DEPARTMENT OF ENERGY - ROCKY FLATS OFFICE
EVALUATION REPORT

Report Number	93-QA-L2-016	Evaluation Type	Informal Audit
Area/Operation	Geotechnical Activities	Number of Issues	0
Location	OU 2	Number of Deficiencies	1
		Number of Observations	1
Period Covered	5/5/93 thru 5/14/93	Response Due Date	

SUMMARY

Scope: This audit evaluated procedural compliance for several environmental geotechnical data collection activities. Activities reviewed included well abandonment, borehole drilling and stratigraphic characterization of geologic core samples. The evaluation focused on activities associated with Operable Unit 2.

Results Summary: The audit team observed two days of selected geotechnical activities associated with Operable Unit 2, the East Trenches. Several new wells are currently being installed in this area. The new wells will be screened at a depth interval to collect and characterize groundwater originating from the lower hydrostratigraphic unit (LHSU). This operation requires careful installation of the upper alluvium isolation casing to prevent cross-contamination of the lower hydrologic unit by upper layers. Discovery of contaminants in the LHSU may require significant revision of the OU 2 remediation activity work plan.

Each activity observed was reviewed for compliance to its applicable Standard Operating Procedure (SOP). Overall, activities associated with well abandonment, borehole drilling, and stratigraphic core sample characterization were well conducted, documented, and in compliance with applicable procedures. All EG&G Rocky Flats, Woodward-Clyde, and Layne Environmental personnel contacted were very helpful, forthright, and knowledgeable in their areas of expertise. This audit presents a commendable observation and a deficiency in an effort to improve the performance of OU 2 geotechnical operations.

The commendation is that EG&G has developed a system to standardize and verify consistent reporting of core logging data. The deficiency notes the following: use of white-out on borehole logging data collection forms; the quality control check of subcontractor core logging performed without documented acceptance criteria; an OU 2 bedrock training attendance sheet that did not list the SOPs that personnel were trained to; and a soil sample description sequence in SOP GT.01 that is out of order.

Conclusion Statements: Well abandonment, borehole drilling, and stratigraphic core sample characterization activities are well conducted and documented. A deficiency related to records generation and procedural accuracy is noted.

Operations Reviewed: Core sampling and logging, well installation and well abandonment activities associated with Rocky Flats Operable Unit 2 conducted May 5 and 6, 1993.

Personnel Contacted: Mark Buddy, EG&G; Mark Brooks, EG&G; Patrick Breen, EG&G; Fred Grigsby, EG&G; Eric Dille, EG&G; Michael May, Woodward-Clyde (WC); Art Gust, WC; Phil Hammons, WC; and John Jehn, WC.

Documents Reviewed: The Operable Unit (OU) 2 Quality Assurance Addendum for the Alluvium; the draft work plan for the OU 2 bedrock issued to the State of Colorado 5/19/93; OU 2 work plan training records, current geotechnical standard operating procedures and associated data collection forms (5-21000-OPS-GT series: GT.01, "Logging Alluvial and Bedrock Material"; GT.04, "Rotary Drilling and Rock Coring"; and GT.05, "Plugging and Abandonment of Boreholes").

ISSUES/DEFICIENCIES/OBSERVATIONS

D.1 Deficiency: The following data collection and procedural shortcomings are noted:

a. The EG&G geologist's Quality Control check of subcontractor core-logging is performed without documented acceptance criteria. The EG&G geologist reviews the core-logging process for consistency and to assure that the data collection form does not contain errors or omissions. This includes a review of the following: consistent, standardized sample descriptions; proper interval labeling; proper location of the alluvium to bedrock interface; complete information regarding place and time, etc.

b. White-out was in use to correct field core logging data during the operation described by procedure GT.01, "Logging Alluvial and Bedrock Material". The white out was apparently used to correct errors, obscuring original data.

c. It was not possible to verify that OU2 geotechnical personnel received indoctrination to applicable SOPs or to what revision of procedures and work plans training was conducted. The OU2 bedrock work plan training attendance sheets (file 4040, dated 4/7/93) did not list SOPs, their revisions, or the work plan issue date. The form does not provide spaces to enter the required information.

d. The soil sample description sequence in SOP GT.01, section 5.1.4, is incorrect. The procedure requires soil particle angularity to be performed after grading. In practice this is done prior to grading during the grain size determination operation.

Basis: a. Requirements for performing quality control inspections to established acceptance criteria are in the DOE RFI 5700.6, criterion 8a(3), and in section QR-10, subsections 2.1, 2.17, 3.1.3, and 3.3 of the EG&G Rocky Flats site Quality Assurance Manual, and in section 10.0 of the EG&G Rocky Flats Site-Wide QA Project Plan. b. Environmental data collection activities routinely prohibit the use of white out and establish error correction protocol as a single line, initials and date. These requirements are found in the EG&G Rocky Flats Site-Wide QA Project Plan, section 17.0, subsection 3.6. c. Section 2.0 of the EG&G Site-Wide QA Project Plan states that training records must be documented. The training sheet in question did not document the specific SOPs and work plan revisions covered during the training session. d. EG&G and Woodward-

Clyde geologists indicated that the angularity analysis is routinely performed during the grain size determination step, not after grading as stated in the procedure.

O.1 Commendable Observation: EG&G has established a system that helps assure core logging is conducted in a consistent and repeatable manner. This system involves minimum qualification requirements for core loggers, Rocky-Flats specific training, use of a Rocky Flats specific core reference set, and a final Quality Control check by the EG&G geologist for accuracy, completeness, and site-wide consistency of core interpretation and classification. This QC check system is important and necessary considering that various subcontracted geologists can perform core-logging, and that varying core interpretations can exist even among trained and experienced geologists.

None

REMARKS

None

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