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Environmental Restoration Project
Standard Operating Procedure

for: **Weighted Bottle Sampler for
Liquids and Slurries in Tanks**

Los Alamos

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LABORATORY

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Standard Operating Procedure Title

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Weighted Bottle Sampler for Liquids and Slurries in Tanks

1.0 PURPOSE

This Standard Operating Procedure (SOP) describes the process for Weighted Bottle Sampler for Liquids and Slurries in Tanks at the Los Alamos National Laboratory (Laboratory) Environmental Restoration (ER) Project.

2.0 SCOPE

This SOP is a mandatory document and shall be implemented by all ER Project participants when using the Weighted Bottle Sampler for liquids and slurries in tanks for the ER Project.

Note: Subcontractors performing work under the ER Project's quality program shall follow this SOP for Weighted Bottle Sampler for Liquids and Slurries in Tanks or may use their own procedure(s) as long as the substitute meets the requirements prescribed by the ER Project Quality Management Plan, and is approved by the ER Project's Quality Program Project Leader (QPPL) before the commencement of the designated activities.

3.0 TRAINING

- 3.1 ER Project personnel using this SOP are trained by reading the procedure, and the training is documented in accordance with QP-2.2.
- 3.2 The **Field Team Leader** (FTL) shall monitor the proper implementation of this procedure and shall ensure that relevant team members have completed all applicable training assignments and documented this training at <http://erinternal.lanl.gov/Training/Trainingmain.shtml> in accordance with QP-2.2.

4.0 DEFINITIONS

Note: A glossary of definitions is located on the ER Project internal homepage <http://erinternal.lanl.gov/WritingGuide.shtml>.

- 4.1 *Weighted Bottle Sampler*— A weighted bottle that can be used to sample liquids in storage tanks, wells, sumps, and other containers. The sampler remains unopened until it is lowered to the desired sampling depth. The sampler consists of a glass or Teflon bottle, a weight, a bottle stopper, and a line that is used to lower and raise the sampler and open the bottle during sampling. There are a few variations of this sampler, as illustrated in the ASTM Methods D 270 and E 300.

- 4.2 Site-Specific Health and Safety Plan (SSHASP)—A health and safety plan that is specific to a site or ER-related field activity that has been approved by an ER health and safety representative. This document contains information specific to the project including scope of work, relevant history, descriptions of hazards by activity associated with the project site(s), and techniques for exposure mitigation (e.g., personal protective equipment [PPE]) and hazard mitigation.

5.0 BACKGROUND AND PRECAUTIONS

- 5.1 This SOP shall be used in conjunction with an approved SSHASP. Also, consult the SSHASP for information on and use of all PPE.
- 5.2 The weighted bottle sampler can be used to sample liquids in storage tanks, wells, sumps, and other containers. The sampler has the advantage that it remains unopened until it is lowered to the desired sampling depth. It cannot be used to collect liquids that are incompatible with the weight and line.
- 5.3 The sampler consists of a glass or Teflon™ bottle, a weight, a bottle stopper, and a line that is used to lower and raise the sampler and open the bottle during sampling. There are a few variations of this sampler, as illustrated in the ASTM Methods D 270 and E 300. The ASTM sampler, using a metallic bottle basket that serves as a weight, is preferred. The weighted bottle sampler can either be fabricated or purchased.
- 5.4 The weighted bottle sampler has the following limitations:
- 5.4.1 The exterior of the weighted bottle sampler may be exposed to hazardous materials and must be handled carefully to avoid unnecessary contamination of the immediate sampling area.
- 5.4.2 The weighted bottle sampler cannot be used to collect liquids that are incompatible with the bottle, weight, or line.
- 5.4.3 It is difficult to use with very viscous liquids.

6.0 RESPONSIBLE PERSONNEL

The following personnel are responsible for activities identified in this procedure.

- 6.1 Author
- 6.2 ER Project Personnel
- 6.3 Focus Area Leader
- 6.4 Quality Program Project Leader
- 6.5 Team Leader

6.6 Waste Management Coordinators

6.7 Subcontractor Personnel

7.0 EQUIPMENT

7.1 A checklist of suggested equipment and supplies needed to implement this procedure is provided in Attachment A.

8.0 PROCEDURE

Note: ER Project personnel may produce paper copies of this procedure printed from the controlled-document electronic file located at http://erinternal.lanl.gov/home_links/Library_proc.shtml However, it is each person's responsibility to ensure that they trained to and utilize the current version of this procedure. The author may be contacted if text is unclear. The Document Control Coordinator may be contacted if the author cannot be located.

