

# CCP-TP-086

Revision 15

## CCP CH Packaging Payload Assembly

EFFECTIVE DATE: 12/14/2010

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PRINTED NAME

APPROVED FOR USE

## RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	01/09/2003	Initial issue.
1	04/03/2003	Added new Sections 3.3.2, 3.4, 3.5, 4.2.6, 4.2.8 and Attachment 10, made changes or additions to sections 4.16, 4.22, 4.23, 4.29, 4.32, 4.35, 4.37. Incorporated CBFO comments.
2	04/10/2003	Changes made to procedure to facilitate operation in the field.
3	06/06/2003	Change made to procedure to correct redundant steps, add steps if there is a gasket already installed in the TDOP lid, and improve efficiency in the field. Made changes to make the procedure generic to all sites.
4	06/13/2003	Revised Sections 4.2.1, 4.3.1 and 4.3.7 to remove all references to the eye bolt.
5	10/23/2003	Revised to meet implementation of the new requirements found in DOE/WIPP 02-3184 and for clarification of the RCRA requirements for labeling of the SWB and TDOP. Added TDOP Labeling Section 4.2.8, deleted labeling from 4.3.5 and 4.3.6.
6	12/15/2003	Revised due to CAR-CCP-012 and 013-03.
7	07/21/2004	Revised based on a revision to WP-08-PT.01, <i>Standard Waste Box Handling and Operation Manual</i>
8	07/11/2005	Revised due to CAR-SRS-0001-05. Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comments. Changes were made for editorial enhancements.
9	06/02/2006	Revised to support drum payload assembly for operations with HalfPACT's and editorial changes.
10	09/07/2006	Revised to delete note before step 2.4.6 and steps 2.46 and 2.4.7. SRS will control the storage of 7/14 packs in a SRS procedure.
11	10/25/2006	Revised to address CAR No.: 06-037.

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
12	04/24/2007	Revised to include 40 CFR part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in commerce, and use prohibitions: Marking of PCB's and PCB Items § 761.40 and 40 CFR 761.40, Marking as references.
13	03/17/2008	Revised to add changes for verifying shelf life expiration date for standard waste box (SWB) and ten-drum overpack (TDOP) gaskets, and instructions for replacing the gasket on SWB's if the shelf life has expired. Made editorial step sequencing. Defined site specific steps. Added document flow from Transportation Certification Officials (TCOs) to Waste Certification Officials (WCOs).
14	09/30/2008	Revised to delete Section 4.1 drum payload assembly and clarification of filter requirements for drums to be overpacked.
15	12/14/2010	Change torque specifications to make them consistent with WP 08-PT.01, <i>Standard Waste Box Handling and Operations Manual</i> and WP 08-PT.02, <i>Ten-Drum Overpack Handling and Operation Manual</i> , and make editorial changes.

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## 1.0 PURPOSE

This procedure provides technical requirements and instructions for the assembly of a Central Characterization Project (CCP) payload for the contact-handled (CH) packaging.

This procedure provides technical requirements and instructions for loading drums into Ten Drum Overpacks (TDOPs) and Standard Waste Boxes (SWBs), as well as providing interfaces between the Host site and the CCP task performance and documentation.

### 1.1 Scope

This procedure applies to technical instructions for the assembly and inspection of the CH Package payload assembly. This procedure complies with DOE/WIPP 02-3183, *CH Packaging Program Guidance*, DOE/WIPP 02-3184, *CH Packaging Operations Manual*, DOE/WIPP 02-3220, *CH Packaging Operations For High Wattage Waste*, and DOE/WIPP 02-3185, *CH Packaging Maintenance Manual*, and interfaces with CCP-TP-033, *CCP Shipping of CH TRU Waste*.

## 2.0 REQUIREMENTS

### 2.1 References

#### Baseline Documents

- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- SRNS-TR-2008-00101, *Savannah River Site Approved Site Treatment Plan* (for Savannah River Site [SRS] only)
- WP 08-PT.01, *Standard Waste Box Handling and Operation Manual*
- WP 08-PT.02, *Ten Drum Overpack Handling and Operation Manual*

Referenced Documents

- 10 Code of Federal Regulations (CFR) 835, *Occupational Radiation Protection, Appendix D*
- 40 CFR Part 262, *Standards Applicable to Generators of Hazardous Waste*
- 40 CFR Part 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and use prohibitions: Marking of PCB's and PCB Items § 761.40*
- 40 CFR 262.32, *Marking*
- 40 CFR 761.40 *Marking Requirements* (Subpart C, Marking of PCBs and PCB Items)
- 49 CFR Part 172, *Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements*
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
- DOE/WIPP 02-3183, *CH Packaging Program Guidance*
- DOE/WIPP 02-3184, *CH Packaging Operations Manual*
- DOE/WIPP 02-3185, *CH Packaging Maintenance Manual*
- DOE/WIPP 02-3220, *CH Packaging Operations for High Wattage Waste*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-TP-030, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*

- CCP-TP-033, *CCP Shipping of CH TRU Waste*

## 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 Thread sealant
- 2.3.2 Calibrated torque wrenches
- 2.3.3 Loctite<sup>®</sup> 222

## 2.4 Precautions and Limitations

- 2.4.1 Removable surface contamination on CH transuranic (TRU) waste payload containers, container assemblies, or packagings SHALL **NOT** exceed the values in 10 CFR 835, *Occupational Radiation Protection*, Appendix D (< 20 disintegrations per minute [dpm]/100 square centimeters [cm<sup>2</sup>] Alpha, < 200 dpm/100 cm<sup>2</sup> Beta-Gamma).
- 2.4.2 Dose rates surveys on contact and at one meter, including neutron contributions, are required for assembly payloads prior to shipment.
- 2.4.3 The Transportation Certification Official (TCO) SHALL be notified if any of the following items are exceeded:
- [A] Radiation dose rates exceed 200 millirem per hour (mrem/hr) at contact (beta+gamma+neutron).
  - [B] Alpha contamination survey results exceed 20 dpm/100 cm<sup>2</sup>.
  - [C] Beta-gamma contamination survey results exceed 200 dpm/100 cm<sup>2</sup>.
- 2.4.4 Site-specific safety requirements are to be followed when moving drums. If site specific requirements for drum moves have not been developed, then safety glasses, leather gloves, and steel toed shoes shall be worn as a minimum.

- 2.4.5 As a general rule, no body part is allowed underneath a suspended load. The following exceptions have been made for this procedure: Adjustable Center of Gravity Lifting Fixture (ACGLF) adjustment/leg changes, and guiding leg insertion. Use extreme caution, and DO **NOT** raise the load higher than necessary while performing this activity.
- 2.4.6 Filters installed in the SWB and/or TDOP shall be listed on the Carlsbad Field Office (CBFO)-approved filter list.
- 2.4.7 Filters installed in the drums to be overpacked shall be listed on the CBFO-approved filter list or evaluated against the CH-TRAMPAC diffusivity requirements. If the evaluation method is used, the evaluation documentation should be available upon request from the generator site.
- 2.4.8 Drum payloads are assembled per the guidance found in DOE/WIPP 02-3184 and/or DOE/WIPP 02-3220.
- 2.5 Prerequisite Actions
  - 2.5.1 Verify payload has been planned in accordance with CCP-TP-030, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*.
- 2.6 Definitions
  - 2.6.1 **Check** - Confirm that an activity or condition has occurred in accordance with specified requirements (by action if necessary).

