



Rocky Flats Environmental Technology Site  
4-Q68-ENV-OPS-FO.20

REVISION 0

SAMPLING ENVIRONMENTAL MEDIA CONTAINERS

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**1. PURPOSE**

The purpose of this procedure is to provide instruction for the proper sampling of containers of liquid, sludge, or solid environmental media generated or discovered during environmental investigations at the Rocky Flats Environmental Technology Site (Site)

**2 SCOPE**

This procedure applies to Rocky Flats employees and subcontractors who are engaged in the following sampling activities

- Sampling liquid, sludge, or solid environmental media derived from environmental investigations that are stored in 30-gal or 55-gal containers
- Sampling sludge or solid environmental media derived from environmental investigations that are stored in half crates and full crates if specified in the task-specific Field Sampling Plan (FSP)

This procedure does not address the collection of samples from other types of containers such as tanks or sumps

**3 RESPONSIBILITIES**

**3.1 (Rocky Flats) Project Manager**

Ensures proper handling and sampling of all liquids and solids from containers derived from environmental investigations in accordance with this operating procedure

Ensures that all personnel, including subcontractors, are trained and qualified to perform the duties, tasks, and responsibilities described in this procedure and as specifically defined in the task-specific FSP

Ensures that all core and Environmental Restoration Program Division (ERPD) specific training has been completed and documented and that copies of all documentation have been forwarded to the ERPD training files

Notifies HAZMAT Team of the presence of a bulging drum

### 3.2 **Field Sampling Personnel**

Report any container damage as soon as possible to the Rocky Flats project manager. Types of damage include holes, damage to the lid seal, or any other problem that may compromise the container integrity.

Sample environmental media containers for waste characterization.

Conduct radiological and organic vapor monitoring in accordance with applicable procedures as specified in the task-specific Health & Safety Plan (HASP).

### 3.3 **HAZMAT Team**

Respond at the request of the Project Manager to the presence of a bulging drum.

## 4 **DEFINITIONS**

**Auger** A hard metal shaft with helical blades. When rotated clockwise, it cuts the soil and moves the loose soil upward. The auger length can be as long as 2 m (80 in). The auger is especially useful in collecting samples at depths greater than 8 cm (3 in).

**Calawasa** A glass tube sampling device consisting of a hollow glass tube 6 mm to 16 mm inside diameter and approximately 1.22 m (4 ft) in length. This device is used to collect liquid samples from drums. A Calawasa cannot be used on soils.

**Excess Sample** The material remaining after all the required sample containers have been filled for the appropriate chemical analysis.

**Field Sampling Plan (FSP)** A plan which specifically defines sampling methods, analytical parameters, and data quality objectives for a specific project.

**Secondary Containment** Plastic sheeting or secondary containment pan which provides protection to the surrounding area if the container contents are pressurized.

**Trier** A long, narrow, hollow stainless steel cone with a slot along its length. The edges of the slot are sharpened to allow the trier to cut a core sample when the trier is rotated. Triers come in a variety of sizes, the most common for use in soil sampling are 61 cm to 100 cm in length and 1.27 to 2.54 cm internal dimension. Most are threaded to accept an extension or handle.

## 5 LIMITATIONS AND PRECAUTIONS

The types of contamination that may be encountered within potentially contaminated containers or work areas include

- Low level radioactive contaminated materials
- Nonradioactive Resource Conservation and Recovery Act (RCRA) regulated hazardous materials
- Mixed (low level) radioactive and RCRA regulated hazardous materials
- Nonradioactive Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or Toxic Substances Control Act (TSCA) regulated hazardous materials
- Low level radioactive and CERCLA or TSCA regulated hazardous materials

Freezing or wet weather conditions may cause slippery conditions when working on plastic sheeting. The project manager may authorize alternative materials when necessary to work in wet or freezing weather conditions. All alternative materials must be approved by Industrial Hygiene (IH).

Containers under high pressure may present a human health hazard or danger of equipment damage.

Extreme safety precautions will be taken during the movement and sampling of containers.

HAZMAT will be notified if containers are bulging or appear to be pressurized. The containers will not be approached or moved.

Personnel Protective Equipment (PPE) appropriate for the level of hazard being performed will be in accordance with the task-specific HASP.

Operations are limited to daytime hours unless adequate lighting is available and approved by Industrial Hygiene and Safety (IH&S) to safely support night operations.

