

WP 05-WH1707

Revision 9

RH-TRU 72-B Trailer Loading

Technical Procedure

EFFECTIVE DATE: 06/24/09

Randy Britain
APPROVED FOR USE

CONTINUOUS USE PROCEDURE

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INTRODUCTION ^{1,3}

This procedure provides instructions for loading the remote-handled (RH) transuranic (TRU) 72-B trailer.

Performance of this procedure generates the following record(s), as applicable:

- Attachment 1, RH-TRU 72-B Trailer Data Sheet
- Transportation Data Sheet

REFERENCES

BASELINE DOCUMENTS

- Title 10 *Code of Federal Regulations* (CFR) Part 71, "Packaging and Transportation of Radioactive Material"
- 49 CFR §173.428, "Empty Class 7 (Radioactive) Materials Packaging"
- NRC-Docket-71-9212, *RH-TRU Certificate of Compliance*
- NRC-Docket-71-9212, *Safety Analysis Report for the RH-TRU 72-B Waste Shipping Package*
- DOE Standard 1090-2007, *Hoisting and Rigging*
- DOE/WIPP-02-3283, *Remote Handled (RH) Packaging Program Guidance*
- DOE/WIPP-02-3284, *Remote Handled (RH) Packaging Operations Manual*
- DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis*
- DOE/WIPP-07-3373, *Waste Isolation Pilot Plant Technical Safety Requirements*
- WIPP-023, *Fire Hazards Analysis For the Waste Isolation Pilot Plant Carlsbad, New Mexico*
- WP 08-PT.03, WIPP Quality Assurance Program Plan for Type "B" Packaging
- WP 08-PT.11, RH 72-B Trailer Operation and Maintenance Manual
- WP 12-FP.01, WIPP Fire Protection Program

- WP 12-FP3003, Combustible Loading Controls for the Waste Handling Building and Underground
- WP 13-1, Washington TRU Solutions LLC Quality Assurance Program Description

REFERENCED DOCUMENTS

- WP 04-AD3001, Facility Mode Compliance
- WP 05-WH1701, Road Cask Transfer Car Operation
- WP 05-WH1706, Preparation of an Empty RH-TRU 72-B for Shipment
- WP 05-WH1741, 140/25-Ton Remote Handling Crane 41-T-001
- WP 05-WH1758, RH Waste Handling Abnormal Operations, Attachment 1
- WP 05-WH4401, Waste Handling Operator Event Response
- WP 12-HP4000, Emergency Radiological Control Responses

EQUIPMENT

- Calibrated load cell
- Calibrated torque wrench - 0 to 220 ft-lb or equivalent
- Calibrated torque wrench - 0 to 700 ft-lb or equivalent
- Appropriate rigging for handling the RH-TRU 72-B
- Clean, lint-free rags
- Nickel Never-Seize (Loctite # 767 Anti-Seize or equivalent)

PRECAUTIONS AND LIMITATIONS

The Technical Safety Requirements (TSRs) contain Limiting Conditions for Operation (LCOs) and Specific Administrative Controls (SACs) which provide specific preventative or mitigative limits and required actions for identified accident scenarios. Failure to comply with LCOs or SACs may constitute a violation and must be immediately reported to the Facility Shift Manager (FSM). The step affected by the LCO/SAC is followed by the LCO/SAC number in bold brackets (e.g. [**LCO 3.X.X**]). Applicable LCO/SAC Surveillance Data Sheets SHALL be completed as required by WP 04-AD3001.

- Only personnel qualified on the RH-TRU 72-B as a Waste Handling Technician/Engineer (WHT/WHE), or trainees operating under the direct supervision of a RH-TRU 72-B qualified WHT/WHE, are authorized to perform the waste handling (WH) activities specified in this procedure.
- If procedure cannot be performed as written, WHE shall be contacted.

