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# WP 05-WH1713

Revision 10

# Facility Cask and Facility Cask Rotating Device

Technical Procedure

EFFECTIVE DATE: 09/14/10

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APPROVED FOR USE

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## CHANGE HISTORY SUMMARY

| REVISION NUMBER | DATE ISSUED | DESCRIPTION OF CHANGES |
|---|---|---|
| 10 | 09/14/10 | Add "visually" inspect the following and add loose bolts to list to be visually inspected. |

## INTRODUCTION [1, 2, 3]

This procedure provides the required instructions for inspecting and conducting the preoperational checks on the Facility Cask (FC), Facility Cask Rotating Device (FCRD) (41-H-114), and the associated Hydraulic Power Unit (HPU) (41-G-150), prior to first use during an RH (Remote-Handled) Waste Handling evolution at the Waste Isolation Pilot Plant (WIPP).

The Automated Job Hazard Analysis (AJHA) PROD-220 coincides with this procedure.

Performance of this procedure generates the following record(s), as applicable. Any records generated are handled in accordance with departmental Records Inventory and Disposition Schedules.

- Equipment Logbook

## REFERENCES

BASELINE DOCUMENTS

- Title 40 CFR §264.15, "General Inspection Requirements"
- DOE/WIPP-07-3372, Waste Isolation Pilot Plant Documented Safety Analysis
- DOE/WIPP-07-3373, Waste Isolation Pilot Plant Technical Safety Requirements

REFERENCED DOCUMENTS

- WP 04-IM1000, Issues Management Processing of WIPP Forms
- WP 05-WH1704, Facility Cask Transfer Car (41-H-003) Operation
- WP 05-WH1705, RH Canister Transfer System
- WP 05-WH1721, 6.25-Ton Fixed Hoist and Facility Grapple
- EA04IM1000-1-0, WIPP Form

## PRECAUTIONS AND LIMITATIONS

- Preoperational checks are to be completed prior to the first use during an RH Waste Handling evolution.
- The HPU must be shut down if the fluid temperature rises to 150 F, as indicated on sight glass.

- Only personnel qualified as Waste Handling Technician/Engineer (WHT/WHE), or trainees under the direct supervision of a qualified WHT/WHE, are authorized to perform the Waste Handling activities specified in the procedure.

- FCRD must NOT be rotated without FC mated to the saddle, or the saddle bolts installed.

- Safety glasses and a long-sleeve 100% cotton shirt must be worn when opening and closing breakers.

- If procedure cannot be performed as written, WHE shall be contacted.

- When opening the Facility Cask Shield Valves, the CLOSED indication may illuminate momentarily due to lockpin air pressure.

**PREREQUISITE ACTIONS**

1.0 Review FCRD and FC Equipment Logbooks for outstanding deficiencies and Action Requests (ARs).

2.0 Record Equipment Number and Not Applicable (N/A) run hours in Equipment Logbooks.

3.0 If a required inspection becomes delinquent, perform the following:

3.1 Immediately notify Site Environmental Compliance (SEC) of the delinquent inspection.

3.2 Schedule and complete the required inspection.

3.3 Document the following in a letter to SEC within five working days:

- Schedule of inspection

- Reason(s) why the inspection was not performed

- Any measures taken to offset negative impacts resulting from not performing the inspection

- Actions to prevent further delinquencies

- Waste Handling Operations, GO TO WP 04-IM1000, and ensure a WIPP Form (EA04IM1000-1-0) is initiated.

4.0 Verify that preoperational checks have been completed on the Facility Cask Transfer Car (FCTC) per WP 05-WH1704, the 6.25-Ton Grapple Hoist per WP 05-WH1721, and the Canister Transfer System per WP 05-WH1705.

5.0 WHE, review Equipment Logbook on a weekly basis, generally the last day of the work week.

**PERFORMANCE**

1.0 PREOPERATIONAL CHECKS

1.1 Prior to operation of the FCRD, visually inspect the following:

- General Condition: **NO** damage, loose parts, loose bolts, oil leaks, grease, or trash.
- Hydraulic hoses are not crushed, damaged, or leaking.
- Filter indicators (2) on the HPU Skid are green.

1.2 Verify the HPU Skid is connected to the power supply, 41P-RP04/33 in the Cask Loading Room.

**WARNING**

Proper Personal Protective Equipment (PPE), including long-sleeve 100% cotton shirt, safety glasses, and leather gloves must be worn when operating power supply breaker or disconnect to prevent injury.