Note: Deviations from SOPs are made in accordance with QP-4.2, Standard Operating Procedure Development, and documented in accordance with QP-5.7, Notebook Documentation for Environmental Restoration Technical Activities.

- 8.1 Assemble the necessary equipment and appropriate protective clothing (LANL-ER HASP, Personal Protective Equipment).
- 8.2 Decontaminate all equipment before and after each use (LANL-ER-SOP-1.08, Field Decontamination of Drilling and Sampling Equipment).
- 8.3 Open the waste container or vessel.
- 8.4 Lower the closed weighted bottle sampler into the waste liquid to the desired depth. Record the pertinent information on the Daily Activity Log (LANL-ER-SOP-1.04, Sample Control and Field Documentation).
- 8.5 Open the bottle stopper and collect the sample.
- 8.6 Close bottle stopper.
- 8.7 Raise the sampler out of the waste. Place the sample into a sample container (LANL-ER-SOP-1.02, Containers, Sampling, and Preservation).
- 8.8 Repeat steps 8.2 through 8.6 until all samples have been collected.
- 8.9 Close the waste container.
- 8.10 Package all samples for transport to the Sample Management Organization (SMO), (LANL-ER-SOP-1.03, Handling, Packaging, and Shipping of Samples). All sampling efforts must be coordinated with the SMO.

8.11 Perform Lessons Learned

During the performance of work, ER Project personnel shall identify, document, and submit lessons learned, as appropriate in accordance with QP-3.2, Lessons Learned, located at http://erinternal.lanl.gov/home_links/Library_proc.shtml.

9.0 REFERENCES

ER Project personnel using this procedure should become familiar with the contents of the following documents to properly implement this SOP.

ER Project Quality Management Plan located at http://erinternal.lanl.gov/home_links/Library_proc.htm.

The following documents are cited within this procedure.

For ER documents, we list the procedure or document number and the title separated by a comma. There is no punctuation at the end of these entries.

ER-QP-2.2, Personnel Orientation and Training

ER-QP-4.2, Standard Operating Procedure Development

ER-QP-5.7, Notebook Documentation for Environmental Restoration Technical Activities.

ER-SOP-1.02, Sample Container and Preservation

ER-SOP-1.03, Handling, Packaging and Transporting Field Samples

ER-SOP-1.04, Sample Control and Field Documentation

ER-SOP-1.06, Management of Environmental Restoration Project Wastes

ER-SOP-1.08, Field Decontamination of Drilling and Sampling Equipment

EPA, "Test Methods for Evaluating Solid Waste," Vol. II: Field Manual Physical/Chemical Methods, Office of Solid Waste and Emergency Response, Washington D.C., 1986

EPA Region IV, "Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual," (Environmental Services Division, Athens, GA, 1991).

10.0 RECORDS

10.1 ER Project personnel are responsible for submitting the following records to RPF in accordance with QP-4.4.

10.1.1 Completed and reviewed field notebook.

10.1.2 Notebook attachments and/or data, applicable

10.1.3 Sample Collection Logs

10.1.4 Chain of Custody/Request for Analysis Forms

11.0 ATTACHMENTS

Attachment A: Equipment and Supplies Checklist for Weighted Bottle Sampler for Liquids and Slurries in Tanks (1 page) located at <http://erinternal.lanl.gov/Quality/user/forms.asp>.

[Using a token card, click here to record "self-study" training to this procedure.](#)

If you do not possess a token card or encounter problems, contact the RRES-ECR training specialist.

Equipment and Supplies Checklist for Using a Weighted Bottle Sampler for Liquids and Slurries in Tanks

- Weighted Bottle Sampler
- Funnel
- Disposable wipes
- Sample Containers
- Sample Collection Logs
- Chain of Custody/Request for Analyses Forms
- Chain of custody seals
- Any PPE listed or required in the SSHASP
- Sample Container Labels
- Field Notebook

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