurements. All collected data will be entered into the consolidated groundwater resource database on a quarterly basis.

It is noted that there are few existing monitor or production wells in parts of the Laguna Seca and Southern Coastal Subareas (refer to Figure 2), from which ongoing water level data collection would be of use in obtaining pertinent groundwater resource data. With few exceptions, data from existing wells could not be utilized to improve the basic hydrogeologic understanding and ultimate groundwater simulation modeling of the aquifer flow system from the Laguna Seca Subarea to the coast. Accordingly, in addition to the water level monitoring described above, it will be necessary for the Program to include, as an additional task, the investigation of potential existing or new monitor well sites that can be added at key locations in the Laguna Seca and Southern Coastal Subareas. As a part of this task, recommendations as to how to accomplish this objective will be developed. These new wells will facilitate improvement to the monitor well network. In addition, the Program will include as a further task, investigation of whether water quality constituents in groundwater originating from the Laguna Seca Subarea should be analyzed to improve the basic hydrogeologic understanding in order to compliment groundwater simulation modeling of the aquifer flow system from the Laguna Seca Subarea to the coast.

b) Water Quality Monitoring

Regularly scheduled water quality monitoring is not anticipated for the inland monitor wells, with the following exceptions: (a) the full general inorganic mineral suite of parameters shall be analyzed initially and quarterly for the first year, for any newly-constructed inland monitor wells to characterize background water quality at new locations, and (b) any water quality monitoring as part of special studies that may be directed by the Watermaster.

5. Monitoring of Production Wells

a) Water Level Monitoring

All active and inactive production wells in the basin owned and/or operated by a Watermaster member shall have static (i.e., non-pumping) water levels collected and recorded a minimum of once per month. It shall be the responsibility of each owner/operator of a Watermaster member production well to report monthly water level measurements to the Watermaster on an annual basis for inclusion of these data in the consolidated groundwater resource database.

b) Water Quality Monitoring

All active production wells in the coastal subareas of the basin owned and/or operated by a Watermaster member shall have a water quality sample from each well collected and analyzed by a state-approved laboratory for the full general inorganic mineral suite a minimum of once per year. It shall be the responsibility of each owner/operator of a Watermaster member production well to report water quality analytical results to the Watermaster on an annual basis for inclusion of these data in the consolidated groundwater resource database.

6. Reporting of Monitoring Data

It is anticipated that initially the Watermaster shall receive and distribute to members and interested parties a summary report of water resources data collected on behalf of the Watermaster on a quarterly basis. The quarterly reports shall include the reporting of water level and water quality data collected from the existing and proposed monitor wells as described herein. In addition, the monitor well data shall be summarized along with other information required in the Watermaster annual reports to be prepared and filed with the Court. Groundwater monitoring data will be prepared to conform to State Standards where appropriate or required.

E. Estimated Monitoring Program Costs

At this time only a preliminary "order of magnitude" estimate (*"Order of magnitude" cost estimates* refers to approximate costs with an estimated accuracy of +/- 40%.) of costs is

available for the basin monitoring functions described in this Program. It is anticipated that refined costs will be available once proposals for exploration, monitoring and data management have been received, reviewed and authorized by the Watermaster. One-time costs for exploratory drilling, geophysical surveying and monitor well construction are estimated at $1,080,000. One-time costs for development of the basic groundwater database, and purchase and installation of water level/water quality dataloggers are estimated at $62,000. First year annual costs for groundwater database maintenance, and coastal and inland well monitoring are estimated at $61,680. A more detailed breakdown of estimated monitoring program costs is included in **Figure 6**. "Order of Magnitude" Cost Estimate Summary for Basin Monitoring Program Portion.

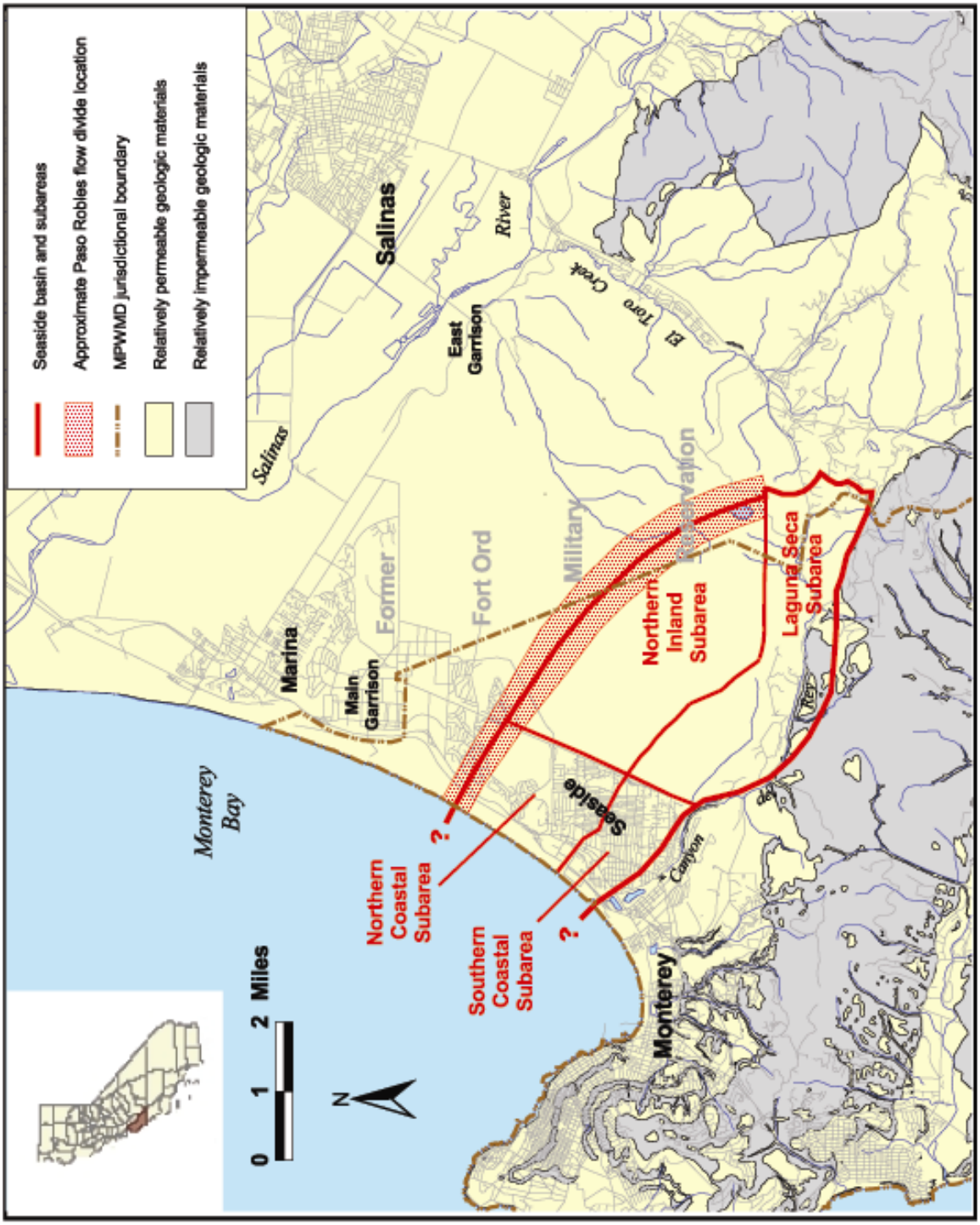


Figure 1. Location of the Seaside Groundwater Basin

Figure 2. Location of Production and Monitor Wells in and Near the Seaside Basin

Figure 3. Location of Existing Coastal Groundwater Quality Monitor Wells in an Near the Seaside Basin

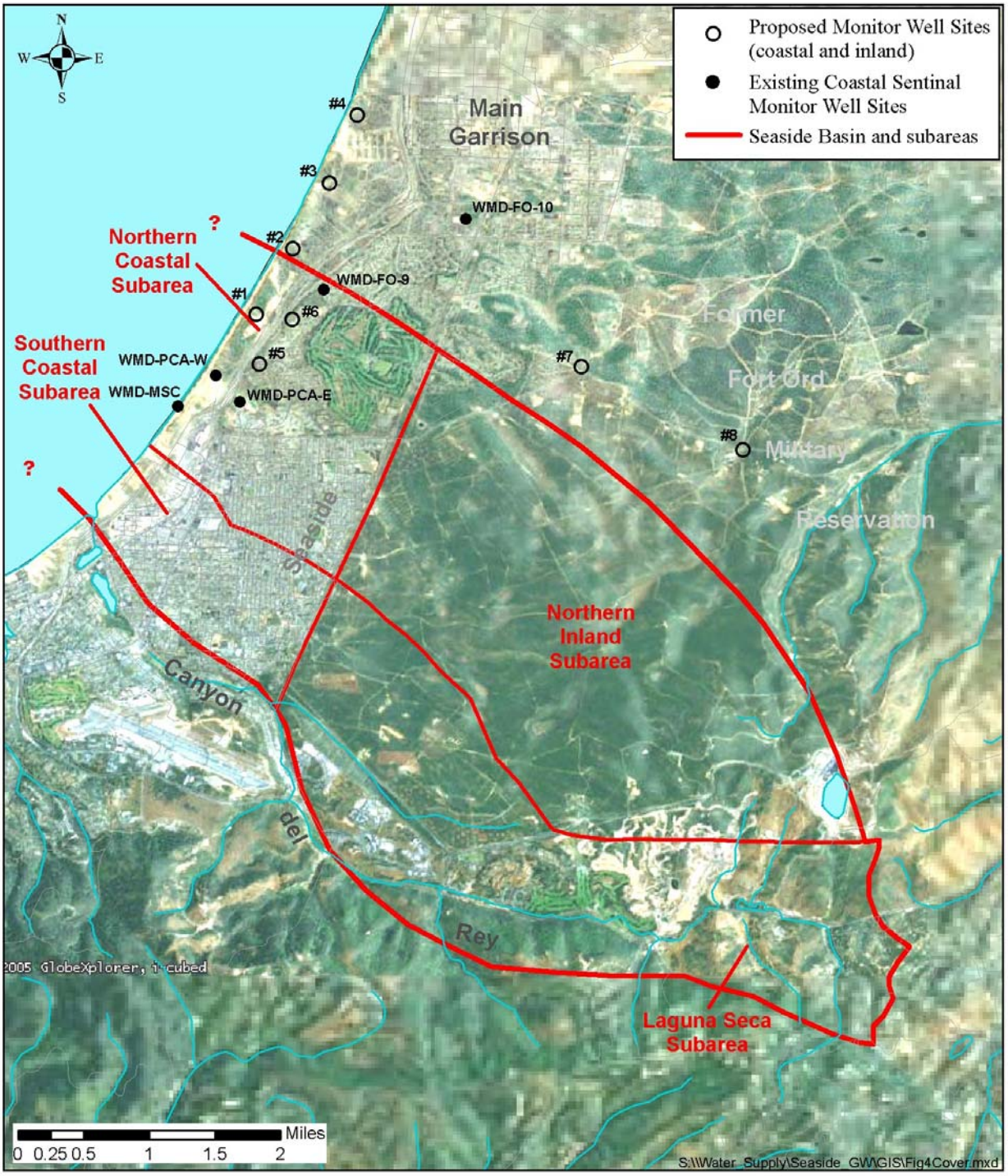


Figure 4. Location of Existing Coastal Sentinel Monitor Well Sites and Proposed Monitor Well Sites (Coastal and Inland) In and Near the Seaside Basin

Figure 5. Schedule by Task for Select Basin Monitoring Program Elements

No.	Task	Duration (Days)	Start	Finish
	Basin Monitor Well Construction Program			
1	Develop scope of services and RFP for consultant program oversight	60	7/1/2006	8/31/2006
2	Review proposals, secure oversight consultant contract	30	9/1/2006	9/30/2006
3	Oversight consultant completes site acquisition approvals	180	10/1/2006	3/31/2007
4	Develop scope of services and request bids for drilling/monitor wells	90	1/1/2007	3/31/2007
5	Review bids, secure contract(s)	30	4/1/2007	4/30/2007
6	Drill, equip and collect initial monitoring data	150	5/1/2007	9/30/2007
7	Prepare and submit completion report to Watermaster	60	9/1/2007	10/31/2007
	Creation of Consolidated Basic Groundwater Resource Database			
1	Develop database RFP	30	7/1/2006	7/31/2006
2	Review proposals, select consultant	30	8/1/2006	8/31/2006
3	Develop and approve database format	30	9/1/2006	9/30/2006
4	Populate database (historical data from all sources)	60	10/1/2006	11/30/2006
5	Populate database (current monitoring data)	30	12/1/2006	12/31/2006
6	Prepare database documentation report	30	1/1/2007	1/31/2007

Prepared for Seaside Basin Watermaster, May 2006

Figure 6. Seaside Basin Monitoring and Management Program "Order of Magnitude" Cost Estimate Summary for Basin Monitoring Program Portion

Task	Cost / Unit	# of Units	Cost / Site	# of Sites	One-Time Cost	Annual Cost
Exploratory drilling / geophysical surveying / monitor well construction						
Assume average TD = 1,800 feet; $100/ft lump sum	$100	1800	$180,000	6	$1,080,000	
Basic groundwater resource database						
Develop / populate: 200 hours	$70	200			$14,000	
Annual maintenance: 40 hours/quarter x 4/yr	$70	160				$11,200
Monitoring of coastal "sentinel" monitor wells						
Purchase/install WL/WQ dataloggers (6 existing wells; 16 new wells)	$2,000	22			$44,000	
Manual WL monitoring: 8 hrs/mo x 12 mo/yr	$70	96				$6,720
WQ sample collection: 3 hrs/pers/site x 2 pers x 4/yr	$70	24	$1,680	8		$13,440
WQ sample lab analyses: $200/sample gen. Minerals x 4/yr x 22 wells	$200	4		22		$17,600
Annual maintenance, WL/WQ dataloggers: 16 hrs/quarter x 4/yr	$70	64				$4,480
Annual geophysical surveys	$1,500			4		$6,000
Monitoring of inland monitor wells						
Manual WL monitoring: 8 hrs/quarter x 4/yr	$70	32				$2,240
Purchase/install WL/WQ dataloggers (2 existing wells)	$2,000	2			$4,000	
TOTAL ONE-TIME COST					**$1,142,000**	
TOTAL ANNUAL COST (first year)						**$61,680**

NOTES:

1. Cost estimates are at the preliminary "order of magnitude" level, with estimated accuracy of +/- 40%.

2. Cost estimates are subject to change as plans and scope are refined by Watermaster

III.
Basin Management Program

A. Development of a Seaside Basin Management Plan

1. Program Objectives

The objectives of the Basin Management Program, as stated in the Court's *Decision*, are to optimize groundwater pumping, control seawater intrusion, and return the Basin to equilibrium through implementation of conservation methods, through the importation of supplemental water for direct use and Basin replenishment. The Program will serve as the technical roadmap for future basin management decisions to achieve the management objectives in a cost-effective manner while balancing potential socio-economic impacts to users of Seaside Basin groundwater. The Program will be developed in a way that provides flexibility in the future to respond to changing conditions in the basin and new information that becomes available as the basin monitoring program is implemented.

