

# Information Bulletin

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## Changes from Discrete Sampling to Multi-Incremental Sampling Methodology

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### Summary:

Proper change control was not implemented when the sampling process defined in the Sampling Analysis Plan was changed from discrete sampling to Multi-Incremental Sampling (MIS). This led to a noncompliance with the SAP requirements.

### Discussion of Activities:

In January 2006, after sampling and analysis had been completed for the 200-W-42 Vitrified Clay Pipe Removal Project, the results of the sampling were shown as "flagged data" in the QC documentation from the laboratory and as a consequence were then subject to further review for acceptability by the laboratory, the Department of Energy and the Department of Ecology. The "flagged data" consisted of the following issues:

- It was identified that no equipment rinsate blanks, used to verify the adequacy of the sampling equipment decontamination procedures, were obtained during the sampling process as required by the Sampling and Analysis Plan (SAP).
- There was confusion regarding the appropriate application of groundwater holding times to soil matrices for nitrogen/nitrate/nitrite analysis.
- The required detection limit for Selenium was not achieved due to interference from krypton contamination in the argon used for the analysis
- The Laboratory Control Sample recovery percentage was outside the quality control limits, resulting in a rejection of the data for silver; and
- Laboratory matrix spikes and duplicates could not be performed as required by the Quality Assurance Project Plan due to incomplete instruction and an insufficient number of MIS samples being provided to the laboratory.

Prior to the sampling activity the sampling methodology in the SAP was changed from discrete sampling to Multi-Incremental Sampling (MIS) methodology, because MIS was considered a better sampling technique at a reduced cost.

In May 2006, in response to the identified issues Fluor Hanford completed a critical review of all requirements in the SAP and associated TPA change forms and determined that the requirement to collect an equipment rinsate blank was the only SAP requirement not met.

**Analysis:**

The change was approved and implemented in the field per the current processes, without an adequate understanding of or experience with the MIS methodology such that the impacts of the change could be properly managed. Procedures for the MIS process were not developed, personnel were not trained, and analytical requirements were not communicated to the laboratory. The lack of rigor allowed the project to implement a new sampling methodology in a production mode as opposed to a development mode, which would have been prudent for a first time evolution. As a result the project placed a heavy dependence on a single individual to coordinate the development, review, and approval of a new soil sampling process and also assigned the same individual the task of coordinating implementation of the new process in the field. Performance errors occurred in implementing the change including non-compliance with the provisions of the SAP.

**Recommended Actions:**

- Procedures should define the process for managing changes to Primary & Secondary environmental restoration documents and they should include: assessing the risk of a change, necessary approvals, and necessary documentation.
- The development, review, approval, and field implementation of regulator approved environmental restoration documents (i.e., work plans, sampling plans, etc.) needs to be well coordinated and adequate and proficient resources applied.

**Cost Savings/Avoidance:** NA

**Work Function:** Conduct of Operations - Procedure Development/Procedure Adherence/Work Planning, Environmental Protection - Environmental Sampling, Environmental Restoration, Human Factors

**Hazards:** None

**ISMS Core Functions:** Define Work, Develop/Implement Controls, Perform Work

**Keywords:** Environmental, methodology, multi-incremental, sampling,

**Originator:** Fluor Hanford, Inc., Submitted by William Harrison, Central Plateau Services & Maintenance

**Contact:** PHMC Lessons Learned; (509) 372-2166; e-mail: [PHMC\\_Lessons\\_Learned@rl.gov](mailto:PHMC_Lessons_Learned@rl.gov)

**References:** DOE/RL-2005-71, Action Memorandum for the Time Critical Removal Action for Support Activities to the 200-UW-1 Operable Unit (TCRA); DOE/RL-2005-75, Sampling and Analysis Plan for Support Activities to the 200-UW-1 Operable Unit (SAP); and DOE/RL-2005-78, Support Activities to the 200-UW-1 Operational Unit Removal Action Work Plan (RAWP)

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