

CCP-TP-041

Revision 11

CCP Preparing and Handling Waste Drums for Visual Examination

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David H. Haar

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
5	02/18/2002	added net weight for clarification (4.1.6[K]). added 4.2.4 to verify drum has passed headspace gas (HSG) sampling and analysis. changed steps of attachments 1 & 2 for sequential completion.
6	06/20/2002	Added calibrated scale to the equipment list. Changed Scale to Balance. Added scale tare / net weight uncertainty. Added scale gross / weight uncertainty.
7	04/02/2003	Updated references and changes to Section 4.0
8	05/17/2003	Added "sign off" points within the text and deleted steps in section 4.1.5. Revised Attachments 1 and 2.
9	01/12/2004	Deleted form link, steps in Section 4.2 and text in Attachment 2. Changed 'bag' to 'sleeve' as requested in Section 4.0 and Attachment 1. Added statement to Precautions and Limitations in Section 2.0. Performed editorial changes throughout document.
10	02/26/2004	Revised Step 2.3, Section 4.0, and Attachments 1 & 2 as a result of findings from the LLNL Contractor ORR.
11	07/08/2004	Revised to provide clarification of the output drum configuration for the Drum Age Criteria (DAC) requirements for any subsequent Headspace Gas (HSG) sampling. Revised steps 2.5.1, 4.1.1[D], 4.1.5[M], [O], and [T]. Revised 4.1 NOTE and Attachment 1. Deleted step 4.1.5[F] and last sentence of 4.1.5 NOTE.

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1.0 PURPOSE

This procedure discusses the handling of waste drums for the Mobile Visual Examination & Repackaging (MOVER) unit in support of the Central Characterization Project (CCP).

1.1 Scope

This procedure defines the processes for preparing, removing and replacing filters, handling and storing waste drums for visual examination (VE).

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- DOE/CBFO-94-1012, *U.S. Department of Energy Quality Assurance Program Document (QAPD)*
- DOE MLM-3245, *Evaluation Document for DOT 7A Type A Packages*
- DOE/WIPP 01-3203, *Contact-Handled Transuranic Waste Authorized Methods for Payload Control (TRAMPAC)*
- DOE/WIPP 02-3122, *Contact-Handled Transuranic Waste Acceptance Criteria (CH-WAC)*
- DOE/WIPP 02-3183, *CH Packaging Program Guidance*
- DOE/WIPP 02-3184, *CH Packaging Operations Manual*
- DOE-WIPP 02-3185, *CH Packaging Operations Manual*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan (WCP)*
- CCP-PO-005, *CCP Conduct of Operations*

Referenced Documents

- CCP-HSP-002, *CCP MOVER (VE) Health and Safety Plan*
- CCP-QP-002, *CCP Training and Qualification Plan*

- CCP-QP-008, *CCP Records Management*
- CCP-TP-042, *CCP Bagging Out Process Waste and Replacing Glovebox Windows and Gloves*
- CCP-TP-044, *CCP Startup and Shutdown of the MOVER*

2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, prior to performing this procedure.

2.3 Equipment List

2.3.1 Tools

- [A] 15/16-inch Long Arm Hex key
- [B] Safety knife
- [C] 15/16-inch Square Drive Socket Hex key
- [D] Square Drive ratchet
- [E] File
- [F] Loctite 271
- [G] Loctite 680
- [H] Tape measure
- [I] 3/4-inch Square Drive socket
- [J] Banding tools
- [K] Blower or Compressed Air source
- [L] Tap and Die set
- [M] Tin snips
- [N] Calibrated Torque wrench
- [O] 2-inch vinyl tape
- [P] 4-inch vinyl tape
- [Q] 2-inch duct tape
- [R] 4-inch duct tape
- [S] Calibrated scale
- [T] Rivet Header tool, Model C-772 Wrench Type Header for 1/2-inch Rivet nuts

2.3.2 Materials

- [A] Bag-out bags
- [B] Bar code labels
- [C] NucFil™ drum and bag filters
- [D] Drum rigid liners
- [E] Drums
- [F] Band clips
- [G] 3/8-inch bands
- [H] Silicone rubber sealant
- [I] Screws
- [J] Pipe plugs
- [K] Gasket assemblies and rivets
- [L] Pull Pin (also known as bull or drift pins) with a point
- [M] Bag-on liners

2.4 Precautions and Limitations

2.4.1 If during the course of following this procedure, a situation occurs that causes deviation from the normal process, and the condition cannot be corrected as directed by this procedure, operators will **IMMEDIATELY STOP WORK** and notify the individuals designated in CCP-HSP-002, *CCP MOVER (VE) Health and Safety Plan*.

