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INTEC	Technical Procedure	For Additional Info: http://EDMS	Effective Date: 06/24/14
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Manual: INTEC FSV3

USE TYPE 1Change Number: 342257

*The current revision can be verified on EDMS.

1. INTRODUCTION

1.1 Purpose

To ensure that the internal atmosphere of the Fort St. Vrain (FSV) Independent Spent Fuel Storage Installation (ISFSI) Fuel Storage Container (FSC) can be controlled by removing and replacing FSC lid seals. To ensure that the internal atmosphere of the FSV ISFSI standby storage well (SSW) can be controlled by removing and replacing SSW lid seals

1.2 Scope and Applicability

This procedure specifies the actions necessary to prepare a FSC located in a SSW for lid seal replacement and to perform the activities and subsequent FSC and/or SSW leak test to verify seal integrity. These actions are performed while the FSC is loaded with spent fuel and resides in a SSW.

2. PRECAUTIONS AND LIMITATIONS

- 2.1 Personnel must follow the applicable hazard mitigations detailed in Appendix C, "Procedure Hazard Analysis."
- 2.2 Prior to replacing the lid seals on a leaking FSC, the FSC must be transferred to a SSW.
- 2.3 Prior to starting the work covered by this procedure, RCT/RCM coverage must be available.
- 2.4 Increased attention must be given to potential increased radiation levels and the potential of contamination when the FSC lid is exposed.
- 2.5 FSCs containing spent fuel must not be handled if the ambient air temperature is less than 12°F per FSV ISFSI Technical Specification (TS). (LCO 3.3.2)
- 2.6 Any lifts over the Charge Face not described in an approved procedure must be evaluated per MCP-2925, "Screen and Evaluate Changes," PRIOR to performing the lift.

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- 2.7 When using this procedure to move components, without handling fuel, unnecessary steps may be marked “Not Applicable (N/A).” Minimum personnel requirements and required materials and equipment may be adjusted as appropriate for the evolution. All applicable Precautions and Limitations must be observed when handling individual components (such as, isolation valves).
- 2.8 SPHD 1 and SPHD 2 must be properly labeled to reflect their contents.
- 2.9 Any potential deficiencies, hazard, or abnormal condition noted during the performance of this procedure must be entered in Appendix D, “Procedure Discrepancies,” and reported verbally to the FSV ISFSI Manager.
- 2.10 The configuration of the SSWs is controlled such that the SSW lids (with O-rings installed) are and will remain in place, per the Aging Management Program. Changes in this configuration must be approved by the Facility Manager.

3. PREREQUISITES

3.1 Planning and Coordination

- 3.1.1 FSV ISFSI Manager: As a minimum, the following personnel are available for performance of this procedure when handling an FSC containing spent fuel:
- A. Certified Fuel Handlers (CFH) (3)
 - B. Facility Safety Officer (FSO)
 - C. Radiological Control Technicians (RCT) or Radiological Control Monitors (RCM) (2)
 - D. Quality Inspector (QI) Level II or III.
- 3.1.2 CFH: Ensure the revision number of this procedure is the most current.
- 3.1.3 Ensure a radiological work permit (RWP) is processed, if necessary.
- 3.1.4 FSO: Heat or cold stress monitoring must be performed per MCP-2704, “Heat and Cold Stress.”

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3.2 Special Tools, Equipment, Parts, and Supplies

3.2.1 Ensure the material/equipment listed below is available as needed.

Item Description	Remarks	Quantity
Torque wrench capable of torquing to 200 ft · lbs Upper range of torque wrench _____	S/N _____ Calibration due date _____	
Torque wrench with an upper range of 100 ft · lbs	S/N _____ Calibration due date _____	
FSC lid inner seal, Drawing 362A0066/8		A/R
FSC lid outer seal, Drawing 362A0066/7		A/R
SSW lid inner seal, Drawing 362A0060/22		A/R
SSW lid outer seal, Drawing 362A0060/21		A/R
Cotton swabs, rags	A/R	
White Spirits (Stoddard Solvent) or equivalent solvent		
Shell APL 701 or equivalent grease		
1/2 in. Allen head socket	A/R	
2-3/8 in. socket and wrench	A/R	
Ladder	A/R	
Powder less latex or nitrile gloves		
Substantial footwear	A/R	
GFCI/Extension Cord(s)	A/R	
Molykote	A/R	
Temperature indicating device or temperature info (for example, NOAA)		
Shield plug alignment device		

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Item Description	Remarks	Quantity
HEPA filter	S/N _____ DOP test due date _____	
MVDS Crane	Inspection due date _____	
Sling No. 2 (SLG-FSV-2)	Inspection due date _____	
Sling No. 3 (SLG-FSV-3)	Inspection due date _____	
Sling No. 4 (SLG-FSV-4)	Inspection due date _____	
Fall protection harnesses	Inspection due date _____	A/R
Fall protection lanyards	Inspection due date _____	A/R
Fall protection fall arrest device	Inspection due date _____	A/R
Fall protection connector straps	Inspection due date _____	A/R

3.2.1.1 QI: Verify replacement seals have a QA acceptance tag and record the QA number as follows:

FSC lid inner seal, Drawing 362A0066/8	QA No.
FSC lid outer seal, Drawing 362A0066/7	QA No.
SSW lid inner seal, Drawing 362A0060/22	QA No.
SSW lid outer seal, Drawing 362A0060/21	QA No.

_____ Signature _____ Date

3.2.2 Ensure a RWP is completed and in place as applicable.

3.3 Training

3.3.1 Ensure the training requirements in Appendix C, Procedure Hazard Analysis,” are met.

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4. INSTRUCTIONS

NOTE: *Unless designated in front of step, a CFH is person performing steps.*

4.1 Perform preoperational steps.

Init/Date

_____ 4.1.1 FSV ISFSI Manager: Conduct a pre-job briefing (use Form 434.14, “Pre-Job Briefing Checklist,” and Form 434.15, “Pre-Job Briefing Attendance Record,” [if needed]) with the operations personnel and complete the following items:

- A. A discussion of safety precautions and emergency actions
- B. A review of Section 4 of this procedure
- C. Assurance that training and qualification of personnel are current
- D. RCT/RCM coverage has been assigned to provide radiological control surveillance when needed during the performance of this procedure.

_____ 4.1.2 FSO: Inspect the work area to ensure that it is free of any hazards that would make completion of this procedure unsafe.

_____ 4.1.3 FSO: IF handling an FSC containing spent fuel, OR removing the lid from an FSC containing spent fuel, THEN record the lowest ambient air temperature for the previous 8-hour period (SR 3.3.2.1).

Temperature: _____

NOTE: *The ISFSI Manager may approve proceeding to Section 4.2 because several hours may elapse before an FSC or lid actually needs to be handled. A step to verify that the temperature has remained above 12°F is included before each FSC or lid handling step.*

4.1.3.1 IF the ambient air temperature was less than or equal to 12°F during the previous 8 hour period, THEN obtain ISFSI Manager approval before proceeding to Section 4.2.

Signature

Date

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- _____ 4.1.4 IF handling an FSC containing spent fuel,
OR removing the lid from an FSC containing spent fuel,
THEN verify the gas space inside the FSC has been analyzed and
determined NOT to have a combustible gas mixture, or evacuated and
purged with air to assure hydrogen concentrations are below flammable
levels before handling the FSC, or removing the lid bolts (SAR 4.2.3.2.3
commitment) per TPR-6493, “Fort St. Vrain Fuel Storage Container
Vacuum Purge Procedure.”
- 4.1.5 Verify daily crane checks have been completed to include function check
of controls and interlocks for bridge travel, trolley travel, and hoist travel
(SAR 9.2.4, Table 9.2-1).
- 4.1.6 FSO: Ensure TPR-5612, “Annual Inspection of the MVDS Crane and
CHM Dead Stop Device,” has been completed (required every
12 months) (SR 3.2.2.1).
- Date performed: _____ Date due: _____
- 4.1.7 FSO: Ensure TPR-5606, “Inspection of FSV ISFSI Isolation Valves and
Shield Plug Handling Devices,” has been completed within 31 days prior
to use and at intervals not to exceed every 12 months during use.
- Date performed: _____ Date due: _____
- 4.1.8 FSV ISFSI Manager: Verify that the prerequisites and preoperational
Steps 4.1.1 through 4.1.7 have been satisfied.
- _____
 FSV ISFSI Manager Signature

 Date
- 4.1.9 Log the procedure in the FSV Daily Operations Log and release it to
commence work.

4.2 Remove the SSW lid.
Init/Date

- _____ 4.2.1 Insert Key No. 1 into lock on crane control pendant and turn it
clockwise.
- _____ 4.2.2 Press POWER ON push-button on crane control pendant.
- 4.2.2.1 Visually ensure that the tornado clamps have released and
status indicating lights are out.

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_____ 4.2.3 FSV ISFSI Manager: Identify the SSW location that contains the FSC for this job task and record location below:

SSW: _____

_____ 4.2.4 Attach Sling No. 4 to the crane hook.

_____ 4.2.5 Align Sling No. 4 over identified SSW.

_____ 4.2.6 Install the lifting eye bolts with links into the SSW lid.

_____ 4.2.7 Remove the SSW lid bolts and store as directed by FSO.

_____ 4.2.8 Attach the sling hooks to the eye bolts on the lid.

_____ 4.2.9 RCT/RCM: Monitor the SSW lid area while raising the lid to verify radiation/contamination levels.

NOTE: *Steps 4.2.10 through 4.2.13 may be performed in parallel.*

_____ 4.2.10 Raise the SSW lid to the crane upper datum.

_____ 4.2.11 Place cribbing at a position adjacent to the SSW lid.

_____ 4.2.12 IF replacing O-rings in the SSW lid,
THEN place the O-rings (SSW lid inner seal, Drawing 362A0060/22 and SSW lid outer seal, Drawing 362A0060/21) around the cribbing.

_____ 4.2.13 Traverse the SSW lid to the laydown position.

_____ 4.2.14 Lower the SSW lid to temporary storage at this laydown position on the cribbing.

_____ 4.2.15 Remove Sling No. 4 from the SSW lid.

_____ 4.2.16 Raise the crane hook and Sling No. 4 to the crane upper datum.

_____ 4.2.17 IF the lifting eye bolts are to be removed at this time from the SSW lid,
THEN remove the lifting eye bolts.