2. Program Development

The Watermaster will oversee the development of the plan, utilizing member agency staff expertise and/or consultants where appropriate to conduct detailed technical analyses and investigations. The Watermaster should seek available grants and loans for plan development through the California Department of Water Resources or from other resources available to assist in alternative regional solutions that support the plan.

3. Key Program Elements

The Seaside Basin Management program will consist of the following key elements:

a. Development and implementation of a program for collecting and analyzing data related to groundwater production, water levels, water use, land use, rainfall, and other pertinent information useful in managing the basin. The Plan will outline the criteria and protocol to be used in triggering basin management actions. The MPWMD currently has an extensive data collection and management system that includes much of the data that will be required as part of the Seaside Basin Management Program. The MPWMD program will be evaluated during Plan development for use as a base upon which necessary data collection and storage enhancements can be made.

b. Development of an enhanced Seaside Basin groundwater model to be used in developing improved estimates of natural and secondary basin recharge, Total Useable Storage Space for the Seaside Basin, Operating Safe Yield, Natural Safe Yield, and basin management strategies. In addition, the modeling effort will asses

whether relocation of production from existing wells can be achieved to optimize the Natural Safe Yield within the Coastal and Laguna Seca subareas of the Basin. Technical consultants will be utilized for the task of developing a model and modifying existing groundwater models wherever possible. Existing models that will be evaluated for modification include but are not limited to: Laguna Seca Phase III Report (Yates et. al 2002), Sand City Desalination studies (Feeney & Williams, 2004), and Seaside Basin adjudication trial model (Durbin, 2005). No model development cost estimates have been provided in this document. A formal technical review of the models will be conducted in order to develop a scope of work and budget for the project.

c. Development of recommendations regarding implementation of strategies to import supplemental water supplies into the basin, including:
   - Substitution of alternative supplies for Basin groundwater (including in-lieu recharge).
   - Direct aquifer replenishment of pumping in exceedence of basin Natural Safe Yield.

   Potential water sources for the above strategies include reclaimed water for irrigation of large turf areas and/or direct recharge, surplus Carmel River Water for aquifer replenishment during the winter months, and local desalination projects such as that proposed by Sand City and regional desalination project, such as that proposed by California American Water. Supplemental supplies will be evaluated with regard to cost and environmental constraints to implementation. Plan recommendations will include concrete steps for project implementation over specific time periods, including near-term and long-term actions.

d. Development of strategies for redistribution of pumping to avoid various adverse impacts within the basin.

IV.
Seawater Intrusion Contingency Program

A. Objective

If seawater intrusion is detected in a coastal production or monitoring well, it is imperative that pumping stresses be reduced so that the seawater is not pulled further inland or otherwise spread into a larger area of the Basin where it may contaminate additional wells. Accordingly, the objective of the Seawater Intrusion Contingency Program is to set forth the actions that will be undertaken if seawater intrusion is detected in a coastal well to prevent the seawater from contaminating larger portions of the Basin. The purpose of this section is describe how the presence and extent of seawater intrusion will be determined by the analysis of the existing and the future enhanced coastal seawater intrusion water quality monitoring program. The seawater intrusion contingency planning process to address the detection and presence of seawater intrusion will then be discussed.

B. Seawater Intrusion Analysis

In order to detect and determine the extent of seawater intrusion, the mechanism of seawater intrusion must first be defined and then described. The analysis of the water quality monitoring data and mapping of the extent of seawater intrusion will follow.

1. Seawater Intrusion – Description of Problem and Process

Intensification of water use on ground water resources can cause the depletion of groundwater storage and lower groundwater levels in a basin. Declining groundwater levels to an elevation below mean sea level may eventually cause inflow of seawater into aquifers along coastal areas. As seawater moves inland, ground water chloride values increase over time.

2. Seawater Intrusion - Definition

For the purposes of defining when actions described in Section C of the program will be taken, the seaside groundwater basin aquifers will be defined as seawater intruded when the chloride concentrations in a coastal monitor well reach approximately 100 mg/l and 250 mg/l for the Paso Robles and Santa Margarita formations respectively. For a coastal production well, the standard will be when chloride concentrations reach 250 mg/l, given that some production wells have multiple aquifer completions with water quality that reflects a blend from these sources. These standards will be used until more comprehensive standards based on historical water quality data at individual monitor and production wells can be developed. Each monitoring well and production well in the groundwater network will be evaluated on site-specific criteria. In addition, the Watermaster will institute interim standards for notice of potential seawater intrusion so that appropriate preventative actions may be taken. Interim notice for seawater intrusion will be defined as a 50 percent increase above ambient chloride concentrations for any

specific monitoring well location. Generally accepted laboratory protocols and hydrogeologic methods will be employed for the determinations of seawater intrusion.

3. Description of Water Quality Related to Seawater Intrusion

The California Safe Drinking Water Secondary Standard for chloride ranges from the recommended maximum for drinking water of 250 mg/L chloride and an upper limit of 500mg/L chloride. By the time chlorides reach the latter concentration, many times the wells are abandoned or destroyed due to unacceptable aesthetic qualities such as taste due to mineralization. The standards mentioned above dictate that, for drinking water purposes, chloride concentrations will be the primary water quality indicator for the determination of seawater intrusion. Other complementary inorganic parameter concentrations will also provide supplemental data for water quality trend analysis and aquifer water quality characterization (calcium, magnesium, sodium, potassium, sulfate, and nitrate) called "fingerprinting". The analysis of these combined parameters will determine aquifer impacts by seawater intrusion.

Background chloride values may vary by aquifer depending on aquifer characteristics. For this reason, chloride values generated from the water quality monitoring program will be referenced to the 100mg/L and 250 mg/L chloride concentrations to determine aquifer impacts by seawater intrusion. In the coastal Salinas Valley, the agricultural community recognizes chloride values under 100mg/L as excellent to good irrigation quality. After determining if seawater intrusion is present, the observance of increasing chloride trends from the baseline up to 250mg/L chloride will be analyzed to determine the advancement of seawater intrusion. It must be noted that seawater intrusion is a gradual process due to the chemical interactions between the geologic formations in the aquifers and seawater. It is critical that the Watermaster Board is kept informed whenever chloride levels reach levels in excess of the interim standard so that appropriate action can be taken.

4. Data Analysis Tools and Data Analysis

The water quality data analysis exercise requires certain tools. These tools include different types of computer software to digitally identify the location of wells, to quality check data, and to generate graphs, diagrams, and chloride contour lines. Before a thorough analysis of the water quality data can begin, the following software will be required:

- Geographic Positioning System (GPS) equipment to provide latitude/longitude location for study wells
- Excel to graph chloride trends for each well
- Water quality graphing software to represent water quality data in "stiff" and "trilinear" diagrams
- ArcView GIS 3.3 to generate chloride contour lines

Once the software is obtained and personnel are trained, immediate evaluation of the existing monitoring data can begin. Compilation of the data in a central database will be required along with data checking for correctness and GPS digital locations for all wells

must be obtained. If the exiting study wells have historical data, the first step is to graph the chloride values for each well to determine any increasing trends over time. The next step is to determine the "fingerprint" or the water quality characteristics for each well with the use of stiff diagrams. Stiff diagrams show the complete inorganic suite of water quality data concentrations represented on a graph. This provides instant recognition the "fingerprint" of water being pumped from each of the aquifers. Like aquifer wells will have similar water quality fingerprints. The next water quality graphing step, prior to contouring the well chloride data, is to create a trilinear diagram for multiple wells. The inorganic water quality concentrations for each well will be represented on one graph in comparison to the same constituent concentrations of seawater. This graph enables the analyst to determine inorganic parameter concentration trends toward varying degrees of seawater intrusion. Using generally accepted standards, it must be confirmed whether elevated chloride concentrations are an anomaly or are due to seawater intrusion. The last step in the water quality data analysis is to contour the chloride data for each of the coastal monitoring wells on a map to compare and contrast chloride values. To contour, the following protocol will be followed utilizing ArcView GIS 3.3:

- Create a .dbf file that includes facility codes, chloride values and sampling dates information
- Import .dbf file into Arc-View
- In Arc-View, open a new view
- In the menu bar, under View choose the add Theme button and add the shape file with wells to be contoured
- In the View window, "open the tables of active themes", which will bring up the attributes table
- Open both the .dbf file and the study wells shape file, join the tables
- Choose create contours under Surface in the view window
  - Create contours, select Output Grid Extent option
  - Choose spline method to interpolate surface type field
  - Choose chloride for "Z" value field
  - Choose appropriate weight and number of points (hint: start with default values to see what the default contour looks like)
- Classify quantiles using Legend Editor menu
  - Choose chloride value for value field. Classify according to chloride concentration e.g. 100 mg/L, 250 mg/L, or 500 mg/L
  - Assign line type according to chloride concentrations

After the draft chloride contour map is generated, multiple technical review sessions must take place by all entities, MPWMD, Cal Am, and MCWRA, to evaluate the data representation. This will enable the entities to determine if the data are correctly being represented on the map, and if so, lead to the implementation of an action program. Well production amounts, seasonal precipitation, and water conservation efforts in each of the geographic areas will be useful in interpreting the chloride contour map. Once this first step is completed to determine the baseline chloride contours, a more thorough evaluation will be accomplished once the data is generated from the new coastal dedicated monitoring wells.

Take note that there are other, less routinely used, data analysis tools available to further delineate seawater intrusion and its advancement. Some tools, among others, include water quality stable isotope analysis and periodic well borehole geophysics.

The data analysis of seawater intrusion will be performed on an annual basis beginning January 2007 after the period of monitoring during heavy pumping is completed from May through November 2006.

It is recognized that acquisition and development of the tools necessary for the seawater intrusion monitoring analysis described above will take time to fully implement by the Watermaster. As an interim measure until this portion of the Program is completed and ready to be fully utilized, pertinent water quality data compilation and analysis will be prepared and presented to the Watermaster using existing methods that do not rely upon completion of all the steps as in the above-described protocol. This interim measure will be accomplished and reported to the Watermaster beginning with the first Board meeting immediately after the data from the MPWMD's budgeted October 2006 coastal monitor well groundwater quality sampling results are available, so that potential seawater intrusion can be detected and addressed at the earliest possible date.

Water Quality Data Analysis Tools and Data Analysis Timeline

Task	Estimated Start Date	Estimated Completion Date
1. Interim Data Analysis (Water Quality Data Compilation and Analysis)	August 2006 -	December 2006
2. Obtain software and train personnel	August 2006 -	December 2006
3. Compile and Check Existing Data Sources	September 2006-	December 2006
4. Development of Sea Water Intrusion Assessment Tools	November 2006 –	January 2007

Purchase of GIS tool will provide the following:

- Graph chloride values for each well
- Determine "fingerprint" or water quality characteristics for each well with the use of stiff diagrams
- Create a trilinear diagram for multiple wells

Purchase of Fox database tool will provide the following:

- Confirm whether elevated chloride concentrations are an anomaly or are

due to seawater intrusion

Purchase of Arcview tool will provide the following:

- Map chloride data contours for each of the coastal monitoring wells to compare and contrast chloride values

5. Evaluate data representation and establish baseline chloride levels — November 2006- February 2007

6. Evaluate baseline chloride contours — December 2006 - March 2007

C. Actions to be Taken Subsequent to Detection of Seawater Within in a Coastal Well

The following actions are to be taken in accordance with Exhibit A of the *Decision (Case No. M66343)*

1. If seawater intrusion is detected in a coastal production or monitoring well ("Contaminated Well"), the Contaminated Well will discontinue pumping and all other wells that produce groundwater from the intruded aquifer that are within one-half mile of the affected monitoring well ("Threatened Wells") will immediately reduce their monthly production to the equivalent of one-half of their average monthly production[1] within the previous five years upon notification from Watermaster of the detection of seawater intrusion within the Contaminated Well.