### 3.0 RESPONSIBILITIES

#### 3.1 Supervisor or First Line Manager (FLM)

3.1.1 Supervises preparation of the payload assembly by Host site personnel.

3.1.2 Reviews completed attachments.

#### 3.2 CH Packaging Payload Assembly Operator

3.2.1 Prepares the payload assembly.

#### 3.3 Radiological Control Technician (RCT)

3.3.1 Performs radiation and contamination surveys for completed assemblies, SWBs, or TDOPs per 10 CFR 835.

3.3.2 Provides results of radiation and contamination surveys in site specific survey reports.

#### 3.4 Peer Independent Verifier

3.4.1 Independently verifies that correct drums are in overpack containers.

#### 3.5 CCP Transportation Certification Official (TCO)

3.5.1 Interfaces with Host site personnel when listed radiation/contamination values are exceeded.

3.5.2 Interfaces with Host site personnel when container integrity issues arise.

3.5.3 Assists in Nonconformance Report (NCR) generation from issues arising from packaging issues.

#### 3.6 CCP Waste Certification Official (WCO)

3.6.1 Selects containers for overpacking using the Waste Isolation Pilot Plant (WIPP) Waste Information System/Waste Data System (WWIS/WDS).

3.6.2 Selects the heaviest containers for the bottom row in TDOPs per the WWIS/WDS.

3.6.3 Provides site personnel with loading instructions for containers to be overpacked.

3.6.4 Enters data from Attachments 1, TDOP Loading Form, and Attachment 2, SWB Loading Form, and container survey reports into the WWIS/WDS for overpack container certification.

3.7 Facility Records Custodian/Records Custodian

3.7.1 Receives, processes, and transmits or maintains the records generated from this procedure in accordance with CCP-QP-008, *CCP Records Management*.

## 4.0 PROCEDURE

### 4.1 Preparing SWB Payload Assembly

#### **WARNING**

Hard hats are required during hoisting and rigging activities and other activities, which present an overhead hazard.

#### 4.1.1 SWB Lid Removal

- [A] Record the SWB serial number on Attachment 2.
- [B] Ensure that the SWB is properly labeled (two bar codes), and record bar code number on Attachment 2.
- [C] Remove cap screws using a 5/16 inch hexagon wrench.
- [D] Inspect the 42 flange threads for damaged threads.
- [E] **IF** the threads have minor deformation (burrs, cross thread etc.),  
**THEN** correct the thread deformation by running a 1/2 inch 13 Unified National Coarse (UNC) thread tap through the threads.
- [F] Inspect the threads on the lid lift nut.
  - [F.1] **IF** threads have minor deformation (burrs, cross thread, etc.),  
**THEN** correct the thread deformation by running a 1/4-20 UNC thread tap through the threads.
- [G] Insert a 1/4-20 UNC-2A X .29-inch long swivel hoist ring in the lid lift nut.
- [H] Torque the swivel hoist ring 6 ft-lbs (72 in-lbs) ensuring that full thread engagement is achieved.
- [I] **IF NOT** already installed,  
**THEN** attach rigging, capable of lifting 300 pounds, to the lid lifting swivel hoist ring.

**WARNING**

Pinch points are present between lid and body shell. Keep fingers and other body parts clear.

- [J] Lift the lid carefully and slowly upward/off and clear of the container body shell flange.

**CAUTION**

Placing the lid on suitable support blocking to prevent contact of the lid flange with the ground or floor will preclude damage to the edge of the lid that forms a gasket sealing surface.

- [K] Set the lid down in a secure place to preclude damage to the lid.

4.1.2 Maintenance and Inspection of SWB

**NOTE**

During the inspection of the container, if defective parts or components are found, they **MUST** be replaced using original specification materials and requirements to maintain Department of Transportation (DOT)-7A certification. In such cases, contact the manufacturer for replacement.

During inspections, if damage is found that could affect the containment integrity of the packaging, then the TCO will be contacted, **AND** an NCR will be generated in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

- [A] Inspect all lift clips for damage or signs of fatigue.
- [B] Inspect all riv-nuts for damage.
  - [B.1] **IF** damage is found,  
**THEN** replace riv-nuts per manufacturer's specifications.
- [C] Inspect the lid closure cap screws for sign of fatigue or damage, **AND** replace as needed.

- [D] Inspect the lid gasket. Replace it with a new gasket if the gasket is damaged or shows signs of deformation or deterioration. Before loading waste into container, either verify that the gasket shelf-life has not expired (shelf-life expiration date shown on tag attached to gasket packaging), or if there is a question on gaskets that might not have individual shelf life dates on them, then one should be able to go to the data package and look up the Certificate of Conformance for the gasket, or replace gasket. For gasket replacement instructions, see Attachment 5, SWB Lid Flange Sealing Gasket Replacement Instructions, of this procedure.
- [E] Inspect the body shell flange and lid sealing surface for cleanliness, **AND** clean as needed.
- [F] Inspect all container interior and exterior surfaces for signs of damage, distortion, or corrosion.
- [G] Inspect all approved filters and pipe plugs for damage.
- [H] Record the Filter Model Number of filters to be used on Attachment 2.
- [I] Record the Serial Number of each filter to be installed in the SWB on Attachment 2.
- [J] Record the Torque Wrench Serial Number and Calibration Due Date on Attachment 2 for wrench used for filter and plug installation.

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**NOTE**

If a rubber gasket is supplied with the filter, it can be removed. The SWB relies on the mechanical interface of the pipe threads with a thread sealant to create a leak tight joint.

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**NOTE**

The quantity of filters installed, from one to four will be governed by the usage requirements listed in Table 2.5-1, Minimum Filter Vent Specifications, of CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control* (CCP CH-TRAMPAC). For LA154D, SQ154C, and SQ154D SWB's a minimum of four approved filters are required in each SWB in accordance with Section 6.12 of the CH TRU Payload Appendices.

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- [K] Install approved filters from the outside of each SWB using pipe thread sealant.

- [L] Record Filter Installation Date on Attachment 2.
- [M] Install pipe plugs from the outside of the SWB using pipe thread sealant in the remaining ports.
- [N] Torque filters and plugs to (5 to 15 ft-lbs) or (60 to 180 in-lbs) when installed, **AND** record for step completion on Attachment 2.

4.1.3 Obtain drum numbers to be overpacked from CCP WCO.

4.1.4 Retrieve drums from storage area, **AND** transfer drums to the payload assembly area using appropriate lifting methods.