_____ 4.2.18 Traverse Sling No. 4 and store at the sling laydown area.

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4.3 Install isolation valve (IV) at designated SSW.

Init/Date

NOTE: *Steps 4.3.1 through 4.3.4 may be performed in parallel.*

- _____ 4.3.1 Attach Sling No. 3 to the crane hook.
- _____ 4.3.2 Install the lifting eye bolts with links to the IV.
- _____ 4.3.3 Connect Sling No. 3 to the IV lifting eye bolt links.
- _____ 4.3.4 Two CFH: IF necessary,
THEN remove the bolts from the isolation valve as follows:
 - 4.3.4.1 First CFH (Performer): Remove the bolts from the isolation valve.

Signature	Date
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 - 4.3.4.2 Second CFH: Verify (independent) the bolts have been removed from the isolation valve.

Signature	Date
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- _____ 4.3.5 Traverse Sling No. 3 and align with IV.
- _____ 4.3.6 Lower the crane hook and Sling No. 3 to IV. Connect Sling No. 3 to the eye bolts.
- _____ 4.3.7 Remove the dust caps from the bolt holes and from the shield plug lifting hole at the designated SSW.
- _____ 4.3.8 Install the IV location pegs at designated SSW per the IV positioning and bolting pattern in Appendix A, “IV Positioning and Bolting Pattern.”

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CAUTION

The tag lines prevent the isolation valve from rotating during the lift. Excessive rotating may cause the sling to unwind allowing the isolation valve to come to rest on the floor damaging the valve.

- _____ 4.3.9 Attach two tag lines to the isolation valve to prevent rotation.
- _____ 4.3.10 Traverse and align the IV at the designated SSW.
- _____ 4.3.11 Lower the IV to the SSW ensuring correct alignment on the location pegs.
- _____ 4.3.12 Disconnect Sling No. 3 and eye bolts from the IV and store the bolts as directed.
- _____ 4.3.13 Don powder less latex or nitrile gloves if necessary.
- _____ 4.3.14 Clean and/or lubricate the threads and friction face of the IV bolts using “Molykote” or equivalent, as needed.
- _____ 4.3.15 Doff powder less latex or nitrile gloves if necessary.
- _____ 4.3.16 Dispose of low-level waste per MCP-62, “Waste Generator Services-Low-Level Waste Management.”
- _____ 4.3.17 Install IV bolts and bolt the IV to the SSW.
- _____ 4.3.18 Two CFH: Torque the IV bolts.
 - 4.3.18.1 CFH (Performer): Torque the IV bolts to 200 ft · lbs per the IV positioning and bolting pattern in Appendix A.

Signature	Date
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- 4.3.18.2 Second CFH: Verify (witness) IV bolts have been torqued to 200 ft · lbs per the IV positioning and bolting pattern in Appendix A.

Signature	Date
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- _____ 4.3.19 Traverse Sling No. 3 and store at the sling laydown area.
- _____ 4.4 Install Shield Plug Handling Device (SPHD) 1 to IV at designated SSW.
Init/Date
- _____ 4.4.1 Connect Sling No. 2 to crane hook.
- _____ 4.4.2 Connect fall arrest device to crane hook, using connector strap as needed.
- _____ 4.4.3 Don fall protection equipment.
- _____ 4.4.4 Align Sling No. 2 with SPHD 1.
- _____ 4.4.5 Connect fall arrest device to fall protection equipment.
- _____ 4.4.6 Connect Sling No. 2 to SPHD 1.
- _____ 4.4.7 Disconnect fall arrest device from fall protection equipment.
- _____ 4.4.8 Using a tag line, traverse and align SPHD 1 at the IV positioned at the SSW.
- _____ 4.4.9 Lower SPHD 1 to seat on the IV ensuring correct alignment has been achieved using the locating pins.
- _____ 4.4.10 Rotate SPHD 1 clockwise by hand to engage the valve interlock.

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4.5 Open the IV and remove the shield plug at designated SSW.

Init/Date

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV.*

The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive.

_____ 4.5.1 Fully open the IV valve by the hand-drive.

_____ 4.5.2 Remove the lifting pin from SPHD 1.

_____ 4.5.3 Lower the rod to engage on the shield plug.

_____ 4.5.4 Disconnect Sling No. 2 from SPHD 1.

NOTE: *An indication is given when the lifting rod is fully screwed into the shield plug consisting of a band, painted red, on the lifting rod. When the lifting rod is fully screwed into position the lower face of the 1 in. wide band corresponds with the top face of the lifting rod tube.*

_____ 4.5.5 Screw the lifting rod fully into the shield plug.

_____ 4.5.6 Connect Sling No. 2 to SPHD 1.

NOTE: *Indications are given on the lifting rod to assist the operator while lifting the shield plug to avoid attempting to lift the complete SPHD off the IV prior to disconnecting the interlock.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin; second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates that the lifting rod has been raised too high for location of the locking pin.

_____ 4.5.7 Raise the lifting rod and shield plug and insert the locking pin.

NOTE: *The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.*

_____ 4.5.8 Fully close the IV valve by the hand-drive.

_____ 4.5.9 Rotate SPHD 1 counter-clockwise and disengage the valve interlock.

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- _____ 4.5.10 RCT/RCM: Monitor the area while raising the SPHD to verify radiation/contamination levels.
- _____ 4.5.11 Traverse SPHD 1 to a designated laydown area.
- _____ 4.5.12 Lower SPHD 1 to seat.
- _____ 4.5.13 Connect fall arrest device to fall protection equipment.
- _____ 4.5.14 Disconnect Sling No. 2 from SPHD 1.
- _____ 4.5.15 Disconnect fall arrest device from fall protection equipment.
- _____ 4.5.16 Doff fall protection equipment.
- _____ 4.5.17 Disconnect Sling No. 2 and fall arrest device from the crane hook at the sling laydown area.
- _____ 4.6 Install the DUP adapter plate to the DUP.
- Init/Date
- _____ 4.6.1 Attach Sling No. 4 to the crane hook.
- _____ 4.6.2 Traverse and align Sling No. 4 at the DUP adaptor plate.
- _____ 4.6.3 Install the lifting eye bolts in the DUP adaptor plate.
- _____ 4.6.4 Attach Sling No. 4 to the DUP adaptor plate.
- _____ 4.6.5 Align the DUP adaptor plate over the selected DUP.
- _____ 4.6.6 Lower the DUP adapter plate to seat on the DUP.
- _____ 4.6.7 Bolt the DUP adapter plate to the DUP.
- _____ 4.6.8 Two CFH: Torque the DUP adapter plate bolts.
- _____ 4.6.8.1 First CFH (Performer): Torque the DUP adapter plate bolts to 10 ft · lbs.

 Signature

 Date

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4.6.8.2 Second CFH: Verify (witness) DUP adaptor plate bolts have been torqued to 10 ft · lbs.

Signature

Date

- _____ 4.6.9 RCT/RCM: Monitor the area while raising the DUP adaptor plate and attached DUP to verify radiation/contamination levels.
- _____ 4.6.10 Traverse the DUP adaptor plate and attached DUP to a position adjacent to SPHD 2.
- _____ 4.6.11 Lower the DUP adaptor plate and attached DUP adjacent to SPHD 2.
- _____ 4.6.12 Disconnect Sling No. 4 from the DUP adaptor plate.
- 4.6.12.1 IF eye bolts are inserted into the DUP adaptor plate, THEN remove the DUP adaptor plate eye bolts.
- _____ 4.6.13 Disconnect Sling No. 4 from the crane hook and store at the sling laydown area.
- 4.7 Install SPHD 2 with DUP and DUP adaptor plate to IV at SSW.

Init/Date

- _____ 4.7.1 Connect Sling No. 2 to crane hook.
- _____ 4.7.2 Align Sling No. 2 at SPHD 2 located at its parked position.
- _____ 4.7.3 Lower Sling No. 2 and connect to SPHD 2.
- _____ 4.7.4 Align SPHD 2 at the DUP adaptor plate and DUP.
- _____ 4.7.5 Lower SPHD 2 in a position over the DUP and DUP adaptor plate.
- _____ 4.7.6 Remove the lifting pin from SPHD 2 and lower rod to engage on the DUP adaptor plate.
- _____ 4.7.7 Disconnect Sling No. 2 from SPHD 2.

NOTE: *An indication is given when the lifting rod is fully screwed into the adaptor plate, this consists of a band, painted orange, on the lifting rod. When the lifting rod is fully screwed into position the upper face of the 1 in. wide band corresponds with the top face of the lifting rod tube.*

- _____ 4.7.8 Fully screw the lifting rod into the DUP adaptor plate.

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_____ 4.7.9 Connect Sling No. 2 to SPHD 2.

NOTE: *Indications are given on the lifting rod to assist the operator while lifting the DUP to avoid attempting to lift the complete SPHD.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin; second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates the lifting rod has been raised too high for location of the locking pin.

_____ 4.7.10 Raise the lifting rod and insert the lifting pin.

_____ 4.7.11 Align SPHD 2 at the IV positioned on the SSW.

_____ 4.7.12 Lower SPHD 2 to seat on the IV ensuring correct alignment has been achieved via the locating pins.

_____ 4.7.13 Rotate SPHD 2 clockwise by hand to engage the valve interlock allowing the IV to be opened.

4.8 Init/Date Open the IV and place the DUP and DUP adaptor plate on the FSC lid.

_____ 4.8.1 FSC: IF handling an FSC containing spent fuel, OR removing the lid from an FSC containing spent fuel, THEN record the lowest ambient air temperature for the previous 8-hour period.

Temperature: _____

4.8.1.1 IF the ambient (outside) air temperature has been greater than 12°F during the previous 8 hour period, THEN ISFSI Manager: Verify this condition (SR 3.3.2.1).

ISFSI Manager Signature

Date

4.8.1.2 FSC: IF the ambient air temperature was less than or equal to 12°F during the previous 8 hour period, THEN do the following:

4.8.1.2.1 Do NOT place the DUP and DUP adapter plate on the FSC lid.

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4.8.1.2.2 Suspend further HANDLING operations
(LCO 3.3.2 A).

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV.*

The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive.

