
Seaside Groundwater Basin Management and Monitoring Program Anticipated 2010 Scope of Work

The tasks outlined below are those that are anticipated to be performed during 2010. Some Tasks listed below are specific to 2010, while others Tasks recur throughout the program, such as data collection and database entry, and Program Administration Tasks.

Within the context of this document the term "Consultant" refers either to a firm providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

M.1 Program Administration

M. 1. a. Project Budget and Controls	Consultants will provide monthly or bimonthly invoices to the Watermaster for work performed under their contracts with the Watermaster. Consultants will perform maintenance of their internal budgets and schedules, and management of their subconsultants. The Watermaster will perform management of its Consultants.
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M. 1. b. Assist with Board and TAC Agendas	Watermaster staff will prepare Board and TAC meeting agenda materials. No assistance from Consultants is expected to be necessary to accomplish this Task.
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M. 1. c. Preparation and Attendance of Meetings	<p>The Consultants' work will require internal meetings and possibly meetings with outside governmental agencies and the public. For meetings with outside agencies, other Consultants, or any other parties which are necessary for the conduct of the work of their contracts, the Consultants will set up the meetings and prepare agendas and meeting minutes to facilitate the meetings. These may include planning and review meetings with Watermaster staff. The costs for these meetings will be included in their contracts, under the specific Tasks and/or subtasks to which the meetings relate. The only meeting costs that will be incurred under Task M.1.c will be:</p> <p>Those associated with attendance at TAC meetings (either in person or by teleconference connection), and</p> <p>From time-to-time when Watermaster staff asks Consultants to make special presentations to the Watermaster Board and/or the TAC.</p>
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Appropriate Consultant representatives will attend TAC meetings when requested to do so by Watermaster Staff (either in person or by teleconference connection), but will not be asked to prepare agendas or meeting minutes. As necessary, Consultants may provide oral updates to their progress reports (prepared under Task M.1.d) at the TAC meetings.

M. 1. d. Prepare Board/ TAC Status Updates and Reports	Consultants will provide written monthly progress reports to the Watermaster for inclusion in the agenda packets for the TAC meetings. These progress reports will typically include project progress that has been made, problem identification and resolution, and planned upcoming work.
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M. 1. e. Peer Review of Documents and Reports	When requested by the Watermaster staff, Consultants may be asked to assist the TAC and the Watermaster staff with peer reviews of documents and reports prepared by various other Watermaster Consultants and/or entities.
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M. 1. f. QA/QC	A Consultant (MPWMD) will provide general QA/QC support over the Seaside Basin Monitoring and Management Program.
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I. 2 Comprehensive Basin Production, Water Level and Water Quality Monitoring Program

I. 2. a. Database Management

**I. 2. a. 1
Conduct Ongoing Data Entry and Database Maintenance/Enhancement** The database will be maintained by a Consultant performing this work for the Watermaster. Either one of the other Consultants or the Watermaster staff will enter new data into the consolidated database. Such data will include water production volumes, water quality and water level data, and such other data as may be appropriate. The database programming may periodically be enhanced at the direction of the Watermaster to improve the usefulness and “user friendliness” of the database.

**I. 2. a. 2
Verify Accuracy of Production Well Meters** To ensure that water production data is accurate, the well meters of the major producers were verified for accuracy during 2009. No additional work of this type is anticipated during 2010.

I. 2. b. Data Collection Program

**I. 2. b. 1.
Site Representation and Selection.** The monitoring well network review that was started in 2008 has been completed, and sites have been identified where future monitoring well(s) could be installed, if it is deemed necessary to do so in order to fill in data gaps. No further work of this type is anticipated in 2010.

**I. 2. b. 2.
Collect Monthly Manual Water Levels.** Each of the monitoring wells will be visited on a monthly basis. Water levels will be determined by either taking manual water levels using an electric sounder, or by dataloggers.

**I. 2. b. 3.
Collect Quarterly Water Quality Samples.** Water quality data will be collected quarterly from certain of the monitoring wells. This data may come from water quality samples that are taken from these wells and submitted to a State Certified analytic laboratory for general mineral and physical suite of analyses, or the data may come from induction logging of these wells and/or other data gathering techniques. The Consultant selected to perform this work will make this judgment based on consideration of costs and other factors.

**I. 2. b. 4.
Update Program Schedule and Standard Operating Procedures.** The TAC, with assistance from Consultants, will conduct periodic reviews of the data collection program and will recommend to the Watermaster improvements as warranted.

**I. 2. b. 5.
Monitor Well Construction** An additional monitoring well was installed in 2009. No further work of this type is anticipated in 2010.

**I. 2. b.6
Reports** The groundwater level and quality monitoring will be conducted on a monthly, quarterly, and annual basis, as described in the Contractor’s Scope of Work. Reports summarizing data collected and analyzed will be submitted to the Watermaster on a schedule to be established during the year. Reports will include:

- Water Quality and Water Level Quarterly Reports
- An Annual Water Quality and Water Level Report

I. 3 Basin Management

I. 3. a. Enhanced Seaside Basin Groundwater Model

As a result of the data obtained during Phase 1, including constructing new coastal sentinel monitoring wells and developing a consolidated database of groundwater production, water levels, and water quality, it is was concluded that at that time it was not necessary to develop a new Model. Preliminary conclusions from work performed on preparing the Basin Management Action Plan in 2008, along with comments and questions from Technical Advisory Committee and Board members, indicated that it was desirable to update the existing Model during 2009, so that it could be used as more data becomes available.