2.4.2 At Lawrence Livermore National Laboratory (LLNL), **NO** waste drum or contents of any waste drum will be left in the MOVER overnight. Waste drums will be removed from the MOVER prior to the end of the shift unless arrangements have been made with the host facility to extend a shift to complete a particular VE. Under **NO** circumstances will the VE of a particular drum exceed twelve hours. The **ONLY** exception is a drum in the MOVER that contains an item or items encountered that are safety concerns; the process is stopped pending further evaluation to mitigate any potential hazards.

2.5 Prerequisite Actions

2.5.1 All applicable Material Safety Data Sheets (MSDSs) must be reviewed prior to initial performance of this procedure and thereafter, as needed.

2.5.2 Verify Mover Daily Pre-operational Checklist and Mover Logbook has been completed per CCP-TP-044, *CCP Startup and Shutdown of the MOVER*, prior to starting work.

2.6 Definitions

2.6.1 None.

3.0 RESPONSIBILITIES

3.1 Visual Examination Technical Supervisor (TS)

3.1.1 Verifies that all personnel implement this procedure properly.

3.2 Visual Examination Operator (VEO)

3.2.1 Prepares and handles drums as described in this procedure.

NOTE

At LLNL, the function of Radiological Control Technician (RCT) is performed by the Hazards Control Health and Safety Technician.

3.3 Radiological Control Technician (RCT)

3.3.1 Performs appropriate radiological surveys and verifies levels are maintained as low as reasonably achievable (ALARA).

3.4 Facility Records Custodian

3.4.1 Processes and transmits all records generated in accordance with CCP-QP-008, *CCP Records Management*.

NOTE

The VEO will perform all steps in this procedure unless otherwise indicated.

NOTE

If the container is over 100 mrem/hr, the operator will stop work and notify MOVER TS. The TS will then notify the VPM, Health and Safety Technician, and appropriate Host Site personnel to determine the path forward and appropriate controls prior to the container being prepped.

4.0 PROCEDURE

4.1 Preparing an Empty Drum

NOTE

Section 4.1.1 is used to prepare an empty DOT Type 7A 55-gal. waste drum having a rigid liner and bag-on liner for bag-on to a vertical port of a glovebox.

4.1.1 Preliminary

- [A] Obtain a copy of Attachment 1, *Prep Form For Loading*, **AND** have it available for recording data while performing this section.
- [B] Obtain an empty DOT Type 7A 55-gal. waste drum.

[C] Refer to Table 1, *Waste Container Criteria*, to verify one of the drums listed is being used.

Table 1. Waste Container Criteria
Component
Individual Payload Container
55-Gal. Steel Drum
55-Gal. Steel Drum (DOT Spec. 17C)
55-Gal. Steel Drum (DOT Spec. 17H)
55-Gal. Steel Drum (UN/1A2/X320/S)
55-Gal. Steel Drum (UN/1A2/X325/S)
55-Gal. Steel Drum (UN/1A2/X400/S)
55-Gal. Steel Drum (UN/1A2/X425/S)
55-Gal. Steel Drum (UN/1A2/X430/S)
55-Gal. Steel Drum (UN/1A2/X435/S)

[D] Obtain a rigid liner with no lid.

4.1.2 Inspecting the 55-gal. drum.

[A] Remove the bolt ring.

[B] Remove the lid.

[C] Inspect the drum and lid for dents, gouges and other impairments of integrity including:

- Ring
- Bolt
- Nut
- Chimes
- Lid and Gasket
- Paint
- Seams
- Smoothness of Top Chime

[D] File any sharp edges on the top chime until smooth.

[D.1] **IF** the drum is defective or the edges cannot be smoothed,
THEN reject the drum, **AND GO TO** step 4.1.1[A].

[D.2] **IF** the drum is **NOT** defective,
THEN continue with the following steps.

[E] Replace the lid back on the drum, but **DO NOT** tighten the bolt and jam-nut.

[F] Complete Step 1 on Attachment 1 to indicate drum condition.

[G] **WHEN** complete,
THEN initial and date Step 1 on Attachment 1.