## 6 PREREQUISITES

### 6.1 Planning and Coordination

#### (Rocky Flats) Project Manager

- [1] Ensure that all the core and the ERPD-specific training has been completed and documented and that copies of all the documentation have been forwarded to the ERPD training files.

**61      Planning and Coordination (continued)**

- [2]    Ensure that a minimum of two qualified Field Sampling Personnel are available to perform this procedure
  
- [3]    **WHEN** there is a lack of documentation that shows contaminant levels below limits, **THEN** obtain guidance from
  - Rocky Flats Radiological Engineering
  - Rocky Flats Occupational Safety
  - Rocky Flats IH&S

**Field Sampling Personnel**

- [4]    Verify that all required sampling equipment and health and safety equipment is available at the sampling site
  
- [5]    Ensure that at least one Field Logbook is available in accordance with 2-S47-ER-ADM-05 14, Use of Field Logbooks and Forms

**6.2      Materials and Equipment**

**6 2 1    Consumables**

**Field Sampling Personnel**

- [1]    Ensure that the following consumables are available as required
  - Black paint pen (non organic)
  - Teflon end caps and teflon tape for stainless steel Volatile Organic Analysis (VOA) sleeves
  - Disposable polyethylene scoops or spoons
  - Disposable brush
  - Plastic sheeting (3-mil minimum)
  - Plastic bag (3-mil)
  - Duct tape
  - Disposable Personal Protective Equipment (PPE) as specified in the task-specific HASP
  - Film
  - Spill kit containing, at a minimum, absorbent towels, absorbent socks, and approved desiccant

## 6 2.2 Measuring and Test Equipment (MT&E)

### Field Sampling Personnel

**NOTE:** *Radiological support personnel will provide appropriate monitoring equipment for radiological screening*

- [1] Ensure that the following measuring and test equipment are available
  - Organic Vapor Detectors (OVD)
  - Radiological monitoring equipment, as specified in the task-specific FSP
  - Other equipment, as specified in the task-specific HASP
  
- [2] Ensure that the following M&TE equipment is calibrated and has a current calibration sticker
  - Torque wrench (tolerance  $\pm$  4%)

## 6 2.3 Special Tools and Equipment

### Field Sampling Personnel

- [1] Ensure that the following special tools and equipment are available
  - Forklift or bobcat equipped with a drum grappler
  - Stainless steel sampling trier
  - Spatula
  - Tape measure (inches)
  - Glass tubing (Calawasa)
  - Soil auger
  - Interchangeable soil auger handles
  - Drive hammer with core barrel attachment
  - Stainless steel VOA sleeves
  - Aluminum pie pan
  - Stainless steel mixing bowl or pan equivalent
  - Long- and short- handled stainless steel spoons and scoops
  - 35 mm camera furnished by Rocky Flats project manager
  - Camera Pass
  - Blue ice
  - Coolers

**6.3      Field Preparation**

**Field Sampling Personnel**

**NOTE**      *Examples of visual observations during an inspection include container markings, labels, signs of deterioration, signs of bulging, container type, stains on container storage pads, standing liquid around containers, and rust*

- [1]      Establish a work control zone in accordance with the task-specific HASP
  
- [2]      Visually inspect the container before handling to obtain information about the container contents and to document these findings on Form FO 20A

7 INSTRUCTIONS

71 Container Opening

**Field Sampling Personnel**

**WARNING**

**Failure to provide adequate ventilation when working with drums in cargo containers could cause workers to inhale hazardous chemicals or radioactive materials.**

- [1] Verify that adequate ventilation of the work area is in place and in accordance with IH&S requirements
- [2] **IF** a container has been moved within the past 1 hr,  
**THEN** allow at least 1 hr for the contents to settle before opening
- [3] **IF** it is not known if the container has been moved within the last 1 hr,  
**THEN** allow at least 1 hr for the contents to settle before opening

**WARNING**

**Failure to follow the manufacturer's instructions for the remote puncturing device may result in injury to personnel, damage to equipment, or contamination of personnel, equipment, and surrounding areas.**

**CAUTION**

**Failure to have secondary containment in use and a spill kit at the work site may result in contamination of the surrounding area**

**NOTE** *The Rocky Flats project manager in charge of the sampling tasks will have a sampling task list of all containers to be opened*