_____ 4.8.2 Fully open the IV valve by the hand-drive.

NOTE 1: *Indications are given on the lifting rod to assist the operator to fully seat the DUP. First a wide red band appears, then a narrow red band appears. Proper positioning is achieved when the narrow red band is approximately 1 inch above the lifting rod tube.*

NOTE 2: *Some repositioning of the adaptor plate and DUP (raising and lowering) may be necessary to ensure proper positioning.*

_____ 4.8.3 Remove the lifting pin from SPHD 2 and lower the adaptor plate and DUP to seat in the FSC lid.

_____ 4.8.4 Disconnect Sling No. 2 from SPHD 2.

_____ 4.8.5 Fully unscrew the lifting rod from the DUP adaptor plate.

_____ 4.8.6 Connect Sling No. 2 to SPHD 2.

NOTE: *Indications are given on the lifting rod to assist the operator to line up the locking pin and avoid attempting to lift the complete SPHD off the IV prior to disconnecting the interlock.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin, second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates that the lifting rod has been raised too high for location of the locking pin.

_____ 4.8.7 Raise the lifting rod and insert the locking pin.

NOTE: *The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.*

_____ 4.8.8 Fully close the IV valve by the hand-drive.

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_____ 4.8.9 Rotate SPHD 2 counter-clockwise to disengage the valve interlock.

_____ 4.8.10 RCT/RCM: Monitor the area while raising the SPHD 2 to verify radiation/contamination levels.

_____ 4.8.11 Traverse SPHD 2 to its storage stand.

_____ 4.8.12 Lower SPHD 2 to its storage stand.

_____ 4.8.13 Disconnect Sling No. 2 from SPHD 2.

NOTE: *Steps 4.9.1 through 4.9.3 may be performed in parallel with Step 4.8.14.*

_____ 4.8.14 Disconnect Sling No. 2 from the crane hook and store at the sling laydown area.

4.9 Install IV release tool and open IV gate.
Init/Date

_____ 4.9.1 Bolt the IV gate release tool on the IV top plate.

_____ 4.9.2 RCT/RCM: Monitor the area while opening the IV to verify radiation/contamination levels.

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV.*

The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive. The valve is to be driven until the valve internal valve gate stops prevent further movement.

_____ 4.9.3 Fully open the IV valve by the hand-drive.

4.10 Reposition the adaptor plate.

_____ 4.10.1 Connect Sling No. 4 to the crane hook.

_____ 4.10.2 Position Sling No. 4 over the designated FSC.

_____ 4.10.3 Install the lifting eye bolts in the DUP adaptor plate.

_____ 4.10.4 Lower and attach Sling No. 4 to the eye bolts, hooks facing out.

_____ 4.10.5 RCT/RCM: Monitor the SSW lid area while the adaptor plate is being repositioned to verify radiation/contamination levels.

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_____ 4.10.6 Raise the DUP adaptor plate enough to reposition the DUP adaptor plate for FSC lid bolt removal.

4.11 Remove the FSC lid bolts.

Init/Date

_____ 4.11.1 RCT/RCM: Monitor the area while removing the bolts to verify radiation/contamination levels.

_____ 4.11.2 Unbolt the 24 FSC lid bolts.

_____ 4.11.3 Two CFH: Remove the bolts from the FSC lid as follows:

4.11.3.1 First CFH (Performer): Remove the bolts from the FSC lid and stage as directed.

Signature Date

4.11.3.2 Second CFH: Verify (independent) FSC lid bolts have been removed.

Signature Date

4.12 Fit the DUP adaptor plate to the FSC lid.

_____ 4.12.1 Bolt the DUP adaptor plate securely to the FSC lid.

_____ 4.12.2 Two CFH: Torque the DUP adapter plate bolts.

4.12.2.1 First CFH (Performer): Torque the DUP adapter plate bolts to 62 ft · lbs.

Signature Date

4.12.2.2 Second CFH: Verify (witness) DUP adapter plate bolts have been torqued to 62 ft · lbs.

Signature Date

_____ 4.12.3 Remove Sling No. 4 and the lifting eye bolts from the adaptor plate.

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NOTE: Steps 4.13.1 and 4.13.2 may be performed in parallel with Step 4.12.4.

_____ 4.12.4 Disconnect Sling No. 4 from the crane hook and store at the sling laydown area.

_____ 4.13 Close IV gate and remove IV release tool.
Init/Date

NOTE: The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.

_____ 4.13.1 CFH: Fully close the IV gate by the hand-drive.

_____ 4.13.2 Unbolt and remove the release tool.

_____ 4.14 Fit the IV HEPA filter unit.

_____ 4.14.1 RCT/RCM: Monitor the area while removing the vent plug to verify radiation/contamination levels.

_____ 4.14.2 Remove the vent plug from the IV.

_____ 4.14.3 Install the filter unit adapter and bolt into position.

_____ 4.14.4 Two CFH: Torque the filter unit adapter bolts.

4.14.4.1 First CFH (Performer): Torque the filter unit adapter bolts to 62 ft · lbs.

Signature

Date

4.14.4.2 Second CFH: Verify (witness) filter unit adapter bolts have been torqued to 62 ft · lbs.

Signature

Date

_____ 4.14.5 FSO: Request CFH install the HEPA filter unit and hose to the unit adapter.

_____ 4.15 Install SPHD 2 to the IV.
Init/Date

_____ 4.15.1 Connect Sling No. 2 to crane hook.

_____ 4.15.2 Align Sling No. 2 at SPHD 2.

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- _____ 4.15.3 Connect Sling No. 2 to SPHD 2.
- _____ 4.15.4 Align SPHD 2 at the IV positioned at the SSW.
- _____ 4.15.5 Lower SPHD 2 to seat on the IV ensuring correct alignment has been achieved via the locating pins.
- _____ 4.15.6 Rotate SPHD 2 clockwise by hand to engage the valve interlock allowing the IV to be opened.

4.16 Open the IV at the SSW and remove the FSC lid.

Init/Date

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV.*

The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive.

- _____ 4.16.1 Fully open the IV by hand-drive.
- _____ 4.16.2 Remove the locking pin from SPHD 2 and lower rod to engage on the DUP adaptor plate.
- _____ 4.16.3 Disconnect Sling No. 2 from SPHD 2.
- NOTE:** *An indication is given when the lifting rod is fully screwed into the adaptor plate, this consists of a band, painted orange, on the lifting rod. When the lifting rod is fully screwed into position the upper face of the 1 in. wide band corresponds with the top face of the lifting rod tube*
- _____ 4.16.4 Fully screw the lifting rod into the DUP adaptor plate.
- _____ 4.16.5 Connect Sling No. 2 to SPHD 2.
- _____ 4.16.6 Connect HEPA system using approved extension cord and ground fault circuit interrupter (GFCI) (as necessary).
- _____ 4.16.7 Turn power on to the HEPA system.
- _____ 4.16.8 Verify HEPA system is operating.

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NOTE: *Step 4.16.9 may be performed in any order and concurrently with Steps 4.16.10 through 4.17.6.*

4.16.9 RCT/RCM: do the following:

- 4.16.9.1 Monitor the SSW lid area while the adaptor plate, DUP, and FSC lid are being removed.
- 4.16.9.2 Check that there is no significant increase in background radiation.
- 4.16.9.3 Establish air monitoring, using the AMS 4 or equivalent air sampling pump, at the IV and SPHD 2 location as required for airborne contaminants.
- 4.16.9.4 IF there is any indication of increased airborne activity, THEN STOP the job immediately.

4.16.10 FSO: IF handling an FSC containing spent fuel, OR removing the lid from an FSC containing spent fuel, THEN record the lowest ambient air temperature for the previous 8-hour period.

Temperature: _____

- 4.16.10.1 IF the ambient (outside) air temperature has been greater than 12°F during the previous 8 hour period, THEN ISFSI Manager: Verify this condition (SR 3.3.2.1).

ISFSI Manager Signature

Date

- 4.16.10.2 FSO: IF the ambient air temperature was less than or equal to 12°F during the previous 8 hour period, THEN do the following:

4.16.10.2.1 Immediately place the FSC in a safe condition, but do NOT remove the FSC lid.

4.16.10.2.2 Suspend further HANDLING operations (LCO 3.3.2 A).

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NOTE: *Indications are given on the lifting rod to assist the operator to line up the locking pin and avoid attempting to lift the complete SPHD off the IV prior to disconnecting the interlock.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin, second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates that the lifting rod has been raised too high for location of the locking pin.

_____ 4.16.11 Raise the lifting rod and insert the locking pin.

NOTE: *The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.*

_____ 4.16.12 Fully close the IV by hand-drive.

_____ 4.16.13 Rotate SPHD 2 counter-clockwise to disengage the valve interlock.

4.16.14 FSO: Request CFH to do the following:

4.16.14.1 Attach plastic to the lower portion of the SPHD 2 prior to being removed from the IV.

4.16.14.2 Enclose the bottom with plastic as SPHD 2 is being raised to capture any loose contamination which may exist.

Signature

Date

_____ 4.16.15 RCT/RCM: Monitor the area while raising SPHD 2 to verify radiation/contamination levels.

_____ 4.16.16 Raise SPHD 2 to the crane upper datum.

_____ 4.16.17 Align the loaded SPHD 2 at a suitable laydown position on the charge face.

_____ 4.16.18 CFH: Remove the plastic from SPHD 2.

4.16.18.1 RCT/RCM: Monitor the area while the plastic is being removed from SPHD 2.

4.16.18.2 Place plastic at the laydown position.

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_____ 4.16.19 IF replacing O-rings in the FSC lid,
THEN place the replacement O-rings (FSC lid inner seal, Drawing 362A0066/8 and FSC lid outer seal, Drawing 362A0066/7) on the plastic at the laydown position, being careful to keep body away from the suspended SPHD 2.

_____ 4.16.20 Seat SPHD 2 on the charge face, straddling and being careful to avoid the O-rings when present.

4.17 Remove the FSC lid from SPHD 2.

Init/Date

_____ 4.17.1 Remove the locking pin from SPHD 2 and lower the DUP adaptor plate, DUP, and FSC lid to seat on the charge face, inside the O-rings when present.

_____ 4.17.2 Disconnect Sling No. 2 from SPHD 2.

_____ 4.17.3 Fully unscrew the lifting rod from the DUP adaptor plate.

_____ 4.17.4 Connect Sling No. 2 to SPHD 2.

NOTE: *Indications are given on the lifting rod to assist the operator to line up the locking pin and avoid attempting to lift the complete SPHD prior to inserting the locking pin.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin, second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates that the lifting rod has been raised too high for location of the locking pin.