- [A] Ensure each 55-gallon drum contains at least one filter vent.
- [B] Record Drum Numbers designated for loading into SWB on Attachment 2.
- [C] Ensure drum numbers recorded on Attachment 2 match the labels on drums, **AND** initial Attachment 2.

4.1.5 Ensure that each drum is checked to see that there are no hold tags attached.

- [A] **IF** a hold tag is found,  
**THEN** contact the TCO for disposition.

4.1.6 Record all the Torque Wrench Serial Numbers and Calibration Due Dates on Attachment 2 for wrench(es) used for lid screw installation.

4.1.7 Ensure maintenance and inspection has been performed in accordance with step 4.1.2.

4.1.8 SWB Loading

- [A] Transfer the four drums to be overpacked into the SWB using appropriate lifting methods.
- [B] Peer Independent Verifier, verify that drums loaded into SWB are the correct drums for the appropriate SWB, **AND** initial on Attachment 2.
- [C] CH Packaging Payload Assembly Operator, print name, sign, initial, and date Attachment 2.

- [D] Peer Independent Verifier, print name, sign, initial, and date Attachment 2.

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**NOTE**

Rigging can be removed anytime the lid is positioned on the SWB body.

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4.1.9 SWB Lid Installation

- [A] Visually inspect the payload container to ensure that payload banding protection clips, packaging, material, or other foreign material is **NOT** inadvertently placed in the payload or in or around the sealing surfaces, **AND** clean as required.
- [B] Lift the lid into position, ensuring the proper lid and hole alignment are correct, **AND** lower onto the gasket using appropriate lifting methods.

**CAUTION**

Use of power tools to quickly seat (hand-tighten) the screws is allowable. However, care should be taken to seat the screws only hand-tight and **NOT** to apply excessive torque.

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**NOTE**

The SWB lid is relatively flexible; a line-up bar may be used to pull the lid in position with the body. Care **MUST** be taken **NOT** to damage the rivet threads.

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**NOTE**

Usually once around will provide an even torque on all screws; however, the CH Packaging Payload Assembly Operator can repeat the step if needed.

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- [B.1] Coat the screws with Loctite<sup>®</sup> 222.
- [B.2] Install four corner screws.
- [B.3] Install middle screws on straight sides.
- [B.4] Install middle screws on curved ends.
- [B.5] Install and seat all remaining screws.

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**NOTE**

There are two torquing sequences in the following steps.

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- [B.6] Torque all screws in any sequence to approximately 30 to 40 ft-lbs.
  - [B.7] Torque all screws to 50 to 60 ft-lbs, **AND** initial for step completion on Attachment 2.
  - [B.8] Remove the lid lift rigging and hoist ring that was installed in Section 4.1.
  - [C] Visually inspect around the sealing surfaces for foreign materials (e.g., banding material, packaging material, etc.), **AND** print name, sign, and date Attachment 2 for step completion.
- 

**NOTE**

Labels are required to be placed on the flat sides of the SWBs.

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4.1.10 SWB Additional Labeling

- [A] RCT, perform radiation and contamination survey of each SWB.
- 

**NOTE**

Dose rates should be noted on contact and at one meter.

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- [B] **IF** any of the following are exceeded, **THEN** notify the TCO:
  - [B.1] Radiation dose rate exceeds 200 mrem/hr. (beta - gamma + neutron) at contact.
  - [B.2] Alpha contamination survey results exceed 20 dpm/100 cm<sup>2</sup>.
  - [B.3] Beta-gamma contamination survey results exceed 200 dpm/100 cm<sup>2</sup>.
- [C] Ensure the SWB are labeled with Caution Radioactive Material using a yellow and magenta label as required by 10 CFR 835.

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**NOTE**

Labels are required to be placed on the SWB to meet the regulations of DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* and the Resource Conservation Recovery Act (RCRA). At SRS, complete removal of all RCRA labeling may **NOT** be done without approval from SRS Solid Waste Environmental Compliance.

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- [D] Label those SWBs holding RCRA regulated mixed TRU waste as required by 40 CFR 262.32, *Marking*, and 49 CFR 172, *Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements* respectively.
- [D.1] At SRS and Los Alamos National Laboratory (LANL) all waste codes identified in the Acceptable Knowledge (AK) Summary Reports for individual drums **MUST** be included on the SWB.
- [D.2] At SRS and LANL, when completing 40 CFR 262.32, *Marking* (as shown in Figure 1, Example 40 CFR 262.32 Marking), ensure that the oldest accumulation start date for the drums contained in the SWB is used.
- [E] Check that each container with contents containing Polychlorinated Biphenyls (PCBs) is marked for transportation in accordance with 40 CFR 761.40, as shown in Figure 4, Example 40 CFR 761.40 Marking.
- [F] Print name, sign, and date Attachment 2.
- [G] Supervisor/FLM, print name, sign, and date Attachment 2, signifying completion of Attachment 2.
- [H] Submit Attachment 2 and survey report to TCO.
- [I] TCO, verify drums recorded on Attachment 2, match the numbers from the approved build list.
- [J] TCO, submit Attachment 2 and survey report to WCO.
- [K] WCO, certify the overpack per CCP-TP-030, **AND** submit Attachment 2 and survey report to the Facility Records Custodian/Records Custodian.

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#### 4.1.11 SWB Payload Assembly

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##### NOTE

Operators SHALL verify that WIPP supplied ratchet straps have current inspection tags, rated a minimum of 2,000 pounds, and with J-hooks 2 1/2 to 3 inches wide.

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##### NOTE

For Payload Assembly GO TO DOE/WIPP-02-3184 Section 1.6 or DOE/WIPP 02-3220 Section 1.3 as applicable. Figure 2, SWB Arrangement, also shows proper arrangement for payload assembly.

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- [A] RCT, perform survey of the SWB Payload Assembly.
- [B] **IF** radiation dose rate exceeds 200 mrem/hr at contact (beta-gamma+neutron),  
**THEN** notify the TCO.
- [C] RCT, document survey results per Host site procedure in accordance with 10 CFR 835.

#### 4.2 Preparing TDOP Payload Assembly

##### 4.2.1 TDOP Lid Removal

- [A] Verify that the TDOP Lid and Body serial numbers match, **AND** record the TDOP serial number on Attachment 1, TDOP Loading Form.
- [B] Ensure TDOP is properly labeled (minimum of one bar code) and record bar code number on Attachment 1.
- [C] Remove cap screws using a 5/16 inch hexagon wrench.
- [D] Inspect TDOP lid lift nut threads for deformation (i.e., burrs, cross thread).
  - [D.1] **IF** threads have minor deformation (burrs, cross thread, etc.),  
**THEN** correct the thread deformation by running a 1/4-20 UNC thread tap through the threads.

**CAUTION**

DO **NOT** use deformed lift nuts.

