



A3. Work Plan: Appendix 1

Draft Scope of Work: Groundwater Basin Assessment in Support of Salt and Nutrient Management Plan

Introduction

The Santa Barbara County Region proposes the “Groundwater Basin Assessment in Support of a Salt and Nutrient Management Plan” (Plan) as an initial step toward a Salt and Nutrient Management Plan for the region. This project focuses on the Santa Maria Groundwater Basin at this stage with the goal of improving surface and groundwater quality, as well as addressing the water quality various requirements in effect.

The development of a Salt and Nutrient Management Plan for groundwater basins is a requirement of the Recycled Water Policy adopted by the State Water Resources Control Board in 2009. The Recycled Water Policy requires that Salt and Nutrient Management Plans be developed to manage salts, nutrients, and other significant chemical compounds found in recycled water on a watershed or sub-watershed basis.

The Santa Maria Basin Monitoring and Management Program (Program) “was prepared in 2009 to provide the fundamental data for ongoing annual assessments of groundwater conditions, water requirements, water supplies, and water disposition in the [Santa Maria Valley Management Area (SMVMA)]” (2009 Annual Report of Hydrogeologic Conditions, Water Requirements, Supplies, and Disposition – Santa Maria Valley Management Area [SMVMA 2009 Annual Report]) to ensure that the Santa Maria Groundwater Basin (Basin) is protected and managed as a source of water for beneficial uses.

Several water supply projects are in place to help meet various water management objectives including water quality improvement within the basin. For example:

- The City of Santa Maria (City) operates its percolation ponds to encourage denitrification.
- The Laguna Sanitary District (District) treats a portion of its recycled water to remove salts.
- Various agricultural interests have taken steps to reduce nutrient loading of the Basin.
- The City of Guadalupe Wastewater Treatment Plant (WWTP) discharge system includes sprinkler irrigation over the groundwater basin.

This scope of work is focused on initial development of a Salt and Nutrient Management Plan that could improve surface- and groundwater quality, as well as address the various requirements in effect.

Development of Initial Plan (Scope of Work for IRWM Plan Update)

The series of tasks described below will establish a general process and substantive framework for a Phase 1 Salt and Nutrient Management Plan (Plan). Focusing this assessment on the Santa Maria Groundwater Basin will allow implementation of a basinwide Plan.

Overall, these tasks for development of the Plan will accomplish the following objectives:

- Bring all relevant information into a single database.
- Develop a conceptual model of the functioning of the groundwater basin.
- Develop a preliminary list of the sources of salts and nutrients of concern in the basin.
- Identify data gaps and information.
- Identify additional data necessary to select among potential management alternatives.
- Establish initial goals and objectives to guide development of a plan.
- Address the requirements of the recycled water policy.

An adopted Final Plan may include identification and implementation of management alternatives, but development of a Final Plan is not included in the proposed scope of work. This scope contains tasks that will initiate the development of the Plan for the basin (Phase 1). Subsequent phases will build upon the tasks performed under this scope.

Scope of Work

The following scope of work comprises tasks to complete an assessment of the Santa Maria Groundwater Basin and to develop goals and objectives for a Salt and Nutrient Management Plan; this assessment is Phase 1 of the Plan. A more detailed study including any required peer review process will be conducted in the implementation phase.

Task 1: Establish Collaborative Process

Task 1.1 Develop a Collaborative Process for Discussions

Various water uses within the Santa Maria Valley have an interest in groundwater quality. These interests will be brought together to form a working group to guide the Plan. The working group will form a technical advisory committee (TAC) and engage consultants to assist in development of the Plan. In addition, the group will be responsible for collaboration with local organizations and public agencies, as well as the public.

The outcome of this task will be the establishment of a working group and TAC (based on working knowledge and expertise) for guiding the development of the Plan. A lead

stakeholder will maintain the contact list for the technical review committee, advisory committee, and other stakeholders in the watershed to coordinate all workshops and distribution of meeting notifications and deliverables.

No budget has been allocated to Task 1.1 in this scope. It is assumed that the work under this task will be performed by the working group.

Task 1.2 *Develop RFP for Consultant Support*

This task includes the development of a Request for Proposal (RFP) to support development of the Plan. No budget has been allocated for this task under this scoping effort. It is assumed that the work under this task will be performed by the local agencies.