_____ 4.17.5 Raise the lifting rod and insert the locking pin.

_____ 4.17.6 Position SPHD 2 at its laydown position.

4.18 Replace FSC lid seals.

Init/Date

_____ 4.18.1 RCT/RCM: Assist and direct the decontamination of the FSC lid, DUP, and adaptor plate as required.

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- _____ 4.18.2 Using cotton swabs and rags, clean the FSC flange seal face and FSC lid interface as clean as possible with White Spirits.
- 4.18.2.1 RCT/RCM: Survey and bag the cotton swabs and rags for disposal, if necessary.
- _____ 4.18.3 Carefully remove the old inner and outer metal O-rings and bag for disposal.
- _____ 4.18.4 Using cotton swabs and rags, clean the O-ring grooves as clean as possible with White Spirits.
- 4.18.4.1 RCT/RCM: Survey and bag the cotton swabs and rags for disposal, if necessary.
- _____ 4.18.5 Inspect for any obvious signs of cross seal face damage on the seal surfaces.
- _____ 4.18.6 Apply an even smear of Shell APL 701 or equivalent grease to the FSC flange seal face, FSC lid interface, and FSC lid grooves.
- _____ 4.18.7 Install O-rings—Drawing 362A0066/8 (inner) and Drawing 362A0066/7 (outer)—in FSC lid grooves as follows:
- 4.18.7.1 Use care in handling to ensure positive installation.
- 4.18.7.2 CFH (Performer): Do the following:
- 4.18.7.2.1 Ensure the O-ring grooves and remainder of the FSC lid are clean and ready for O-ring seal installation.
- 4.18.7.2.2 Visually inspect the O-rings for nicks, gouges, or signs of deformation.
- _____ Signature _____ Date
- 4.18.7.3 Second CFH: Verify (witness) the following:
- 4.18.7.3.1 Ensure the O-ring grooves and remainder of the FSC lid are clean and ready for O-ring seal installation.

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4.18.7.3.2 Visually inspect the O-rings for nicks, gouges, or signs of deformation.

Signature Date

4.18.7.4 CFH Performer: Install O-rings in FSC lid grooves.

Signature Date

4.18.7.5 Second CFH: Verify (witness) that the O-rings were installed properly in the FSC lid grooves.

Signature Date

4.19 Install SPHD 2 to the IV.

Init/Date

_____ 4.19.1 Seat SPHD 2 to DUP adaptor plate, DUP, and FSC lid positioned on the charge face, ensuring correct alignment.

_____ 4.19.2 Remove the lifting pin from SPHD 2 and lower rod to engage on the DUP adaptor plate.

_____ 4.19.3 Disconnect Sling No. 2 from SPHD 2.

NOTE: *An indication is given when the lifting rod is fully screwed into the adaptor plate, this consists of a band, painted orange, on the lifting rod. When the lifting rod is fully screwed into position the upper face of the 1 in. wide band corresponds with the top face of the lifting rod tube.*

_____ 4.19.4 Fully screw the lifting rod into the DUP adaptor plate.

_____ 4.19.5 Connect Sling No. 2 to SPHD 2.

NOTE: *Indications are given on the lifting rod to assist the operator while lifting the DUP to avoid attempting to lift the complete SPHD.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin; second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates the lifting rod has been raised too high for location of the locking pin.

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- _____ 4.19.6 Ensure the IV HEPA system is still operating.
- _____ 4.19.7 Raise the lifting rod and insert the locking pin.
- _____ 4.19.8 Align SPHD 2 to the IV positioned at the SSW.
- _____ 4.19.9 Lower SPHD 2 to seat on the IV ensuring correct alignment has been achieved via the locating pins.
- _____ 4.19.10 Rotate SPHD 2 clockwise by hand to engage the valve interlock allowing the IV to be opened.

4.20 Open the IV at the SSW and install the FSC lid.

NOTE: *Step 4.20.1 may be performed in any order and concurrently with Steps 4.20.2 through 4.20.13.*

_____ 4.20.1 RCT/RCM: Do the following:
Init/Date

- 4.20.1.1 Monitor the SSW lid area while the DUP adaptor plate, DUP, and FSC lid are being installed.
- 4.20.1.2 Check that there is no significant increase in background radiation.
- 4.20.1.3 Continue to monitor the air at the IV and SPHD 2 location as required for airborne contaminants.
- 4.20.1.4 IF there is any indication of increased airborne activity, THEN STOP the job immediately.

_____ 4.20.2 FSO: IF handling an FSC containing spent fuel, OR installing the lid on an FSC containing spent fuel, THEN record the lowest ambient air temperature for the previous 8-hour period.

Temperature: _____

- 4.20.2.1 IF the ambient (outside) air temperature has been greater than 12°F during the previous 8 hour period, THEN ISFSI Manager: Verify this condition (SR 3.3.2.1).

ISFSI Manager Signature

Date

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4.20.2.2 FSO: IF the ambient air temperature was less than or equal to 12°F during the previous 8 hour period, THEN do the following:

4.20.2.2.1 Immediately place the FSC in a safe condition, but do NOT lower the FSC lid.

4.20.2.2.2 Suspend further HANDLING operations (LCO 3.3.2 A).

_____ 4.20.3 Ensure the HEPA unit is operating.

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV.*

The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive.

_____ 4.20.4 Fully open the IV by hand-drive.

NOTE 1: *Indications are given on the lifting rod to assist the operator to fully seat the FSC lid. First a wide red band appears, then a narrow red band appears. Proper positioning is achieved when the narrow red band is approximately 1 inch above the lifting rod tube.*

NOTE 2: *Some repositioning of the FSC lid (raising and lowering) may be necessary to ensure proper positioning.*

_____ 4.20.5 Remove the locking pin from SPHD 2 and lower the FSC lid into the FSC.

_____ 4.20.6 Disconnect Sling No. 2 from SPHD 2.

_____ 4.20.7 Unscrew the lifting rod from the DUP adaptor plate.

_____ 4.20.8 Connect Sling No. 2 to SPHD 2.

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NOTE: *Indications are given on the lifting rod to assist the operator to line up the locking pin and avoid attempting to lift the complete SPHD off the IV prior to disconnecting the interlock.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin, second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates that the lifting rod has been raised too high for location of the locking pin.

_____ 4.20.9 Raise the lifting rod and insert the locking pin.

NOTE: *The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.*

_____ 4.20.10 Fully close the IV by hand-drive.

_____ 4.20.11 Rotate SPHD 2 counter-clockwise to disengage the valve interlock.

_____ 4.20.12 FSO: Request RCT to monitor the area while raising SPHD 2 to verify radiation/contamination levels.

NOTE: *Step 4.2.1 may be performed in parallel with Steps 4.20.13 and 4.20.14.*

_____ 4.20.13 Store SPHD 2 at the laydown area.

_____ 4.20.14 Store Sling No. 2 at sling laydown area.

4.21 Install IV release tool and open IV gate.

Init/Date

_____ 4.21.1 Bolt the IV gate release tool on the IV top plate.

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV. The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive.*

_____ 4.21.2 RCT/RCM: Monitor the area while opening the IV to verify radiation/contamination levels.

_____ 4.21.3 Fully open the IV valve by the hand-drive.

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- 4.22 Align and fit the DUP adaptor plate, DUP, and FSC lid.
- _____ 4.22.1 Attach Sling No. 4 to the crane hook.
- _____ 4.22.2 Align Sling No. 4 at the DUP adaptor plate and FSC lid.
- _____ 4.22.3 Attach the lifting eye bolts to the adaptor plate, if required.
- _____ 4.22.4 Lower the Sling No. 4 and attach to the DUP adaptor plate, hooks facing out.
- _____ 4.22.5 FSO: IF handling an FSC containing spent fuel, OR installing the lid on an FSC containing spent fuel, THEN record the lowest ambient air temperature for the previous 8-hour period.

Temperature: _____

- 4.22.5.1 IF the ambient (outside) air temperature has been greater than 12°F during the previous 8 hour period, THEN ISFSI Manager: Verify this condition (SR 3.3.2.1).

ISFSI Manager Signature _____
Date

- 4.22.5.2 FSO: IF the ambient air temperature was less than or equal to 12°F during the previous 8 hour period, THEN do the following:

- 4.22.5.2.1 Immediately place the FSC in a safe condition, but do NOT lift the DUP adapter plate.
- 4.22.5.2.2 Suspend further HANDLING operations (LCO 3.3.2 A).

NOTE: *The lid is properly aligned when the access port for the interspace leak test port is located directly south and the FSC leak test port is located directly east.*

- _____ 4.22.6 Two CFH: Align FSC lid as follows:
 - 4.22.6.1 First CFH (Performer): Raise Sling No. 4 slowly and just enough to allow the FSC lid to be rotated to its aligned position, with the keyway lined up on the lid and the FSC.

Signature _____
Date

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4.22.6.2 Second CFH: Verify (witness) FSC lid is properly aligned.

Signature

Date

4.22.6.3 CFH: Lower lid to seated position.

4.23 Install the FSC lid bolts.

Init/Date

4.23.1 Don powder less latex or nitrile gloves if necessary.

4.23.2 Clean and/or lubricate the threads and friction face of the FSC lid bolts using “Molykote” or equivalent, as needed.

4.23.3 Doff powder less latex or nitrile gloves if necessary.

4.23.4 Install the 24 FSC lid bolts.

4.23.5 Two CFH: Torque the FSC lid bolts.

4.23.5.1 First CFH (Performer): Torque the FSC lid bolts to 52 ft · lbs in 3 increments (26 ft · lbs, 39 ft · lbs, and 52 ft · lbs) per the IV positioning and bolting pattern in Appendix B, “FSC/SSW Lid Bolt Torque Tightening Pattern.”

Signature

Date

4.23.5.2 Second CFH: Verify (witness) FSC lid bolts have been torqued to 52 ft · lbs in 3 increments (26 ft · lbs, 39 ft · lbs, and 52 ft · lbs) per the IV positioning and bolting pattern in Appendix B.

Signature

Date

4.23.6 Two CFH: Torque the FSC lid bolts.

4.23.6.1 First CFH (Performer): Torque the FSC lid bolts to 52 ft · lbs per the IV positioning and bolting pattern in Appendix B.

Signature

Date

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4.23.6.2 Second CFH: Verify (witness) FSC lid bolts have been torqued to 52 ft · lbs per the IV positioning and bolting pattern in Appendix B.