- [E] Insert a 1/4-20 UNC-2A X .29 inch long swivel hoist ring in the lid lift nut.
- [F] Torque the swivel hoist ring 6 ft-lbs (72 in-lbs) ensuring that full thread engagement is achieved.
- [G] Attach suitable rigging, capable of lifting 300 pounds, to the lid lifting swivel hoist ring.

**WARNING**

Pinch points are present between lid and body shell. Keep fingers and other body parts clear.

- [H] Lift the lid carefully and slowly upward/off, **AND** clear of the container body shell flange.

**CAUTION**

Placing the lid on suitable support blocking to prevent contact of the lid flange with the ground or floor will preclude damage to the edge of the lid that forms a gasket sealing surface.

- [I] Set the lid down in a secure place to preclude damage to the lid, the gasket seal, or spacers.
- [J] Remove all components shipped inside TDOP.
- [K] Inspect the 36 flange threads for damaged threads.
- [L] **IF** the threads have minor deformation (burrs, cross thread etc.), **THEN** correct the thread deformation by running a 1/2 inch 13 UNC thread tap through the threads.

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**NOTE**

Instructions for replacing spacers can be found in Attachment 4, TDOP Lid Flange Spacer Replacement Instructions.

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**NOTE**

Step 4.2.2 and 4.2.3 can be performed in any order or simultaneously.

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4.2.2 Maintenance and Inspection of TDOP

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**NOTE**

This section SHALL be performed each time the TDOP lid is installed. Attachment 3, TDOP Lid Flange Sealing Gasket Replacement Instructions, gives instructions for the replacement of the lid sealing gasket.

During the inspection of the container, if defective parts or components are found, they MUST be replaced using original specification materials and requirements to maintain DOT-7A certification. In such cases, contact the manufacturer for replacement.

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**NOTE**

During inspections, If damage is found that could affect the containment integrity of the packaging, then the TCO will be contacted, and an NCR will be generated in accordance with CCP-QP-005.

Inspection requires removal of all components from TDOP.

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- [A] Inspect all lift clips for damage or signs of fatigue.
- [B] Using appropriate rigging, place TDOP lid on a workbench or stand; lid may be turned upside down.
- [C] Inspect Lid Flange Spacers for damage, **AND** replace spacers per Attachment 4, if required.
- [D] Inspect the lid closure cap screws for signs of fatigue or damage, **AND** replace as needed.

- [E] Inspect the lid gasket. Replace it with a new gasket if the gasket is damaged or shows signs of deformation or deterioration. Before loading waste into container, either verify that the gasket shelf-life has not expired (shelf-life expiration date shown on tag attached to gasket packaging), or if there is a question on gaskets that might not have individual shelf life dates on them then one should be able to go to the data package and look up the Certificate of Conformance for the gasket, or replace gasket. For gasket replacement instructions, see Attachment 3 of this procedure.
- [F] Inspect the body shell flange and lid sealing surface for cleanliness, **AND** clean as needed.
- [G] Inspect all container interior and exterior surfaces for signs of damage, distortion, or corrosion.
- [H] Inspect all approved filters and pipe plugs for damage.
- [I] Record the Filter Model Number of filters to be used on Attachment 1.
- [J] Record the Serial Number of each filter to be installed in the TDOP on Attachment 1.
- [K] Record Filter Installation Date on Attachment 1.
- [L] Record the Torque Wrench Serial Number, **AND** Calibration Due Date on Attachment 1 for wrench used for filter installation.

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**NOTE**

Two different manufacturing options exist for the TDOP filter ports. One is a ¾-in. National Pipe Tapered (NPT) pipe coupling and the other is a ¾-in. National Pipe Straight Mechanical (NPSM) tapped hole. The ¾ NPT thread relies on the mechanical interface of the pipe threads with a thread sealant to create a gas-tight seal. The ¾ NPSM thread relies on a seated gasket plus thread sealant to ensure a gas-tight seal. The use of filter gaskets is optional for tapered threads. The use of filter gaskets is required for straight threads.

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**NOTE**

The quantity of filters installed, from one to 10 will be governed by the usage requirements listed in Table 2.5-1, Minimum Filter Vent Specifications, of CCP-PO-003. For LA154C and SQ154G TDOP's a minimum of 9 approved filters are required in each TDOP in accordance with Section 6.12 of the CH TRU Payload Appendices. The unused filter port SHALL be sealed with a ¾-inch NPT socket recessed pipe plug.

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4.2.3 Installation of filters and plugs,

- [A] **IF** plugs are installed in the ports, **THEN** remove plugs.
- [B] Coat the filter threads with sealant.
- [C] Install approved filters.
- [D] Hand-tighten filters until they are securely sealed.
- [E] Torque the filters to 5 to 15 ft-lbs (60 to 180 in-lbs) using a 1½ inches hexagon socket, **AND** initial for step completion on Attachment 1.

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**NOTE**

The remaining couplings/ports **NOT** containing a filter **MUST** be plugged.

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- [F] Apply a generous amount of pipe thread sealant compound or sealant tape to the threads of the plug.
- [G] Using a ¾ inch NPT socket pipe plug, install the plug from the outside where filters have **NOT** been installed on the inside.

- [H] Install the pipe plug into the couplings/ports, until the plug is flush with the TDOP body flange, **AND** initial for step completion on Attachment 1.
- [I] Remove all excess thread sealant from the exterior and interior of the container.

---

**NOTE**

The following steps SHALL be followed in loading the TDOP with 10 55-gallon drums.

---

4.2.4 TDOP Payload Handling/Loading of 55-Gallon Drums

---

**NOTE**

The first five drums of a 55-gallon drum load SHALL be placed in the TDOP in a circular array of five drums on the bottom end panel. Each drum lid closure band draw bolt can be in any rotational orientation.

---

- [A] Obtain drum numbers to be overpacked from CCP WCO.
- [B] Ensure each drum contains at least one filter.
- [C] Ensure that each drum is checked to see that there are no hold tags attached.
  - [C.1] **IF** a hold tag is found,  
**THEN** contact the TCO for disposition.
- [D] **IF** dunnage is part of the payload,  
**THEN** inspect to ensure that drums are in good or unimpaired condition, **AND** inspect to ensure that containers have OPEN vent ports (i.e., **NOT** filtered **AND/OR** plugged).
- [E] Record drum numbers designated for lower tier on Attachment 1.
- [F] Ensure drum numbers recorded on Attachment 1 match the labels on the drums, **AND** initial Attachment 1.

---

**NOTE**

In order to read the drum number labels, peer verification can be performed concurrently as the drums are placed in the overpack.

---

- [G] Place specified drums on the bottom panel (layer) of the TDOP using appropriate lifting methods.
- [H] Peer Independent Verifier, verify drum numbers match numbers on Attachment 1, **AND** initial Attachment 1.
- [I] Record drum numbers designated for upper tier on Attachment 1.
- [J] Ensure drum numbers recorded on Attachment 1 match the labels on the drums, **AND** initial Attachment 1.
- [K] Place the next five drums on top of the lower tier drums.
- [L] Peer Independent Verifier, verify drum numbers match numbers for drums on Attachment 1, **AND** initial Attachment 1.
- [M] Ensure that the TDOP is labeled with Caution Radioactive Material using a yellow and magenta label as required by 10 CFR 835.