- [4] **IF** any container to be sampled appears to be bulging or under pressure,  
**THEN**
  - [A] Immediately notify the Project Manager
  - [B] Ensure that all personnel keep at least 20 ft from the container

71 **Container Opening** (continued)

- [C] Request that the HAZMAT team puncture the container with a remote puncturing device or other approved method

**HAZMAT Team**

- [5] Puncture the container in accordance with fire department and HAZMAT response procedures

**Field Sampling Personnel**

- [6] **IF** the container is structurally sound,  
**THEN** verify that the container is positioned so that the bung or opening is right side up before the container is opened or sampled

**WARNING**

- 1 **Indication of any kind of reaction (smoke, flame, sparks, liquid color changes, etc.) may mean that hazardous or toxic fumes are being generated. Failure to evacuate the area may result in injury or death**
- 2 **Containers, regardless of appearance, may contain enough pressure to injure personnel if opened without venting**

- [7] Carefully open the container in accordance with 4-P23-WO-1105, Solid Waste Repackaging Operations

- [8] **IF** the container is an open top drum and the materials are not contained in a drum liner, **THEN** place the drum lid in a 3-mil plastic bag

- [9] **IF** the container is an open top drum and the materials are contained in a drum liner, **THEN** lean the exterior side of the drum lid against the side of the drum

- [10] **IF** the container is a bung top drum, **THEN** cut a square of plastic sheeting approximately 6 X 6 in and place the sheeting on top of the drum

- [11] Place the bung on top of the plastic sheeting

71 **Container Opening** (continued)

[12] Perform organic vapor and radiological monitoring using appropriate equipment in accordance with applicable procedures and personnel as specified in the task-specific HASP

[13] Record results on Form FO 20A

[14] **IF** both the organic vapors and the radiological levels are at or below the task-specific HASP action levels,  
**THEN** proceed to Step [18]

**NOTE** *Containers are not normally monitored more than 2 times*

[15] **IF** either the organic vapors or the radiological levels are above the task-specific HASP action levels,  
**THEN** wait 20 min, and perform organic vapor and radiological monitoring in accordance with Steps [12] and [13]

[16] **IF** after repeating the monitoring 2 times and the organic vapors or radiological levels are still above the task-specific HASP action levels,  
**THEN**

[A] Immediately notify

- Rocky Flats Project Manager
- Rocky Flats Radiological Engineering
- IH&S

[B] Proceed with the evolution in accordance with the instructions provided by

- Rocky Flats project manager
- Rocky Flats Radiological Engineering
- IH&S

[17] **WHEN** the organic vapors or radiological levels are at or below the task-specific HASP action levels,  
**THEN** proceed with the sampling

71 **Container Opening** (continued)

**WARNING**

**Walking on plastic sheeting in wet or freezing weather presents a slipping hazard and may cause injury to personnel.**

- [18] **IF** the weather is wet or freezing,  
**THEN** contact the Rocky Flats Program Manager and request alternate containment materials to avoid a slipping hazard
- [19] Place plastic sheeting (approximately 8 X 8 ft size) around the base of the container
- [20] Tape the plastic sheeting to the outside of the container with duct tape to prevent container contents from contacting the surrounding surface area

7.2 **Sampling Liquids**

After each container is sampled and before sampling the next container, the sampling or combining equipment is decontaminated to prevent cross contamination. Complete decontamination is not required between sample points, however, excess solids or liquids are placed back in the drums from which they were collected.

**Field Sampling Personnel**

- [1] Decontaminate Calawasa sampling equipment prior to use, in accordance with 5-21000-OPS-FO 03, General Equipment Decontamination
- [2] Mark the Calawasa with a black paint pen (nonorganic) in increments of 2.54 cm (1 in)
- [3] Determine the depth of the drum by measuring the outside height and subtracting the appropriate amount based on the height of the rim at the top of the drum

**CAUTION**

**Failure to insert the Calawasa vertically will result in an inaccurate measurement of the contents of the drum**

- [4] Determine if solids are present in the bottom of the drum by slowly inserting the Calawasa to the bottom of the drum

7.2 **Sampling Liquids** (continued)

**NOTE** *Keep at least 30 cm (1 ft) of tubing above the top of the drum*

[5] **IF** the Calawasa strikes bottom before the calculated depth is reached,  
**THEN** calculate the depth of the solids in the drum