Signature Date

4.23.7 Two CFH: Torque the FSC lid bolts.

4.23.7.1 First CFH (Performer): Torque the FSC lid bolts to 52 ft · lbs per the IV positioning and bolting pattern in Appendix B.

Signature Date

4.23.7.2 Second CFH: Verify (witness) FSC lid bolts have been torqued to 52 ft · lbs per the IV positioning and bolting pattern in Appendix B.

Signature Date

4.23.8 Two CFH: Torque the FSC lid bolts.

4.23.8.1 First CFH (Performer): Torque the FSC lid bolts to 52 ft · lbs in a clockwise pattern, starting with bolt No. 1 (for bolt location see Appendix B).

Signature Date

4.23.8.2 Second CFH: Verify (witness) FSC lid bolts have been torqued to 52 ft · lbs in a clockwise pattern, starting with bolt No. 1 (for bolt location see Appendix B).

Signature Date

_____ 4.23.9 Disconnect Sling No. 4 from the DUP adaptor plate.

4.23.9.1 Remove the DUP adaptor plate eye bolts.

4.23.9.2 Remove the DUP adaptor plate bolts.

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NOTE: *Steps 4.24.1 and 4.24.2 may be worked in parallel with Steps 4.23.10 and 4.23.11.*

_____ 4.23.10 Disconnect Sling No. 4 from the crane hook and store at the sling laydown area.

_____ 4.23.11 Connect Sling No. 2 to crane hook.

4.24 Install SPHD 2 to the IV.

Init/Date

NOTE: *The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.*

_____ 4.24.1 Fully close the IV gate by the hand-drive.

_____ 4.24.2 Unbolt and remove the release tool.

_____ 4.24.3 Align Sling No. 2 at SPHD 2.

_____ 4.24.4 Lower Sling No. 2 and connect to SPHD 2.

_____ 4.24.5 Traverse SPHD 2 and align at the IV positioned at the SSW.

_____ 4.24.6 Lower SPHD 2 to seat on the IV ensuring correct alignment has been achieved via the locating pins.

_____ 4.24.7 Rotate SPHD 2 clockwise by hand to engage the valve interlock allowing the IV to be opened.

4.25 Open the IV at the SSW and remove the DUP adapter plate and DUP.

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV.*

The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive.

Init/Date

_____ 4.25.1 Fully open the IV by hand-drive.

_____ 4.25.2 Remove the locking pin from SPHD 2 and lower rod to engage on the DUP adaptor plate.

_____ 4.25.3 Disconnect Sling No. 2 from SPHD 2.

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NOTE: *An indication is given when the lifting rod is fully screwed into the adaptor plate, this consists of a band, painted orange, on the lifting rod. When the lifting rod is fully screwed into position the upper face of the 1 in. wide band corresponds with the top face of the lifting rod tube.*

- _____ 4.25.4 Fully screw the lifting rod into the DUP adaptor plate.
- _____ 4.25.5 Connect Sling No. 2 to SPHD 2.
- _____ 4.25.6 RCT/RCM: Monitor the area while lifting the DUP adapter plate in Step 4.25.8 to verify radiation/contamination levels.
- _____ 4.25.7 FSO: IF handling an FSC containing spent fuel, OR installing the lid on an FSC containing spent fuel, THEN record the lowest ambient air temperature for the previous 8-hour period.

Temperature: _____

- 4.25.7.1 IF the ambient (outside) air temperature has been greater than 12°F during the previous 8 hour period, THEN ISFSI Manager: Verify this condition (SR 3.3.2.1).

- | | | |
|--|-------------------------|-------|
| | _____ | _____ |
| | ISFSI Manager Signature | Date |
- 4.25.7.2 FSO: IF the ambient air temperature was less than or equal to 12°F during the previous 8 hour period, THEN do the following:

- 4.25.7.2.1 Immediately place the FSC in a safe condition, but do NOT raise the lifting rod.
- 4.25.7.2.2 Suspend further HANDLING operations (LCO 3.3.2 A).

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NOTE: *Indications are given on the lifting rod to assist the operator to line up the locking pin and avoid attempting to lift the complete SPHD off the IV prior to disconnecting the interlock.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin, second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates that the lifting rod has been raised too high for location of the locking pin.

_____ 4.25.8 Raise the lifting rod and insert the locking pin.

NOTE: *The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.*

_____ 4.25.9 Fully close the IV by hand-drive.

_____ 4.25.10 Rotate SPHD 2 counter-clockwise to disengage the valve interlock.

_____ 4.25.11 RCT/RCM: Survey the lower portion of the SPHD 2 to ensure no loose contamination is present while it is being removed.

_____ 4.25.12 Store SPHD 2 as directed by the Facility Manager or FSO.

_____ 4.25.13 Disconnect Sling No. 2 from SPHD 2.

4.26 Install SPHD 1 to IV at designated SSW.

Init/Date

_____ 4.26.1 Connect Sling No. 2 to the crane hook, if not already done.

_____ 4.26.2 Connect fall arrest device to the crane hook, using connector straps as needed.

_____ 4.26.3 Don fall protection equipment.

_____ 4.26.4 Align Sling No. 2 with SPHD 1.

_____ 4.26.5 Connect fall arrest device to fall protection equipment.

_____ 4.26.6 Connect Sling No. 2 to SPHD 1.

_____ 4.26.7 Disconnect fall arrest device from fall protection equipment.

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_____ 4.26.8 Using a tag line, traverse and align SPHD 1 at the IV positioned at the SSW.

_____ 4.26.9 Lower SPHD 1 to seat on the IV ensuring correct alignment has been achieved using the locating pins.

_____ 4.26.10 Rotate SPHD 1 clockwise by hand to engage the valve interlock which will allow the IV to be opened.

4.27 Open the IV and install the shield plug at designated SSW.

NOTE: *An indication of the valve gate position is given by the valve gate drive pin traveling in its slot on the top face of the IV.*

The fully open position corresponds to the pin being at its full extent of travel towards the valve hand-drive.

_____ 4.27.1 Fully open the IV valve by the hand-drive.

_____ 4.27.2 Remove the lifting pin from SPHD 1 and lower the shield plug to seat in the designated vault.

_____ 4.27.3 Disconnect Sling No. 2 from SPHD 1.

NOTE: *An indication is given when the lifting rod is fully screwed into the shield plug, this consists of a band, painted red, on the lifting rod. When the lifting rod is fully screwed into position the lower face of the 1 in. wide band corresponds with the top face of the lifting rod tube.*

_____ 4.27.4 Fully unscrew the lifting rod from the shield plug.

_____ 4.27.5 Connect Sling No. 2 to SPHD 1.

NOTE: *Indications are given on the lifting rod to assist the operator to line up the locking pin and avoid attempting to lift the complete SPHD off the IV prior to disconnecting the interlock.*

First a green band appears on the lifting rod indicating a further 6 in. of lift is required to align the locking pin, second an orange band appears on the lifting rod indicating a further 3 in. of lift is required to align the locking pin. The pin is aligned when the 1 in. plain band is exposed below the orange band. The appearance of a red band indicates that the lifting rod has been raised too high for location of the locking pin.

_____ 4.27.6 Raise the lifting rod and insert the locking pin.

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NOTE: *The fully closed position corresponds to the valve gate drive pin being at its full extend of travel away from the valve hand-drive.*

- _____ 4.27.7 Fully close the IV valve by the hand-drive.
- _____ 4.27.8 Rotate SPHD 1 counter-clockwise to disengage the valve interlock.
- _____ 4.27.9 Raise SPHD 1 to the crane upper datum.
- _____ 4.27.10 Lower SPHD 1 to its parked position.
- _____ 4.27.11 Connect fall arrest device to fall protection equipment.
- _____ 4.27.12 Disconnect Sling No. 2 from SPHD 1.
- _____ 4.27.13 Disconnect fall arrest device from fall protection equipment.
- _____ 4.27.14 Doff fall protection equipment.
- _____ 4.27.15 Disconnect Sling No. 2 and fall arrest device from the crane hook and store in the sling laydown area.
- _____ 4.27.16 Connect Sling No. 3 to the crane hook.
- 4.28 Remove the IV from the designated SSW.

Init/Date

NOTE: *Steps 4.28.1 through 4.28.6 may be performed in parallel.*

- _____ 4.28.1 Align Sling No. 3 to the IV located at the designated SSW.
- _____ 4.28.2 Install the IV eye bolts to the IV.
- _____ 4.28.3 Two CFH: Unbolt the IV from the designated SSW.
 - 4.28.3.1 First CFH (Performer): Unbolt the IV from the designated SSW.

Signature

Date

- 4.28.3.2 Second CFH: Verify (independent) all bolts have been removed from the IV.

Signature

Date

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- _____ 4.28.4 Secure HEPA vacuum system operation.
- 4.28.4.1 Remove adapter and hose and store as directed.
- _____ 4.28.5 Install the vent plug in the IV.
- _____ 4.28.6 RCT/RCM: Survey vacuum system, adapter, and hose.
- _____ 4.28.7 Lower Sling No. 3 and connect to eye bolts.

CAUTION

**The tag lines prevent the isolation valve from rotating during the lift.
Excessive rotating may cause the sling to unwind allowing the isolation valve
to come to rest on the floor damaging valve.**

- _____ 4.28.8 Attach two tag lines to the IV to prevent rotation.
- _____ 4.28.9 RCT/RCM: Survey IV as it is being raised to verify radiation/contamination levels.
- _____ 4.28.10 Traverse the IV to laydown area.
- _____ 4.28.11 Lower the IV and disconnect Sling No. 3.
- 4.28.11.1 Remove the IV eye bolts and store at the rigging storage area.
- _____ 4.28.12 Disconnect Sling No. 3 from crane hook and store at the sling laydown area.
- _____ 4.29 Init/Date Align the SSW shield plug with the FSC leak check points.
- _____ 4.29.1 Connect Sling No. 2 to the crane hook.
- _____ 4.29.2 Remove the access plugs from the SSW shield plug.
- _____ 4.29.3 Fit the shield plug alignment device to the SSW shield plug.
- _____ 4.29.4 Install eye bolt to the SSW shield plug.
- _____ 4.29.5 Traverse the crane to the designated SSW.
- _____ 4.29.6 Lower Sling No. 2 and connect to the eye bolt at the SSW shield plug.