- Liquid-fueled vehicles loading or unloading RH shipping containers in the RH Bay SHALL BE ATTENDED at all times. **[LCO 3.4.1]**
- When RH-TRU 72-B is being rotated, all personnel should stand clear of trailer.
- Roll-around ladders should be used when accessing the trailer.
- Hearing and eye protection must be worn when using impact wrench.
- When performing lift operations with 140/25-ton crane, a tag line or stabilizing bar should be used.
- Trailer stands are required on freestanding trailers when loading/unloading packaging on trailer.
- If WH activities are suspended or interrupted, the Transportation Engineer (TE) shall be contacted.
- Emergency Response events that require cessation of this procedure, such as a radiological event, are to be performed in accordance with WP 05-WH4401 and WP 12-HP4000.
- Maximum empty RH-TRU 72-B weight is 37,000 lb.
- Maximum allowable weight of a loaded canister is 8,000 lb.
- Maximum allowable gross shipping weight for loaded packaging, including tractor and trailer, is 80,000 lb.
- A spotter must be used when the trailer jockey or transport tractor are used to position the trailer into, or remove a trailer from, the RH Bay.
- Doors 145 and 146 must be closed prior to bringing the RH-TRU 72-B Trailer into the RH Bay or removing the trailer from the RH Bay with the Trailer Jockey or Transport Tractor.
- Maximum individual RH-TRU 72-B weight is 45,000 lb.
- Any step that results in N/A on Attachment 1, must be initialed by person performing step.
- Performers of procedure may print, sign, date, and initial on Attachment 1 at any time during the performance of this procedure except for those steps which document compliance to an LCO.
- Prior to moving the trailer, the operator shall allow sufficient time (approximately 2 minutes) for the air pressure to stabilize after attaching the tractor air supply to the trailer.

- WP 05-WH1706, Attachment 1, Empty RH-TRU 72-B Data Sheet, must be completed for empty In-Service Production Packaging shipments.
- The removal of old shipping labels and installation of appropriate new labels may be done at any time during the performance of this procedure.

PREREQUISITE ACTIONS

1.0 WHE, verify the following:

- WP 05-WH1741 preoperational checks are completed.
- WP 05-WH1701 preoperational checks are completed, if needed.

2.0 WH, perform pre-use visual inspections of the following structural members for signs of obvious weld cracks, corroded metal, deflection, deformations, or other unusual conditions:

- Chassis
- Kingpin
- Tiedown attachments
- Joints between the primary and secondary structural members

SIGN-OFF WH

3.0 WH, obtain Transportation Data Sheet from TE.

SIGN-OFF WH

4.0 Verify the trailer annual inspection is current.

4.1 Record the trailer annual inspection date on Attachment 1.

SIGN-OFF WH

5.0 Record the following on Attachment 1:

- Torque wrench for impact limiter attachment bolts identification number (ID)/Calibration due date
- Torque wrench for trunnion cap bolts ID/Calibration due date
- Load Cell ID/Calibration due date

SIGN-OFF WH

PERFORMANCE

1.0 PRELOADING

CAUTION

Although the trailer is equipped with landing gear, loading the trailer on level ground is recommended. Trailer tires should never be lifted off the ground using the landing gear to avoid damage to the equipment.

CAUTION

A spotter must be used when backing trailer into RH Bay to avoid equipment damage.

NOTE

The Trailer Jockey fifth wheel may be used to assist the leveling of the trailer.

1.1 **IF** transport trailer is not positioned in the RH Bay, **THEN** back trailer into RH Bay using the liquid-fueled tractor or trailer jockey **AND** document start of attendance. **[LCO 3.4.1]**

SIGN-OFF WH or N/A

- 1.2 Visually verify no sharp edges exist on the crank handles.
- 1.3 If necessary, adjust landing gear until RH-TRU 72-B is level, using a hand-held level or leveling indicators on trailer
- 1.4 Remove liquid-fueled tractor or trailer jockey from the RH Bay and document end of attendance. **[LCO 3.4.1]**

SIGN-OFF WH or N/A

- 1.5 Ensure the following:
 - Trailer wheels chocked
 - Trailer stands installed on free-standing trailer
 - Rear landing gear is lowered
 - Trailer is level

- Aluminum deck plates are on trailer
 - Trunnion shelves in place holding center trunnion caps
 - Screws retaining the wear plates are present on both the upper and lower sections of each tiedown, as applicable
 - All other screws and bolts are not loose, as applicable
- 1.6 Clean bolts as necessary to adequately inspect them.
- 1.7 Inspect each trunnion cap and impact limiter bolts for:
- Damage
 - Defects
 - Cleanliness
- 1.8 If needed, apply nickel Never-Seize (Locktite # 767 Anti-seize or equivalent) to bolts.
- 1.9 If trailer is to be loaded with a RH-TRU 72-B transuranic waste shipment, **THEN** obtain WP 05-WH1758, Attachment 1, RH-TRU 72-B Loading Data Sheet.