[6] Record the depth of the solids in the Field Logbook

[7] Allow the liquid in the drum to reach its static level in the Calawasa

**NOTE** *Low-density fluids may not hold well in the Calawasa because of low-surface tension and low capillary pressure. A portion or all of the sample may be lost from the tube bottom when it is being raised from the drum*

[8] Place a stopper into the top end of the Calawasa

[9] Carefully remove the Calawasa from the drum

[10] **IF** the solids have obstructed the liquid from reaching its static level in the Calawasa,  
**THEN** decontaminate the Calawasa in accordance with 5-21000-OPS-FO 03

**NOTE** *Liquid is released at approximately the same level as it was extracted to prevent the mixing of stratified liquids*

[11] **IF** the liquid reaches its static level in the Calawasa,  
**THEN** reinsert the Calawasa to the level where the liquid was extracted in the drum and slowly remove the stopper to release the liquid back into the drum

[12] Insert the Calawasa to approximately 2.54 cm (1 in) above the measured depth of the solids

[13] Allow the liquid in the drum to reach its static level in the Calawasa

[14] Place a stopper into the top end of the Calawasa

[15] Carefully remove the Calawasa from the drum

[16] Combine samples in accordance with Section 7.5, Combining Sample for Testing

**7.2**     **Sampling Liquids** (continued)

[17] Repeat Steps [11] through [14] at a minimum of two other depths as specified in the task-specific FSP and combine the samples to obtain a representative composite sample of the drum contents

**NOTE 1**    *It is improper waste handling to break and dispose of glass tubing inside the drum*

**NOTE 2**    *All decontamination steps will include a radiological survey*

[18] Decontaminate the Calawasa in accordance with 5-21000-OPS-FO 03

[19] Place the Calawasa in a 3 mil plastic bag and transfer it to Environmental Restoration Program Division Environmental Operations Management (ERPD EOM)

[20] Containerize and label samples in accordance with 5-21000-OPS-FO 13, Containerizing, Preserving, Handling, and Shipping of Soil and Water Samples

[21] Following sampling activities, securely replace drum lid in accordance with 1-C88-WP1027-NONRAD, Non Radioactive Waste Packaging

[22] **IF** holes were made in drum for sampling,  
**THEN** notify the Rocky Flats project manager, the ERPD EOM, and warn others in the immediate area of the damaged drum

[23] Install a new lid in accordance with 1-C88-WP1027-NONRAD

**7.3**     **Sampling Sludges**

Sludge encountered in a container can be treated as a liquid and sampled using a Calawasa or treated as a solid and sampled using a long handled stainless steel spoon or scoop. When possible, samples will be taken from the entire vertical extent of the container contents

**7.3.1**   **Sampling Sludges with a Calawasa**

After each container is sampled and before sampling the next container, the sampling or combining equipment is decontaminated to prevent cross contamination. Complete decontamination is not required between sample points, however, excess solids or liquids are placed back in the drums from which they were collected

**7.3.1 Sampling Sludges with a Calawasa (continued)**

**Field Sampling Personnel**

- [1] Decontaminate sampling equipment prior to use in accordance with 5-21000-OPS-FO 03
- [2] Mark the Calawasa with a black paint pen (nonorganic) in increments of 2.54 cm (1 in)
- [3] Determine the depth of the drum by measuring the outside height and subtracting the appropriate amount based on the height of the rim at the top of the drum

**CAUTION**

**Failure to insert the Calawasa vertically will result in an inaccurate measurement of the contents of the drum.**

- [4] Determine if the solids are present in the bottom of the drum by slowly inserting the Calawasa to the bottom of the drum

**NOTE** *Keep at least 30 cm (1 ft) of tubing above the top of the container*

- [5] **IF** the Calawasa strikes bottom before the calculated depth of the drum is reached **THEN** calculate the depth of the solids in the drum

- [6] Record the depth of the solids in the Field logbook

- [7] Determine the sludge level by slowly inserting the Calawasa with the markings to the bottom of the container

- [8] Allow the liquid/sludge in the container to reach its static level in the Calawasa

**NOTE 1** *Low-density fluids may not hold well in the Calawasa because of low-surface tension and low capillary pressure. A portion or all of the sample may be lost from the tube bottom when it is being raised from the container.*

**NOTE 2** *All decontamination steps will include a radiological survey.*

- [9] Place a stopper into the top end of the Calawasa
- [10] Carefully remove the Calawasa from the container
- [11] Measure the sludge level, based on the markings on the Calawasa.