2. Watermaster shall increase monitoring of groundwater levels within the one-half mile radius of the Contaminated Well to determine if the requisite pumping reductions sufficiently affect groundwater gradients to prevent the further spread of seawater intrusion toward the Threatened Wells. This increased monitoring effort will include installing at least one new monitoring well as a sentinel well between the Contaminated Well and the nearest down-gradient active Threatened Well.

3. After six months of reduced pumping of the Threatened Wells, the threat of further seawater intrusion will be re-evaluated. If the requisite pumping reductions have failed to sufficiently affect groundwater gradients to prevent the further spread of seawater intrusion toward the Threatened Wells, those wells will further reduce their monthly production to the equivalent of one-third of their average monthly production within the previous five years upon notification by Watermaster that such further reductions are required.

4. After another six months of monitoring, the direction of groundwater gradients will again be evaluated. If there continues to be a groundwater gradient that would pull the detected seawater towards the Threatened Wells, then the Threatened Wells shall discontinue pumping, unless in Watermaster's determination, doing so would create a public health and/or safety risk.

5. If, after the initial discovery of the initial seawater intrusion, seawater is encountered in an additional monitoring or production well, pumping reductions will be required for nearby threatened production wells (i.e., production wells within one half mile of the recently contaminated well) in the same manner as set forth above for first Contaminated Well.

If the implementation of the procedures set forth above cause a production well to reduce its pumping or to cease pumping altogether, all reasonable efforts shall be undertaken by the Watermaster and all other Parties that Produce Groundwater from the Basin to insure that the lost production capacity and associated water supply for that well owner/operator will be replaced by redistributing pumping, or provision of replacement water from other sources.

D. Efforts to Redistribute or Replace Water Lost Because of Seawater Intrusion Contingency Plan

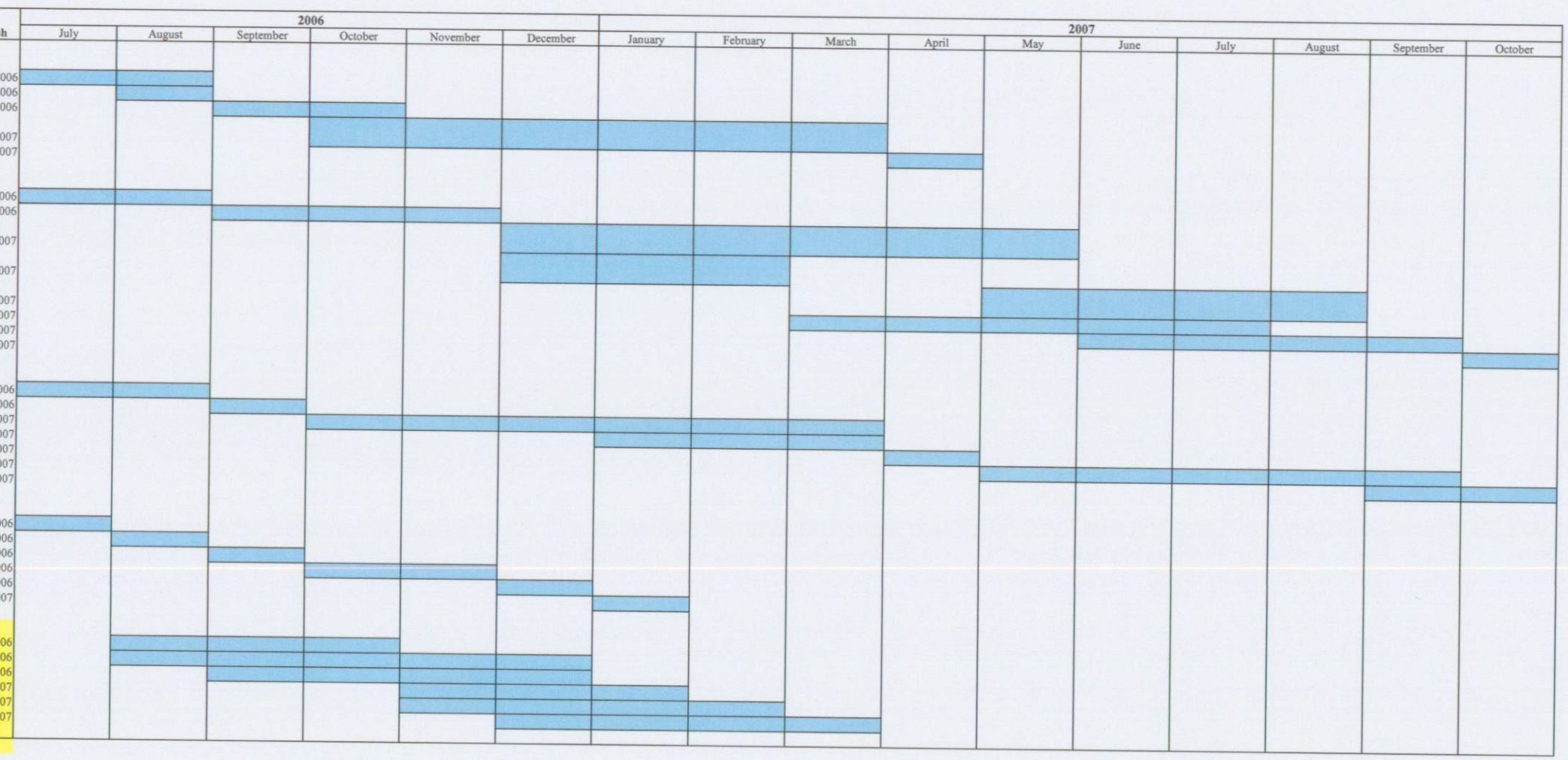
The Monterey Peninsula has faced the constant specter of water shortage for decades. The Monterey Peninsula Water Management District has developed an *Expanded Conservation and Standby Rationing Plan* (included in the program as Appendix 2) that responds to a number of water supply shortage scenarios. Saltwater intrusion and subsequent management of an event will require planning and coordination of all Seaside Basin users

In the event that supplies cannot immediately be replaced with supplies from other Seaside Basin wells or from outside sources, the Monterey Peninsula Water Management District would, in conjunction with California American Water, implement the appropriate actions called for in the *Expanded Conservation and Standby Rationing Plan* (MPWMD Regulation XV, Rules 160 – 175) for the Cal Am service area. The plan will be amended by January 2007 as needed to use detected seawater intrusion episodes as a trigger for the implementation of the plan to also include the Seaside Water Main System.

A contingency planning program will enable quick action to take place to address any seawater intrusion scenario that may arise from the annual analysis of the seawater intrusion water quality.

V. Basin Monitoring and Management Program Implementation Schedule

No.	Task	Duration (Days)	Start	Finish
	Groundwater Modeling for Seaside Basin Through Consultant:			
1	Review (E) groundwater models, select best model for enhancement	61	07/01/2006	08/31/2006
2	Develop scope of services & budget for model enhancement project	29	08/01/2006	08/30/2006
3	Advertise, select consultant, execute contract	59	09/01/2006	10/30/2006
4	Complete model development & calibration, run scenario evaluations, develop improved estimates of basin recharge and safe-yield	180	10/01/2006	03/30/2007
5	Provide training in use of model to Watermaster Technical Committee	29	04/01/2007	04/30/2007
	Seaside Basin Management Program:			
1	Develop scope of services & budget for consultant	60	07/01/2006	08/30/2006
2	Advertise, select consultant, execute contract	90	09/01/2006	11/30/2006
3	Develop Basin Monitoring Plan, Seaside Basin Watermaster Database & data collection & analysis protocol	180	12/01/2006	05/30/2007
4	Evaluate options for importation of supplemental water supplies into the Seaside Basin, develop action plan	89	12/01/2006	02/28/2007
5	Using groundwater model from task above, analyze & develop strategies for improved basin management	122	04/30/2007	08/30/2007
6	Develop action plan to avoid adverse impacts on the basin	152	02/28/2007	07/30/2007
7	Draft Seaside Basin Management Plan Report for Watermaster review	121	06/01/2007	09/30/2007
8	Produce Final Seaside Basin Management Plan	29	10/01/2007	10/30/2007
	Basin Monitor Well Construction Program:			
1	Develop scope of services and RFP for consultant program oversight	60	07/01/2006	08/31/2006
2	Review proposals, secure oversight consultant contract	30	09/01/2006	09/30/2006
3	Oversight consultant completes site acquisition approvals	180	10/01/2006	03/31/2007
4	Develop scope of services and request bids for drilling/monitor wells	90	01/01/2007	03/31/2007
5	Review bids, secure contract(s)	30	04/01/2007	04/30/2007
6	Drill, equip and collect initial monitoring data	150	05/01/2007	09/30/2007
7	Prepare and submit completion report to Watermaster	60	09/01/2007	10/31/2007
	Creation of Consolidated Basic Groundwater Resource Database:			
1	Develop database RFP	30	07/01/2006	07/31/2006
2	Review proposals, select consultant	30	08/01/2006	08/31/2006
3	Develop and approve database format	30	09/01/2006	09/30/2006
4	Populate database (historical data from all sources)	60	10/01/2006	11/30/2006
5	Populate database (current monitoring data)	30	12/01/2006	12/31/2006
6	Prepare database documentation report	30	01/01/2007	01/31/2007
	Water Quality Data Analysis Tools			
1	Interim data analysis	90	08/01/2006	10/31/2006
2	Obtain software and train personnel	150	08/01/2006	12/31/2006
3	Compile and check data	120	09/01/2006	12/31/2006
4	Evaluate existing monitoring data	90	11/01/2006	01/31/2007
5	Evaluate data representation and establish baseline chloride levels	120	11/01/2006	02/28/2007
6	Evaluate baseline chloride contours	120	12/01/2006	03/31/2007



NOTE: This schedule is subject to change

Appendix 1

Exhibit A of the *Decision* in the Superior Court of the State of California in and for the County of Monterey, Case No. M66343

Principles and Procedures of the Seaside Basin Monitoring and Management Plan

Introduction

This document sets forth the criteria that will guide the Watermaster in creating the Seaside Basin Monitoring and Management Plan. It also establishes a procedure for dealing with seawater intrusion, should the same occur, during the time the Watermaster is developing its plan of action to deal with such an eventuality.

Plan Criteria

Within sixty days of entry of the Judgment by the Court, the Watermaster will submit for the Court's approval a Monitoring and Management Plan containing details for implementation of the following actions:

a. *Exploratory borehole drilling program.* About four exploratory boreholes shall be drilled along the shoreline and the northern boundary of the Basin to depths ranging from 500 to 1500 feet, the depth being controlled by the depth of the Monterey formations. Lithologic samples shall be collected and classified for every one foot of drilling. A full suite of geophysical logs shall be collected. The data collected as part of this program shall be compared to other well data in the Seaside Basin to further refine the hydrogeologic conceptual model in the areas between the production wells and saline groundwater.

b. *Geophysical surveys.* Geophysical surveys shall be performed along the shoreline and the northern boundary of the Basin, intersecting the test borehole locations. The results of the geophysical surveys shall be calibrated against the test borehole data. The borehole data and the surveys shall be analyzed to characterize the near shore hydrology and to locate and design new monitoring wells.

c. *New monitoring wells.* About four to six monitoring well clusters shall be drilled and installed along the shoreline and the northern boundary of the Basin. Each cluster shall consist of at least four to five wells to provide a detailed vertical characterization of head and water quality through the aquifer system. The Watermaster shall coordinate the placement of the wells with MPWMD, which already has some monitoring wells in place with plans to drill more, to avoid duplication of effort and cost inefficiencies.

d. *Design and implementation of a piezometric and water quality monitoring program.* Pressure transducers and ionic probes (EC and Cl) shall be installed in each well at each cluster. These probes will record water levels and water quality on a frequent interval (every 15 minutes for water levels, and every day for water quality). Where possible, similar probes will be installed in the pumping wells to record water levels and on/off cycles. Grab samples will be obtained periodically to true up the ionic probes. These data will be analyzed to assess the state of seawater

intrusion, reveal groundwater barriers within the aquifer system, and more accurately estimate aquifer system parameters.

e. *Development and implementation of a management program.* The objectives of the management program will be to optimize pumping, halt seawater intrusion, and return the Basin to equilibrium through implementation of conservation methods; replacement of water drawdown by substitution of reclaimed water, where appropriate, infusion of imported water into the aquifer; and utilization of controlled pumping schedules through analysis of real-time monitoring.

f. *Develop criteria for use by the Watermaster in determining any modification of the Operating Yield.*

The management program will include periodic review of monitoring information and the use of this review to guide near-term and long-term groundwater pumping. If seawater is detected by the MPWMD monitoring wells currently in place, or by pumping wells, or by the monitoring well system contemplated by this document, the Watermaster shall follow the procedures developed pursuant to the mandate of the following paragraph. If it is detected before such procedures are in place, the Watermaster shall follow the procedure set forth in the *Interim Contingency Procedure to Contain Seawater Intrusion*, infra.