1.3 Ensure the ON-OFF switch on 41P-RP04/33 is in the ON position.

1.4 Ensure the HPU Skid Electrical Enclosure E-Stop push button, the FCRD E-Stop buttons (2), and the Cask Loading Room Control Panel E-Stop buttons (2), are all in the **OUT** position.

**WARNING**

Safety glasses and a 100% cotton long-sleeve shirt must be worn when opening and closing breakers to avoid injury.

1.5 Ensure HPU Skid Electrical Enclosure disconnect switch is **ON**.

1.6 Ensure HPU Skid Electrical Enclosure POWER ON push button is **ON**.

1.7 Verify the following lights on the FCRD Electrical Enclosure are **ON**:

- POWER ON

- CAR UNLOCKED
- CASK UNLATCHED
- CASK HORIZONTAL

1.8 Press the PUSH TO TEST button on the FCRD Electrical Enclosure.

1.9 Verify all lights are **ON** and warning is being sounded.

1.10 Release PUSH TO TEST button.

1.11 Ensure FCRD gates are open and cover is off Telescoping Port Shield.

1.12 Inspect the FC for the following:

- General Condition: **NO** damage, loose parts, oil leaks, excess grease, trash, broken wires and damaged insulation.
- Connections and lockpins not crushed or damaged.
- Power and control connection covers in place and closed.
- Lockpin air line covers in place.
- No salt buildup in the shield valve housings (clean out if necessary).

1.13 Position FCTC with FC in the FCRD.

1.14 Verify the CAR PRESENT indicating lamp on the FCRD electrical enclosure is **ON**.

1.15 At Control Panel 411-CP-264-04, rotate FC by pushing up on FCRD RAISE/LOWER joystick, and verify the following on the FCRD electrical enclosure.

- CAR LOCKED lamp is **ON**.
- CASK LATCHED lamp is **ON**.

1.16 **WHEN** FC rotation is complete,
**THEN** release FCRD RAISE/LOWER joystick.

1.17 At the FCRD Electrical Enclosure, verify CASK VERTICAL indicating lamp is **ON**.

1.18 At Control Panel 411-CP-264-04, pull down FCRD RAISE/LOWER joystick to lower FC.

1.19 **WHEN** FC rotation is complete,
**THEN** release FCRD RAISE/LOWER joystick and verify the following on the FCRD electrical enclosure:

- CAR UNLOCKED lamp is **ON**.
- CASK UNLATCHED lamp is **ON**.
- CASK HORIZONTAL lamp is **ON**.

1.20 At Control Panel 411-CP-264-04, rotate FC by pushing up on FCRD RAISE/LOWER joystick, and verify the following on the FCRD electrical enclosure:

- CAR LOCKED lamp is **ON.**
- CASK LATCHED lamp is **ON**.

1.21 **WHEN** FC rotation is complete,
**THEN** release FCRD RAISE/LOWER joystick.

1.22 At FCRD Electrical Enclosure, verify CASK VERTICAL indicating lamp is **ON**.

## 2.0 FACILITY CASK PREOPERATIONAL CHECK

**WARNING**

Safety glasses and a 100% cotton long-sleeve shirt must be worn when opening and closing breakers.

2.1 Ensure breakers CB 8 and CB 13 on 41P-MCC04/1 are in the **OFF** position.

2.2 Connect air lines to FC.

2.3 Connect electrical lines to FC ensuring color coded cable is connected to same color coded receptacle.

**WARNING**

Safety glasses and a 100% cotton long-sleeve shirt must be worn when opening and closing breakers.

2.4 Place breakers CB 8 and CB 13 on 41P-MCC04/1 in the **ON** position.

2.5 At Control Panel 411-CP-264-04, push TEL PORT SHIELD UP button.

2.6 Verify TEL SHLD UP lamp is **ON**.

2.7 Ensure grapple hoist MAN-OFF-AUTO switch is in AUTO.

2.8 Push HOIST POS B button to lower grapple hoist to position B.

2.8.1 Verify HOIST POS B indicating lamp is FLASHING.

2.8.2 Verify HOIST LOWERING indicating lamp is **ON**.

2.9 When hoist reaches position B, verify HOIST LOWERING lamp is **OFF** and HOIST POS B lamp is **ON**.

2.10 Verify BELL 41-N-011 POSITION B indicating lamp is **ON**.

2.11 **IF** BELL 41-N-011 POSITION B lamp is **NOT ON**,
**THEN** perform the following:

2.11.1 Ensure grapple hoist MAN-OFF-AUTO switch is in AUTO.

2.11.2 Push HOIST POS A button to lift grapple hoist to position A.

[ A ] Verify HOIST POS A indicating lamp is FLASHING.