**7.3 1 Sampling Sludges with a Calawasa (continued)**

[12] Record the sludge level in the Field Logbook

[13] **IF** the sludge has obstructed the liquid from reaching its static level in the Calawasa, **THEN** decontaminate the Calawasa in accordance with 5-21000-OPS-FO 03

**NOTE** *Liquid and sludge are to be released at approximately the same level as it was extracted*

[14] **IF** the liquid or sludge reaches its static level in the Calawasa, **THEN** reinsert the Calawasa back into the container and slowly remove the stopper to release the sludge and liquid back into the container

[15] Place a stopper into the top end of the Calawasa

[16] Insert the Calawasa into the measured depth of the sludge

[17] Slowly remove the stopper at the top end of the Calawasa to allow the sludge to collect in the Calawasa

[18] Place a stopper into the top end of the Calawasa

[19] Carefully remove the Calawasa from the container

[20] Combine samples in accordance with Section 7 5

[21] Repeat Steps [11] through [16] at a minimum of two other depths as directed in the task-specific FSP and combine the samples to obtain a representative composite sample of the container contents

**NOTE 1** *It is improper waste handling to break and dispose of glass tubing inside the container*

**NOTE 2** *All decontamination steps include a radiological survey*

[22] Decontaminate the Calawasa in accordance with 5-21000-OPS-FO 03

[23] Containerize and label samples in accordance with 5-21000-OPS-FO 13

**7 3 1     Sampling Sludges with a Calawasa (continued)**

- [24] Following sampling activities, securely replace container lid in accordance with 1-C88-WP1027-NONRAD
  
- [25] **IF** holes were made in the container for sampling,  
**THEN** notify the Rocky Flats project manager, the ERPD EOM, and warn others in the immediate area of the damaged container
  
- [26] Install a new lid in accordance with 1-C88-WP1027-NONRAD

**7 3 2     Sampling Sludges with a Scoop**

After each container is sampled and before sampling the next container, the sampling or combining equipment is decontaminated to prevent cross contamination. Complete decontamination is not required between sample points, however, excess solids or liquids are placed back in the drums from which they were collected.

**Field Sampling Personnel**

- [1] Decontaminate scoop equipment in accordance with 5-21000-OPS-FO 03 prior to sampling
  
- [2] Insert the scoop into the container
  
- [3] Remove the sludge sample from the scoop using a spatula
  
- [4] Repeat the procedure until the desired sample volume is obtained
  
- [5] Combine samples in accordance with Section 7 5
  
- [6] Containerize and label samples in accordance with 5-21000-OPS-FO 13
  
- [7] After sampling is complete, securely replace the lid on the container in accordance with 1-C88-WP1027-NONRAD
  
- [8] Decontaminate the sampling equipment after each sampling event in accordance with 5-21000-OPS-FO 03, and store the parts of the sampler in a plastic tube for later use

**7.3.2 Sampling Sludges with a Scoop (continued)**

[9] **IF** holes were made in a drum lid for sampling,  
**THEN** notify the Rocky Flats project manager, the ERPD EOM, and warn others in the immediate area of the damaged drum

[10] Install a new lid in accordance with 1-C88-WP1027-NONRAD

**7.4 Sampling Soils**

Soil samples that contain coarse materials can be collected using one of four devices

- Stainless steel scoop or spoon
- Sampling trier
- Soil auger
- Drive hammer with core barrel attachment

Soil samples will be taken as much as possible from the entire vertical extent of the container's contents. When possible, samples will be taken from three discreet intervals of the total vertical extent of the drum contents. The task-specific FSP will specify exact requirements.

**7.4.1 Sampling Soils with a Scoop or Spoon**

Samples may be obtained by using a disposable polyethylene or stainless steel scoop or spoon. This is a simple method of collecting soil samples, but it is limited to sampling at shallow depths. Therefore, scoops or spoons are used to collect samples from containers that are less than 1/4 full.

**Field Sampling Personnel**

After each container is sampled and before sampling the next container, the sampling or combining equipment is decontaminated to prevent cross contamination. Complete decontamination is not required between sample points, however, excess solids or liquids are placed back in the drums from which they were collected.