SIGN OFF

4.1.3 Recording Drum Information

[A] Record the drum purchase request number, lot number, and date of manufacture on Step 2 of Attachment 1.

[B] **WHEN** complete,
THEN initial and date Step 2 on Attachment 1.

SIGN OFF

4.1.4 Preparing the Lid

[A] Remove 3/4-inch bung.

[B] **WHEN** complete,
THEN initial and date Step 3 on Attachment 1.

SIGN OFF

[C] Record the torque wrench serial/ID number and calibration due date.

[D] **WHEN** complete,
THEN initial and date Step 4 on Attachment 1.

SIGN OFF

NOTE

Approved thread sealants include the following:

- Loctite 271
- Loctite 680

Loctite could possibly damage neoprene gasket. Keep Loctite on first three threads of the filter when applying.

[E] Apply Loctite on the first three threads of the 3/4-inch, NucFil™ 013 drum filter.

[F] Install 3/4-inch, NucFil™ 013 drum filter with the provided neoprene gasket by engaging threads.

[G] Torque filter threads to 10 ft.-lbs or 120 inch-lbs.

[H] **WHEN** complete,
THEN initial and date Step 5 of Attachment 1.

SIGN OFF

[I] Record the filter serial number and manufacturer date on Step 6 of Attachment 1.

[J] **WHEN** complete,
THEN initial and date Step 6 of Attachment 1.

SIGN OFF

4.1.5 Bag Assembly and Inspection

NOTE

Bag assemblies may have certified filters installed, or the filters may be installed by operators.

[A] Obtain a bag-out bag (WIPP BAG 3).

[B] Inspect bag for damages or cuts.

[C] **IF** the bag has damages or cuts,
THEN reject it, **AND GO TO** step 4.1.5[A].

- [D] **WHEN** complete,
THEN initial and date Step 7 on Attachment 1.

SIGN OFF

- [E] **IF** the bag has a certified filter installed,
THEN GO TO step 4.1.5[G].

- [F] **IF** directed by the TS to install a filter,
THEN perform the following:

[F.1] Cut a hole about 1-inch in diameter in the bag about 4 ft. from the bag bottom.

[F.2] Insert the filter half of a plastic certified NucFil™ 030 filter through the hole in the bag.

[F.3] Snap the other filter half into place with the bag between the two halves.

[F.4] Cut a 1¼-inch diameter hole in the center of two 6-inch squares of vinyl tape.

[F.5] Center one square of tape over the outside of the filter and install.

[F.6] Center the other square over the inside of the filter and install.

[F.7] Verify there are no bubbles or air channels trapped between the tape and the bag.

- [G] Verify that a plastic NucFil™ 030 filter is installed approximately 4 ft. from the bag bottom.

- [H] **WHEN** complete,
THEN initial and date Step 8 on Attachment 1.

SIGN OFF

- [I] Record the NucFil™ 030 serial number on Step 9 on Attachment 1.

[J] **WHEN** complete,
THEN initial and date Step 9 on Attachment 1.

SIGN OFF

[K] Tape over the filter to prevent air escape (if applicable).

[L] Fill bag with air from an air source.

[M] Inspect the bag carefully for leaks by looking, listening, and feeling.

[N] **IF** the bag has holes/leaks,
THEN reject it **AND GO TO** step 4.1.5[A].

[O] **IF** the bag passes inspection,
THEN initial and date Step 10 on Attachment 1.

SIGN OFF

[P] Remove the lid from the drum.

[Q] Insert the bag-out bag in the drum, making sure the filter lines up with the drum seam, if applicable.

[R] **WHEN** complete,
THEN initial and date Step 11 on Attachment 1.

SIGN OFF

[S] Place a 55-gal. rigid plastic drum liner with no lid in the bag-out bag.

[T] **WHEN** complete,
THEN initial and date Step 12 on Attachment 1.

SIGN OFF

[U] Weigh the drum with bag-out bag, drum lid, filter vent, rigid plastic drum liner, and ring assembly using site-specific calibrated scale.

[V] Record the following on Step 13 of Attachment 1:

- Weight of the packaging (tare / net weight, in kg)
- File or serial number of the calibrated scale
- Scale calibration due date
- Scale tare / net weight uncertainty
- Write the weight and date in indelible ink on the drum lid.

[W] **WHEN** complete,
THEN initial and date Step 13 on Attachment 1.

SIGN OFF

[X] Record Barcode serial number on Step 14 of Attachment 1.