Within one year after entry of the Judgment by the Court, the Watermaster will: (a) develop improved estimates of the natural and secondary recharge within the Seaside Basin; (b) develop and implement a program for collecting groundwater production, water use, and land use data for the Seaside Basin and appropriate adjacent areas; (c) develop a suitable groundwater model of the Seaside Basin and appropriate adjacent areas; (d) develop a plan of action to be implemented to avoid various adverse effects in the Basin, including seawater intrusion; and (e) develop a plan of action to contain seawater intrusion, should it occur. The plan of action to avoid adverse effects in the Basin shall include a timeline for the importation of Non-Native water for spreading or injection into the Basin, and for acquisition of recycled water in lieu of Native Water production, and shall outline concrete steps to be taken to secure both Non-Native Water and recycled water.

<u>*Interim Contingency Procedure to Contain Seawater Intrusion*</u>

If Seawater intrusion is detected in the Basin during the development of the Watermaster's Management Plan, the following contingency plan will be set in motion to prevent seawater from contaminating larger portions of the Basin:

a. *Detection in a coastal monitoring well.* If seawater intrusion is detected in a coastal monitoring well, it is imperative that pumping stresses be reduced so that seawater is not pulled inland to producing wells. To accomplish this, all wells that produce from the intruded aquifer that are within one-half mile of the affected monitoring well will reduce their production to the equivalent of one-half their previous five-year pumping average. Monitoring of groundwater levels within the one-half mile radius

of the affected well will be increased to determine if groundwater gradients following reductions in pumping have been modified sufficiently to prevent further seawater intrusion. This increase in monitoring effort will include installing at least one new monitoring well as a sentinel between the affected monitoring well and the nearest down-gradient active production well. After six months of reduced pumping, the threat of further seawater intrusion will be re-evaluated. If there continues to be a groundwater gradient that would pull the detected seawater toward producing wells, the pumping wells within one-half mile of the affected monitoring well will further reduce pumping to one-third of their previous five-year pumping average. After another six months of monitoring, the direction of groundwater gradients will again be evaluated. If there continues to be a groundwater gradient that would pull the detected seawater towards producing wells, then the wells with reduced pumping will discontinue pumping. If, after the initial discovery of intrusion, seawater is encountered in an additional monitoring well, pumping reductions will be required for nearby producing wells in the same manner as for the first intruded monitoring well.

b. *Detection in a production well.* If seawater intrusion is encountered in a production well, that well will discontinue pumping. In addition, all wells that produce from the intruded aquifer that are within one-half mile of the affected well will reduce their production to the equivalent of one-half of their previous five-year pumping average. The sequence of threat evaluation, subsequent pumping reductions, and installation of new monitoring wells will be the same as for that in subparagraph a.

f the implementation of the procedures set forth above causes a production well to educe its pumping or to cease pumping altogether, all reasonable efforts must be ndertaken by the Watermaster to insure that lost production will be replaced by edistributing pumping, further conservation efforts on the part of all parties, or provision f replacement water from other sources.

Appendix 2

***Expanded Conservation and Standby Rationing Plan*,**
by the Monterey Peninsula Water Management District

REGULATION XV. EXPANDED WATER CONSERVATION AND STANDBY RATIONING PLAN

RULE 160 - GENERAL PROVISIONS

A. All water users within the Monterey Peninsula Water Management District shall be subject to the District's water waste and non-essential water use prohibitions.

B. Prohibitions against water waste and non-essential water use shall be enforced by the District and its designated agents in accordance with Rule 171 (Water Waste Fees).

C. Stage 1 Water Conservation shall be implemented upon the effective date of this regulation.

D. Stage 1 Water Conservation parallels Cal-Am's Phase IV Mandatory Water Conservation program that was designed to meet the Carmel Valley water production limits set by the SWRCB and approved by the Public Utilities Commission. Stages 1 through 3 Water Conservation is intended to achieve the Carmel Valley water production limits set by the State Board. Stage 4 Water Rationing through Stage 7 Water Rationing are intended to respond to limitations in supply caused by inadequate system inflow and storage.

E. Stage 1 Water Conservation through Stage 3 Water Conservation shall apply to water users of the Cal-Am water distribution system where that system derives its source of supply from the Monterey Peninsula Water Resources System (MPWRS) for as long as Cal-Am is subject to water production goals and limitations enforced by the SWRCB.

F. Stage 4 Water Rationing through Stage 7 Water Rationing may apply to all water distribution system users and water users within the Monterey Peninsula Water Resources System as a response to limited water supply. These stages shall also serve as responses to emergency situations where immediate reductions in water use are necessary to ensure public health, safety or welfare. This regulation authorizes the Board of Directors to, from time to time, determine by Resolution that any water distribution system or set of water users within the Monterey Peninsula Water Management District shall be subject to Stages 4 Water Rationing through Stage 7 Water Rationing as provided in this ordinance.

G. As to water derived from the MPWRS, Cal-Am shall maintain unaccounted for water use in its MPWRS distribution system at or below seven (7) percent. Average losses of more than seven (7) percent during the most recent twelve-month period shall be considered water waste. This limitation shall not affect any Cal-Am system east of, and including, the Ryan Ranch subunit.

H. Cal-Am shall amend its Urban Water Management Plan to conform to the policies and procedures described in this ordinance. A copy of the plan and amendment shall be filed with the District within 180 days of the effective date of this ordinance. The plan shall comply with the California Water Code, Division 6, Part 2.6.

RULE 161 - STAGE 1 WATER CONSERVATION

A. Stage 1 Water Conservation is defined as the first stage in the District's Expanded Water Conservation and Standby Rationing Plan that takes action to maintain Cal-Am water derived from the MPWRS below regulatory constraints by increasing conservation activities and preparing for further stages of conservation and rationing. During Stage 1 Water Conservation, Cal-Am shall have the goal of maintaining its annual (October 1 through September 30) water production from the Carmel Valley below 11,285 acre-feet. This quantity may be modified by the SWRCB. Assuming a maximum annual production of 4,000 acre-feet from the Seaside Coastal Basin, this equates to a Cal-Am system production limit of 15,285 acre-feet. Each water user deriving water from the Cal-Am system that derives its source of supply from the MPWRS shall comply with District water waste and non-essential water use prohibitions and shall participate to the extent possible in voluntarily reducing water use.

B. All water users with the Monterey Peninsula Water Management District shall comply with water waste and non-essential water use prohibitions.

Rule added by Ordinance No. 92 (1/29/99)

RULE 162 - STAGE 2 WATER CONSERVATION

A. Stage 2 Water Conservation is defined as the second stage in the District's Expanded Water Conservation and Standby Rationing Plan that takes action to maintain Cal-Am water use from the MPWRS below regulatory constraints by requiring implementation of Landscape Water Budgets for large irrigators of three acres or more, large residential water users and water users with dedicated landscape water meters.

B. Stage 2 Water Conservation shall be enforced when Cal-Am production from the MPWRS has exceeded the year-to-date at month-end target as displayed in Table 1.

The monthly distribution of water production shown in Table 1 between sources in the Carmel River Basin and in the coastal subareas of the Seaside Groundwater Basin shall be approved by the Board of Directors as part of the Quarterly Water Supply Strategy and Budget process. The Board shall hold public hearings to consider the water supply budgets for Cal-Am's main system during the Board's regular meetings in September, December, March, and June, at which time the Board may modify Table 1 by Resolution.

Amended by Ordinance No. 119 (3/21/2005)

Table 1
REGULATORY WATER PRODUCTION TARGETS
FOR CALIFORNIA AMERICAN WATER MAIN SYSTEM FROM SOURCES
WITHIN THE MONTEREY PENINSULA WATER RESOURCES SYSTEM

Month	Monthly Target	Year-to-Date At Month-End Target
October	1,379	1,379
November	1,113	2,492
December	984	3,476
January	958	4,434
February	894	5,328
March	1,047	6,375
April	1,209	7,584
May	1,405	8,989
June	1,527	10,516
July	1,628	12,144
August	1,649	13,793
September	1,492	15,285
TOTAL	15,285	

C. Requirements imposed by implementation of the Expanded Water Conservation and Standby Rationing Plan through Stage 1 Water Conservation shall remain in force. Requirements may be modified or superseded by actions taken in future stages of the Expanded Water Conservation and Standby Rationing Plan.

D. Implementation of Landscape Water Budgets: All water users required to obtain a Landscape Water Budget under District Rule 172 are required to manage outdoor irrigation within the Landscape Water Budget assigned to the property.

E. Water use in excess of the established Landscape Water Budget shall be considered Water Waste and shall be subject to District Rule 171.

F. Sunset of Stage 2 Water Conservation: Without further action of the Board of Directors, the provisions of Stage 2 Water Conservation shall be rescinded and revert to Stage 1 Water Conservation upon compliance with the year-to-date at month-end production goal for two consecutive months in the subsequent water year.

G. Notice: Cal-Am shall provide an annual reminder notice to MPWRS users with Landscape Water Budgets to report modifications in landscaping which could alter an existing budget.

H. Monthly Consumption Reports: During any Stage 2, 3, 4, 5, 6, or 7, Cal-Am shall provide the District with monthly consumption reports in a format approved by the District. Reports shall be provided within fifteen (15) days of the close of the preceding month.

Rule added by Ordinance No. 92 (1/28/99); Ordinance No. 119 (3/21/05)

RULE 163 - STAGE 3 WATER CONSERVATION

A. Stage 3 Water Conservation is defined as the third stage in the District's Expanded Water Conservation and Standby Rationing Plan that takes action to maintain Cal-Am water use in the MPWRS below regulatory constraints. It is triggered when the year-to-date at month-end production target for Cal-Am from the MPWRS is exceeded twice by the average of Cal-Am's year-to-date production from the MPWRS for each month during the October through March period or exceeded once by the average of Cal-Am's year-to-date production from the MPWRS for each month during the April through September period. It provides a procedure to enable emergency temporary increases in the upper block volume rates and requires increased action by Cal-Am to reduce unaccounted-for water and monthly reporting of actions taken. Stage 3 Water Conservation may also be triggered upon Resolution of the Board of Directors when there is a need for an immediate water use reduction in response to an unexpected water production increase.

Upon implementation of Stage 3 Water Conservation, Cal-Am shall immediately submit a plan to the General Manager to reduce unaccounted for water uses to seven (7) percent or less measurered by the most recent twelve-month rolling average and shall immediately act on such plan. Cal-Am shall provide a progress report to the Board of Directors monthly until Stage 3 is sunset.

B. Regulatory Trigger: Stage 3 Water Conservation shall be enforced when any of the following criteria has been met: 1) the average of Cal-Am's year-to-date production from the MPWRS for each month has exceeded the year-to-date at month-end production target for Cal-Am from the MPWRS as displayed in Table 1 for a second time during the period from October 1 through March 31 in any water year, or 2) the average of Cal-Am's year-to-date production from the MPWRS for each month has exceeded the year-to-date at month-end production target for Cal-Am from the MPWRS as displayed in Table 1 once during the period from April 1 through September 30 in any water year, or 3) a Resolution has been adopted by the Board in accord with Section C below.

C. Emergency Trigger: Stage 3 Water Conservation shall be implemented upon Resolution of the Board of Directors when there is need for an immediate water use reduction requirement in response to an unexpected water production increase.

D. Sunset of Stage 3 Water Conservation: Without further action by the Board of Directors, the provisions of Stage 3 Water Conservation shall be rescinded upon compliance with the year-to-date at month-end production goal for two consecutive months in the subsequent water year. Water users of Cal-Am when that water system derives water from the MPWRS shall revert to Stage 1 Water Conservation.

Regulatory compliance during a period of Stage 4 Water Rationing shall not cause a sunset of this provision.

E. Notice: Cal-Am shall provide notice of mandatory water conservation with each bill prepared for water users of the Cal-Am system

F. Cal-Am Emergency Use Rates: Cal-Am shall implement the California Public Utilities Commission (CPUC) approved emergency rate schedule to respond to Stage 3 water reduction requirements. Cal-Am shall file an Advice Letter with the CPUC to implement Emergency Use Rates, however, only after it has first met and conferred with the District at least five days in advance of that filing. The General Manager may waive this time period for good cause.

Rule added by Ordinance No. 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 164 - STAGE 4 WATER RATIONING

A. Stage 4 Water Rationing is defined as the fourth stage in the District's Expanded Water Conservation and Standby Rationing Plan that responds to a drought situation or emergency water supply shortage with a 15 percent reduction goal from system production limits for non-Cal-Am water users. Fifteen percent reductions in the Cal-Am system are achieved through Stage 3 Water Conservation.

B. Trigger.

1. Water Supply Limitation Trigger. Stage 4 Water Rationing shall apply to all water users whose source of supply is derived from the MPWRS. Stage 4 Water Rationing shall become effective on June 1 or such earlier date as may be set by the Board following the District's May Board meeting if total usable storage in the MPWRS on May 1 is less than 27,807 acre-feet and greater than 21,802 acre-feet. If total usable storage is equal to or greater than 27,807 acre-feet on May 1, no water rationing shall be imposed.

2. Emergency Trigger. Stage 4 Water Rationing shall be implemented upon Resolution of the Board of Directors when there is need for an immediate water use reduction requirement in response to an unexpected water supply shortage.

C. Requirements previously imposed by implementation of the Expanded Water Conservation and Standby Rationing Plan shall remain in force. Requirements may be modified or superseded by actions taken in this or future stages of the Expanded Water Conservation and Standby Rationing Plan.

D. The provisions of Stage 3 Water Conservation shall be implemented for all water users of the Cal-Am water distribution system, unless specifically exempt from Stage 4 Water Rationing by action of the Board of Directors.