---

**NOTE**

Labels are required to be placed on the TDOP to meet the WIPP-WAC and RCRA regulations. At SRS, complete removal of all RCRA labeling **MAY NOT** be done without approval from SRS Solid Waste Environmental Compliance.

---

- [N] Label those TDOP holding RCRA regulated mixed TRU waste as required by 40 CFR 262.32 and 49 CFR 172 respectively.
  - [N.1] At SRS and LANL, all waste codes identified in the AK Summary Reports for individual drums **MUST** be included on the TDOP.
  - [N.2] At SRS and LANL, when completing
  - [N.3] 40 CFR 262.32 (as shown in Figure 1), ensure that the oldest accumulation start date for the drums contained in the TDOP is used.

- [O] Check that each container with contents containing PCBs are marked for transportation in accordance with 40 CFR 761.40, as shown in Figure 4.
- [P] CH Packaging Payload Assembly Operator, print name, sign, and date Attachment 1, signifying correct containers loaded into TDOP.
- [Q] Peer Independent Verifier, print name, sign, and date Attachment 1, signifying correct containers loaded in TDOP.
- [R] Reinstall the TDOP lid per step 4.2.6.

---

**NOTE**

The following steps SHALL be followed in loading the TDOP with up to six 83/85-gallon drums.

---

4.2.5 TDOP Payload Handling/Loading of 83/85-Gallon Drums

---

**NOTE**

The first four drums of an 83/85-gallon drum load SHALL be placed in the TDOP in a circular array of four drums on the bottom end panel. Each drum lid closure band draw bolt can be in any rotational orientation.

---

- [A] Obtain drum numbers to be overpacked from CCP WCO.
- [B] Ensure each drum contains at least one approved filter.
- [C] Ensure that each drum is checked to see that there are no hold tags attached.
  - [C.1] **IF** a hold tag is found,  
**THEN** contact the TCO for disposition.
- [D] **IF** dunnage is part of the payload,  
**THEN** inspect to ensure that drums are in good or unimpaired condition, **AND** inspect to ensure that containers have OPEN vent ports (i.e., **NOT** filtered AND/OR plugged.)
- [E] Record drum numbers on designated for lower tier on Attachment 1.
- [F] Ensure drum numbers recorded on Attachment 1 match the labels on the drums, **AND** initial Attachment 1.

---

**NOTE**

In order to read the drum number labels, peer verification can be performed concurrently as the drums are placed in the overpack.

---

- [G] Place specified drums on the bottom panel (layer) of the TDOP using appropriate lifting methods.
- [H] Peer Independent Verifier, verify drum numbers match numbers on Attachment 1, **AND** initial Attachment1.
- [I] Record drum number designated for upper tier on Attachment 1.
- [J] Ensure drum numbers recorded on Attachment 1 match the labels on the drums, **AND** initial Attachment 1.
- [K] Place the next two drums horizontally on top of the lower tier drums using appropriate lifting methods.
- [L] Ensure that the TDOP is labeled with Caution Radioactive Material using a yellow and magenta label as required by 10 CFR 835.

---

**NOTE**

Labels are required to be placed on the TDOP to meet the WIP-WAC, and RCRA regulations. At SRS, complete removal of all RCRA labeling **MAY NOT** be done without approval from SRS Solid Waste Environmental Compliance.

---

- [M] Label those TDOP holding RCRA regulated mixed TRU waste as required by 40 CFR 262.32 and 49 CFR 172 respectively.
  - [M.1] At SRS and LANL, all waste codes identified in the AK Summary Reports for individual drums **MUST** be included on the TDOP.
  - [M.2] At SRS and LANL, when completing 40 CFR 262.32, *Marking* (as shown in Figure 1), ensure that the oldest accumulation start date for the drums contained in the TDOP is used.
- [N] Ensure that each container with contents containing PCBs is marked for transportation in accordance with 40 CFR 761.40, as shown in Figure 4.

- [O] CH Packaging Payload Assembly Operator, print name, sign and date Attachment 1, signifying correct containers loaded in TDOP.
- [P] Peer Independent Verifier, print name, sign and date Attachment 1, signifying correct containers loaded in TDOP.
- [Q] Reinstall the TDOP lid per step 4.2.6.

---

**NOTE**

Rigging can be removed anytime the lid is positioned on the TDOP body.

---

4.2.6 TDOP Lid Installation

- [A] Record Torque Wrench Serial Number **AND** Calibration Due Date on Attachment 1 for lid screws.
- [B] Ensure rigging (capable of lifting 300 pounds) is properly attached to the lid lifting swivel hoist ring.
- [C] **IF NOT** already installed, **THEN** attach rigging (capable of lifting 300 pounds) to the lid lifting swivel hoist ring.
- [D] Lift the lid above the container.
- [E] Center the lid so that the lid alignment stripe is positioned over the mating stripe on the body shell flange.
- [F] Visually inspect the payload containers to ensure that payload banding protection clips, packaging material, or other foreign material is **NOT** inadvertently placed in the payload or in or around the sealing surfaces, and clean as required.

**WARNING**

Pinch points are present between lid and body shell flange. Keep fingers and other body parts clear.

- [G] Lower the lid slowly onto the body shell flange, **AND** manually guide the lid so the spacers are aligned to enter the mating counter bore receptacles of the shell flange.

- [H] Continue to lower the crane/hoist until the full weight of the lid seats the lid gasket down onto the body shell flange (the spacers will have entered the shell flange counterbores).
- [I] **IF** spacers **DO NOT** go into the shell flange counterbores, **THEN** pry the lid upward (while lifting with the crane) until it is free, **AND** let it down on the shell flange again.
- [J] Coat screws with Loctite<sup>®</sup> 222.
- [K] Insert all 36 hex socket button head cap screws into the lid perimeter counter bored holes through the spacers.
- [L] Thread the cap screws into the body shell flange.

**CAUTION**

Use of power tools to quickly seat (hand-tighten) the screws is allowable, however, care should be taken to seat the screws only hand-tight and **NOT** to apply excessive torque.

- [M] Tighten all cap screws to the point that the button head cap screw under-head surface **SHALL** contact the bottom of the lid hole counter bore.
- [N] Using a crisscross pattern, (see Figure 3, TDOP Screw Installation), starting next to the lid alignment stripe, tighten all cap screws approximately one and one half revolutions.
- [O] Using a crisscross pattern (see Figure 3) starting next to the lid alignment stripe, torque all cap screws to 50 to 55 ft-lbs, **AND** initial for step completion on Attachment 1.
- [P] Apply a tamper indicator seal, or other device, between the lid and body flanges when a tamper indicator is required.
- [Q] Visually inspect around the sealing surfaces for foreign materials (e.g., banding material, packaging material, other), **AND** print name, sign, and date Attachment 1 for step completion.