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- _____ 4.29.7 Lift the SSW shield plug.
- 4.29.7.1 As soon as the shield plug weight is supported stop the lift.
- _____ 4.29.8 Rotate the SSW shield plug by hand to align leak test ports.
- _____ 4.29.9 Lower the SSW shield plug.
- _____ 4.29.10 Verify alignment using the alignment device.
- _____ 4.29.11 IF further adjustment is needed,
THEN adjust as required by repeating Steps 4.29.7 to 4.29.10.
- _____ 4.29.12 Disconnect Sling No. 2 from the SSW shield plug eye bolt.
- _____ 4.29.13 Remove the alignment device and the lifting eye bolt from the shield plug.
- _____ 4.29.14 Install access plugs into the SSW shield plug.
- _____ 4.29.15 Replace the dust caps in the bolt holes and the shield plug lifting hole at the SSW.
- _____ 4.29.16 Disconnect Sling No. 2 from the crane hook and store at the sling laydown area.
- _____ 4.30 Perform FSC leak test.
- Init/Date
- _____ 4.30.1 Perform leak test of FSC per TPR-5604, “FSV ISFSI Fuel Storage Container O-Ring Vacuum Leak Test.”
- _____ 4.30.2 Notify FSO of test results.
- _____ 4.30.3 FSO: Review results of leak test and determine if results are within established parameters.
- _____ 4.30.4 IF test results are acceptable,
THEN initiate required actions to return FSC to a vault storage location per TPR-5653, as directed by supervision.

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4.31 Install the SSW lid.

NOTE: *Step 4.31 may be postponed if FSC is to be moved to a vault storage location. SSW lid installation will then be performed after FSC re-location, and steps calling for O-ring inspection and replacement may be “N/Ad” if directed by supervision (see Step 2.10).*

- _____ 4.31.1 Connect Sling No. 4 to the crane hook.
- _____ 4.31.2 Align Sling No. 4 over designated SSW lid laydown position.
- _____ 4.31.3 Install the lifting eye bolts with links into the designated SSW lid.
- _____ 4.31.4 Attach Sling No. 4 to the eye bolts on the lid, hooks facing out.
- _____ 4.31.5 IF directed by supervision to replace O-rings in the SSW lid, THEN clean the SSW flange seal face and SSW lid interface as clean as possible using cotton swabs and rags and White Spirits or equivalent.
 - 4.31.5.1 Bag the cotton swabs and rags for disposal.
- _____ 4.31.6 IF directed by supervision to replace O-rings in the SSW lid, THEN carefully remove the old inner and outer metal O-rings and bag for disposal.
 - 4.31.6.1 Using cotton swabs and rags, clean the O-ring grooves as clean as possible using White Spirits or equivalent.
- _____ 4.31.7 Inspect for any obvious signs of cross seal face damage on the seal surfaces.
- _____ 4.31.8 Apply an even smear of Shell APL 701 or equivalent grease to the SSW flange seal face, SSW lid interface, and SSW lid grooves.
- _____ 4.31.9 IF directed by supervision to replace O-rings in the SSW lid, THEN install O-rings (Drawing 362A0060/22 [inner] and Drawing 362A0060/21 [outer]) in SSW lid grooves as follows:
 - 4.31.9.1 Use care in handling to ensure positive installation.
 - 4.31.9.2 CFH (Performer): Do the following:
 - 4.31.9.2.1 Ensure the O-ring grooves and remainder of the SSW lid are clean and ready for O-ring seal installation.

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4.31.9.2.2 Visually inspect the O-rings for nicks, gouges, or signs of deformation.

Signature

Date

4.31.9.3 Second CFH: Verify (witness) the following:

4.31.9.3.1 Ensure the O-ring grooves and remainder of the SSW lid are clean and ready for O-ring seal installation.

4.31.9.3.2 Visually inspect the O-rings for nicks, gouges, or signs of deformation.

Signature

Date

4.31.9.4 CFH (Performer): Install O-rings in SSW lid grooves.

Signature

Date

4.31.9.5 Second CFH: Verify (witness) that the O-rings were installed properly in the SSW lid grooves.

Signature

Date

_____ 4.31.10 Align the SSW lid to the designated SSW.

_____ 4.31.11 Lower the SSW lid to seat on the designated SSW.

_____ 4.31.12 Don powder less latex or nitrile gloves if necessary.

_____ 4.31.13 Clean and/or lubricate the threads and friction face of the SSW lid bolts using “Molykote” or equivalent, as needed.

_____ 4.31.14 Doff powder less latex or nitrile gloves if necessary.

_____ 4.31.15 Install 24 SSW lid bolts.

_____ 4.31.16 Hand-tighten the SSW lid bolts.

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_____ 4.31.17 Two CFH: IF directed by supervision,
THEN torque the SSW lid bolts.

4.31.17.1 First CFH (Performer): Torque the SSW lid bolts to 83 ft · lbs in 3 increments (41 ft · lbs, 62 ft · lbs, and 83 ft · lbs) per the IV positioning and bolting pattern in Appendix B.

Signature Date

4.31.17.2 Second CFH: Verify (witness) SSW lid bolts have been torqued to 83 ft · lbs in 3 increments (41 ft · lbs, 62 ft · lbs, and 83 ft · lbs) per the IV positioning and bolting pattern in Appendix B.

Signature Date

_____ 4.31.18 Two CFH: Torque the SSW lid bolts.

4.31.18.1 First CFH (Performer): Torque the SSW lid bolts to 83 ft · lbs per the torque tightening pattern in Appendix B.

Signature Date

4.31.18.2 Second CFH: Verify (witness) SSW lid bolts have been torqued to 83 ft · lbs per the IV positioning and bolting pattern in Appendix B.

Signature Date

_____ 4.31.19 Two CFH: Torque the SSW lid bolts.

4.31.19.1 First CFH (Performer): Torque the SSW lid bolts to 83 ft · lbs per the torque tightening pattern in Appendix B.

Signature Date

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4.31.19.2 Second CFH: Verify (witness) the SSW lid bolts have been torqued to 83 ft · lbs per the torque tightening pattern in Appendix B.

Signature Date

_____ 4.31.20 Two CFH: Torque the SSW lid bolts.

4.31.20.1 First CFH (Performer): Torque the SSW lid bolts to 83 ft · lbs in a clockwise pattern starting with bolt No. 1 (for bolt locations see Appendix B).

Signature Date

4.31.20.2 Second CFH: Verify (witness) the SSW lid bolts have been torqued to 83 ft · lbs in a clockwise pattern starting with bolt No. 1 (for bolt locations see Appendix B).

Signature Date

_____ 4.31.21 Remove Sling No. 4 from the SSW lid.

_____ 4.31.22 Remove the lifting eye bolts from the SSW lid.

_____ 4.31.23 Traverse Sling No. 4 and store sling at sling laydown area.

_____ 4.31.24 Traverse the crane to place the crane in standby.

_____ 4.31.25 Secure power to the crane pendant and ensure the tornado clamps have engaged.

_____ 4.31.26 Remove key No. 1 from crane pendant control.

_____ 4.31.27 FSO: Place key No. 1 into key control box.

4.32 IF the results of the FSC leak test performed in step 4.30.1 were NOT acceptable, OR IF directed by supervision, THEN perform a leak test on the SSW per TPR-5598.

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4.33.2 FSV ISFSI Manager: Do the following:

4.33.2.1 Verify procedure completed.

4.33.2.2 Document completion of procedure on daily operations log.

FSV ISFSI Manager Signature

Date

5. RECORDS

Completed copy of this procedure

Form 441.49, "ICP Radiation Work Permit", if used

NOTE: [MCP-557, "Records Management,"](#) the [INL Records Schedule Matrix](#), and associated [record types list\(s\)](#) provide current information on the storage, turnover, and retention requirements for these records.

6. REFERENCES

GEC Dwg. No. 362A0060, Standby Storage Well Tubes Assy

GEC Dwg. No. 362A0066, Fuel Storage Container Assy

GEC Technical Specification 362F0352, Fort St. Vrain MVDS FSC & SSW/NSW O-Ring Installation and Lid Bolt Torque Tightening

GEC Technical Specification 362F0336, Fort St. Vrain MVDS Specification for Torque Tightening Fasteners

Safety Analysis Report for the Fort St. Vrain Independent Spent Fuel Storage Installation

EDF-8955, FSV ISFSI Torque Value for Adapter Plate to Depleted Uranium Plug Cap Screws