[ B ] Verify HOIST LIFTING indicating lamp is **ON**.

2.11.3 When hoist reaches position A, verify HOIST LIFTING lamp is **OFF** and HOIST POS A lamp is **ON**.

2.11.4 Push HOIST POS B button to lower grapple hoist to position B.

[ A ] Verify HOIST POS B indicating lamp is FLASHING.

[ B ] Verify HOIST LOWERING indicating lamp is ON.

2.11.5 When hoist reaches position B, verify HOIST LOWERING lamp is **OFF** and HOIST POS B lamp is **ON**.

2.12 Place CANISTER TRANSFER SYSTEM MODE SWITCH in XFER position.

2.13 Verify LOCKPIN AIR AVAILABLE lamp is **ON**.

2.14 Verify AIR OFF TOP VALVE indicating lamp is **ON**.

2.15 Turn FACILITY CASK CLOSURE VALVE TOP switch to OPEN.

2.16 Release switch when shield valve starts moving.

2.17 Verify AIR OFF TOP VALVE indicating lamp turns **OFF**.

2.18 Verify TOP VALVE LOCKPINS STATUS OPEN lamp is **ON**.

2.19 Verify FACILITY CASK CLOSURE VALVE TOP OPEN indicating lamp is **ON**.

2.20 Verify FACILITY CASK CLOSURE VALVE TOP CLOSE indicating lamp is **OFF**.

2.21 Push HOIST POS D button to lower grapple hoist to position D.

2.21.1 Verify HOIST POS D indicating lamp is FLASHING.

2.21.2 Verify HOIST LOWERING indicating lamp is **ON**.

2.22 When hoist reaches position D, verify HOIST LOWERING lamp is **OFF** and HOIST POS D lamp is **ON**.

2.23 Verify PINTLE GRAPPLE CONTACT indicating lamp is **OFF**.

2.24 Verify the CLR PORT CASK ROAD CASK POS Y1 lamp is **ON**.

2.25 Push SHIELD VALVE 41-N-003 OPEN button.

2.26 Verify SHIELD VALVE 41-N-003 OPEN indicating lamp is **ON**.

2.27 Verify SHIELD VALVE 41-N-003 CLOSE indicating lamp is **OFF**.

2.28 Verify AIR OFF BOTTOM VALVE indicating lamp is **ON**.

2.29 Turn FACILITY CASK CLOSURE VALVE BOTTOM switch to OPEN.

2.30 Release switch when shield valve starts moving.

2.31 Verify the following:

- AIR OFF BOTTOM VALVE indicating lamp turns **OFF**.

- BOTTOM VALVE LOCKPINS STATUS OPEN lamp is **ON**.
- FACILITY CASK CLOSURE VALVE BOTTOM OPEN indicating lamp is **ON.**

2.32 Verify FACILITY CASK CLOSURE VALVE BOTTOM CLOSE indicating lamp is **OFF**.

2.33 Push HOIST POS B button to raise grapple hoist to position B.

2.33.1 Verify HOIST POS B indicating lamp is FLASHING.

2.33.2 Verify HOIST LIFTING indicating lamp is **ON**.

2.34 When hoist reaches position B, verify HOIST LIFTING lamp is **OFF** and HOIST POS B lamp is **ON**.

2.35 Verify AIR OFF BOTTOM VALVE indicating lamp is **ON**.

2.36 Verify BOTTOM VALVE LOCKPINS STATUS OPEN lamp is **ON**.

2.37 Turn FACILITY CASK CLOSURE VALVE BOTTOM switch to CLOSE.

2.38 Release switch after shield valve starts to move.

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**NOTE**

If necessary, mechanical means may be used to assist the FACILITY CASK Shield Valve Lock Pins to the closed position.

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2.39 Verify FACILITY CASK CLOSURE VALVE BOTTOM CLOSE lamp is **ON**.