[1] Decontaminate scoop or spoon equipment prior to sampling in accordance with 5-21000-OPS-FO 03

7 4 1 Sampling Soils with a Scoop or Spoon (continued)

**CAUTION**

**Over aggressive sampling methods may rupture the drum liner and cause the interior of the container to be contaminated.**

- [2] Collect the desired quantity of soil in accordance with the task-specific field sampling plan and transfer to a stainless steel bowl on plastic sheeting
- [3] Screen the sample for Volatile Organic Compounds (VOCs) in accordance with 5-21000-OPS-FO 15
- [4] Record the VOC measurement in the Field logbook
- [5] **IF** the soil is dry,  
**THEN** screen the sample for radiological activity in accordance with 5-21000-OPS-FO 16
- [6] **IF** the soil is wet,  
**THEN** take a smear from the scoop or spoon to monitor for the presence of radiological contaminants

**NOTE** *Refer to the task-specific FSP for instructions on sampling for volatile organic analysis by using stainless steel VOA sleeves, a drive hammer, and a core barrel attachment*

- [7] Repeat Steps [2] through [6] by sampling near the same depth at a minimum of two other points to obtain a representative sample of the container contents

**NOTE** *Sample depths can be obtained by using a tape measure Measure and mark the distance to the tip of the auger or core barrel on the handle*

- [8] Record all sample depths in the Field logbook
- [9] Combine samples in accordance with Section 7 5
- [10] Containerize and label samples in accordance with 5-21000-OPS-FO 13

**7 4.1 Sampling Soils with a Scoop or Spoon (continued)**

[11] **IF** holes were made in the container lid for sampling,  
**THEN:**

[A] Notify the Rocky Flats project manager and the ERPD EOM

[B] Install a new lid in accordance with 1-C88-WP1027-NONRAD

[C] Proceed to Step [13]

[12] After sampling is complete, securely replace the lid on the container in accordance with 1-C88-WP1027-NONRAD

[13] Decontaminate the scoop or spoon sampling equipment after each sampling event in accordance with 5-21000-OPS-FO 03

**7 4 2 Sampling Soils With a Trier**

After each container is sampled and before sampling the next container, the sampling or combining equipment is decontaminated to prevent cross contamination. Complete decontamination is not required between sample points, however, excess solids or liquids are placed back in the drums from which they were collected.

**Field Sampling Personnel**

[1] Decontaminate sampling trier prior to use in accordance with 5-21000-OPS-FO 03

[2] Position a stainless steel bowl on a plastic sheet for collection of the sample

**CAUTION**

**Over aggressive sampling methods may rupture the drum liner and cause the interior of the drum to be contaminated**

[3] Insert the sampling trier into the container at an angle to collect samples from the full vertical extent of the container and minimize sample spillage. Keep a minimum of 30 cm (1 ft) of tubing above the top of the container.

[4] Rotate the sampling trier, while pushing down, once or twice to cut a core of sample material.

**7.4.2 Sampling Soils With a Trier (continued)**

**NOTE** *The container may need to be tilted slightly using either a bobcat or a forklift equipped with a drum grapppler to allow the trier to be withdrawn without losing part of the sample*

- [5] Verify that the sampling trier slot is facing upward, and slowly withdraw the trier from the container
- [6] Transfer the sample from the trier to a stainless steel bowl located on plastic sheeting by using a spatula or brush if needed
- [7] Repeat Steps [2] through [6] by sampling to the same depth at a minimum of two other points as specified in the task-specific FSP to obtain a representative composite sample of the container contents

**NOTE** *VOA samples can not be combined Further guidance on VOA sampling will be provided in the task-specific FSP*

- [8] Combine samples in accordance with Section 7 5
- [9] Containerize and label samples in accordance with 5-21000-OPS-FO 13
- [10] After sampling is complete, securely replace the lid on the container in accordance with 1-C88-WP1027-NONRAD, Non Radioactive Waste Packaging

**NOTE** *All decontamination steps will include a radiological survey*

- [11] Decontaminate the sampling trier after each sampling event in accordance with 5-21000-OPS-FO 03
- [12] **IF** holes were made in drum lid for sampling,  
**THEN** notify the Rocky Flats project manager and the ERPD EOM
- [13] Install a new lid in accordance with 1-C88-WP1027-NONRAD