E. Sunset of Stage 4 Water Rationing.

1. Water Supply Availability. Stage 4 Water Rationing shall continue to have force and effect until rescinded by Resolution of the Board of Directors upon a determination that the total usable storage in the MPWRS is greater than 27,807 acre-feet. This determination will normally be made at the Board's May meeting. However, a determination to rescind Stage 4 Water Rationing as early as the following January Board meeting can be made if the total usable storage in the MPWRS is equal to or greater than 27,807 acre-feet on January 1.

2. In the event total usable storage is greater than 27,807 acre-feet, the General Manager shall review Cal-Am's year-to-date production. Upon compliance with the monthly year-to-date goals specified in Table 1 of

Rule 162 and, unless otherwise specified in the Resolution rescinding Stage 4 Water Rationing, water users shall revert to Stage 1 Water Conservation. If Cal-Am's year-to-date production exceeds the year-to-date goal specified in Table 1 of Rule 162, Cal-Am water users shall revert to Stage 2 Water Conservation.

3. Emergency. Upon correction of a water supply limitation caused by an emergency, Stage 4 Water Rationing shall sunset without action by the Board.

F. Notice.

1. Upon direction of the General Manager, all water distribution system operators affected by Stage 4 Water Rationing shall notify water users of the system that reductions in water use are necessary and that stricter water rationing may be imminent. Water distribution system operators shall ensure that notices provided or required by the District shall be distributed to the system water users.

2. As appropriate, Cal-Am shall notify its water users that excessive use rates will be imposed upon the effective date of Stage 4 Water Rationing.

3. The District shall contact all water users of private wells not supplying water to a distribution system within the MPWRS. Contact shall be via first class mail and shall explain the restrictions placed on the use of private wells during Stage 4 Water Rationing and shall provide and/or request additional information from the private well owner as deemed necessary for the efficient operation of the program.

Rule added by Ordinance No. 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 165 - STAGE 5 WATER RATIONING

A. Stage 5 Water Rationing is defined as the fifth stage in the District's Expanded Water Conservation and Standby Rationing Plan that responds to a drought situation or emergency water supply shortage with a 20 percent reduction goal from the system production limit. Reductions are achieved by water use cutbacks by user category and by per-capita water rations and a moratorium on water permits that intensify water use.

B. Implementation.

1. Water Supply Limitation Trigger. Stage 5 Water Rationing shall apply to all water users whose source of supply is derived from the MPWRS. Stage 5 Water Rationing shall become effective on June 1 or such earlier date as may be set by the Board following the District's May Board meeting if total usable storage in the MPWRS on May 1 is less than 21,802 acre-feet and greater than 15,615 acre-feet. If total usable storage is equal to or greater than 27,807 acre-feet on May 1, no water rationing shall be imposed.

   The General Manager may delay implementation of Stage 5 Water Rationing to ensure adequate operation of the program. Delays authorized by the General Manager shall not exceed 90 days.

2. Emergency. Implementation shall also occur following urgency action by Resolution of the Board of Directors declaring that an emergency situation exists and immediate 20 percent reductions in water use from a distribution system's production limit are necessary to ensure public health, safety or welfare.

C. Sunset of Stage 5 Water Rationing.

1. Water Supply Availability. Stage 5 Water Rationing shall continue to have force and effect until rescinded by Resolution of the Board of Directors upon a determination that the total usable storage in the MPWRS is greater than 21,802 acre-feet. This determination will normally be made at the Board's May meeting. However, a determination to rescind Stage 5 Water Rationing as early as the following January Board meeting can be made if the total usable storage in the MPWRS is equal to or greater than 27,807 acre-feet on January 1.

2. In the event total usable storage is greater than 27,807 acre-feet, the General Manager shall review Cal-Am's year-to-date production. Upon compliance with the monthly year-to-date goals specified in Table 1 of Rule 162 and, unless otherwise specified in the Resolution rescinding Stage 5 Water Rationing, water users shall revert to Stage 1 Water Conservation. If Cal-Am's year-to-date production exceeds the year-to-date goal specified in Table 1 of Rule 162, Cal-Am water users shall revert

to Stage 2 Water Conservation.

If Cal-Am production exceeds the year-to-date at month's end production goal as shown in Rule 162, Table 1, Cal-Am water users shall revert to Stage 2 Water Conservation.

D. Affected Water Users. Stage 5 Water Rationing shall apply to all water users within the MPWRS. As necessary to ensure adequate water supplies, the Board of Directors may act within its discretion to authorize activation of Stage 5 Water Rationing within one or more water distribution systems in the District.

E. Requirements imposed by implementation of the Expanded Water Conservation and Standby Rationing Plan through Stage 4 Water Conservation shall remain in force. Requirements may be modified or superseded by actions taken in this or future stages of the Expanded Water Conservation and Standby Rationing Plan.

F. Moratorium. On October 1 following implementation of Stage 5 Water Rationing, the District shall suspend the issuance of water permits associated with intensification in use. This provision shall not suspend the issuance of water permits that utilize public or private Water Use Credits or where issuance of a permit is required by prior agreement of the District.

G. Reduction Goal. Stage 5 Water Rationing achieves water use reductions of 20 percent of the Cal-Am and non-Cal-Am system production limits in each user category as follows: Residential single-family and multi-family, commercial/ industrial, public authority, golf course, "other," non-revenue metered uses, and reclaimed water users.

H. Notice.

1. Cal-Am shall provide written notice of mandatory water rationing to every residence and to every non-residential business or water user within the Cal-Am system via first-class mail at least thirty (30) days before the first day of rationing. Further, Cal-Am shall send monthly reminders of water rationing in the water bill along with information showing the water ration and the quantity of the water ration consumed by the responsible party. Finally, Cal-Am shall provide each responsible party with a survey form upon request.

2. All water distribution system operators affected by Stage 5 Water Rationing shall provide written notice of mandatory water rationing to every residence and to every non-residential business or water user within the water distribution system via first-class mail at least thirty (30) days before the first day of rationing. Further, the distribution system operator shall send monthly reminders of water rationing in the water bill along with information showing the water ration and the quantity of the water ration consumed by the responsible party. Finally, the water distribution system operator shall provide each responsible party with a survey form

at least once each calendar year. Water distribution system operators shall ensure that notices provided or required by the District shall be distributed to the system water users.

3. The District shall contact all water users of private wells not supplying water to a distribution system within the MPWRS at least thirty (30) days before the first day of Stage 5 Water Rationing. Contact shall be via first class mail and shall explain the restrictions placed on the use of private wells during Stage 5 Water Rationing and shall provide and/or request additional information from the private well owner as deemed necessary for the efficient operation of the program.

I. Rations by Category. Water rations shall be determined by user category. Each water user within the Monterey Peninsula Water Resources System shall be classified in one of the following groups: Residential Single-Family and Multi-Family, Commercial/Industrial, Public Authority, Golf Course, "other," Non-Revenue Metered Use, and Reclaimed Water Users.

J. Reduced Annual Cal-Am Annual Production During Stage 5 Water Rationing. The Cal-Am annual production limit shall be reduced by 20 percent during Stage 5 Water Rationing. The resulting production limit shall be further reduced by a water rationing contingency determined by the Board. Seven (7) percent of the remainder shall be the maximum Cal-Am unaccounted for water use ration. The remaining water shall be the Cal-Am annual production limit for all user categories.

K. Non-Cal-Am Annual Production Limits During Stage 5 Water Rationing. Available production for other water distribution systems subject to Stage 5 Water Rationing shall be determined using the same methodology as for Cal-Am without including a deduction for unaccounted for water uses. The non-Cal-Am annual production limit for the Monterey Peninsula Water Resources System shall be used as the maximum production limit.

L. Establishing the Rations. Rations for each user category shall be determined by the General Manager by dividing the reduced available production by the percentage of use. The percentage of use for each user group shall be determined by the most recent unrationed reporting year (July 1 through June 30) data provided by Cal-Am for water users of that portion of Cal-Am that derives water from the MPWRS, and by data provided by the District from its annual well reporting program for non-Cal-Am distribution systems.

1. Residential Water Users. Each residential water user either served by a water meter reported as "single-family residential" by the water distribution system or served by a private well shall have an equal portion of the water available to the single-family residential category based upon the number of residents reported on the survey form.

2. Multi-Family Residential Water Users. Each multi-family residential water user either served by a water meter reported as "multi-family residential" by the water distribution system or served by a private well shall have an equal portion of the water available to the multi-family residential category based upon the number of residents reported on the survey form with the following exception:

   a. Multi-family residential sites with common laundry facilities on a separate water meter shall receive a one-unit water ration for each dwelling unit that has access to the facility. Each dwelling unit located on the multi-family residential site that has access to the common laundry facility shall have the dwelling unit ration reduced by one unit of water.

3. Commercial/Industrial Water Users. Each commercial/industrial water user either served by a water meter reported as "commercial" or "industrial" by the water distribution system shall have a base ration determined by applying the current commercial water use factors.

   a. Mixed Use Water Users. Mixed-use water users shall be classified as commercial uses for the purposes of this program.

4. Public Authority. Public Authority Uses shall be rationed by jurisdiction. Each Public Authority water user may combine multiple accounts or connections when the accounts are located within one jurisdiction.

5. Golf Courses. Golf Courses supplied water exclusively by the Cal-Am or non-Cal-Am water distribution systems or wells may be rationed individually or, upon request to the General Manager, as a group.

6. Other. Water users utilizing portable water meters or hydrant meters shall be required to employ Best Management Practices. Cal-Am shall be required to report monthly to the District the location and responsible party for all portable water meters and the amount of use from those meters. As deemed necessary to achieve the imposed reduction in use, the District may condition use of temporary connections.

7. Non-Revenue Metered Users. Non-Revenue Metered Uses shall be rationed as a group with the following exception:

   a. Irrigation required by the Mitigation Program adopted when the Water Allocation Program Environmental Impact Report was adopted in 1990, and as required by SWRCB Order No. WR 95-10, shall not be subject to reductions in use. Required irrigation of the riparian corridor shall be identified and reported separately from other non-revenue metered uses.

8. Non-Cal-Am Wells. Regulations for rationing non-Cal-Am wells located within the MPWRS that are not supplying water to a distribution system shall be considered by the Board prior to implementation of Stage 5 Water Rationing.

9. Recycled Water Users. Recycled Water Irrigation Areas receiving water from the CAWD/PBCSD Wastewater Reclamation Project shall be subject to Stages 5 Water Rationing and higher for potable water used during an interruption or emergency, in accordance with contractual agreements between the District and the respective owners of the Recycled Water Irrigation Areas.

   a. Before Project Expansion Is Completed. Under the agreements operative before the Project Expansion is Completed (as the capitalized terms are defined in Rule 23.5), the owners of the Recycled Water Irrigation Areas shall have the respective irrigation requirements thereof satisfied to the same degree as any non-Project golf course or open space which derive their source of supply from the Cal-Am system. The irrigation requirements of the Recycled Water Irrigation Areas will be determined based on the most-recent non-rationed four-year average irrigation water demand, including both Recycled Water and potable water, for each Recycled Water Irrigation Areas. The use of Recycled Water, when available in sufficient quantities to satisfy the irrigation requirements of the Recycled Water Irrigation Areas, shall not be restricted by this requirement.

      Each Recycled Water Irrigation Area shall be entitled to receive the average irrigation requirement determined above, reduced by the percentage reduction required by the current stage of rationing. If the quantity of Recycled Water that is available is less than the quantity of water that the Recycled Water Irrigation Area is entitled to, potable water shall be provided to make up the difference and satisfy the irrigation requirements of the Recycled Water Irrigation Area to the same degree that the irrigation requirements of non- Project golf course and open space users are being satisfied.

      The District shall ensure that the water provided during water rationing is of adequate quality. If the quality does not satisfy the contractual agreement operative before the Project Expansion is deemed Completed (as the capitalized terms are defined in Rule 23.5), potable water shall be provided in sufficient quantities to improve the quality of the reclaimed water.

This Subsection L.9.a shall cease to be operative once the Project Expansion is deemed to be Completed (as the capitalized terms are defined in Rule 23.5), and shall thereafter be of no force or effect.

b. When Project Expansion Is Completed. Under the agreements operative once the Project Expansion is deemed Completed (as the capitalized terms are defined in Rule 23.5), the owners of the Recycled Water Irrigation Areas shall have the respective irrigation requirements thereof satisfied to the same degree as any non-Project golf course or open space which derives its source of supply from the Cal-Am system. The irrigation requirements of the Recycled Water Irrigation Areas will be determined based on the most-recent non-rationed four-year average irrigation water demand, including both Recycled Water and potable water, for each respective Recycled Water Irrigation Area.

Each Recycled Water Irrigation Area shall be entitled to receive the average irrigation requirement determined above, reduced by the percentage reduction required by the current stage of rationing. If the quantity of Recycled Water that is available is less than the quantity of water that the Recycled Water Irrigation Area is entitled to, potable water shall be provided to make up the difference and satisfy the irrigation requirements of the Recycled Water Irrigation Areas to the same degree that the irrigation requirements of non-Project golf course and open space users are being satisfied.

The preceding sentence shall not apply to the extent that the irrigation requirements of any Recycled Water Irrigation Area are met with water legally available to Buyer from any source other than the Carmel River System or the Seaside Groundwater Basin, including percolating ground water underlying Buyer's Property, to make up any such difference.

When Recycled Water (as defined in Rule 23.5) is available in sufficient quantities to satisfy the irrigation requirements of the Recycled Water Irrigation Areas, such irrigation shall not be subject to Stages 5 Water Rationing and higher, and neither potable water nor any water described in the preceding sentence (whether or not it is potable) shall be used for irrigation of the Recycled Water Irrigation Areas except to the extent allowed in the circumstances described in the next two sentences.

