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## **APPENDICES**

## **APPENDIX 30**

## **1.0 OBJECTIVES**

This Standard Operating Procedure (SOP) describes the procedures that the auditor will use for performing field audits and the reporting of the audit findings. Field audits will be performed to provide GE with an indication of the quality of the field services that are being provided by the field contractor(s) as part of the Hudson River Design Support Sediment Sampling and Analysis Program and to ensure that the field contractor(s) are adhering to project requirements. This SOP applies to the contractor(s) involved in field data collection and the auditor.

## **2.0 EQUIPMENT**

Not applicable.

## **3.0 SUPPORTING SOPs and DOCUMENTS**

Applicable Field Sampling SOPs.

Quality Assurance Project Plan (QAPP).

Applicable Field Sampling Plan (FSP).

Health and Safety Plan

## **4.0 PROCEDURE**

### **4.1 SCHEDULING**

The frequency of field audits will be identified in the appropriate FSP and/or the QAPP. When it has been determined that the performance of a field audit is necessary, the auditor will coordinate a date and time for the audit with GE which consider both the field schedule and any deadline necessary to meet the needs of the FSP. The majority of the audits will be unannounced to the field contractors.

## 4.2 PRE-AUDIT PREPARATION

Once a field audit is scheduled, the auditor will review the applicable FSP and determine and review the applicable SOPs. The auditor will also prepare an audit checklist relevant to the specific task being performed. The individual sampling and field procedures SOPs applicable to the tasks being audited will provide the specific criteria against which the audit will be performed.

## 4.3 GENERAL AUDIT APPROACH

Upon arrival at the project site, the auditor will initiate a meeting with the appropriate field personnel (site manager) to give a brief introduction of what they can expect to occur during the field audit. This introduction focuses on several key points. The auditor(s) will identify that they will be performing the audit with the aid of a checklist that has been prepared by the auditor.

The checklist guides the auditor(s) through the field task in the basic order that events are expected to occur. Another key point that will be made is that the auditor(s) will focus their questions toward the field personnel who actually perform the work and **not** their supervisors. Field supervisors may be present during the audit but may not answer the questions for the field personnel unless specifically requested to provide an answer. In addition, the auditor will ask questions regarding appropriate general field service protocols during this initial meeting.

The field audit checklist must include the following 9 sections. The field audit will be performed in the basic order defined by the checklist, depending on the task being performed. Subdivisions of the following sections will be necessary and will be dependent on the type of work being performed. The approach of the audit on the

following topics is described in greater detail in the subsequent sections of this SOP. The narrative of the field audit report will also follow the subject order of the checklist but will give the audit findings and recommendations in sufficient detail that the checklist will not be included with the report.

1. Field Documentation/Records
2. Decontamination Procedures
3. Sampling/Field Procedures
4. Sample Containers
5. Sample Packaging and Shipment
6. Chain-of-Custody
7. Health and Safety/Personal Protective Equipment
8. Other
9. Summary

Finally, following the audit, the auditor(s) will convene another meeting with the field management personnel in order to debrief them on the audit findings. The debriefing meeting should accomplish several goals. First, the field personnel must be made aware of the major points of the audit findings. This way, any statements made in the field audit report will not be a surprise to the contractor, and the contractor is given a chance to respond to the findings before the report is written. Their responses can then be incorporated into the field audit report by the auditor. Secondly, the auditor(s) should emphasize that recommendations will be made even to the best of contractors. The major goals of a field audit is to determine the quality of services being provided by the contractor, document that appropriate procedures are being used, and to identify problems (or potential problems) so that appropriate corrective action can be initiated by

the contractor. The extent of the impact of the recommendation(s) will be indicated in the report. Additionally, the audit should stress when correct field procedures were in use.

#### **4.4 FIELD DOCUMENTATION/RECORDS**

The auditor(s) must evaluate the contractor's documentation procedures throughout the audit, and should verify that all pertinent information is being neatly recorded in a logbook for all field events. The minimum information to be entered in the logbook should include: on-site personnel and their arrival and departure times; weather conditions; calibration and background settings of monitoring equipment; location of collected samples; time of collection; the required sample analysis; relevant observations; photograph log; adherence to and/or deviations from the FSP; and other pertinent information.

#### **4.5 DECONTAMINATION PROCEDURES**

The auditor(s) will verify that the decontamination areas are established in a clean portion of the site and that correct decontamination procedures are being followed. The personnel performing the decontamination of the sampling equipment should be using the decontamination materials specified in the appropriate SOP and should be performed in the exact order listed in the SOP. Care should be taken to limit the amount of decontamination wastes generated during the cleaning process. The decontamination wastes should be properly managed and stored per SOP until appropriate disposal arrangements are made.