I.3.a.1 Update the Existing Model

The existing Model, described in the report titled "Groundwater Flow and Transport Model" dated October 1, 2007, was updated in 2009 in order to develop protective water levels, and to evaluate replenishment scenarios and develop answers to Basin management questions (Tasks I.3.a.2 and I.3.a.3). This work was done by a Consultant hired by the Watermaster. No further work of this type is anticipated in 2010.

I. 3. a. 2 Develop Protective Water Levels

A series of cross-sectional models was created in order to develop protective water levels for selected production wells, as well as for the Basin as a whole. This work was done in 2009 by a Consultant hired by the Watermaster (HydroMetrics), and is discussed in HydroMetrics' "Seaside Groundwater Basin Protective Water Elevations Technical Memorandum." In 2010 further work will be done to refine these protective water levels to find the most cost-effective approach to provide the desired degree of protection.

I. 3. a. 3 Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions

The updated Model was used to evaluate different scenarios to determine such things as the most effective methods of using supplemental water sources to replenish the Basin and/or to assess the impacts of pumping redistribution. This work was done in 2009 by a Consultant hired by the Watermaster (HydroMetrics), and is described in HydroMetrics' "Seaside Groundwater Basin Groundwater Model Report." In 2010 if requested by the Watermaster, HydroMetrics may use the updated Model to develop answers to other questions associated with Basin management.

I. 3. b. Complete Preparation of Basin Management Action Plan

The Watermaster's Consultant completed preparation of the Basin Management Action Plan (BMAP) in February 2009. The BMAP serves as the Watermaster's long-term seawater intrusion prevention plan. The Sections that are included in the BMAP are:

- Executive Summary
- Section 1 – Background and Purpose
- Section 2 – State of the Seaside Groundwater Basin
- Section 3 – Supplemental Water Supplies
- Section 4 –Groundwater Management Actions
- Section 5 – Recommended Management Strategies
- Section 6 – References

The only work which is anticipated to be performed on the BMAP in 2010 is discussed under Task I. 3. c.

I. 3. c. Refine and/or Update the Basin Management Action Plan

During 2010 it may be beneficial to update the BMAP based on new data, and/or knowledge that is gained from the work described under Tasks I. 3. a. 2 and/or I. 3. a. 3. Such work might involve issues pertaining to Basin storage capacity, water storage rights, or pumping redistribution strategies. This task is included primarily for budgeting purposes in the event such work is deemed necessary.

**I. 3. d.
Evaluate Coastal Wells for
Cross-Aquifer
Contamination Potential**

If seawater intrusion were to reach any of the coastal wells in any aquifer, and if a well was constructed without proper seals to prevent cross-aquifer communication, or if deterioration of the well had compromised these seals, it would be possible for the intrusion to flow from one aquifer to another. A review of the well construction records for each of the coastal wells will be made to determine whether or not they were properly constructed so as to prevent such cross-aquifer contamination from occurring. As part of that review, records will also be reviewed to determine whether there is any indication of well seal deterioration that would lead to the potential for cross-aquifer contamination. A report summarizing the findings of this review will be prepared, with recommendations for any field inspection or other followup work that should be done in this regard.

I. 4 Seawater Intrusion Response Plan (formerly referred to as the Seawater Intrusion Contingency Plan)

I. 4. a. Oversight of Seawater Intrusion Detection and Tracking	A Consultant will provide general oversight over the Seawater Intrusion detection program.
I. 4. b. Analyze and Map Water Quality from Coastal Monitoring Wells	Annual chloride concentration maps will be produced incorporating the data from the coastal wells. Data from the Phase 1 coastal sentinel wells will be used to develop time series graphs.
I. 4. c. Annual Report- Seawater Intrusion Analysis	At the end of each water year, a Consultant will reanalyze all water quality data. Semi-annual chloride concentration maps will be produced for each aquifer in the basin. Time series graphs, trilinear graphs, and stiff diagram comparisons will be updated with new data. The annual EM logs will be analyzed to identify changes in seawater wedge locations. All analyses will be incorporated into an annual report that follows the format of the initial, historical data report. Potential seawater intrusion will be highlighted in the report, and if necessary, recommendations will be included. The annual report will be submitted for review by the TAC and the Board. Modifications to the report will be incorporated based on input from these bodies, as well as Watermaster staff.
I. 4. d Complete Preparation of Seawater Intrusion Response Plan	<p>The Watermaster's Consultant (HydroMetrics) completed preparation of the long-term Seawater Intrusion Response Plans (SIRP) in February 2009. The Sections that are included in the SIRP are:</p> <ul style="list-style-type: none">• Section 1 – Background and Purpose• Section 2 – Consistency with Other Documents• Section 3 – Seawater Intrusion Indicators and Triggers• Section 4 –Seawater Intrusion Contingency Actions• Section 5 - References <p>No further work on the SIRP is anticipated in 2010.</p>
I. 4. e. Refine and/or Update the Seawater Intrusion Response Plan	At the beginning of 2009 it was thought that it might be beneficial or necessary to perform work to refine the SIRP and/or to update it based on new data or knowledge that was gained subsequent to the preparation of the SIRP. However, this did not prove to be necessary, and no further work of this type is anticipated in 2010.
I. 4. f. If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan	The SIRP will be implemented if seawater intrusion, as defined in the Plan, is determined by the Watermaster to be occurring.