If there is an Interruption in Recycled Water deliveries to any Recycled Water Irrigation Area(as the capitalized terms are defined in Rule 23.5), the temporary use of potable water for irrigating each such Recycled Water Irrigation Area is authorized in the manner described in Rule 23.5, Subsection F.

If MPWMD has adopted an ordinance in response to any emergency caused by drought, or other threatened or existing water shortage pursuant to section 332 of the Monterey Peninsula Water Management Law, said ordinance shall prevail over contrary provisions of this Rule. Notwithstanding the preceding sentence, potable water shall be made available for irrigating tees and greens of the Recycled Water Irrigation Areas in sufficient quantities to maintain them in good health and condition during an Interruption, without any limitation on the duration.

The District shall have no obligation to furnish potable water for irrigation of the Recycled Water Irrigation Areas except in the circumstances set forth above in this Subsection L.9.b.

If (1) an emergency or major disaster is declared by the President of the United States, or (2) a "state of war emergency," "state of emergency," or "local emergency," as those terms are respectively defined in Government Code section 8558, has been duly proclaimed pursuant to the California Emergency Services Act, with respect to all or any portion of the territory of MPWMD, the provisions of this Subsection L.9.b shall yield as necessary to respond to the conditions giving rise to the declaration or proclamation.

This Subsection L.9.b shall be of no force or effect until the Project Expansion is deemed Completed (as the capitalized terms are defined in Rule 23.5), and shall thereafter be operative and of full force and effect.

Added by Ordinance No. 119 (3/21/2005)

RULE 166 - STAGE 6 WATER RATIONING

A. Stage 6 Water Rationing is defined as the sixth stage in the District's Expanded Water Conservation and Standby Rationing Plan that responds to a drought situation or emergency water supply shortage with a 35 percent reduction goal from system production limits. Reductions are achieved by water use cutbacks by user category and by per-capita water rations and a moratorium on water permits that utilize water credits.

B. Implementation.

1. Water Supply Limitation Trigger. Stage 6 Water Rationing shall apply to all water users whose source of supply is derived from the MPWRS. Stage 6 Water Rationing shall become effective on June 1 or such earlier date as may be set by the Board following the District's May Board meeting if total usable storage in the MPWRS on May 1 is less than 15,615 acre-feet and greater than 9,610 acre-feet. If total usable storage is equal to or greater than 27,807 acre-feet on May 1, no water rationing shall be imposed.

2. Implementation shall also occur following urgency action by Resolution of the Board of Directors declaring that an emergency situation exists and immediate 35 percent reductions in water use from a distribution systems production limit are necessary to ensure public health, safety or welfare.

C. Sunset of Stage 6 Water Rationing.

1. Water Supply Availability. Stage 6 Water Rationing shall continue to have force and effect until rescinded by Resolution of the Board of Directors upon a determination that the total usable storage in the MPWRS is greater than 15,615 acre-feet. This determination will normally be made at the Board's May meeting. However, a determination to rescind Stage 6 Water Rationing as early as the following January Board meeting can be made if the total usable storage in the MPWRS is equal to or greater than 27,807 acre-feet on January 1.

2. In the event total usable storage is greater than 27,807 acre-feet, the General Manager shall review Cal-Am's year-to-date production. Upon compliance with the monthly year-to-date goals specified in Table 1 of Rule 162 and, unless otherwise specified in the Resolution rescinding Stage 6 Water Rationing, water users shall revert to Stage 1 Water Conservation. If Cal-Am's year-to-date production exceeds the year-to-date goal specified in Table 1 of Rule 162, Cal-Am water users shall revert to Stage 2 Water Conservation.

D. Affected Water Users. Stage 6 Water Rationing shall apply to all water users within the Monterey Peninsula Water Resources System. As necessary to ensure

adequate water supplies, the Board of Directors may act within its discretion to authorize activation of Stage 6 Water Rationing within one or more water distribution systems in the District.

E. Requirements imposed by implementation of the Expanded Water Conservation and Standby Rationing Plan through Stage 5 Water Rationing shall remain in force. Requirements may be modified or superseded by actions taken in this or future stages of the Expanded Water Conservation and Standby Rationing Plan.

F. Moratorium. On October 1 following implementation of Stage 6 Water Rationing, the District shall suspend the issuance of water permits that utilize a public or private Water Use Credit.

G. Reduction Goal. Stage 6 Water Rationing achieves water use reductions of 35 percent of the Cal-Am and non-Cal-Am system production limits in each user category as follows: Residential single-family and multi-family, commercial/ industrial, public authority, golf course, "other," non-revenue metered uses, and reclaimed water users.

H. Notice

1. Cal-Am shall provide written notice of mandatory water rationing to every residence and to every non-residential business or water user within the Cal-Am system via first-class mail at least thirty (30) days before the first day of rationing. Further, Cal-Am shall send monthly reminders of water rationing in the water bill along with information showing the water ration and the quantity of the water ration consumed by the responsible party. Finally, Cal-Am shall provide each responsible party with a survey form upon request.

2. All water distribution system operators affected by Stage 6 Water Rationing shall provide written notice of mandatory water rationing to every residence and to every non-residential business or water user within the water distribution system via first-class mail at least thirty (30) days before the first day of rationing. Further, the distribution system operator shall send monthly reminders of water rationing in the water bill along with information showing the water ration and the quantity of the water ration consumed by the responsible party. Finally, the water distribution system operator shall provide each responsible party with a survey form at least once each calendar year. Water distribution system operators shall ensure that notices provided or required by the District shall be distributed to the system water users.

3. The District shall contact all water users of private wells not supplying water to a distribution system within the MPWRS at least thirty (30) days before the first day of Stage 6 Water Rationing. Contact shall be via first class mail and shall explain the restrictions placed on the use of

private wells during Stage 6 Water Rationing and shall provide and/or request additional information from the private well owner as deemed necessary for the efficient operation of the program.

I. Rations by Category. Water rations shall be determined by user category. Each water user within the Monterey Peninsula Water Resources System shall be classified in one of the following groups: Residential Single-Family and Multi-Family, Commercial/Industrial, Public Authority, Golf Course, "other," Non-Revenue Metered Use, and Reclaimed Water Users.

J. Reduced Annual Cal-Am Annual Production During Stage 6 Water Rationing. The Cal-Am annual production limit shall be reduced by 35 percent during Stage 6 Water Rationing. The resulting production limit shall be further reduced by a water rationing contingency determined by the Board. Seven (7) percent of the remainder shall be the maximum Cal-Am unaccounted for water use ration. The remaining water shall be the Cal-Am annual production limit for all user categories.

K. Non-Cal-Am Annual Production Limits During Stage 6 Water Rationing. Available production for other water distribution systems subject to Stage 6 Water Rationing shall be determined using the same methodology as for Cal-Am without including a deduction for unaccounted for water uses. The non-Cal-Am annual production limit for the Monterey Peninsula Water Resources System shall be used as the maximum production limit.

L. Establishing the Rations. Rations for each user category shall be determined by the General Manager by dividing the reduced available production by the percentage of use and by taking into consideration residential water needs to ensure health, safety and welfare. The percentage of use for each user group shall be determined by the most recent unrationed reporting year (July 1 through June 30) data provided by Cal-Am for water users of that portion of Cal-Am that derives water from the MPWRS, and by data provided by the District from its annual well reporting program for non-Cal-Am distribution systems.

1. All water users shall be rationed by user category as outlined in Rule 165 (Stage 5 Water Rationing).

M. The Board shall consider adopting restrictions on non-residential outdoor water use that may include any or all of the following: Limit outdoor watering to one day per week, one day every other week, or prohibit outdoor irrigation with water from the effected water resource system(s); prohibit irrigation of non-turf areas with water from the affected water resource system(s); reduce golf course irrigation from the effected water distribution system(s) to a percentage of the amount required to water tees, greens and landing areas only. The use of reclaimed water, when available, shall not be restricted by this requirement.

N. Elimination or modification of commercial/industrial variances for Best Management Practices. The General Manager shall be authorized to require a percentage reduction of all commercial/industrial water users granted a variance for complying with BMPs for the type of use. The amount of the percentage reduction shall be determined by the General Manager following review of the success of commercial/industrial rationing during Stage 5 Water Rationing prior to Stage 6 Water Rationing.

O. All water users shall cease operation and maintenance of all ornamental water uses (fountains, ponds, etc.) that use water from the effected water supply system(s). Ornamental water uses supplied with water from other sources shall clearly display information about the source of water on or immediately adjacent to the use;

P. Prohibition on Use of Water for Dust Control. The use of water from the Monterey Peninsula Water Resources System shall be prohibited for dust control purposes, except by prior approval of the General Manager. Decisions of the General Manager shall be final.

Rule added by Ordinance No. 92 (1/29/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 167 - STAGE 7 WATER RATIONING

A. Stage 7 Water Rationing is defined as the seventh stage in the District's Expanded Water Conservation and Standby Rationing Plan that responds to a drought situation or emergency water supply shortage with a 50 percent reduction goal from system production limits. Reductions are achieved by water use cutbacks by user category and by per-capita water rations and a moratorium on water permits that utilize water credits.

B. Implementation.

1. Water Supply Limitation Trigger. Stage 7 Water Rationing shall apply to all water users whose source of supply is derived from the MPWRS. Stage 7 Water Rationing shall become effective on June 1 or such earlier date as may be set by the Board following the District's May Board meeting if total usable storage in the MPWRS on May 1 is less than 9,610 acre-feet. If total usable storage is equal to or greater than 27,807 acre-feet on May 1, no water rationing shall be imposed.

2. Implementation shall also occur following urgency action by Resolution of the Board of Directors declaring that an emergency situation exists and immediate 50 percent reductions in water use from a distribution system's production limit are necessary to ensure public health, safety or welfare.

C. Sunset of Stage 7 Water Rationing.

1. Water Supply Availability. Stage 7 Water Rationing shall continue to have force and effect until rescinded by Resolution of the Board of Directors upon a determination that the total usable storage in the MPWRS is greater than 9,610 acre-feet. This determination will normally be made at the Board's May meeting. However, a determination to rescind Stage 7 Water Rationing as early as the following January Board meeting can be made if the total usable storage in the MPWRS is equal to or greater than 27,807 acre-feet on January 1.

2. In the event total usable storage is greater than 27,807 acre-feet, the General Manager shall review Cal-Am's year-to-date production. Upon compliance with the monthly year-to-date goals specified in Table 1 of Rule 162 and, unless otherwise specified in the Resolution rescinding Stage 7 Water Rationing, water users shall revert to Stage 1 Water Conservation. If Cal-Am's year-to-date production exceeds the year-to-date goal specified in Table 1 of Rule 162, Cal-Am water users shall revert to Stage 2 Water Conservation.

D. Affected Water Users. Stage 7 Water Rationing shall apply to all water users within the Monterey Peninsula Water Resources System. As necessary to ensure adequate water supplies, the Board of Directors may act within its discretion

to authorize activation of Stage 7 Water Rationing within one or more water distribution systems in the District.

E. Requirements imposed by implementation of the Expanded Water Conservation and Standby Rationing Plan through Stage 6 Water Rationing shall remain in force. Requirements may be modified or superseded by actions taken in this or future stages of the Expanded Water Conservation and Standby Rationing Plan.

F. Reduction Goal. Stage 7 Water Rationing achieves water use reductions of 50 percent of the Cal-Am and non-Cal-Am system production limits in each user category as follows: Residential single-family and multi-family, commercial/ industrial, public authority, golf course, "other," non-revenue metered uses, and reclaimed water users.

G. Notice.

1. Cal-Am shall provide written notice of mandatory water rationing to every residence and to every non-residential business or water user within the Cal-Am system via first-class mail at least thirty (30) days before the first day of rationing.

   Further, Cal-Am shall send monthly reminders of water rationing in the water bill along with information showing the water ration and the quantity of the water ration consumed by the responsible party. Finally, Cal-Am shall provide each responsible party with a survey form upon request.

2. All water distribution system operators affected by Stage 7 Water Rationing shall provide written notice of mandatory water rationing to every residence and to every non-residential business or water user within the water distribution system via first-class mail at least thirty (30) days before the first day of rationing. Further, the distribution system operator shall send monthly reminders of water rationing in the water bill along with information showing the water ration and the quantity of the water ration consumed by the responsible party. Finally, the water distribution system operator shall provide each responsible party with a survey form at least once each calendar year. Water distribution system operators shall ensure that notices provided or required by the District shall be distributed to the system water users.

3. The District shall contact all water users of private wells not supplying water to a distribution system within the MPWRS at least thirty (30) days before the first day of Stage 7 Water Rationing. Contact shall be via first class mail and shall explain the restrictions placed on the use of private wells during Stage 7 Water Rationing and shall provide and/or request additional information from the private well owner as deemed necessary for the efficient operation of the program.

H. Rations by Category. Water rations shall be determined by user category. Each water user within the Monterey Peninsula Water Resources System shall be classified in one of the following groups: Residential Single-Family and Multi-Family, Commercial/Industrial, Public Authority, Golf Course, "other," Non-Revenue Metered Use, and Reclaimed Water Users.

I. Reduced Annual Cal-Am Annual Production During Stage 7 Water Rationing. The Cal-Am annual production limit shall be reduced by 50 percent during Stage 7 Water Rationing. The resulting production limit shall be further reduced by a water rationing contingency determined by the Board. Seven (7) percent of the remainder shall be the maximum Cal-Am unaccounted for water use ration. The remaining water shall be the Cal-Am annual production limit for all user categories.

