

Quality Assurance

Att8_LGA12_MCCSD_QA_1of1

Attachment 8 - Quality Assurance

Quality assurance and quality control is a required element of each technical team's scope of work. Several project requirements are identified below regarding the proposed scope of work in order to assure that the project is technically sound, thoroughly reviewed and of a high quality prior to proceeding with each phase and prior to distribution for stakeholder review.

Procedural Assurances

Quality assurance planning is a requirement of each technical team with each group having to document the following:

- Procedures submittal for executing QA, milestone dates, and responsible individuals will be required for MCCSD review no later than two weeks after a Notice to Proceed.
- Technical concept and criteria validation at no later than 15% of the expended budget for all technical elements. Validation shall be through a peer review process by senior technically qualified individuals.
- Editorial reader shall read all written documents prior to submittal for content, style, grammar and formatting.
- Scheduled QA milestones will be a requirement for an approved project schedule.

As identified in the work plan, a qualified consultant will complete the scope of work, which includes several planned quality control checks of the technical work. Each document and deliverable produced will be reviewed by a technical reviewer to ensure adequate analyses have been completed.

In addition, the project director, project manager and the consultant will coordinate and communicate regularly during the entire project to ensure that the data included in the modeling component reflects the known information about the project area, including water quality, demands and supplies. The project manager has developed, calibrated and run modeling scenarios on the Mendocino Groundwater Model, so he is familiar with the model, including model development, data checking and analysis.

Personnel Qualifications

The MCCSD project manager is a California Professional Geologist, a Certified Hydrologist. The technical elements will be contracted with consulting engineers and scientists experienced and qualified for completing the work. The technical teams will include advanced degrees in groundwater modeling, license requirements for professional engineers as well as a range of years of experience to balance technical experience with youthful perspective and economics.

The selected consultant completing the GIS risk assessment work will be based in part on the following:

- Established technical expertise in both the required field, but also the local water supply and groundwater issues as they pertain to the scope of the work.
- The selected consultant completing the hydrogeologic modeling task work (Task 3) will need to be familiar with the Mendocino Headlands aquifer including the hydrologic and hydrogeologic setting; have a high level of knowledge about the most recent version of the existing groundwater model; and have experience updating and refining the model.
- The consultants will also need to be recognized and accepted as leaders in local water resources planning and groundwater modeling.

The MCCSD selection process will be a qualifications based process focused on sound technical skills, reliable individual experience, and professional reputation and depth within the firm.

Groundwater Sampling

A Sampling and Analysis Plan will be developed prior to collecting water quality samples that will provide specific details on sampling procedures and methods for documentation. Standard Operating Guidelines, as shown in Attachment 5, will be provided as part of the Sampling and Analysis Plan. The Sampling and Analysis Plan will be reviewed and approved by MCCSD and participating consultants prior to conducting field sampling.

Field QA/QC will include collection of one field duplicate sample during the first sampling event. The results of the duplicate sample will be compared to the primary sample for consistency. The laboratory will follow their standard internal QA/QC procedures during sample analysis, including elements such as analyzing method blanks and control spikes where appropriate.

An interim technical memorandum will be provided after each sampling event to document the field sampling activities. This will be a concise report to document field procedures performed during the event, provide field data sheets to verify stabilization parameters and other key sampling parameters, and provide the laboratory results.

GIS Analysis Verification

The GIS mapping analysis will be produced following standardized practice requiring a single set of geographic data, limiting access to the files to only highly qualified individuals. Mapping output will be compared for consistency of style and the use of standard symbols, color legends, line types and other graphic guidelines to be established for this project.

Comparison and Calibration of Model with Actual Data

The existing Mendocino Headlands groundwater model has undergone extensive Quality Assurance evaluation with the record of the calibration documented in prior reports. The prior model calibration will be reviewed prior to starting the new activities to assess suitability for the proposed individual data development tasks, the water quality hydrogeologic model enhancements, and the overall risk assessment processes.

Cost Estimating and Review

The Quality Assurance of the cost estimating will be required to include use of recent past bid results where available, standard estimating guides such as Means or Saylor's, and a senior level review cycle. The estimates will include a standard set of uncertainty criteria for legal, administrative, engineering, and contingencies. All costs will be indexed to a present worth value and the Engineering News Record Construction Cost Index clearly documented for the report.

Peer Review

The MCCSD staff and interested participating stakeholders will be involved at key milestones as the project proceeds include both public meeting and stakeholder workshops. This effort will provide for a broad level of peer review and stakeholder input improving the overall quality of the concepts, assumptions, findings and ultimately the conclusions.