

Identifier: **SOP-5194**  
 (formerly **SOP-06.28 R1**)

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Effective Date: **October 9, 2008** Next Review Date: June 1, 2012

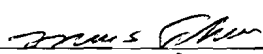
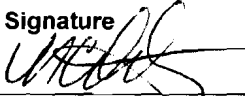
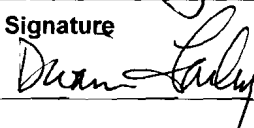


## Waste & Environmental Services

### Standard Operating Procedure

### for **CHIP SAMPLING OF POROUS SURFACES**

#### APPROVAL SIGNATURES:

<b>Subject Matter Expert:</b> Mark Thacker	<b>Organization</b> WES-RS	<b>Signature</b> 	<b>Date</b> 6-11-08
<b>Quality Assurance Specialist:</b> Laura Ortega	<b>Organization</b> QA-IQ	<b>Signature</b> 	<b>Date</b> 8/25/08
<b>Responsible Line Manager:</b> Dwain Farley	<b>Organization</b> WES-RS	<b>Signature</b> 	<b>Date</b> 6/12/08

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## 1.0 PURPOSE AND SCOPE

This SOP describes the process for collecting chip samples representative of porous surfaces at the Los Alamos National Laboratory (Laboratory) Waste and Environmental Services (WES) Division.

## 2.0 BACKGROUND AND PRECAUTIONS

This SOP is a mandatory document and shall be implemented by all WES Division participants when collecting chip samples of porous surfaces.

**Note:** Subcontractors performing work under the Associate Director Environmental Programs (ADEP) quality program shall follow this SOP for collecting chip samples of porous surfaces or may use their own procedure(s) as long as the substitute meets the requirements prescribed by the the ADEP Quality Management Plan, and is approved by the Quality Assurance Team Leader before the commencement of the designated activities.

### 2.1 Precautions

This SOP shall be used in conjunction with an approved SSHASP. Also, consult the SSHASP for information on and use of all PPE.

All waste generated from sampling operations should be handled in accordance with the Characterization and Management of WES Project Waste procedure.

This SOP shall not be used in environments potentially contaminated with flammable or explosive components.

The WES referenced procedures in this document can be found at this url address:  
<http://int.lanl.gov/environment/all/qa/adeq.shtml>

## 3.0 TRAINING

The **Field Team Leader** (FTL) is responsible for ensuring that field team members who collect chip samples representative of porous surfaces for the WES Division, are familiar with the objectives of, and properly trained in, the procedures of chip sampling of porous surfaces. In addition, all field team members must document that they have read and understand this procedure in accordance with EP-DIR-SOP-2011.

## 4.0 EQUIPMENT

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

## 5.0 STEP-BY-STEP PROCESS DESCRIPTION

### 5.1

**NOTE:** WES Project personnel may produce paper copies of this procedure printed from the controlled-document electronic file located at: <http://int.lanl.gov/environment/all/qa.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.

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**NOTE:**

Deviations from SOPs are made in accordance with the Notebook Documentation for Waste and Environmental Services Technical Field Activities procedure.

The Sample Containers and Preservation procedure, Handling, Packaging, and Transporting Field Sample procedure, and the Sample Control and Field Documentation procedure provide guidance for using sample containers and documenting, packaging, and shipping collected samples. Coordinate with the Field Support Facility for further guidance regarding sample containers, preservation, and shipment to the analytical laboratory.

**FTL**

1. Gather and decontaminate the necessary supplies and equipment in accordance with the Field Decontamination of Equipment procedure.
2. If possible, remove any non-porous inclusions from the sampling location by brushing or wiping, as appropriate. Using a chisel, drill, hole saw, or similar tool, collect a minimum of 100 g of the sample to a depth of 2 cm, or to an alternate depth specified in applicable planning documents. The collected chips may be of any convenient size unless otherwise specified in applicable planning documents.
3. Transfer the sample to an appropriate sample container. The Sample Containers and Preservation procedure, provides guidance regarding the amount of sample, the type of sample container, the holding time, and the preservation techniques to be used for each analysis to be conducted.
4. Complete Sample Collection Logs and Chain of Custody Forms; label sample containers and complete documentation in accordance with the Sample Containers and Preservation, and Sample Control and Field Documentation procedures.  
**Note:** If collecting multiple samples using this method, avoid cross-contamination by decontaminating all sampling tools prior to collecting the next sample. If the sampler's gloves come in contact with the sampled material during sampling, gloves should also be changed prior to collecting the next sample.
5. Collect any additional samples for field quality control, as specified in the Field Quality Control Samples procedure.
6. Clearly mark the sampled surfaces with a pin flag or a wooden or metal stake. The mark should include the sample location identification number. Document the site with photographs, if appropriate.
7. Pack the samples for shipping to the Sample Management Office (SMO). Handle sampling wastes, excess sample materials, disposable items, and decontamination fluids according to Characterization and Management of Environmental Restoration (ER) Project Waste procedure.
8. Upon completing sampling, pack up equipment for cleaning and return the equipment and supplies to their proper storage locations.
9. Perform lessons learned. During the performance of work, identify, document, and submit lessons learned at: [http://int.lanl.gov/projects/lessons\\_learned/](http://int.lanl.gov/projects/lessons_learned/)