J. Non-Cal-Am Annual Production Limits During Stage 7 Water Rationing. Available production for other water distribution systems subject to Stage 7 Water Rationing shall be determined using the same methodology as for Cal-Am without including a deduction for unaccounted for water uses. The non-Cal-Am annual production limit for the Monterey Peninsula Water Resources System shall be used as the maximum production limit.

K. Establishing the Rations. Rations for each user category shall be determined by the General Manager by dividing the reduced available production by the percentage of use and by taking into consideration residential water needs to ensure health, safety and welfare. The percentage of use for each user group shall be determined by the most recent unrationed reporting year (July 1 through June 30) data provided by Cal-Am for water users of the Cal-Am distribution system that derives water from the MPWRS, and by data provided by the District from its annual well reporting program for non-Cal-Am distribution systems.

1. All water users shall be rationed by user category as outlined in Rule 165 (Stage 5 Water Rationing).

L. The Board shall reconsider adopting restrictions on non-residential outdoor water use that may include any or all of the following not adopted during Stage 6 Water Rationing: Limit outdoor watering to one day per week, one day every other week, or prohibit outdoor irrigation with water from the effected water resource system(s); prohibit irrigation of non-turf areas with water from the effected water resource system(s); reduce golf course irrigation from the effected water distribution system(s) to a percentage of the amount required to water tees, greens and landing areas only. The use of reclaimed water, when available, shall not be restricted by this requirement.

M. Elimination or modification of commercial/industrial variances for Best Management Practices. The General Manager shall be authorized to require a percentage reduction of all commercial/industrial water users granted a variance

for complying with BMPs for the type of use. The amount of the percentage reduction shall be determined by the General Manager following review of the success of commercial/industrial rationing during Stage 6 Water Rationing prior to Stage 7 Water Rationing.

N. Prohibition On The Use of Portable Water Meters and Hydrant Meters. Water users utilizing portable water meters or hydrant meters shall be required to cease use of water from the effected water supply system(s). Each water user reporting as "other" by the distribution system shall be notified by the distribution system operator of this requirement. Portable water meters shall be returned to the water company at least 30 days before the implementation of Stage 7 Water Rationing.

Rule added by Ordinance No. 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 168 - WATER BANKS

A. Water banks shall be available to each water user during Stages 5 through 7 Water Rationing. A water bank shall allow each water user to accrue the unused portion of a monthly ration for use in the current calendar year.

B. Water banks shall be reset to zero on January 1 of each year. Ten (10) percent of the remaining water bank on December 31 shall be credited to the following year's water bank for three months to allow the establishment of a new bank.

C. On April 1, each water bank shall be reduced by the amount of banked water carried over on January 1. Water banks may not carry less than a zero balance.

Rule added by Ordinance No. 92 (1/28/99)

RULE 169 - WATER RATIONING VARIANCE

A. The General Manager shall assign additional water beyond the ration established in Stage 4 Water Rationing through Stage 7 Water Rationing in the following circumstances upon submittal of the appropriate variance request form and fees.

B. The following variances shall be considered for additional water during Stages 4 through 7 Water Rationing.

1. Medical and/or sanitation needs certified by a doctor;

2. Hospital and/or health care facilities that have achieved all Best Management Practices for those uses;

3. Drinking water for large livestock;

4. Commercial/Industrial users that can demonstrate compliance with all BMPs appropriate for the type of use and where there is minimal exterior water use on the water meter or water supply serving the use;

5. Leaks, when an invoice is provided by a licensed plumber or contractor;

6. Commercial Laundromats with signs advising full loads only;

7. Business in a home on a case-by-case basis;

8. Riparian irrigation when required as a condition of a riverbank restoration permit issued by the District or as a condition of a riverbank erosion protection permit issued by the District.

9. Emergency, extreme, or unusual situations on a case-by-case basis;

C. No Variance. The following categories of water use shall not qualify for special consideration under the provisions of this regulation:

1. Visitors other than those occupying short-term residential housing as defined in Rule 11 (Definitions) when the property owner has submitted a completed survey form with the applicable information about the occupancy of the site;

2. Irrigation, other than variances allowed by Rule 169 of this regulation.

3. Filling spas, ponds, fountains, etc.;

4. Long-term leaks that are not repaired after reasonable notice.

D. Waiver of Excess Fees by Variance Application. Any qualifying water user may seek to have all or part of the water waste fee for excess water use waived or forgiven through the Rationing Variance process set forth in this Rule. Any water user may seek relief from the water waste fee upon substantial evidence that the excess water use was beyond the user's control, and was not reasonably correctable in a timely fashion due to special and unique circumstances. Due diligence must be shown to forgive any water waste caused by a leak; under no circumstance shall a leak justify the forgiveness of an excess use fee for more than three billing periods. The applicant shall further demonstrate that all reasonable means have been taken to conserve water and minimize future water use.

1. The General Manager or his agent may grant any application to waive water waste fees upon submittal of the appropriate evidence to warrant a variance. All applicants for variance shall submit the appropriate Variance Request Form and processing fee of $60. Any action to waive a water waste fee shall be recorded in writing and include a written explanation to substantiate and justify the waiver;

2. Although inspections shall not be required in all cases, District staff shall use spot or random inspections as necessary to verify an applicant's eligibility for a water rationing variance.

3. Each person making written application for a variance shall be notified in writing of the disposition of their application. Decisions of the General Manager are final.

Rule added by Ordinance 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 170 - WATER USE SURVEY

A. Stage 1 Water Conservation Survey

1. Cal-Am shall conduct a confidential survey of all water users of the Cal-Am system that derive their source of supply from the MPWRS. This survey shall be required upon the effective date of this regulation. The survey shall request information to determine the number of permanent residents in each dwelling unit and the lot size of each residential site with permitted water service; the types of uses and amount of water use on non-residential sites; and the number of users and types of use(s) served by each water meter. Only information deemed appropriate for the effective operation of this program will be requested.

   Cal-Am shall conduct the survey within 45 days of the effective date of Stage 1 Water Conservation. Survey forms shall be completed by the responsible party and returned to Cal-Am within 30 days of mailing. The District shall have visual access to this data during Stages 1 through 3 Water Conservation and shall be provided with a summary of the results of the survey by census tract within 105 days of the effective date of Stage 1 Water Conservation. Cal-Am shall maintain survey information by census tract and shall provide unrestricted access to individual water use records when the District is actively investigating a variance, appeal or other rationing program action.

B. Stage 4 Water Rationing Survey.

1. The General Manager shall conduct a survey of MPWRS water users not deriving their source of supply from Cal-Am prior to effective date of Stage 5 Water Rationing. The survey shall request information to determine the number of permanent residents in each dwelling unit and the lot size of each residential site with permitted water use; the types of uses and amount of water use on non-residential sites; and the number of users and types of use(s) served by each water meter or connection. Only information deemed appropriate for the effective operation of this program will be requested.

2. The District shall mail the survey form to water users not supplied water by Cal-Am. Survey forms shall be completed by the responsible party and returned to the District within 30 days of mailing. The District shall preserve the confidentiality of this survey data.

C. Administration of Survey Data.

1. Cal-Am Water Users. Cal-Am shall maintain survey data for all MPWRS water users supplied water by Cal-Am and shall provide the District with access to all data. Cal-Am shall provide the District with an annual

summary of survey information, or more frequently as required by the General Manager. Cal-Am shall preserve the confidentiality of survey data.

2. Non-Cal-Am Water Users. During Stage 5 Water Rationing through Stage 7 Water Rationing, the District shall maintain survey data for all water users supplied water from non-Cal-Am sources subject to those stages.

3. A full or partial survey may be conducted as deemed necessary by the District to maintain accurate data.

4. District staff shall maintain the confidentiality of Cal-Am and non-Cal-Am residential customer survey data. Violations of this provision shall be enforced as a misdemeanor under District law.

D. Reporting.

1. Responsibility of Water User.

a. Each responsible party shall be responsible for accurately reporting the number of permanent residents in the dwelling unit or units or other information deemed appropriate for the effective operation of the program as requested on the survey form.

b. Upon activation of a water meter, each responsible party shall complete a survey form.

i. Cal-Am Water Users. The completed survey form shall be submitted to Cal-Am by customers of that distribution system.

ii. Non-Cal-Am Water Users. The completed survey form shall be submitted to the District or its agent by all other distribution systems users required to complete a survey form during Stage 5 Water Rationing through Stage 7 Water Rationing.

c. All responsible parties shall submit revised survey forms whenever there is a change in the number of permanent residents in a residential dwelling unit or whenever there is a change in a water user category in non-residential uses. Revised survey forms should be submitted to the appropriate party as indicated in Rule 170, D, 1, b.

d. Property owners of short-term residential housing rentals shall provide information about the average number of annual occupants and the average rate of occupancy to the appropriate party as indicated in Rule 170, D, 1, b.

2. Misrepresentation Violation. Any water user intentionally over-reporting the number of permanent residents in a dwelling unit or other information pertinent to establishing a water ration during Stages 4, 5, 6 and 7 Water Rationing may be charged with a misdemeanor punishable as an infraction as provided by Section 256 of the Monterey Peninsula Water Management District Law, Statutes of 1981, Chapter 986. Violations carry a maximum penalty of up to $250 for each offense. Each separate day or portion thereof during which any violation occurs or continues without a good-faith effort by the responsible water user to correct the violation, may be deemed to constitute a separate offense, and upon conviction thereof, may be separately punishable.

3. Penalties for Misreporting. In addition to any charge for misrepresenting information as provided in Rule 170, D-2, any or all of the following may be further imposed by the General Manager or his agent during Stages 4, 5, 6 and 7 Water Rationing where the violation occurs and continues without a good-faith effort by the responsible water user to correct the violation. Decisions pursuant to this rule are appealable under Rule 70 (Appeals).

   a. Intentional misrepresentation may be considered a violation of the water waste provisions and shall subject the water user to a fee for water waste; and/or

   b. Intentional misrepresentation may cause the loss of any water bank accrued and shall cause the responsible party to be ineligible to accrue a water bank for a period of sixty (60) months; and/or

   c. Intentional misrepresentation may cause the assignment of a reduced water ration that may be as low as a ration for one person for a period of twelve (12) months following implementation of Stages 4, 5, 6 or 7 Water Rationing.

4. Audit. The District may periodically audit the survey data for accuracy. Upon question, the District may request additional evidence of residency to demonstrate the number of permanent residents at that site as defined in Rule 11 (Definitions).

Rule added by Ordinance No. 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 171 - WATER WASTE FEES

A. Each occurrence of Water Waste or Non-Essential Water Use, as those terms are defined by Rule No. 11 (Definitions), which continues after the water user has had reasonable notice to cease and desist that type of water use shall constitute a flagrant occurrence.

B. A $50 fee per day or portion thereof shall be assessed for each flagrant occurrence of Water Waste or Non-Essential Water Use. The fee shall accumulate daily until the occurrence is corrected.

C. A $150 fee per day or portion thereof shall be imposed for each subsequent occurrence (including multiple occurrences) of Water Waste or Non-Essential Water Use which occurs within 18 months of the first occurrence. The fee shall accumulate daily until the occurrence is corrected.

D. All fees shall be paid within 30 days.

E. Within the 30 day period, a water user may seek waiver or forgiveness of all or part of the Water Waste fees on the basis of hardship. The water user must provide the District with a written explanation as to why the fees should not be collected. Staff shall be authorized to determine whether or not fees should be waived in full or in part, with the final decision resting with the General Manager.

F. After 30 days, fees which have not been paid or waived may result in a lien being placed on the property served by the water account.

G. Repeated occurrences or Water Waste or Non-Essential Water Use, which continue or occur after the water user has had a reasonable notice to cease and desist that type of water use, or which continues or occurs after the water user has had a reasonable opportunity to cure any defect causing that type of water use, shall provide cause for the placement of a flow restrictor within the water line or water meter.

H. Decisions pursuant to this rule are appealable under Rule 70 (Appeals).

Rule added by Ordinance No. 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 172 - LANDSCAPE WATER AUDITS

A. Landscape Water Audits shall be conducted under the supervision of an individual who has been certified by the Irrigation Association to conduct audits and establish Landscape Water Budgets. Each audit shall be signed by that person, who shall attest that the audit was performed under his/her direction.

B. Landscape Water Audits and Landscape Water Budgets shall be offered by the District and/or Cal-Am or their agent free of charge to all water users of Cal-Am with dedicated landscape meters, large irrigated areas over three acres, and large residential water users. Water use records shall be reviewed annually to identify new water users required to establish a Landscape Water Budget by this rule. Cal-Am shall provide the District with copies of all completed Landscape Water Audits and Landscape Water Budgets.

1. Cal-Am water users shall be required to obtain Landscape Water Audits and establish Landscape Water Budgets if the property:

   a. Has a dedicated landscape water meter; or

   b. Is an irrigated area of greater than three acres; or

   c. Is a large residential water user.

2. All Landscape Water Budgets must be prepared by an individual certified by the Irrigation Association.

3. All water users required to complete a Landscape Water Audit and establish a Landscape Water Budget shall have the option of obtaining a Landscape Water Audit and Landscape Water Budget from Landscape Irrigation Auditor of their choice at their own expense if the auditor is certified by the Irrigation Association.