SIGN-OFF WH or N/A**2.0 LOADING THE RH-TRU 72-B TRAILER**

NOTE

A spotter must be used when loading the RH-TRU 72-B onto the trailer.

- 2.1 Place trunnion cap inserts on lifting trunnions.
- 2.2 Engage lifting trunnions using lifting yoke.
- 2.3 Move the RH-TRU 72-B to the trailer.
- 2.4 Lower the forward support trunnions onto the trailer.
- 2.5 Install front trunnion caps and torque bolts to 180 to 200 ft-lb.

SIGN-OFF WH

WARNING

Personnel must stay clear of trailer while RH-TRU 72-B is rotating to prevent injury.

NOTE

A spotter must be used when rotating RH-TRU 72-B.

- 2.6 Rotate RH-TRU 72-B on forward support trunnions until it is horizontal.
- 2.7 Lower the lifting yoke and remove it from the RH-TRU 72-B.
- 2.8 Install center trunnion caps and torque bolts to 180 to 200 ft-lb.

SIGN-OFF WH

- 2.9 Remove trunnion cap inserts from lifting trunnions.
- 2.10 Remove trunnion shelves.

3.0 INSTALLING IMPACT LIMITERS

- 3.1 Attach crane rigging (two shackles and two slings, each rated to lift a minimum of 2,500 lb) and load cell to **UPPER** impact limiter (**UPPER** impact limiter goes on the RH-TRU 72-B closest to the rear of the trailer).

CAUTION

Exceeding a pull limit of 4,000 lb may damage RH-TRU 72-B impact limiter lifting lugs. Average weight of Impact Limiter is 2560 lb.

- 3.2 Install **UPPER** impact limiter on RH-TRU 72-B.

NOTE

All impact limiter attachments bolts should be tightened by hand before torquing.

- 3.3 Install six **UPPER** impact limiter bolts by hand before snugging up any of the bolts.

CAUTION

Impact limiter attachment bolt torque should be applied in three steps of approximately 220 ft-lb per load step.

- 3.4 Torque six **UPPER** impact limiter attachment bolts in star pattern to 600 to 700 ft-lb.

SIGN-OFF WH

- 3.5 Remove rigging from **UPPER** impact limiter.

NOTE

Installation of bolt, nut, and flat washers may be performed out of sequence, as long as they are installed prior to completion of RH-TRU 72-B operations.

- 3.6 Install crane rigging (two shackles and two slings, each rated to lift a minimum of 2,500 lb) and load cell to the **LOWER** impact limiter.

CAUTION

Exceeding a pull limit of 4,000 lb may damage RH-TRU 72-B impact limiter lifting lugs. Average weight of Impact Limiter is 2560 lb.

- 3.7 Install **LOWER** impact limiter on front of RH-TRU 72-B.

NOTE

All impact limiter attachments bolts should be tightened by hand before torquing.

- 3.8 Install six **LOWER** impact limiter bolts by hand before snugging up any of the bolts.

CAUTION

Impact limiter attachment bolt torque should be applied in three steps of approximately 220 ft-lb per load step.

- 3.9 Torque six **LOWER** impact limiter attachment bolts in star pattern to 600 to 700 ft-lb.

SIGN-OFF WH

- 3.10 Remove rigging from **LOWER** impact limiter.
- 3.11 Install a bolt, nut, and flat washers into each lifting lug on **LOWER AND UPPER** impact limiters.
- 3.12 If equipped, install debris cover on **LOWER AND UPPER** impact limiters.
- 3.13 **IF** RH-TRU 72-B is loaded with a transuranic waste canister, **THEN** install tamper indicating seal between Outer Container (OC) body and **UPPER** impact limiter (lid end of RH-TRU 72-B seal). If required, record tamper indicating security serial number and seal date on Attachment 1.