**7 4 3 Sampling Soil Using an Auger**

**Field Sampling Personnel**

- [1] Decontaminate soil auger equipment in accordance with 5-21000-OPS-FO 03 prior to sampling

**CAUTION**

- 1 Over aggressive sampling methods may rupture the drum liner and cause the interior of the drum to be contaminated.**
- 2 Damage to the container and potential contamination of the surface soil beneath the container may result if the auger contacts the bottom of the container.**

- [2] Bore a hole with the auger through the center portion of the container contents
- [3] Place the soil cuttings in a stainless steel bowl located on the 8 x 8 ft plastic sheeting directly next to the container
- [4] Scrape the excess sample from the auger into the stainless steel bowl by using a stainless steel scoop or spoon
- [5] **IF** a VOA sample is required in the task-specific FSP,  
**THEN** collect the VOA using a Drive Hammer and Core Barrel assembly in accordance with 5-21000-OPS-SW 06, Sediment Sampling

**NOTE** *A minimum of three samples will be required by the task-specific FSP to obtain a representative composite sample of the container contents*

- [6] Auger through the container collecting sample composites from specified depths as noted in the task-specific FSP until the bottom of the container is reached
- [7] Repeat Steps [4] through [5] sampling at the same depth at a minimum of two other points to obtain a representative composite sample of the container contents
- [8] Combine samples in accordance with Section 7 5

**7 4 3    Sampling Soil Using an Auger (continued)**

- [9]    Containerize and label samples in accordance with 5-21000-OPS-FO 13
  
- [10]   **IF** holes were made in the container lid for sampling,  
       **THEN.**
  
- [A]    Notify the Rocky Flats project manager and the ERPD EOM
  
- [11]   After sampling is complete, securely replace the lid on the container in accordance with  
       1-C88-WP1027-NONRAD
  
- [12]   Decontaminate the soil auger equipment after each sampling event in accordance with  
       5-21000-OPS-FO 03

**7.5        Combining Samples for Testing**

This section will address the combination of samples from one container to form a composite sample

When sampling from a container, a minimum of three samples from the container will be obtained and combined according to the steps outlined below. The three samples will be taken at three different depth points as specified in the task-specific FSP and combined into one composite sample.

**7 5 1    Combining Soils**

**Field Sampling Personnel**

- [1]    Place individual soil samples in a stainless steel bowl located on a plastic sheet  
       (approximately 8 X 8 ft)

**NOTE**    *VOA sample collection will be conducted using a drive hammer and core barrel attachment as specified in the task-specific FSP. VOA samples will not be combined.*

- [2]    Stir the soil with a stainless steel scoop or spoon
  
- [3]    Scrape the soil from the sides and bottom of the stainless steel bowl or pan and then roll to the center and mix

**7.5.1 Combining Soils (continued)**

- [4] Quarter the sample and mix each quarter of the sample individually

**NOTE** *The resulting mixed sample should have a uniform color and consistency*

- [5] Roll each quarter to the center of the mixing bowl or pan and mix the entire sample together
- [6] **WHEN** the sample has been combined according to the procedures outlined above, **THEN** transfer the excess sample to the original sample container using a scoop
- [7] Repeat this procedure as necessary to provide a homogeneous sample before the excess sample is returned to the original container
- [8] Containerize and label samples in accordance with 5-21000-OPS-FO 13

**7.5.2 Combining Liquids and/or Sludges**

**Field Sampling Personnel**

- [1] **IF** collecting for VOAs, **THEN** transfer a discrete sample to a 40 ml vial before combining the liquids
- [2] Place individual liquid samples into an appropriately sized sample container for combining in accordance with 5-21000-OPS-FO 13
- [3] Mix the liquids or sludges thoroughly with a long-handled, stainless steel spoon or scoop to obtain a homogeneous sample
- [4] Containerize and label samples in accordance with 5-21000-OPS-FO 13
- [5] Place any excess sample portions back into the container being sampled

**76      Photographing Environmental Media Containers**

**NOTE**    *All photographing will conform to Rocky Flats security controls. All film exposed at Rocky Flats is processed by the Rocky Flats Photography Department.*

**Field Sampling Personnel**

- [1]    **WHEN** photographic records are required,  
      **THEN**
- [A]    Secure a camera pass form the Rocky Flats Photography Department
- [B]    Obtain a 35 mm camera from the Rocky Flats project manager
- [C]    Place an identification tag so that it will appear in the photograph listing
- Project number
  - Sampling date
  - Sampling site location
  - Container identification
  - Contractor
- [D]    Photograph the containers
- [E]    Deliver the film to the Rocky Flats Photography Department for processing

