

ATTACHMENT 8: QUALITY ASSURANCE

Qualified engineering and geologist consultants will be used to evaluate all phases of work performed, which includes planned quality assurance checks of the technical work at various stages of the project. Multiple levels of Quality Assurance/Quality Control (QA/QC) will be included throughout the preparation of the technical work products of modeling and well construction.

Multi-completion Dedicated Monitoring Well

The proposed project includes the construction of one multiple-completion monitoring well to further characterize and monitor specific aquifer zones within the County. For the project to be successful, the monitoring well must be properly designed to target the specific aquifer zones, and the well must be properly constructed. To ensure that these criteria are met, the following actions will be taken:

All technical aspects will be performed by Registered California Engineering Geologists, California Professional Geologists and Professional Engineers. The selected well locations will be plotted on existing geologic maps and geologic cross-sections of the County. Based on this information, the aquifers underlying the well sites, along with anticipated depths and thicknesses, will be projected by a California Professional Geologist. A well design will be prepared by a California Professional Geologist to target select aquifers underlying each well site, and will include appropriate intermediate and surface seals to isolate the selected completions. The well will be drilled and constructed by a C57 Drilling Contractor registered in the State of California with experience constructing multiple-completion monitoring well. Work will be overseen and monitored by qualified professionals. Drill cuttings will be logged by a Professional Geologist or by personnel under the direct supervision of a Professional Geologist. Drill cuttings will be classified according to Unified Soil Classification System and geophysical logs will be reviewed by a California Professional Geologist, who will then finalize the well design based on site-specific data.

The well will be constructed as specified in the final design. Well construction materials conform to DWR Monitoring Well Standards (Bulletin 74-90):

CHAPTER II. STANDARDS

Section 12. Casing.

Thermoplastics. Thermoplastic well casing shall meet the requirements of ASTM F480. Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80, including the latest revision thereof. (Note: A 'dimension ratio' is the ratio of pipe diameter to pipe wall thickness.)

Pipe made in Schedule 40 and 80 wall thicknesses and pipe designated according to certain pressure classifications are listed in ASTM F480, as well as casing specials referencing the following ASTM specifications:

(2) PVC Pipe. ASTM D1785, Standard Specification for (Poly Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

There will be no lab analysis for water quality at this time. Field parameters will be monitored and recorded by County staff during well development stage and recorded under the geologic oversight activity. County staff will calibrate monitoring equipment according to standard protocol following manufacturer's directions each day that measurements are taken.

All work will be documented in accordance with applicable regulations and professional standards. Reports will be prepared and/or reviewed by Registered California Engineering Geologist or Professional Engineers associated with all the technical aspects of the project. Performance of each of these actions will be monitored by the County or a qualified consultant Professional Geologist to ensure the work is completed to the highest standards and meets the intent of the project.

The new well will be incorporated into the Glenn County CASGEM network and the GWMP monitoring network. To insure that useful and consistent information will be obtained during construction of the well, on-site oversight will be provided by a trained, registered Professional Geologist provided by a qualified consultant. DWR Northern Region Office staff oversight is welcomed to be sure information can be obtained in the manner necessary to continue their ongoing research. If necessary, project consultants will be directed to DWR Northern Region Office staff for any additional input.

Project management of the schedule and budget will be under the direction of the County's Water Resource Coordinator and additional County staff. As each task is undertaken during the term of the project, WAC members will be informed at scheduled meetings or by periodic memo and elicit input from the County-wide water resources perspective. Additionally, the reports will be posted to the WAC website at www.glenncountywater.org

Modeling

The SACFEM model is a full water budget based transient groundwater flow model that incorporates all of the groundwater and surface water budget components on a monthly time step over the period of simulation. This model provides very high resolution estimates of groundwater level and stream flow effects due to conjunctive water management pumping across the valley. The basis for the SACFEM model was a simplified superposition-based groundwater model previously developed to support the

Sacramento Valley Water Management Program. That model represented a very simplified depiction of the Sacramento Valley aquifer system as no recharge components to the aquifer system (deep percolation of precipitation and applied water) or discharge components (regional agricultural pumping) were included, and therefore the model could only compute the incremental change in groundwater levels and streams flows during the irrigation season. It was assumed that the aquifer system fully re-filled every winter, and each year of pumping was independent of previous aquifer stresses.

The predictive modeling tasks will be performed by modeling consultant who is familiar with the hydrologic and hydrogeologic setting of the Sacramento Valley and knowledgeable of the groundwater management activities currently being implemented and evaluated in the Basin. The technical components will be peer reviewed by the consultant(s) senior level staff that is not directly involved in the preparation of the work products.

Project management of the schedule and budget will be under the direction of the County's Water Resource Coordinator and additional County staff. The WAC will be briefed about the progress of the development of the project through routine meetings identified on the project schedule and elicit input from the Countywide water resources perspective. Additionally, the final report will be posted to the WAC website at www.glenncountywater.org