[Y] Place four "Barcode Labels" on the drum as follows:

[Y.1] One label on the center of the lid, making sure that the label is in line with the drum seam.

[Y.2] Three labels, approximately 6 inches up from the bottom of the drum (one to the immediate left of the seam and two others spaced evenly around the drum).

[Z] **WHEN** complete,
THEN initial and date Step 14 on Attachment 1.

SIGN OFF

[AA] Perform one of the following:

- Set drum in designated area for future use
- **GO TO** CCP-TP-042, *CCP Bagging Out Process Waste and Replacing Glovebox Windows and Gloves*, to perform bag-on.

[BB] Forward completed attachment to the Facility Records Custodian.

4.1.6 Facility Records Custodian, process and transmit record in accordance with CCP-QP-008.

4.2 Preparing a Full Drum

NOTE

This section is for preparing a full drum for bagging onto horizontal port.

4.2.1 Obtain a copy of Attachment 2, *Prep Form For A Full Waste Drum*, and have it available for recording data while performing this section.

4.2.2 Record the Container Identification Number in Step 1 of Attachment 2.

4.2.3 **WHEN** complete,
THEN initial and date Step 1 on Attachment 2.

SIGN OFF

4.2.4 Record the mrem/hr from the dose rate sticker on the container in Step 2 of Attachment 2.

4.2.5 **WHEN** complete,
THEN initial and date Step 2 on Attachment 2.

SIGN OFF

4.2.6 **IF** the container is over 100 mrem/hr,
THEN STOP WORK and notify TS.

4.2.7 Inspect drum and lid for sharp edges or gouges, **AND** file edges as needed.

4.2.8 **WHEN** complete,
THEN initial and date Step 3 on Attachment 2.

SIGN OFF

4.2.9 Record the container filter serial number in Step 4 on Attachment 2.

- 4.2.10 **WHEN** complete,
THEN initial and date Step 4 on Attachment 2.

SIGN OFF

- 4.2.11 Weigh the drum to be bagged on, using a calibrated scale.

- 4.2.12 Record the following information in Step 5 on Attachment 2.

- Weight of the container (gross weight in kg)
- File or serial number of the calibrated scale
- Scale calibration due date
- Scale gross weight uncertainty
- Write the weight and date in indelible ink on the drum lid.

- 4.2.13 **WHEN** complete,
THEN initial and date Step 5 on Attachment 2.

SIGN OFF

- 4.2.14 Match the manufacturer container certification number to the containers listed in Table 2, Waste Container Weight Limits.

- 4.2.15 Compare the total weight to the weight limits listed in Table 2.

Table 2. Waste Container Weight Limits	
Container/Assembly Weight Criteria	
Component	Max Gross Weight (Lbs)
Individual Payload Container	
55-Gal. Steel Drum	≤1,000
55-Gal. Steel Drum (DOT Spec. 17C)	≤1,000
55-Gal. Steel Drum (DOT Spec. 17H)	≤1,000
55-Gal. Steel Drum (UN/1A2/X320/S)	≤705
55-Gal. Steel Drum (UN/1A2/X325/S)	≤716
55-Gal. Steel Drum (UN/1A2/X400/S)	≤882
55-Gal. Steel Drum (UN/1A2/X425/S)	≤937
55-Gal. Steel Drum (UN/1A2/X430/S)	≤948
55-Gal. Steel Drum (UN/1A2/X435/S)	≤959
55-Gal. Drum Overpacked in SWB	≤1,450

4.2.16 **IF** the total weight exceeds the limits in Table 2,
THEN STOP WORK, AND contact the TS.

4.2.17 **IF** the total weight is acceptable,
THEN initial and date Step 6 on Attachment 2.

SIGN OFF

4.2.18 Place tape over bolt and jam-nut.

4.2.19 **WHEN** complete,
THEN initial and date Step 7 on Attachment 2.

SIGN OFF

4.2.20 Obtain a bag-out sleeve (nonfiltered), **AND** inspect the sleeve
for damage or cuts.

4.2.21 **IF** the sleeve has damage or cuts,
THEN reject it, **AND GO TO** step 4.2.20.

4.2.22 **IF** the sleeve has no damage or cuts,
THEN initial and date Step 8 on Attachment 2.

SIGN OFF

4.2.23 Place the prepared bag-out sleeve over the drum.

4.2.24 **WHEN** complete,
THEN initial and date Step 9 on Attachment 2.