#### **4.6 SAMPLE CONTAINERS**

The auditor(s) will verify that the contractor is using laboratory supplied, pre-cleaned sample containers for analytical samples. The containers should be of the proper type (i.e. glass, plastic, metal), volume, and material (i.e. amber or clear glass). Any cracked or broken sample containers should not be used and should be discarded. The appropriate preservatives should already be placed in the sample containers by the laboratory, or they may be added to the sample containers in the field. Once the sample is collected and placed in the sample container, the container should be legibly labeled or preprinted with the following information; sample ID, date, time, sampler's initials, analysis, and project name and number.

#### **4.7 SAMPLING/FIELD PROCEDURES**

The auditor(s) must evaluate the procedures the contractor utilizes during the collection of samples and other field activities. Samples may be collected from various medias (i.e., surface and subsurface soil and ground water, sediment, and soil gas vapor) and for various purposes (i.e., chemical analysis, geotechnical testing, and geological characterization). The method of sample collection will also vary and will require assorted types of equipment to insure the proper collection of the sample. The auditor(s) must verify that a proper method of sample collection and proper equipment are being used for the media being sampled and the intended purpose of the sample collection. Deviations to the applicable FSP should be noted by the auditor(s).

#### **4.8 SAMPLE PACKAGING AND SHIPMENT**

After environmental samples have been collected, placed in sample containers, labeled and temporarily stored on-site, they should be packaged and shipped to the laboratory for chemical analysis per SOP. The auditor(s) will verify that the transport device (e.g., ice chest) to be used for shipment of the samples is cleaned of any obvious debris and old shipping labels are removed. The auditor(s) will check to see that the transport device is lined with an absorbent material and a plastic bag. The samples will be checked to see if they are individually wrapped or protected and properly aligned in the transport device so that they do not touch each other. The samples should then be packed using an approved packing material and iced down (with the exception of liquid samples for metal analysis) with sufficient "wet" ice or ice pack to keep the samples at 4 degrees Celsius. Packing tape and signed custody seals should be used to seal the transport device. Shipping air bills and content caution content labels (e.g., Fragile, This End Up, etc.) should be attached to the outside of the shipping container.

The packaging and shipment of samples collected for geotechnical testing will also be evaluated. Again, the procedures for the packaging and shipment will be dependent on the type of sample collected and the testing parameters. For example, the packaging of an undisturbed shelly tube sample should include a wax seal at each end of the tube using an approved wax and a label with the appropriate project and shipping information. It should be stored and transported in the vertical position as it was oriented in the subsurface.

#### **4.9 CHAIN-OF-CUSTODY**

The auditor(s) will verify that the chain-of-custody record and procedures are being properly completed per SOP. As soon as practicable after sample collection, the

following information must be recorded on the chain-of-custody form; project name and number, sampler(s), sample ID, date, time, type of sample (grab or composite), number of containers, sample analysis, remarks, and signature (when being relinquished). The field audit will include a determination that proper handling and transfer of chain-of-custody documentation is occurring.

#### **4.10 HEALTH AND SAFETY/PERSONAL PROTECTIVE EQUIPMENT**

The auditor(s) will observe the field personnel to verify that they are following the guidelines of the Health and Safety Plan. The auditor will make only general observations about the health and safety practices. The auditor(s) will check to see that the field personnel are wearing the specified protective clothing and equipment for the level of protection specified by the health and safety officer. The auditor(s) will also verify that the appropriate types of personal monitoring equipment is being used, and that personnel using the equipment are knowledgeable with the operation of the equipment.

#### **4.11 OTHER**

Due to the wide range of field services being performed on this project, the above discussed list of items may not always completely address the extent of the audit. At the auditor's discretion, other checklist items may be added to ensure that a complete audit is performed. The checklist used for a specific audit will not be provided to GE and the contractor at the start of the audit.

#### **4.12 SUMMARY**

The auditor(s) must summarize the major points of the field audit findings and the overall evaluation of the quality of service provided by the contractor. The summary should also reflect the overall attitude that the contractor has toward quality assurance and quality control.

#### **4.13 REPORT FORMAT**

The field audit report must contain the following sections in the following order. It must also contain a completed checklist as an attachment.

1. Introduction
2. Executive Summary
3. Audit Findings

The introduction should summarize who performed the audit, when the audit was performed, the name and address of the contractor, and the contractor's role in the FSP. The Executive Summary should address the major findings of the field audit along with the possible impact on the quality of the contractors service. The Audit Findings should follow the major headings of the checklist summarizing the findings presented on the checklist along with any recommendations for improvement or corrective action. The report will be signed by the auditor(s) who performed the audit.

#### **5.0 TRAINING**

The auditor's conducting the field audit must have demonstrated knowledge in field quality assurance/quality control practices. This knowledge will include experience in geological and hydrogeological investigations, sample collection of various medias, health and safety training, and technical report writing.