---

**NOTE**

Step 4.2.6[R] may be performed at a later date, just prior to Transuranic Package Transporter Model 2 (TRUPACT-II) loading.

---

- [R] Install bumper pads on the top and bottom rib of TDOP (four pads on each rib).
  - [S] RCT, perform survey of the TDOP.
- 

**NOTE**

Dose rates should be noted on contact and at one meter.

---

- [T] **IF** any of the following are exceeded, **THEN** notify the TCO:
  - [T.1] Radiation dose rate exceeds 200 mrem/hr. (beta - gamma + neutron) at contact.
  - [T.2] Alpha contamination survey results exceed 20 dpm/100 cm<sup>2</sup>.
  - [T.3] Beta-gamma contamination survey results exceed 200 dpm/100 cm<sup>2</sup>.
- [U] RCT, document survey results per Host site procedure in accordance with 10 CFR 835.
- [V] Print name, sign and date Attachment 1.
- [W] Supervisor/FLM, print name, sign, and date Attachment 1, signifying completion of Attachment 1.
- [X] Submit Attachment 1 and survey report to TCO.
- [Y] TCO, verify drums recorded on Attachment 1, match the numbers from the approved build list.
- [Z] TCO, submit Attachment 1 and survey report to WCO.
- [AA] WCO, certify the overpack per CCP-TP-030 and submit Attachment 1 and survey report to the Facility Records Custodian/Records Custodian 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:

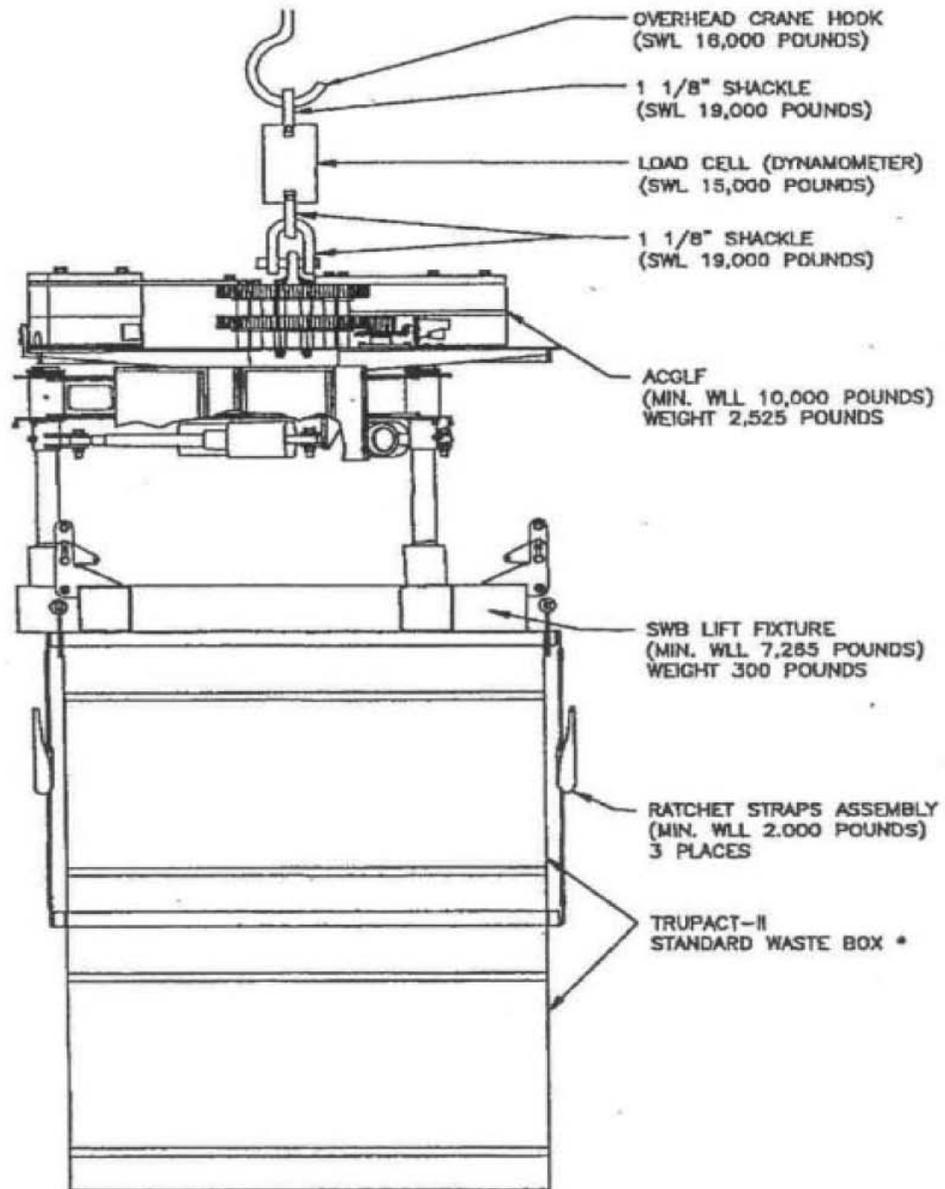
### 5.1.1 QA/Nonpermanent

- [A] Attachment 1, TDOP Loading Form
- [B] Attachment 2, SWB Loading Form

Figure 1. Example 40 CFR 262.32, *Marking*

HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.
Generator's Name and Address
Manifest Document Number
Date (accumulation start date)
EPA Hazardous Waste #