**8      RECORDS**

- [1]    Management of all records is consistent with 1-77000-RM-001, Records Management Guidance for Records Sources
- [2]    Ensure that the original and one copy as required of the following quality related records, as appropriate, are transmitted to the ERPD Project File Center in accordance with 2-G18-ER-ADM-17 01, Records Capture and Transmittal
- Container Sampling Form FO 20 A
  - Field Logbooks
  - Photographs
  - Other documentation generated by the task

Submission of record copies to the ERPD Project File Center is in accordance with Administrative Record requirements of 2-S65-ER-ADM-17 02, Administrative Record Document Identification and Transmittal

8       **RECORDS (continued)**

There are no nonquality records generated by this procedure

9       **REFERENCES**

EG&G Field Sampling Plan for Main and Protected Area Decontamination Facilities, 5/94

Environmental Protection Agency (EPA) A Compendium of Superfund Field Operations Methods EPA/540/P-87/001 12/87

Environmental Protection Agency (EPA) Sampling For Hazardous Materials 11/84

National Institute for Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), U S Coast Guard (USCG), and U S Environmental Protection Agency (EPA) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities 10/85

1-C88-WP1027-NONRAD, NonRadioactive Waste Packaging

1-M12-WO-4034, Radioactive Waste Packaging Requirement

1-77000-RM-001, Records Management Guidance for Records Sources

2-G18-ER-ADM-17 01, Records Capture and Transmittal

2-S47-ER-ADM-05 14, Use of Field Logbooks and Forms

2-S65-ER-ADM-17 02, Administrative Record Document Identification and Transmittal

4-P23-WO-1105, Solid Waste Repackaging Operations

5-21000-OPS-FO 03, General Equipment Decontamination

5-21000-OPS-FO 04, Heavy Equipment Decontamination

5-21000-OPS-FO 09, Handling of Residual Samples

5-21000-OPS-FO 10, Receiving, Labeling, and Handling Environmental Materials Containers

9.       **REFERENCES (continued)**

5-21000-OPS-FO 12, Decontamination Facility Operations

5-21000-OPS-FO 13, Containerizing, Preserving, Handling, and Shipping of Soil and Water Samples

5-21000-OPS-FO 15, Photoionization Detectors (PIDs) and Flame Ionization Detectors (FIDs)

5-21000-OPS-FO 16, Field Radiological Measurements

5-21000-OPS-FO 18, Environmental Sample Radioactivity Content Screening

5-21000-OPS-SW 06, Sediment Sampling

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APPENDIX 1  
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**U.S. DEPARTMENT OF ENERGY ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE  
FORM FO.20A**

CONTAINER SAMPLING FORM

Project Name \_\_\_\_\_ Sample Team Leader \_\_\_\_\_  
Rocky Flats Contract No \_\_\_\_\_ Sample Team Member \_\_\_\_\_  
Sampling Date \_\_\_\_\_ Sample Team Member \_\_\_\_\_  
Sample Number \_\_\_\_\_ Photograph(s) Taken (Y/N) \_\_\_\_\_  
Sampling Site Location \_\_\_\_\_  
Container Type and Size \_\_\_\_\_  
Container Identification \_\_\_\_\_  
Container Condition \_\_\_\_\_  
Container Contents \_\_\_\_\_  
(Solids or Liquids) and Description \_\_\_\_\_  
Collection Method \_\_\_\_\_  
Number of Containers Sampled \_\_\_\_\_ Number of Samples Taken \_\_\_\_\_  
Composite (Y/N) \_\_\_\_\_ Total Sample Composite Volume \_\_\_\_\_  
Composite Description \_\_\_\_\_

**ENVIRONMENTAL MONITORING RESULTS**

Organic Vapors Reading \_\_\_\_\_ Units \_\_\_\_\_ Instrument Used \_\_\_\_\_

Radioisotopes Reading \_\_\_\_\_ Units \_\_\_\_\_ Instrument Used \_\_\_\_\_

Comments \_\_\_\_\_

Completed By \_\_\_\_\_  
Print Name Signature Date

Contractor \_\_\_\_\_