

**Appendix A. Evaluation of Data Quality Objectives Attainment**

Activity	Objectives	Action	Objective Attained?	Recommendations
Field Sampling	Conduct field sampling in accordance with procedures defined in the project work plan, SAP, QAPP, and HSP.	All sampling was conducted in accordance with the procedures described in the project plans.	Yes.	NA
Characterization of Environmental Setting (Hydrogeology)	Prepare water-level contour and/or potentiometric maps (B.3.A.1(e)(1))	Potentiometric surface map was prepared based on water levels measured in each of CSSA's wells on April 10, 2003. In addition, an average water level for a Fair Oaks Ranch Utilities well (F0-20, northwest of CSSA) was also obtained.	To the extent possible with data available. Due to the limited data available and the fact that wells are completed across multiple water-bearing units, potentiometric maps should only be used for regional water flow direction, not local. Furthermore, pumping in the area likely affects the natural groundwater flow direction.	As formation-specific water level information becomes available, prepare water level map for each unit. At present, water levels in all CSSA wells should continue to be measured and all data should be mapped together due to the lack of data for any one zone. Comparisons between LGR and CC screened water levels in the vicinity of Building 90 are being performed currently. As additional wells are installed screened in distinct formations, future evaluations will eliminate reliance on wells screened across multiple formations.
	Describe the flow system, including the vertical and horizontal components of flow (B.3.A.1(e)(3)).	Potentiometric maps were created using April 10, 2003 water level data, and horizontal flow direction was tentatively identified. Insufficient data are currently available to determine vertical component of flow.	As described above, due to the lack of aquifer-specific water level information, potentiometric surface maps should only be used as an estimate of regional flow direction.	Same as above.
	Identify any temporal changes in hydraulic gradients due to seasonal influences (B.3.A.1(e)(4)).	Downloaded data from continuous-reading transducer at CS-MW16-LGR, CS-MW4-LGR, CS-MW9-LGR, CS-MW9-BS, CS-MW9-CC, and continuous-reading weather station adjacent to CS-MW16-LGR. Graphed water levels at these wells against precipitation.	Information provided by CS-MW16-LGR transducer-weather station is a start to identifying temporal changes. Very rapid changes in water levels have been observed at CS-MW16-LGR after precipitation. However, CS-MW16-LGR has just been upgraded to provide data for the LGR water bearing zone.	Install transducers in several cluster wells, after installation is complete, to determine effects of precipitation on each unit. Wells where rapid effects are noticed, such as at wells CS-D and CS-MW1-LGR (both completed in the Glen Rose only), should also be considered for transducer installation.

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Contamination Characterization (Ground Water Contamination)	Characterize the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the Facility ((B.3.C.1(a))	Samples for laboratory analysis were collected from 34 of 37 CSSA wells. Wells CS-3 and CS-4 were not sampled because they are located adjacent to well CS-2, which was sampled. Also, well CS-I was not sampled due to technical malfunction.	There are currently insufficient data to determine the horizontal or vertical extent of groundwater contamination.	As described above, additional wells are currently being installed which will help in determining horizontal and vertical extent of contamination. Repairs are to be completed on wells with malfunctions.																														
	Determine the horizontal and vertical concentration profiles of all constituents of potential concern (COPCs) in the groundwater that are measured by USEPA-approved procedures (B.3.C.1(d)). COPCs are those chemicals that have been detected in groundwater in the past and their daughter (breakdown) products.	Groundwater samples were collected from wells: CS-1, CS-2, CS-9, CS-10, CS-11, CS-MW16-LGR, CS-D, CS-MWG-LGR, CS-MWH-LGR, CS-MW1-LGR, CS-MW1-BS, CS-MW1-CC, CS-MW2-LGR, CS-MW3-LGR, CS-MW4-LGR, CS-MW5-LGR, CS-MW6-LGR, CS-MW6-BS, CS-MW6-CC, CS-MW7-LGR, CS-MW7-CC, CS-MW8-LGR, CS-MW8-CC, CS-MW9-LGR, CS-MW9-BS, CS-MW9-CC, CS-MW10-LGR, CS-MW10-CC, CS-MW12-LGR, CS-MW12-BS, CS-MW12-CC, CS-MW17-LGR, CS-MW18-LGR, and CS-MW19-LGR. Samples were analyzed for the selected VOCs using USEPA method SW8260B, arsenic, cadmium, and lead by SW6020, mercury by SW7470, and barium, chromium, copper, nickel, and zinc by SW6010B. Anions and cations were also collected from newly installed wells. Analyses were conducted in accordance with the AFCEE QAPP and approved variances. All RLs were below MCLs, as listed below:	Yes.	NA.																														
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Contamination Characterization (Ground Water Contamination) (Continued)	Meet AFCEE QAPP quality assurance requirements.	Samples were analyzed in accordance with the AFCEE QAPP and approved variances. All data were verified by a chemist.	Yes.	NA																														
		All data flagged with a "U," "J," and "F" are usable for characterizing contamination. All "R" flagged data are considered unusable.	Yes.	NA																														
		Previously, an MDL study for arsenic, cadmium, and lead was not performed within a year of the analyses, as required by the AFCEE QAPP.	The laboratory performed new MDL studies in February 2001 for these metals and the new MDL values were found to be almost identical to the previous MDLs and all met the associated AFCEE QAPP requirements. MDLs for these three metals are well below MCLs. In addition, the laboratory performed daily calibrations and RL verifications for these metals, both of which demonstrate the laboratory's ability to detect and quantitate these metals at RL levels. These daily analyses also indicate that concentrations above the laboratory RL for these compounds were not affected by the expired MDL study.	Use results for groundwater characterization purposes.																														