7. APPENDIXES

Appendix A, IV Positioning and Bolting Pattern

Appendix B, FSC/SSW Lid Bolt Torque Tightening Pattern

Appendix C, Procedure Hazard Analysis

Appendix D, Procedure Discrepancies

Appendix E, Procedure Basis

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Appendix A

IV Positioning and Bolting Pattern

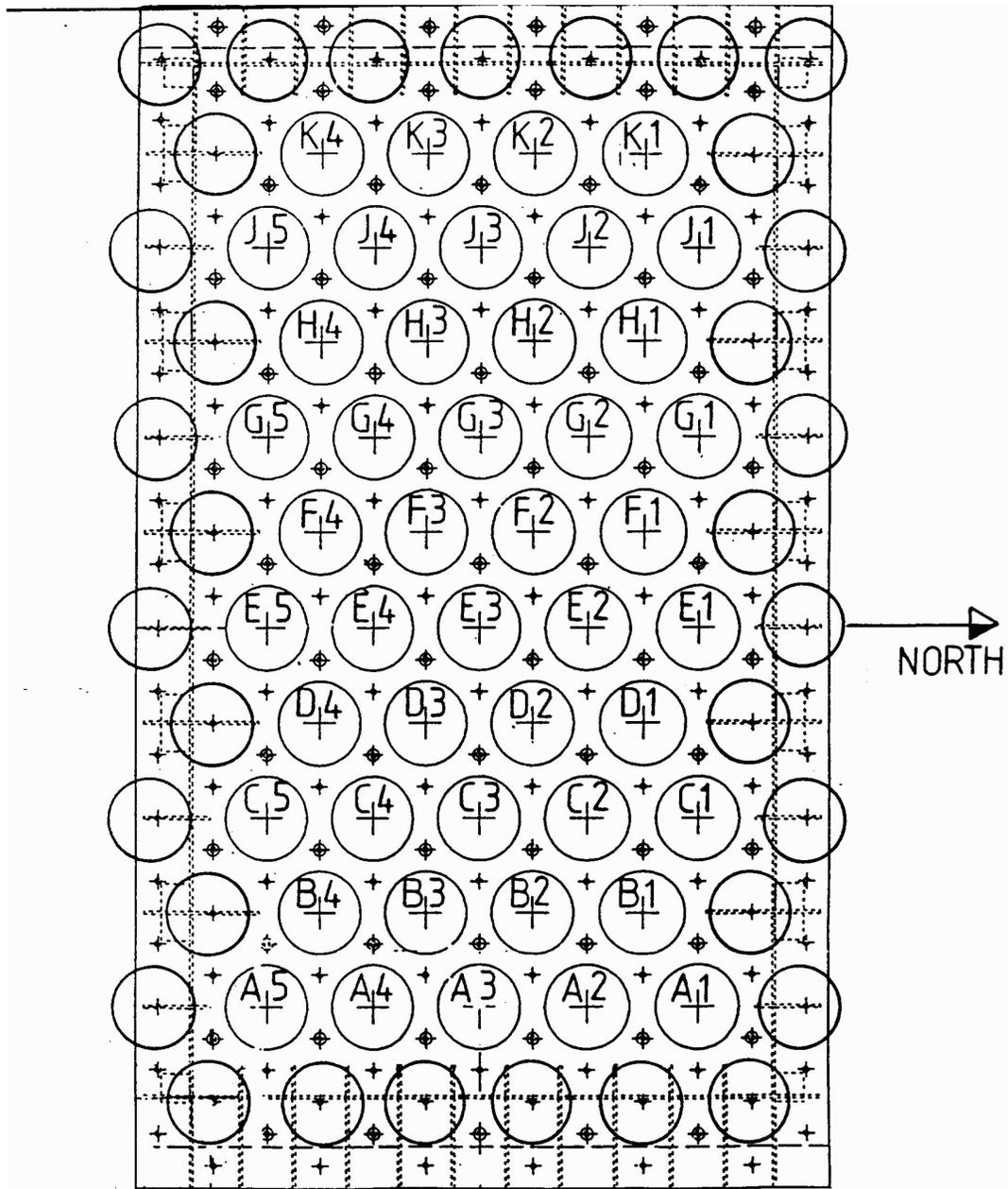


FIG 1 VM STORAGE LOCATIONS

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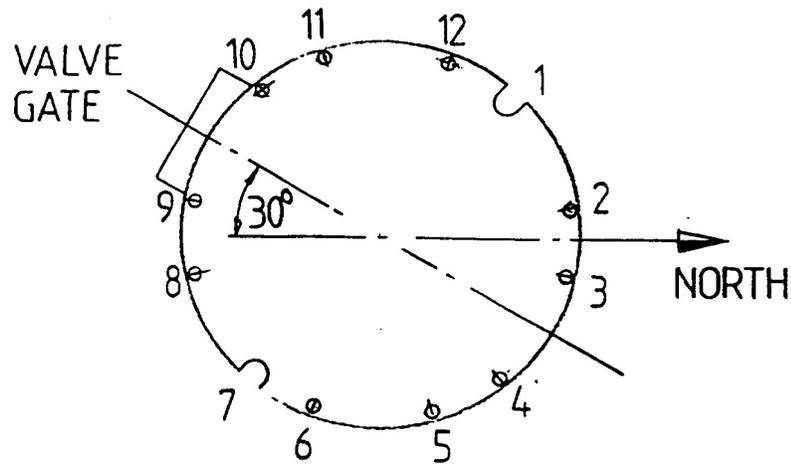


FIG2 VALVE -CFS BOLT LOCATION

VM STORAGE LOCATION	LOCATION AND BOLT	BOLT
A5.C5.E5.G5.J5.	1 AND 7	2,3,4,5,6,10,11,12.
K1.K2.K3.K4.	1 AND 7	2,3,4,5,6,8, 9,10.
ALL OTHER POSITIONS	1 AND 7	4,5,6,8,9,10,11,12.

TABLE 1 BOLTING PATTERN -CFS

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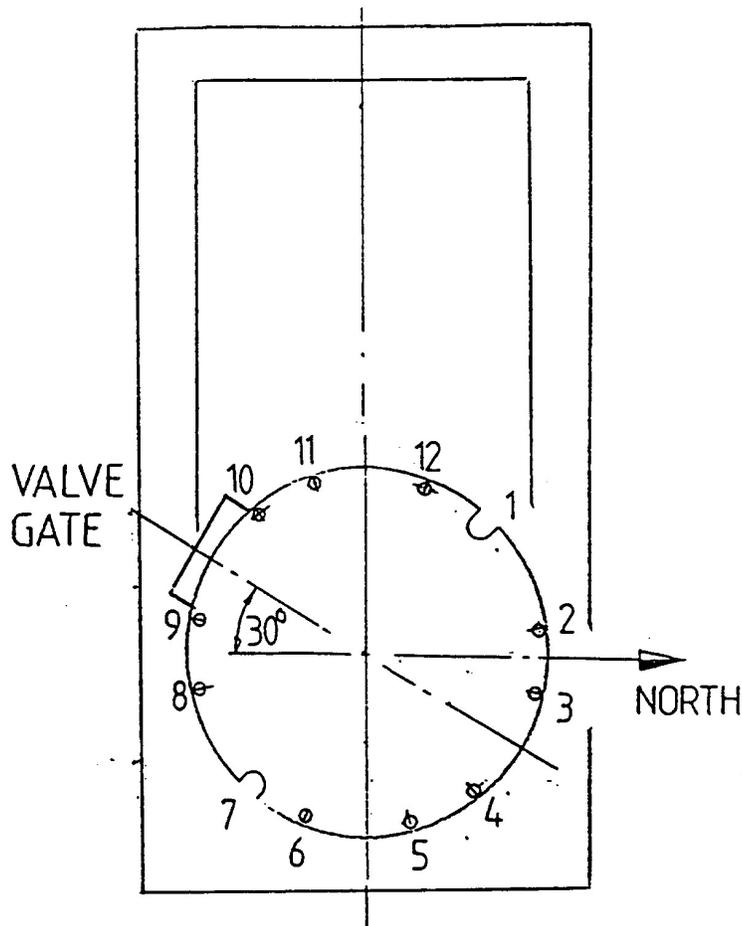


FIG 3 VALVE - CLUP BOLT LOCATION

POSITION	LOCATION	BOLT
CLUP	1 AND 7	2,3,4,5,6,8,9,10,11,12

TABLE 2 BOLTING PATTERN - CLUP

<p>REPLACEMENT OF FSV FUEL STORAGE CONTAINER LID SEALS</p>	<p>Identifier: TPR-5659 Revision*: 14 Page: 47 of 56</p>
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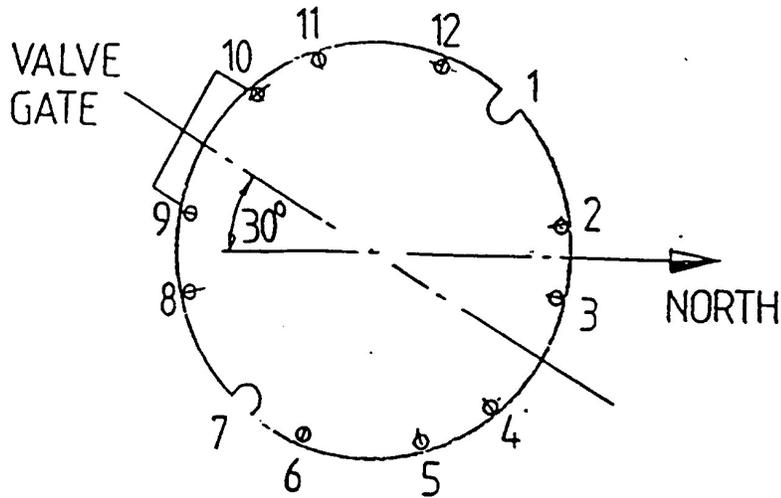


FIG 4 VALVE -SSW/NSW BOLT LOCATION

POSITION	LOCATION	BOLT
SSW/NSW	1 AND 7	2,3,4,5,6,8,9,10,11,12

TABLE 3 BOLTING PATTERN -SSW/NSW

**REPLACEMENT OF FSV FUEL STORAGE
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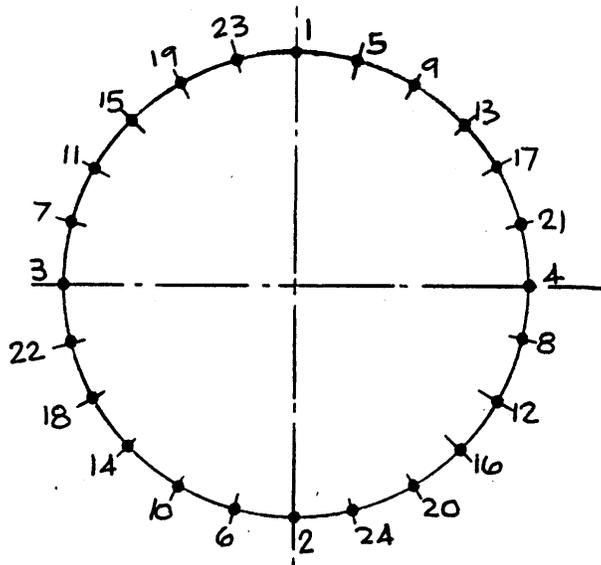
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Appendix B

FSC/SSW Lid Bolt Torque Tightening Pattern



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Appendix C

Procedure Hazard Analysis

Highly Hazardous Activity? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		HPSC No.: TPR-5659			
Disciplines (SMEs) involved in hazard analysis: (Checking the box indicates discipline is/was involved in the hazard analysis for the procedure.)					
	Discipline		Discipline		Discipline
<input checked="" type="checkbox"/>	Industrial Safety	<input type="checkbox"/>	RCT/RAD Eng.	<input type="checkbox"/>	Engineering
<input type="checkbox"/>	Industrial Hygiene	<input type="checkbox"/>	Env. Protection	<input checked="" type="checkbox"/>	Operations
<input type="checkbox"/>	Fire Protection	<input checked="" type="checkbox"/>	Quality Assurance	<input type="checkbox"/>	Other:
Required Job Training/Required Personal Protective Equipment					
Training			PPE		
Certified Fuel Handler			Substantial footwear		
Heat/cold stress			Appropriate gloves for operation with pinch points/chemicals		
Fall protection (for at-risk workers)			Fall protection harness, fall arrest device, and connector strap		
RCT/RCM			Eye protection		
Ladder (for ladder work)					
Rigger					
Industrial ergonomics					

Sequence Of Basic Job Steps	Potential Hazards	Hazard Control/PPE		
1. General to all procedure	1a. Unqualified operator, unsafe condition of crane	1a. Verify crane operator qualification and familiarity with operation of the crane.		
	1b. Crane failure	1b. Crane failure	1b. Verify that testing and inspection of the crane has been performed per the requirements of PRD-650.	
		1c. Rigging failure	1c.1	Verify that testing and inspection of rigging has been performed per the requirements of PRD-650.
			1c.2	Maintain personnel clear of suspended loads.
			1c.3	Use tag lines and long handled tools as appropriate for positioning loads.
	1c.4		Ensure eyebolts are fully seated.	
	1d. Exceeding rated capacity of crane	1d.1	Verify load is within the capacity of the crane.	
		1d.2	Perform lifts in accordance with procedure requirements.	
	1e. Radiation/contamination	1e.1	Verify radiological conditions with RCT/RCM prior to beginning work.	
		1e.2	Follow requirements of RWP if applicable.	
1e.3		The HEPA must have a current DOP test date.		
1f. Pinch points	1f. Pinch points	1f. Wear leather gloves for pinch points associated with rigging.		