Task 1.3 *Conduct Salt/Nutrient Plan Workshop for In-basin Interests*

Under this task, two workshops will be conducted. The goal of the workshops will be to discuss the following:

- Goals of the Plan development under Phase 1
- Approach and the process for the development of the Plan under Phase 1
- Agency coordination
- Data needs
- Process to assure consistency with emerging Regional Water Quality Control Board (RWQCB) guidelines
- Elements of the Plan under Phase 1

Deliverables:

Two workshops will be conducted. For discussion purposes, PowerPoint presentations will be developed for the workshops. A summary of each workshop will be prepared.

Task 2: Gather Data and Develop Data Management Protocol

Data regarding the occurrence, use, and quality of local water supplies are extensive. Recent efforts by the Twitchell Management Authority (TMA) have resulted in collection of relevant information throughout the basin and development of a spatially oriented database management system (geographic information system [GIS]). The following sub-tasks will be conducted under this task:

Task 2.1 *Identify Constituents and Other Data Needs*

In coordination with the stakeholders, a list of potential constituents of concern will be developed. For purposes of this scope, three constituents (sodium, chloride, and nitrate) will be considered. Additional constituents may be considered in the next phase(s) of the Plan.

Task 2.2 *Gather Data*

The TMA database will be used as a primary data source. Additional data will be collected from various sources. A list of data sources will be developed in coordination

with the stakeholder group. Data requests will be followed up with electronic and telephone communications. Data for the watershed, including climate, geology, hydrology, hydrogeology, land use, and land coverage, as well as groundwater and surface water quantity and quality, will be compiled for the selected constituents (sodium, chloride, and nitrate). Quality assurance/quality control (QA/QC) of the data will be conducted for any duplicate records and general checking of the data from various sources for uniform formats, parameters, and spatial information.

Task 2.3 *Data Management Protocol and Develop GIS Themes*

Following Task 2.2, data will be used for the development of the GIS “themes” or layers for the groundwater basin. The use of GIS framework for its utility as a basis for development of the Phase 1 Plan will be explored. As appropriate, the GIS will be augmented with additional themes (information layers). The resulting body of information will be evaluated, in conjunction with Task 3, to identify any gaps in gathered data that would be necessary to develop the Plan.

Task 2.4 *Summarize and Evaluate Data, and Identify Gaps
(in conjunction with Task 3)*

The gathered data and information will be summarized in a technical memorandum (TM). The TM will be generated in conjunction with Task 3, in which the needs of data for the development of the conceptual model will be assessed.

Deliverable:

A brief TM, summarizing the data and gaps in the data, will be prepared.

Task 3: Develop Conceptual Model

Task 3.1 *Describe Basin Characteristics*

Data gathered in the previous task will be used to describe the basin characteristics. The characterization will include the following:

- Climate
- Geology
- Hydrogeology/hydrology (e.g., flow characteristics, aquifer characteristics)
- Existing/background groundwater and surface water quality and quantity conditions
- Land cover and land use evaluation/mapping
- Beneficial uses
- Recharge areas
- Range of groundwater storage conditions

Task 3.2 *Describe Current Management*

This task will include the following components:

- Facility locations

- An initial overview of the irrigation, stormwater control, and other land use practices in the watershed
 - This task may be expanded in the next phases of the Plan. Information presented in the Santa Maria Groundwater Basin Report (2008 SMVMA Annual Report) will be used for developing a preliminary assessment of the watershed.

Task 3.3 Conduct Preliminary Basin Analysis

The Santa Maria Groundwater basin has been subject to extensive evaluation by various interests for water supply and water quality management. Based on this previous work and available data, a conceptual model of the basin and its hydrologic function will be developed. The following tasks will be accomplished:

- Preliminary water balance
- Identification of sources of sodium, chloride, and nitrate
- Preliminary sodium, chloride, and nitrate balance
- Storage/available storage volume
 - Changes/range in recharge
 - Minimum and maximum storage
 - Change in losses (migration from basin)

Development of a conceptual model will address the following:

- Development of a shared understanding of the local hydrologic conditions, including salt/nutrient transport
- Testing of adequacy of existing data to support a complete description of the local hydrologic system
- Identification of gaps in existing information that inhibit understanding of basin functioning
- Development of realistic goals and objectives
- A platform for eventual numerical modeling of alternative management strategies

The conceptual model will be developed in stages and will be subject to public review. Two meetings will be conducted to review the water and sodium, chloride, and nitrate balance. A brief TM will be prepared to summarize the work performed under task 3.

The TM prepared under Task 2 will be updated to identify data gaps and needs from this task. The prepared TMs under tasks 2 and 3 will not be submitted for TAC/public review; rather, the TM will be revised based on presentations of the work at the TAC and public meetings. These TMs will serve as the basis for the Phase 1 report preparation.

