EXECUTIVE SUMMARY

The Quality Assurance/Quality Control (QA/QC) data for the analytical measurement data were reviewed by Dan Anderson, a member of Radian's Austin Quality Assurance Section. This review was performed to determine the usability and defensibility of the chemical measurement data for the Hill AFB Operable Unit 6 (OU 6) RI/FS. The review focused on field and laboratory blanks, duplicate field samples, matrix spikes, surrogate recoveries and laboratory control samples. Overall, QA/QC data associated with this program indicate that measurement data are acceptable and defensible. The QA/QC data indicate that the quality control mechanisms were effective in ensuring measurement data reliability within the expected limits of sampling and analytical error.

There were concerns noted during the QA/QC evaluation which should be reviewed prior to final interpretation of the analytical results. The concerns noted which would have the greatest potential impact on the project data were samples analyzed outside hold time, sample preparation errors, matrix interference and sample preservation concerns.

The samples analyzed outside hold time were three soil samples (U6-24-MW-01, U6-24-MW-01-MS and U6-24-MW-01-MSD) for SW-846 8270 which were analyzed two days past the required holding time. Also, two internal standards failed (≥ 200% area) for sample U6-715-01, and the sample was not reanalyzed because the laboratory did not detect the failure until the extraction holding time had expired.

The sample preparation errors were for two samples for SW-846 8270 analysis. The extract for soil sample U6-14-MW-01 evaporated prior to analysis. The extract was "reconstituted" with solvent; however, no surrogates were detected. The sample was not reanalyzed; consequently, the data reported for this sample is not usable. Also, a water sample (U6-21-GW-01) was erroneously spiked with acid matrix spiking solution instead of surrogates. The sample was not reanalyzed by the laboratory; consequently, the data is not usable.

The matrix concerns relate to TCLP semivolatiles. The following field samples had all three of the acid surrogates (fluorophenol, phenol-d5 and 2,4,6-tribromophenol) recovered below the lower control limit: U6-705-03 and U6-709-03. Additionally, sample U6-701-03-FD had fluorophenol recovered below the lower control limit. All three of these samples were also analyzed as matrix spike samples. All of the acid surrogates in the matrix spike samples were recovered within the control limits, except for fluorophenol in U6-709-03-MS. These data may indicate either matrix interference or an extraction deficiency with the acid surrogates.

The sample preservation concerns related to samples submitted for nitrate-nitrite and alkalinity analysis. The water samples submitted for nitrate-nitrite analysis were not preserved to a pH less than 2 in the field. The laboratory checked sampled pH upon receipt at the laboratory and the samples were at approximately pH 7. The laboratory adjusted the sample pH to less than 2 prior to sample storage. This could potentially bias the nitrate-nitrite results low. The alkalinity preservation concern was for one sample. Sample U6-17-GW-01 did not have any detectable alkalinity; however, the pH of the sample was measured at 1.45 in the laboratory. This low pH would indicate the sample was preserved in the field and the alkalinity result of ND (not detected) is not usable for this sample. The sample was recollected and reanalyzed.

The data user should note the data reported for this investigation is uncensored data. Traditionally analytical chemistry data have been censored at a concentration (e.g., method detection limit (MDL), practical quantitation limit (PQL), etc). The data contained in the analytical reports were not censored; consequently, low levels (greater than zero) of analytes are reported. However, the low levels reported may be similar to concentrations detected in blanks or attributed to systemic sources. For example, three analytes, (methylene chloride, methyl ethyl ketone and acetone) were detected frequently in the methods blanks during the SW-8240 analysis of the soil samples. However, these levels detected in the blanks are similar to the levels reported in the field samples. Therefore, data users are encouraged to review the concentrations of all analytes detected in the blanks relative to the concentrations detected in the field samples to determine the reasonability of data prior to final conclusions.