Figure 2. SWB Arrangement



MAXIMUM WEIGHT OF SWB PAYLOAD: 7,265 POUNDS

Figure 3. TDOP Screw Installation

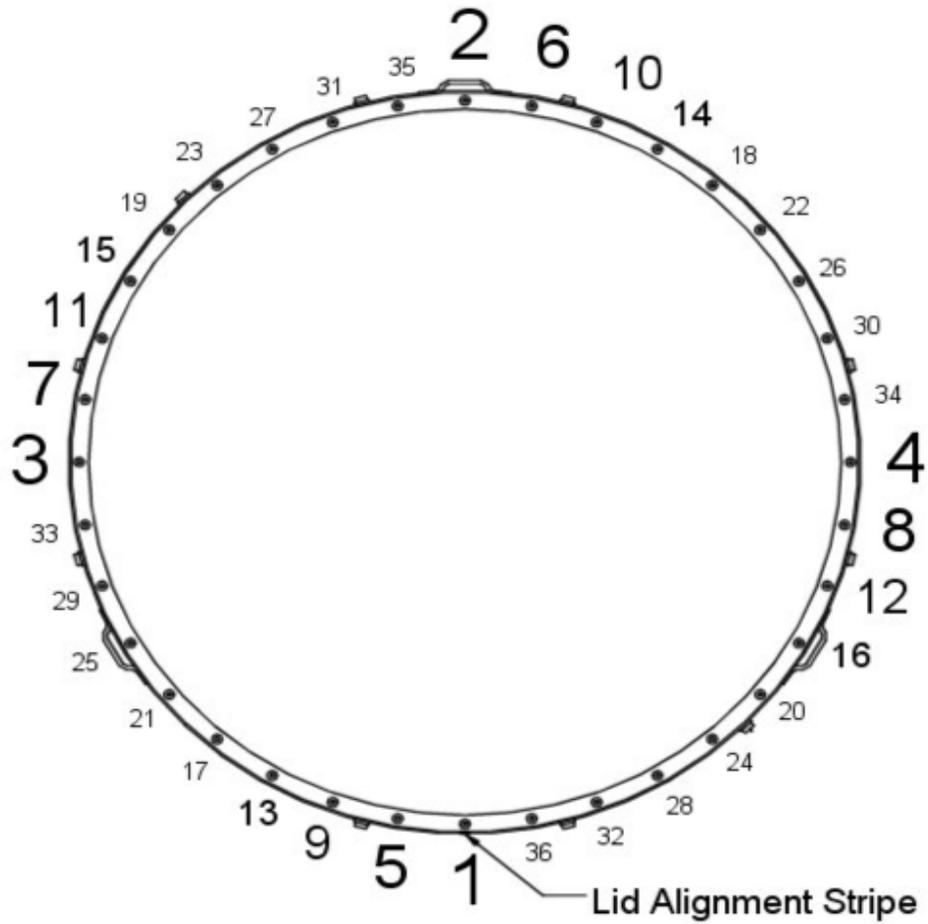
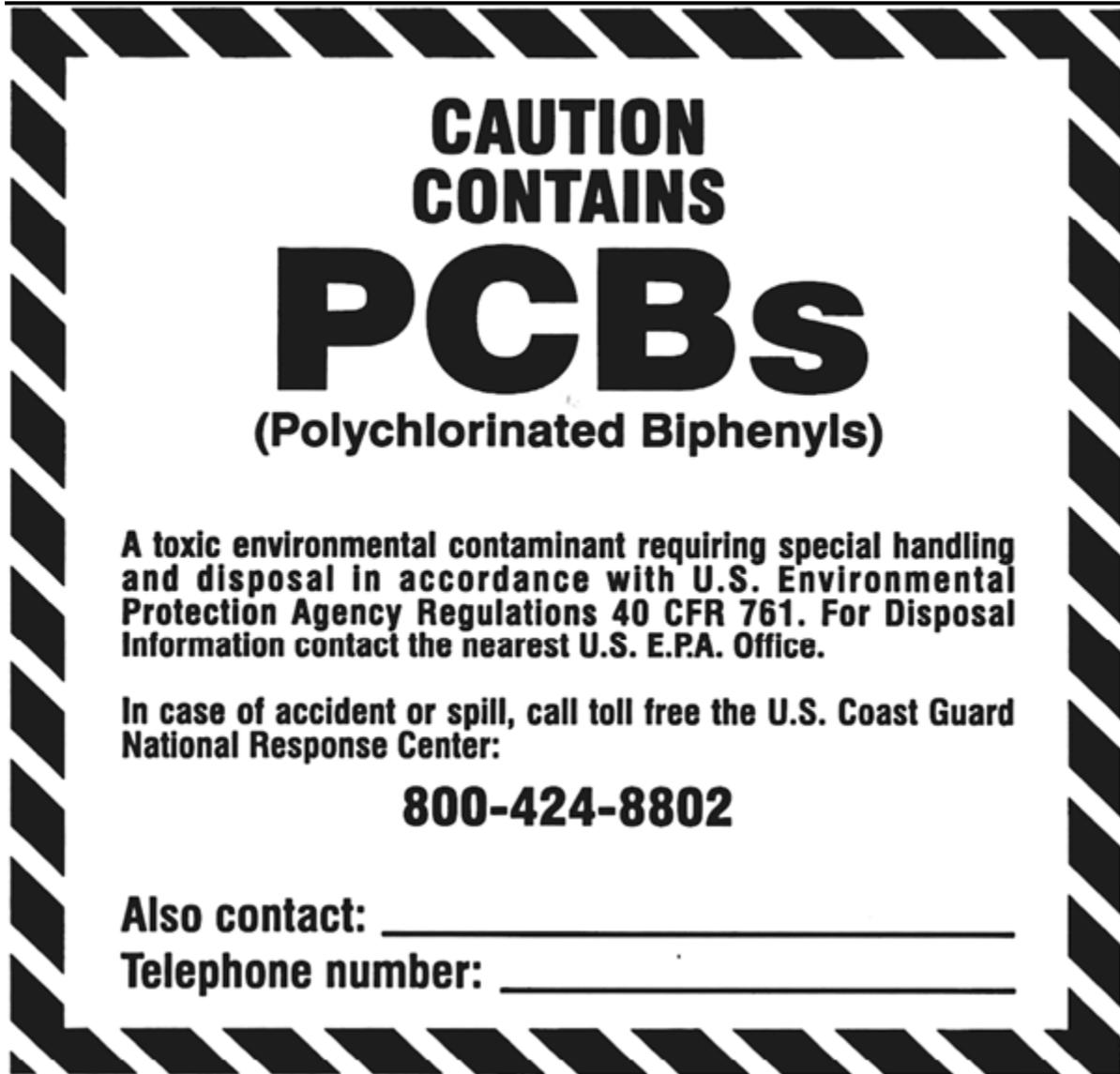


Figure 4. Example 40 CFR 761.40, *Marking*



Attachment 1 – TDOP Loading Form

TDOP Inspection		
TDOP Serial Number: _____		
TDOP Bar Code Number: _____		
Filter Model Number: _____		
(Filter) Torque Wrench S/Ns: _____		Cal Due Date: _____
(Lid Screws) Torque Wrench S/Ns: _____		Cal Due Date: _____
Filter Serial Number	Installation Date	
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
Filters torqued to 5-15 ft-lbs (60-180 in-lbs): _____		Initials _____
Pipe plugs installed flush with body flange: _____		Initials _____
TDOP Loading		
	Completed By Initial	Verified By Initial
Drum #s (Lower Tier) _____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Drum #s (Upper Tier) _____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
TDOPs Loaded by:		
Print Name _____	Sign _____	Date _____
TDOPs Verified by:		
Print Name _____	Sign _____	Date _____
TDOP Lid Installation		
Lid Screws (36) torqued to 50-55 ft-lbs in the sequence as specified in step 4.2.6[M] through 4.2.6[O] _____ Initials _____		

Completed By: (Print, Sign, Date) \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Sealing Area Visual Inspection Completed By: (Print, Sign, Date) \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Supervisor/FLM Review By: (Print, Sign, Date) \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