4. Landscape Water Audits not conducted by the District and/or Cal-Am shall be reported on a Landscape Water Budget Application. Landscape Water Budget Applications shall be submitted to Cal-Am. Cal-Am shall forward a copy to the District within ten (10) days. Landscape Water Audits not performed by the District or Cal-Am are subject to review and acceptance by the District. Landscape Water Audits and Landscape Water Budgets rejected by the District may be appealed to the Board of Directors pursuant to Rule 70 (Appeals).

5. Landscape Irrigation Auditors shall arrange on-site visits to compile water records to review historic use, measure irrigated sites, identify plant materials by general groups, determine irrigation water requirements, and estimate potential dollar and water savings. Landscape Irrigation Auditors shall also develop system testing strategies, check pressure and flow rates, and conduct water application distribution tests. Data shall

be collected to determine irrigation uniformity and efficiency. Soil samples shall be examined to determine soil types and root zone depths. Landscape Irrigation Auditors shall observe system operations, locate irrigation zones, prepare site audit maps and visually identify broken or misaligned equipment. All data from field tests shall be summarized and this information used to generate monthly irrigation base schedules. A copy of the Landscape Water Budget Application shall be provided to the water user. One copy of the Landscape Water Budget Application shall be submitted to Cal-Am. Cal-Am shall forward a copy to the District within ten (10) days.

6. Cal-Am shall provide quarterly compliance status notices to each water user required to follow a mandatory Landscape Water Budget.

C. Modifications To Audited Landscapes. Following significant modification to an existing audited landscape, a new Landscape Water Audit shall be conducted to establish an appropriate Landscape Water Budget. It shall be the responsibility of the property owner to ensure that a Landscape Water Audit is conducted within 60 days of any such change and to submit a new Landscape Water Budget Application to Cal-Am.

D. Reporting and Analysis. Cal-Am shall preserve water use records and budgets for water users subject to this provision of law for such time as the Expanded Water Conservation and Standby Rationing Plan remains effective. Updated Landscape Water Budgets shall supersede previous data. Quarterly, a report shall be compiled by Cal-Am and provided to the District showing the account information and comparing the Landscape Water Budget with actual consumption. During Stages 2 and 3, Cal-Am shall provide the District with monthly consumption reports for all customers with Landscape Water Budgets.

E. Landscape Irrigation Restrictions in the Cal-Am system that derives its source of supply from the MPWRS. Unless watering is by drip irrigation, through a hand-held hose with a positive action shut-off nozzle, or performed by a professional gardener or landscaper, the following schedule shall apply:

1. Odd Numbered Properties shall water after 5 p.m. or before 9 a.m. on Saturdays and Wednesdays only. This schedule shall also apply to properties located on the South or West side of the street in cities where no street address is available.

2. Even Numbered Properties shall water after 5 p.m. or before 9 a.m. on Sundays and Thursdays only. This schedule shall also apply to properties located on the North or East side of the street in cities where no street address is available.

Rule added by Ordinance No. 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

RULE 173 - REGULATION OF MOBILE WATER DISTRIBUTION SYSTEMS

A. No person, extractor, owner or operator shall operate a mobile water distribution system without first securing a written permit from the District. In accordance with Monterey County Code (e.g., Title 15.20), no applications will be accepted or permitted for bulk hauled water for permanent potable use. Applications for establishment of a mobile water distribution system shall be made pursuant to Rule 22 (Action On Application For Permit To Create/Establish A Water Distribution System) and shall be investigated, considered, determined, and acted upon on the same terms and conditions as provided for the approval, conditional approval or denial of a creation establishment permit as stated in that rule. The application shall identify each source of supply and the location of each use. For any subpotable mobile water distribution system within the California-American Water Company (Cal-Am) service area, a condition of approval shall require that Cal-Am be notified so that a back-flow protection device can be installed pursuant to Monterey County Code Title 17.

B. In the event prior authorization is not obtained by reason of an emergency or health related situation, authorization for the Mobile Water Distribution System permit shall be sought from the District by submittal of a complete application compliant with Rule 21, within five working days following commencement of the emergency or health related event.

C. Delivery and/or receipt of water from an unpermitted Mobile Water Distribution System shall be deemed water waste, and shall be subject to fine, restriction, and cease and desist order as set forth in Rule 171.

Rule added by Ordinance No. 92 (1/28/99); amended by Ordinance No. 96 (3/19/2001)

RULE 174 - REGULATION OF WELL OWNERS/OPERATORS AND EXTRACTORS

A. During a water supply emergency, each owner/operator or extractor of a private water well or other water-gathering facility shall comply with the provisions of this regulation, as they relate to such well.

Rule added by Ordinance No. 92 (1/28/99)

RULE 175 - WATER RATIONING ENFORCEMENT

A. Enforcement During Stages 4 through 7 Water Rationing.

1. Courtesy Notice. For the first instance of excess water use beyond the ration in Stages 4 through 7 Water Rationing, a water user shall be given written notice by the water system operator of the excess use and shall be notified that such violation constitutes water waste and a water waste fee of $50 per day shall be collected in the event the water user again exceeds that user's water ration during any future billing cycle under Stages 4 through 7 Water Rationing. If the water user complies with all water rationing and water waste and non-essential water use requirements during the next month following the first instance of excess use, the excess use fee shall be deferred.

   If the water user again exceeds that user's water ration during any following month, the water waste fee of $50 per day shall be imposed immediately and shall accumulate daily until the occurrence is corrected.

2. Second Offense. Upon the second occurrence of excess water use (including any prior excess water use during any prior stage) a water user shall be charged with water waste and assessed a fee of $150 per day for the second offense, plus the previously deferred $50 first offense fee, by the District or its agent. The $150 fee shall accumulate daily until the occurrence is corrected.

3. Third Offense.

   A third occurrence of excess water use (including any prior excess water use during any prior stage) shall result in an excess water use charge equivalent to the Cal-Am per unit water charge at the water user's level of use multiplied by the number of units over a water ration, plus $150 per day as provided in Rule 171 (Water Waste Fees). A third occurrence of excess water use shall provide cause for the installation of a flow restrictor in the water meter or water supply providing water to the property where the over-use occurred. Restrictors shall remain in place until conditions are reduced to Stage 2 Water Conservation or a less restrictive stage. All costs for the installation and removal of a flow restrictor shall be charged to the property owner of the site subjected to this action.

4. Fourth Offense. A fourth occurrence of water use in excess of the water ration shall result in fees and charges listed for a third offense and shall result in the installation of a flow restrictor by the system operator in the water meter or water supply providing water to the property where the over-use occurred. Restrictors shall remain in place until conditions are reduced to Stage 3 Water conservation or to a less restrictive stage. All costs for the installation and removal of a flow restrictor shall be charged to the property owner of the site subjected to this action.

B. Flow Restrictor Exemption. Exemptions to the installation of a flow restrictor as a means to enforce the water ration shall occur when there are provable risks to the health, safety and/or welfare of the water user. An exemption shall be made for water meters serving three or more multi-family dwelling units by substituting an excess water use charge of $150 times the number of dwelling units located on the meter during each month in which a violation of the water ration occurs. The responsible party shall be liable for payment of all excess water use charges.

C. All notices and assessments of water waste and/or excess water use charges made by a water distribution system operator shall be reported to the District.

Rule added by Ordinance No. 92 (1/28/99); Amended by Ordinance No. 119 (3/21/2005)

Appendix 3

Leter from Kronick Moskovitz Tiedemann and Girard,
dated May 17, 2006 on the proposed Seaside Basin Monitoring Plan

KRONICK
MOSKOVITZ
TIEDEMANN
& GIRARD
A PROFESSIONAL CORPORATION

ERIC N. ROBINSON
erobinson@kmtg.com

May 17, 2006

Seaside Basin Watermaster
Attn.: Acting Watermaster Clerk Rose Lampo
c/o Monterey County Water Resources Agency
893 Blanco Circle
Salinas, CA 93901

Re: Proposed Seaside Basin Monitoring and Management Plan

Dear Watermaster Members:

This letter is respectfully submitted on behalf of York School, Laguna Seca Resort, Pasadera Country Club and Bishop and McIntosh and McIntosh. All these parties exercise Alternative Production Allocations in the Laguna Seca Subarea of the Seaside Basin pursuant to the Final Judgment entered in *California American v. City of Seaside, et al.*, Monterey County Superior Court Case No. M66343.

We received two days ago a copy of the "Seaside Basin Monitoring and Management Program" ("Program") proposed for Watermaster adoption at today's meeting. The work invested in developing the Program is laudable, given the short time provided by the Court. Given the time constraint, we see this Program to create a basin management plan as an important step in fulfilling the mandate to protect the Seaside Basin groundwater supply and put it to maximum beneficial use. The proposed Program focuses primarily upon the northern end of the Northern Coastal Subarea of the Seaside Basin, where the seawater intrusion threat is greatest due to the concentration of groundwater pumping in proximity to the ocean.

The proposed Program also calls for increased monitoring from existing wells in the Laguna Seca Subarea, as recommended by Monterey Peninsula Water Management District's ("MPWMD") Phase III Hydrogeologic Update Report (November 2002) ("Phase III Report"). That is well and good, but we are concerned that the Program might not devote sufficient attention to examining the relationship between groundwater extractions in the Laguna Seca Subarea and groundwater conditions in the Coastal Subarea, and particularly in the Southern Coastal Subarea. That examination is necessary to meet the Program's objective to "optimize groundwater pumping" throughout the Basin. (Program at p. 20 [citing Court's Decision]).

MPWMD's Phase III Report states that the groundwater extraction level in the Laguna Seca Subarea could continue "for decades" without causing material harm to the subarea or its groundwater producers (Phase III Report at p. iii) but that the subarea's groundwater production could be maximized by relocating some wells westward toward the subarea's boundary with the Southern Coastal Subarea—a concept that "has implications for future

management of the basin" (*id.* at p. 49). The Phase III Report suggests that shifting well locations might possibly affect the very limited amount of groundwater pumping occurring in the Southern Coastal Subarea, but that those few Southern Coastal Subarea wells probably fail to maximize the capture and beneficial use of groundwater there anyway. (Phase III Report at p. 51.)

Since issuance of the Phase III Report in 2002, no new data sources have been developed to support groundwater management decisions for the Southern Coastal Subarea and Laguna Seca Subarea. MPWMD's 2005 Seaside Groundwater Basin Update report ("Update Report") indicates that existing monitoring wells show groundwater levels in the Southern Coastal Subarea have remained stable, even with increased pumping levels in the Laguna Seca Subarea. (Update Report at p. 32.) The Update Report concludes that groundwater discharge from the Southern Coastal Subarea to the ocean is greater than necessary to prevent seawater intrusion. (*Id.*) The Update Report cites a lack of data underlying assumptions about whether and, if so, how much groundwater originating from the Laguna Seca Subarea actually might flow north from the Southern Coastal Subarea into the southern end of the Coastal Subarea, where the seawater intrusion threat exists.

All the preceding analysis demonstrates that the Program should, and indeed must, develop data that will support Basin management decisions that maximize beneficial use of Laguna Seca Subarea groundwater. The Program should provide information to allow maximum beneficial use from both the Laguna Seca and Coastal subareas in a concerted effort to avoid any seawater intrusion. We request that the Program specifically encompass activities to develop that needed data. If the Program now proposed does not encompass such activities, we request that the Watermaster amend the proposed Program to do so.

Sincerely,

KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD
A Professional Corporation

Eric N. Robinson

ENR/dg

cc: Elizabeth Gianola (York School)
Ann Hartmann (Pasadera Country Club)
Jacqui Zischke (Laguna Seca Resort)
All counsel on service list (by e-mail)

830003.1

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Appendix 4

Minute Order re: Request for Approval
of the Seaside Monitoring and Management Program
dated June 20, 2006

SUPERIOR COURT OF CALIFORNIA
COUNTY OF MONTEREY

Date: June 20, 2006

Hon. Roger D. Randall	, Judge	Erika D. Dunn	, Deputy Clerk
--	, Bailiff	--	, Court Reporter

California American Water, 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 McIntosh & McIntosh, 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.	No. M66343 Minute Order re: Request for Approval of the Seaside Monitoring and Management Program

The Court has reviewed the Request for Approval of the Seaside Monitoring and Management Program, and the Joinder of the Laguna Seca Subarea Alternative Producers. To approve the program, two things must be addressed:

1. The concerns of the Laguna Seca Alternative Producers must be addressed in the Program;

2. Beginning at page 20, Item 4, no time limits are presented for acquisition of the software, nor for the compilation of data allegedly needed to contour the chloride data. As submitted, after the data is compiled, multiple technical review sessions are contemplated. This is unacceptable, since considerable harm could be done to the aquifer while the various parties engaged in review of the data using tools which are to be acquired at an unknown future date. Item 4 must be redrafted to provide for an expedited process to determine the occurrence of seawater intrusion using tools at hand, so that intrusion can be arrested at the earliest possible date.

CERTIFICATE OF MAILING
C.C.P. SEC. 1013a

I do hereby certify that I am not a party to the within stated cause and that on June 21, 2006 I deposited true and correct copies of the following document:

Minute Order dated June 20, 2006

in sealed envelopes with postage thereon fully prepaid, in the mail at Salinas, California 93901, directed to each of the following named persons at their respective addresses, as hereinafter set forth:

SEE ATTACHED SERVICE LIST

Dated: 6-21-06

LISA M. GALDOS, Clerk of the
Superior Court, for the County of Monterey

By _____
Deputy