Deliverables:

Results of these tasks will be discussed in two meetings: one with the TAC members and one with the public. A TM will be prepared to describe the conceptual model, the components of the model (functioning of the hydrologic system), and data gaps.

Task 4: Review and Propose Updates to the Existing Monitoring Plans

Several entities now monitor various aspects of the local hydrological system. Data are collected by federal, state, and local agencies, as well as local water users. Publically available monitoring plans will be evaluated in tandem with Task 2 and Task 3. To the extent possible, existing monitoring programs can be modified to address or fill gaps identified in Task 2. Appropriate recommendations will be made to the responsible party. It is likely that existing monitoring programs can be modified to collect and disseminate the data necessary to develop and implement a Phase 1 Plan. The following sub-tasks will be performed:

- Summarize existing monitoring plans/programs. The data of specific interest for this plan will be included. For example:
 - Water balance tracking/monitoring (particularly near supply wells and recharge projects)
 - Storage and water losses
 - Salt and nutrient balance and source loading monitoring
 - Constituents of Emerging Concern (CEC) monitoring
 - Trend analyses
 - Data management and reporting
- The already gathered and compiled information from the basin adjudication process will be utilized for this task.
- The following three sources of information will be reviewed:
 - SMVMA 2009 Annual Report, which was prepared to meet the reporting conditions of the June 30, 2005, Stipulation entered by the Superior Court of the State of California, County of Santa Clara, in the Santa Maria Valley Groundwater Basin litigation
 - RWQCB database
 - County Water Agency monitoring reports

Based on the review of the existing monitoring plans and development of the conceptual model, a list of changes to data collection to fill in data gaps inhibiting further development of Plan will be prepared. This information will be compiled in a brief TM. The TM will also include proposed revisions to the existing monitoring plans to include new monitoring point locations needed for developing an understanding of salt and nutrient transport in the basin.

Deliverable:

A brief TM describing the proposed revisions to the existing monitoring plans will be prepared. The prepared TMs under task will not be submitted for TAC/public review; rather, the TM will be revised based on presentations of the work at the TAC and public meetings. The TM will serve as the basis for the Phase 1 report preparation.

**Task 5: Develop Goals and Objectives
(interlinked with development of conceptual model)**

The working group will formulate a process to develop goals and objectives for the Phase 1 Plan. This process is anticipated to begin with the review of existing data (Task 2) and development of a conceptual model (Task 3). It is expected that the working group will address both institutional and quantitative goals and objectives. Examples of issues the working group may choose to address are listed in Tasks 5.1 and Task 5.2.

Task 5.1 Develop Institutional Goals and Objectives for the Phase 1 Plan

The overall goal of this task is to develop institutional goals and objectives based on input from the local stakeholders. Topics to be addressed in this task may include:

- Institutional controls and decision making
- Management practices
- System operation and monitoring

Task 5.2 Develop Quantitative Goals and Objectives for the Phase 1 Plan

The objective of this task is to facilitate discussions among local agencies to develop quantitative goals for the Phase 1 Plan. Topics that may be considered for this task include:

- Means of addressing Water Quality Objectives
- Groundwater elevation limits
- Groundwater storage objectives (use, volume)
- Control of sub-surface discharge to the ocean
- Limitations on banked water withdrawal rate and storage

Deliverable:

Two meetings (one with the TAC members and one with the public) will be conducted to develop and finalize the goals and objectives of the Phase 1 Plan. A TM describing the goals and objectives of management scenarios for the Phase 1 Plan will be prepared.

Task 6: Develop Draft Phase 1 Salt and Nutrient Management Plan

Task 6.1 Develop Draft Phase 1 Plan

Based on the results of Tasks 2 through 5, a report (Phase 1 Plan) will be prepared to summarize the conceptual model of the basin, present the draft goals and objectives, make recommendations to augment ongoing monitoring, and outline the next steps for

development and implementation of a Final Plan. The draft Phase 1 Plan will be sent for public and TAC review. Two meetings will be held (one with the TAC members and one with the public) to review the draft report. Comments received from the committees and stakeholders will be addressed, and the Phase 1 Plan will be revised.

Deliverable:

Two meetings will be conducted on the Draft Phase 1 Plan. A revised Phase 1 Salt and Nutrient Management Plan will be prepared based on public comment and input from the working group. The revised Plan will be submitted in a PDF file format via email. It is assumed that the Regional Coordinator will provide one set of conformed and non-conflicting comments and changes to the draft report will be made based on agreed upon responses to comments to produce the final report.

Task 7: Project Management

Monthly progress reports and invoices will be prepared. In addition, up to four calls will be held with the leading local agency to review progress and provide input and administrative direction to the project.