2.40 Verify BOTTOM VALVE LOCKPINS STATUS CLOSE lamp is **ON**.

2.41 Verify BOTTOM VALVE LOCKPINS STATUS OPEN lamp is **OFF**.

2.42 Verify AIR OFF BOTTOM VALVE lamp is **ON**.

2.43 Verify AIR OFF TOP VALVE lamp is **ON**.

2.44 Verify TOP VALVE LOCKPINS OPEN lamp is **ON**.

2.45 Turn FACILITY CASK CLOSURE VALVE TOP switch to CLOSE.

2.46 Release switch when shield valve starts moving.

**NOTE**

If necessary, mechanical means may be used to assist the FACILITY CASK Shield Valve Lock Pins to the closed position.

2.47 Verify FACILITY CASK CLOSURE VALVE TOP CLOSE lamp is **ON**.

2.48 Verify TOP VALVE LOCKPINS STATUS CLOSE lamp is **ON**.

2.49 Verify TOP VALVE LOCKPINS STATUS OPEN lamp is **OFF**.

2.50 Verify AIR OFF TOP VALVE lamp is **ON**.

2.51 Push SHIELD VALVE 41-N-003 CLOSE button.

2.52 Verify SHIELD VALVE 41-N-003 CLOSE indicating lamp is ON.

N**OTE**

Section .0 may be used, if necessary, to place the shuttle car in position W. This section does not have to be performed to complete the preoperational checks on the FC or FCRD.

3.0 PLACING CANISTER SHUTTLE CAR INTO POSITION W

3.1 Ensure CANISTER TRANSFER SYSTEM MODE switch is in XFER.

3.2 Place Canister Shuttle Car (CSC) switch in AUTO.

3.3 Push CUR PORT ROAD CASK POS W button to initiate CSC movement to position W.

3.4 Verify CUR PORT ROAD CASK POS W indicating lamp is ON.

3.5 Ensure position W camera shows alignment with the cask basket using laser indication (Camera #6 with Diamond Marker #1).

3.6 **IF** laser indication is not in alignment or if the CSC is at the EAST END OVERTRAVEL STOP,
**THEN** perform the following:

3.6.1 Ensure CANISTER TRANSFER SYSTEM MODE switch is in XFER.

3.6.2 Ensure CSC switch is in MAN.

3.6.3 Press FORWARD or REVERSE button until laser indication is aligned properly and the EAST END OVERTRAVEL STOP lamp is **OFF**.

3.6.4 Place CSC switch in AUTO.

3.6.5 Place the CANISTER TRANSFER MODE switch in NEUTRAL.

3.7 Perform the following:

- Initiate an AR to address any deficiencies discovered during preoperational checks and the status of each (e.g., deficiencies corrected and ARs generated).
- Notify WHE and report status of preoperational checks.

3.8 Record the following information in Equipment Logbooks:

- Deficiencies noted
- Corrective actions taken (outstanding/newly generated ARs, etc.)
- Preoperational checks completed for the RH-TRU 72-B (RH-72B) cask or CNS 10-160B (10-160B) cask evolution

3.9 Enter time, date, and signature in Equipment Logbooks to document performance of preoperational checks.

4.0 FCRD ROTATION TO HORIZONTAL

4.1 If necessary during the RH Waste Handling evolution, perform the following at 411-CP-264-04 to rotate the FCRD and FC to Horizontal.

- Push HOIST POS A
- Push TEL PORT SHIELD 41-N-013 DOWN button.

4.2 Verify HOIST POS A and TEL PORT SHIELD DOWN lamps are **ON**.

**WARNING**

Safety glasses and a 100% cotton long-sleeve shirt must be worn when opening and closing breakers.

4.2.1 Place breakers CB 8 and CB 13 on 41P-MCC04/1 in the **OFF** position.

4.2.2 Disconnect electrical and air lines to FC.

4.2.3 Pull down FCRD RAISE/LOWER joystick.

4.2.4 **WHEN** FC rotation is complete,
**THEN** release FCRD RAISE/LOWER joystick and verify the following on the FCRD Electrical Enclosure:

- CAR UNLOCKED lamp is **ON**.
- CASK UNLATCHED lamp is **ON**.
- CASK HORIZONTAL lamp is **ON**.

5.0 FACILITY CASK ROTATING DEVICE SHUTDOWN

5.1 **IF** the RH Waste Handling Evolution is complete,
**THEN** ensure the FCRD is in the Full Down (Horizontal) position.

5.2 Place the HPU Skid Electrical Enclosure disconnect switch in the **OFF** position.