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## 5.2 Records

- FTL
1. Is responsible for submitting the following records and/or documents generated to the Records Processing Facility in accordance with EP-DIR-SOP-4004, Records Transmittal and Retrieval Process.
    - Chain-of-Custody Form/Request-for-Analysis Form
    - Daily activity logs, or entries in a field notebook, including any deviations or other pertinent information
    - Sample collection logs

## 6.0 DEFINITIONS

**Note:** A glossary of definitions can be found on the WES Division internal home page:  
<http://int.lanl.gov/orgs/wes/writing.shtml>

Non-porous inclusions — Materials such as stone, glass, or metal, embedded in porous material.

Porous surface — For the purpose of this procedure, a surface capable of allowing the passage of liquid through pores or small crevices. Examples of porous materials applicable to the ER Project include asphalt, concrete, wood, brick, unglazed clay pipe, and tuff.

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.

## 7.0 RESPONSIBLE PERSONNEL

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

1. Author
2. Document Control Coordinator
3. WES Division personnel
4. Field Team Leader (FTL)
5. Quality Assurance Team Leader

## 8.0 REFERENCES

WES Division personnel using this procedure should become familiar with the contents of the following documents to properly implement this SOP. These standard operating procedures may be found in the WES Division Homepage under procedures.

- EP-DIR-QAP-0001 Quality Assurance Plan for Environmental Programs Directorate at:  
[//int.lanl.gov/environment/all/qa.shtml](http://int.lanl.gov/environment/all/qa.shtml)
- Sample Containers and Preservation
- Handling, Packaging, and Transporting Field Samples
- Sample Control and Field Documentation
- Field Quality Control Samples

The following documents are cited within this procedure:

- Sample Containers and Preservation
- Handling, Packaging, and Transporting Field Samples
- Sample Control and Field Documentation
- Field Quality Control Samples
- Characterization and Management of Environmental Restoration (ER) Project Waste
- Field Decontamination of Equipment
- Personnel Training and Qualification
- Record Transmittal and Retrieval Processes
- Notebook Documentation for Waste and Environmental Services for Technical Field Activities

## 9.0 ATTACHMENTS

Attachment 1 Equipment and Supplies Checklist for Chip Sampling of Porous Surfaces (1 page)

[Using a CRYPTO Card, click here for "Required Read" credit.](#)

If you do not have a crypto card with A-level Access, contact [creichelt@lanl.gov](mailto:creichelt@lanl.gov) for instructions on how to obtain credit for this "read and sign."

## 10.0 REVISION HISTORY

Revision No. <i>[Enter current revision number, beginning with Rev.0]</i>	Effective Date <i>[DCC inserts effective date for revision]</i>	Description of Changes <i>[List specific changes made since the previous revision]</i>	Type of Change <i>[Technical (T) or Editorial (E)]</i>
R0	9/20/94	New Procedure	All
R1	12/31/01	Updated to incorporate revised protocols/contacts.	4,5,6,7
SOP-06.28 R1	03/01/2004	Reviewed. Deemed adequate.	E
0	10/09/08	Supersedes SOP-06.28 R1; minor updates, assigned new SOP number.	E

## ATTACHMENT 1: EQUIPMENT AND SUPPLIES CHECKLIST FOR CHIP SAMPLING OF POROUS SURFACES

### SOP-5194

#### Equipment and Supplies Checklist for Chip Sampling of Porous Surfaces

Records Use only



### Equipment and Supplies Checklist for Chip Sampling of Porous Surfaces

#### *Protective equipment*

- Safety glasses
- Sturdy work boots
- Work gloves
- Any PPE listed or required in the SSHASP

#### *Sample preparation equipment*

- Alconox
- Blue Ice or equivalent
- Camera and film
- Chem wipes
- Cleaning wipes
- Disposable laboratory gloves
- Paint or other indelible medium to identify sample location
- Sample containers and preservatives
- Storage containers for decontamination solutions

#### *Sample collection and decontamination equipment*

- Brushes (galvanized, stainless-steel, or plastic)
- Brushes (long handle, scrub, or wire)
- Drive hammer (8 to 10 lb)
- Wash tub or plastic bucket
- Garden pressure sprayer or squeeze bottle sprayer
- Plastic sheet
- Stainless-steel chisel
- Stainless-steel drill
- Stainless-steel hole saw
- Tape measure
- Trash bags

#### *Paperwork*

- Borehole log (soil) form
- Chain-of-Custody Form/Request-for-Analysis Form
- Custody seals
- Daily activity logs or field notebook
- Sample collection log
- Sample labels
- Any additional supplies listed in associated procedures, as needed

**Note:** This checklist is provided as a guide and is not intended to be all-inclusive.