SIGN-OFF WH or N/A

- 3.14 WHE, if required, contact TE and request RH packaging and trailer be properly labeled and placards applied.
- 3.15 WH, perform the following:
- Remove any work platforms from trailer, if used and not meant to be transported on the trailer.
 - Raise trailer rear landing gear.
 - Remove trailer stands installed on free-standing trailer.
 - Remove wheel chocks.

SIGN-OFF WH

- 3.16 If required, for empty RH-TRU 72-B shipment, ensure empty label and a UN2908 label are on RH-TRU 72-B.²
- 3.17 Record on Attachment 1, trailer loading complete.

SIGN-OFF WH

- 3.18 Enter printed name, signature, date, and initials on Attachment 1.
- 3.19 Submit Attachment 1 and Transportation Data Sheet to WHE.
- 3.20 Back liquid-fueled tractor or trailer jockey into RH Bay, attach to trailer, and document start of attendance. **[LCO 3.4.1]**

SIGN-OFF WH or N/A

3.21 With liquid-fueled tractor or trailer jockey attached, remove from the RH Bay, and document end of attendance. **[LCO 3.4.1]**

SIGN-OFF WH or N/A

4.0 REVIEW

4.1 WHE, perform the following:

4.1.1 Review/validate Attachment 1 for completeness.

4.1.2 Enter printed name, signature, date and initials on Attachment 1, if necessary.

4.1.3 FAX or hand carry a copy of completed Attachment 1 and Transportation Data Sheet to TE.

4.1.4 Fax or hand carry a copy of completed Attachment 1 from WP 05-WH1758 (if applicable) to TE.

4.1.5 Forward original of Attachments 1, and Transportation Data Sheet to Records Coordinator.

Attachment 1 - RH-TRU 72-B Trailer Data Sheet

STEP	DESCRIPTION	INITIALS
PREREQUISITE ACTIONS		
2.0	Pre-use visual inspections complete	WH
3.0	Transportation Data Sheet obtained	WH
4.1	Trailer annual inspection date _____	WH
5.0	Impact limiter attachment bolt torque wrench ID _____ Calibration due date _____	WH
	Trunnion cap bolt torque wrench ID _____ Calibration due date _____	WH
	Load Cell ID _____ Calibration due date _____	WH
PERFORMANCE		
1.1	IF transport trailer is not positioned in the RH Bay, THEN back trailer into RH Bay using the liquid-fueled tractor or trailer jockey AND document start of attendance. [LCO 3.4.1] Sign: _____ Date: _____ Time: _____	WH or N/A
1.4	Remove liquid-fueled tractor or trailer jockey from the RH Bay and document end of attendance. [LCO 3.4.1] Sign: _____ Date: _____ Time: _____	WH or N/A
1.9	If trailer is to be loaded with a 72-B transuranic waste shipment, obtain WP 05-WH1758, Attachment 1, RH-TRU 72-B Loading Data Sheet.	WH or N/A
2.5	Front trunnion caps installed and torqued to 180 to 220 ft-lb	WH
2.8	Center trunnion caps installed and torqued to 180 to 220 ft-lb	WH
3.4	Upper impact limiter attachment bolts torqued to 600 to 700 ft-lb	WH
3.9	Lower impact limiter attachment bolts torqued to 600 to 700 ft-lb	WH
3.13	Record tamper indicating security serial number and seal date: _____	WH or N/A
3.15	Remove aluminum deck plates from trailer. Raise trailer jack stands (rear landing gear). Remove trailer stands installed on free-standing trailer. Remove wheel chocks.	WH
3.17	Trailer loading complete	WH

Attachment 1 - RH-TRU 72-B Trailer Data Sheet

3.20	Back liquid-fueled tractor or trailer jockey into RH Bay, attach to trailer, and document start of attendance. [LCO 3.4.1] Sign:_____ Date:_____ Time:_____	WH or N/A
3.21	With liquid-fueled tractor or trailer jockey attached, remove from the RH Bay, and document end of attendance. [LCO 3.4.1] Sign:_____ Date:_____ Time:_____	WH or N/A

Print Name	Signature	Date	Initials
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Print Name	Signature	Date	Initials
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Print Name	Signature	Date	Initials
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Remarks: _____

Review/Validation: _____

	WHE (Print Name)	Signature	Date
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