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Sequence Of Basic Job Steps	Potential Hazards	Hazard Control/PPE
(1. continued)	1g. Uneven walking/working surface	1g.1 Personnel to be aware of tripping hazards that occur through design.
		1g.2 Operator to be aware of proper body position while working on the Charge Face.
	1h. Fall from a ladder	1g.3 Wear substantial footwear.
		1h.1 Maintain three points of contact while ascending or descending the ladder, raise or lower tools via a bucket or rope.
		1h.2 Visually inspect ladder prior to use.
	1h.3 Follow the requirements of the current FHPA.	
	1i. Heat Stress	1i. Monitor heat stress in accordance with MCP-2704.
1j. Ergonomics	1j.1 Ensure proper body position, use proper lifting techniques while attaching/detaching rigging.	
	1j.2 Applicable steps of MCP-2694 should be followed.	
2. Removing SSW lid	See general hazards	See general hazards
3. Installing IV at designated SSW	3a. Chemical exposure	3a. Wear powderless latex or nitrile gloves when lubricating components.
	3b. Low level waste	3b. Dispose of low-level waste per MCP-62, "Waste Generator Services-Low-Level Waste Management."
4. Installing SPHD 1 to IV	4a. Fall hazard	4a.1 Ensure inspection tags for fall protection harness, fall arrest device, and connector strap are current.
		4a.2 The crane must <u>NOT</u> be moved when personnel are attached to the fall arrest device on the crane hook.
5. Opening the IV and removing the shield plug	5a. Fall hazard	5a.1 Ensure inspection tags for fall protection harness, fall arrest device, and connector strap are current.
		5a.2 The crane must <u>NOT</u> be moved when personnel are attached to the fall arrest device on the crane hook.
6. Installing the DUP adapter plate to the DUP	See general hazards	See general hazards
7. Installing SPHD 2 to the IV	See general hazards	See general hazards
8. Opening the IV and placing the DUP on the FSC lid	See general hazards	See general hazards
9. Installing IV release tool and opening IV gate	See general hazards	See general hazards
10. Repositioning the adaptor plate	See general hazards	See general hazards
11. Removing FSC lid bolts	See general hazards	See general hazards
12. Fitting DUP adaptor plate to the FSC lid	See general hazards	See general hazards
13. Closing IV gate and removing release tool	See general hazards	See general hazards

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Sequence Of Basic Job Steps	Potential Hazards	Hazard Control/PPE
14. Fitting HEPA filter	See general hazards	See general hazards
15. Installing SPHD 2 to the IV	See general hazards	See general hazards
16. Opening the IV and removing the FSC lid	16a. Shock hazard	16a. Connect HEPA system using approved extension cord and ground fault circuit interrupter (GFCI) (as necessary).
17. Removing the FSC lid from SPHD 2	See general hazards	See general hazards
18. Replacing FSC lid seals	18a Chemical exposure	18a Wear powderless latex or nitrile gloves when lubricating components
19. Installing SPHD 2 to the IV	See general hazards	See general hazards
20. Opening the IV and installing the FSC lid	See general hazards	See general hazards
21. Installing IV release tool and opening IV gate	See general hazards	See general hazards
22. Aligning DUP adaptor plate and FSC lid	See general hazards	See general hazards
23. Installing FSC lid bolts	23a Chemical exposure	23a Wear powderless latex or nitrile gloves when lubricating components
24. Installing SPHD 2 to the IV	See general hazards	See general hazards
25. Opening the IV and removing the DUP adaptor plate	See general hazards	See general hazards
26. Installing SPHD 1 to IV	26a. Fall hazard	26a.1 Ensure inspection tags for fall protection harness, fall arrest device, and connector strap are current.
		26a.2 The crane must <u>NOT</u> be moved when personnel are attached to the fall arrest device on the crane hook.
27. Opening the IV and installing the shield plug	27a. Fall hazard	27a.1 Ensure inspection tags for fall protection harness, fall arrest device, and connector strap are current. .
		27a.2 The crane must <u>NOT</u> be moved when personnel are attached to the fall arrest device on the crane hook
28. Removing the IV	See general hazards	See general hazards
29. Aligning the SSW shield plug	See general hazards	See general hazards
30. Performing FSC leak test	See general hazards	See general hazards
31. Installing SSW lid	31a Chemical exposure	31a Wear powderless latex or nitrile gloves when lubricating components
32. Performing SSW leak test	See general hazards	See general hazards

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Appendix E

Procedure Basis

Procedure Review Table							
Review Discipline	Rev.	DFC Intent ^b Change	DFC Nonintent ^c Change	Review Discipline	Rev.	DFC Intent ^b Change	DFC Nonintent ^c Change
Operations Management	X ^a	X	X	Industrial Safety	X	X	X
Qualified Operator	X	X	X	Engineering			
Radiological Engineering				Industrial Hygiene			
Environmental				Other:			
Quality	X ^a	X	*				

a. X = review required.
 b. Reviews for intent DFCs require the same discipline reviews required for a revision.
 c. Reviews for nonintent DFCs can be performed with only Operations management and a qualified operator’s review and then implemented for immediate use. However, the remaining discipline reviews, as indicated by an asterisk (*), must be obtained within two (2) weeks. See MCP-2985, “Chapter XVI – Operations Procedures,” for definitions of intent and nonintent changes.

Step	Basis	Source	Citation
Entire procedure	Provide for periodic inspection and maintenance of equipment Required inspections, function tests, and component operational tests are performed	GEC Alsthom Engineering Systems LTD Technical Specification 362F0352 – Fort St. Vrain MVDS FSC & SSW/NSW O-Ring Installation and Lid Bolt Torque Tightening, and 362F0336 - Fort St. Vrain MVDS Specification for Torque Tightening Fasteners SAR 9.2.4, Table 9.2-1	
2.1	Personnel must follow the applicable hazard mitigations detailed in Appendix B, “Procedure Hazard Analysis.”	Procedure hazard analysis	

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Step	Basis	Source	Citation
2.2	Prior to replacing the lid seals on a leaking FSC, the FSC must be transferred to a SSW.	Best management practice	
2.3	Prior to starting the work covered by this procedure, RCT/RCM coverage must be available.	Best management practice	
2.4	Increased attention must be given to potential increased radiation levels and the potential of contamination when the FSC lid is exposed.	Best management practice	
2.5	Ensure compliance with Technical Specification Functional and Operating Limits.	FSV ISFSI Technical Specifications	LCO 3.3.2
2.6	Any lifts over the Charge Face not described in an approved procedure must be evaluated per MCP-2925, "Screen and Evaluate Changes," PRIOR to performing the lift.	Company policy	
2.7	When using this procedure to move components, without handling fuel, unnecessary steps may be marked "Not Applicable (N/A)." Minimum personnel requirements and required materials and equipment may be adjusted as appropriate for the evolution. All applicable Precautions and Limitations must be observed when handling individual components (such as, isolation valves).	Best management practice	
2.8	SPHD 1 and SPHD 2 must be properly labeled to reflect their contents.	Best management practice	
2.9	Any potential deficiencies, hazard, or abnormal condition noted during the performance of this procedure must be entered in Appendix D, "Procedure Discrepancies," and reported verbally to the FSV ISFSI Manager.	Best management practice	

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Step	Basis	Source	Citation
2.10	The normal configuration must be maintained unless approved by the Facility Manager	License Renewal Request for Additional Information (RAI)	1-8, page 10
3.1.1	Ensure the training requirements in Appendix C, Procedure Hazard Analysis,” are met.	Procedure hazard analysis	
4.1.3, 4.8.1, 4.16.10, 4.20.2, 4.22.5, 4.25.7	The MVDS ambient air temperature must be verified it is within limits	TS	SR 3.3.1.1
4.6.8	Torque DUP adapter plate bolts	EDF-8955	
4.16.7	When changing fuel elements from one FSC to another, any FSC gas pressure is released and filtered before the FSC is opened. If purging is required, they will be HEPA filtered and monitored during the release.	SAR	7.6.3.4
4.18	<u>Install O-rings.</u>	GEC Technical Specification 362F0352	Steps 3 and 4
4.23.2	<u>Inspect FSC lid bolts.</u>	GEC Technical Specification 362F0352	Step 5
4.23.5– 4.23.8	<u>Torque FSC lid bolts.</u>	GEC Technical Specification 362F0352	Step 6
4.30	FSCs must be leak tested after being loaded. If the containment boundary is leaking, the FSC must be transferred to an SSW by the CHM then sealed to prevent further leakage. If seals fail the leak test after being replaced, fuel must be transferred to a new FSC.	Technical Specifications	LCO 3.3.1
4.31	Install O-rings.	GEC Technical Specification 362F0352	Steps 3 and 4
4.31.8	The use of grease implements aging management requirements	SER	3.2.3

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Step	Basis	Source	Citation
4.31.13	Inspect SSW lid bolts.	GEC Technical Specification 362F0352	Step 5
4.31.17– 4.31.20	Torque SSW lid bolts.	GEC Technical Specification 362F0352	Step 6