SIGN OFF

CAUTION

In step 4.2.25, leave enough room between the tape and the drum bolt ring
so the ring can be removed easily without damaging the sleeve.

4.2.25 Wrap vinyl tape around the outside sleeve working from the
second chime from the top of the drum to the top of the drum
so that the sleeve is tightly bound.

- 4.2.26 **WHEN** complete,
THEN initial and date Step 10 on Attachment 2.

SIGN OFF

- 4.2.27 Wrap duct tape around the top of the drum where the 3/8-inch band will be installed.

- 4.2.28 **WHEN** complete,
THEN initial and date Step 11 on Attachment 2.

SIGN OFF

- 4.2.29 Install 3/8-inch band around the top of drum.

- 4.2.30 **WHEN** complete,
THEN initial and date Step 12 on Attachment 2.

- 4.2.31 Pull sleeve down over lid and tape sleeve to the top of the container.

- 4.2.32 Pull excess sleeve back up over lid for bag-on.

- 4.2.33 **WHEN** complete,
THEN initial **AND** date Step 13 on Attachment 2.

SIGN OFF

- 4.2.34 Perform one of the following:

- Set drum in designated area for future use.
- **GO TO** CCP-TP-042 to perform bag-on.

- 4.2.35 Forward completed attachment to the Facility Records Custodian.

- 4.2.36 Facility Records Custodian, process and transmit record in accordance with CCP-QP-008.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Nonpermanent Records

- [A] Attachment 1 - Prep Form For Loading
- [B] Attachment 2 - Prep Form For A Full Waste Drum

Attachment 1 - Prep Form For Loading

Step	Task	Operator Initials	Date
1.	Inspect the drum for physical condition. Drum passed.		
2.	Record the following information from the drum: Drum purchase request number - _____ Drum lot number - _____ Date of manufacture - _____		
3.	Remove the 3/4-inch bung.		
4.	Record the torque wrench serial/ID number and Calibration Due Date.		
5.	Apply an even coat of Loctite on the first three threads of the 3/4-inch NucFil™ 013 drum filter and install with neoprene gasket by engaging threads. Torque to 10 ft.-lbs or 120 inch-lbs.		
6.	Record NucFil™ 013 drum filter serial no. and manufacture date.		
7.	Obtain a bag-out bag (WIPP BAG 3) and inspect for damage or cuts.		
8.	Confirm that a plastic NucFil™ 030 filter is installed approximately 4 ft. from the bag bottom.		
9.	Record the NucFil™ 030 serial no.		
10.	Bag filled with air. Passed inspection.		
11.	Insert the bag-out bag in the drum. Verify the filter lines up with the drum seam.		
12.	Place a 55-gal. rigid plastic drum liner with no lid in the bag-out bag.		
13.	Weight of the packaging (tare / net weight in kg): _____ File or serial number of the calibrated scale: _____ Scale calibration due date: _____ Scale tare / net weight uncertainty: _____ Write the weight and date in indelible ink on the drum lid.		
14.	Barcode Serial Number: _____ Place four "Barcode Labels" on the drum: (1) One label on the center of the lid making sure the label lines up with the seam. (2) Three labels approximately 6 inches up from the bottom of the drum (one to the immediate left of the seam and two others spaced evenly around the drum.)		

Attachment 2 - Prep Form For A Full Waste Drum

Step	Task	Operator Initials	Date
1.	Container Identification Number : _____		
2.	Record the mrem/hr from the dose rate sticker on the container: _____ mrem/hr.		
3.	Inspect drum and lid for sharp edges or gouges. File as needed.		
4.	Record container filter serial number: _____		
5.	Weight of the container (gross weight in kg): _____ File or serial number of the calibrated scale: _____ Scale calibration due date: _____ Scale gross weight uncertainty: _____ Write the weight and date in indelible ink on the drum lid.		
6.	Weight does not exceed limits in Table 2.		
7.	Place duct tape over bolt and jam-nut.		
8.	Obtain a bag-out sleeve and inspect for damage or cuts.		
9.	Place the prepared bag-out sleeve over the drum.		
10.	Wrap vinyl tape around the outside sleeve so that the sleeve is tightly bound.		
11.	Wrap duct tape around the top of the drum where 3/8-inch band will be installed.		
12.	Install 3/8-inch band around the top of drum.		
13.	Pull sleeve down over lid and tape sleeve to top of container. Pull excess sleeve back up over lid for bag-on.		