SWB Inspection		
SWB Serial Number: _____		
SWB Bar Code Number: _____		
Filter Model Number: _____		
(Filter & Plug) Torque Wrench S/Ns: _____ Cal Due Date: _____		
(Lid Screws) Torque Wrench S/Ns: _____ Cal Due Date: _____		
SWB Loading		
Filter Serial Number	Installation Date	
1.		
2.		
3.		
4.		
Filters and Pipe plugs torqued to 10ft-lbs (±5 ft. lbs): _____ Initials _____		
Drums Overpacked:	Completed By Initials	Verified By Initials
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
SWBs Loaded by:		
Print Name _____ Sign _____ Initial ____ Date _____		
SWBs Verified by:		
Print Name _____ Sign _____ Initial ____ Date _____		
SWB Lid Installation		
Lid Screws (42) torqued to 50-60 ft-lbs in the sequence as specified in steps		
4.1.9[B.6] and 4.1.9[B.7]: _____ Initials _____		

Completed By: (Print, Sign, Date) \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Sealing Area Visual Inspection Completed By: (Print, Sign, Date) \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Supervisor/FLM Review By: (Print, Sign, Date) \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Attachment 3 – TDOP Lid Flange Sealing Gasket Replacement Instructions

Page 1 of 2

1. Remove the lid according to instructions of step 4.2.1

**CAUTION**

Steps associated with lid gasket replacement present potential eye hazards. Safety glasses with side shields are required while performing lid gasket replacement activities.

**NOTE**

The next step provides proper access to the spacer and gasket area of the lid assembly where a replacement spacer is to be reinstalled.

2. Using appropriate rigging, place TDOP lid on a workbench or stand. Lid may be turned upside down.
3. Remove the old gasket manually by stripping the gasket from the lid flange and spacers.

**CAUTION**

Cleaning the lid flange gasket seating area creates a potential hand hazard. Leather gloves are required while performing this activity.

4. Clean the lid flange gasket seating area by thoroughly removing any residual gasket components or adhesive, using a flexible spatula, putty knife or similar tool.
5. Apply a light coat of denatured alcohol to the lid flange gasket seating area.

**NOTE**

The spare gasket, with removable protective tape covering the self-adhesive surface, is supplied as a continuous circular ring. The spacer holes are pre-punched for installation on the lid.

6. Obtain a new gasket.

Attachment 3 – TDOP Lid Flange Sealing Gasket Replacement Instructions (Continued)

Page 2 of 2

7. Remove several feet of the self-adhesive protective tape from the gasket.
8. Begin placing the gasket over the spacers with the adhesive coming in contact with the lid gasket sealing surface between spacers, maintaining a 1/8 inch annular gap between the gasket outer diameter and the inside surface of the lid flange.
9. Gently adjust the lid until the gasket is completely installed on the lid gasket sealing surface.
10. Ensure the gasket and lid sealing surfaces are clean, free of dirt, foreign particles or other contaminants.
11. Turn TDOP lid right-side up using the appropriate rigging (if required).

Attachment 4 – TDOP Lid Flange Spacer Replacement Instructions

Page 1 of 2

1. Lid Flange Spacers, Spacer Replacement

---

**NOTE**

This section provides field reinstallation instructions for a spacer that has become detached from the lid flange counterbores. Review the spacer bonding adhesive (Dwg.165-F-101, Item 18) manufacturer's application and safety instructions. Follow manufacturer's requirements for any special process application requirements such as ambient temperature requirements for proper curing.

---

2. Remove the lid according to instructions of step 4.2.1.

**CAUTION**

Steps associated with spacer replacement present potential eye hazards. Safety glasses with side shields are required while performing spacer replacement activities.

**CAUTION**

Steps associated with spacer replacement present potential hand hazards. Leather gloves are required while cleaning the lid flange spacer counterbore seating area and removing any residual bonding adhesive.

---

**NOTE**

The next step provides proper access to the spacer and gasket area of the lid assembly where a replacement spacer is to be reinstalled.

---

3. Using appropriate rigging, place TDOP lid on a workbench or stand. Lid may be turned upside down.
4. Remove the lid seal gasket manually by carefully stripping the gasket from the lid flange area of the affected spacer.

Attachment 4 – TDOP Lid Flange Spacer Replacement Instructions (Continued)

Page 2 of 2

**CAUTION**

Hazards may be associated with the solvent. Follow the precautions in the Material Safety Data Sheet.

5. Apply solvent (Loctite Chisel TM#790 Gasket Remover, or equivalent) to the spacer bonding material in the lid counterbore where spacers have become detached.
6. Clean the lid flange spacer counterbore seating area by removing any residual bonding adhesive, using a flexible spatula, putty knife or similar tool.

**CAUTION**

**DO NOT** apply solvents to the bonding adhesive of any currently attached adjacent spacers installed in the lid counterbores.

7. Apply a light coat of denatured alcohol to the lid flange spacer counterbore seating area.
8. Clean the replacement spacer non-chamfered end surface and outer cylinder area that mates with the lid counterbore seating area.
9. Remove any residual bonding adhesive. Use a flexible spatula, putty knife or similar tool.
10. Apply a light coat of bonding adhesive to the spacer non-chamfered seating area and outer cylinder area.
11. Insert the spacer non-chamfered end into the lid counterbore recess until the spacer is placed fully within/against the counterbore face.
12. Remove any excess adhesive from the inner diameter of the spacer and/or the lid counterbore through hole.
13. The spacer bonding adhesive **MUST** cure for the manufacturer's recommended time before moving the lid.
14. Reinstall the existing replacement gasket in the spacer, or install a replacement lid gasket as applicable following the instructions of Attachment 3.

Attachment 5 – SWB Lid Flange Sealing Gasket Replacement Instructions

1. Remove the lid according to instructions of step 4.1.1.
2. Remove the old gasket manually by stripping the gasket from the body flange.

**CAUTION**

Hazards may be associated with the solvent. Follow the precautions in the Material Safety Data Sheet (MSDS).

3. Clean the body flange gasket seating area as follows:
  - a. Remove any residual gasket components or adhesive, using a flexible spatula, putty knife, or similar tool.
  - b. Apply a light coat of low-intensity cleaning solvent, such as denatured alcohol or a general purpose adhesive remover containing a near equal mixture of Naphtha and Xylene (adhesive remover of this type is commonly available at automotive parts stores). Use of acetone or other strong solvents is to be avoided as it will remove the paint/coating.

**NOTE**

The spare gasket, with a removable protective tape covering the self-adhesive surface, is supplied as four parts (two straight parts and two curved parts). The holes are pre-punched for installation on the body. Minor adjustments to gasket may be made if necessary, by trimming excess material. Gaps up to  $\frac{1}{4}$  inch may be filled in accordance with Standard Waste Box Handling and Operation Manual.

4. Obtain a new gasket.
5. Ensure gasket holes match body holes and mitered ends fit together properly prior to installation.
6. Install the lid gasket (four pieces) as follows:
  - a. Remove the protective tape from the pressure-sensitive adhesive back.
  - b. Place each piece of the gasket assembly (adhesive-side down) on the corresponding body frame location, ensuring that the mitered gasket ends are interlocked.
7. Verify the gasket final installation to ensure the gasket and lid sealing surfaces are clean and free of dirt, foreign particles, or other contaminants.