

<b>REPLACE SEALS ON TMI-2 ISFSI DSC FILTER HOUSING</b>	Identifier: TPR-7068 Revision*: 6 Page: 1 of 17
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INTEC	Technical Procedure	For Additional Info: <a href="http://EDMS">http://EDMS</a>	Effective Date: 12/06/12
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Manual: 1774

**USE TYPE 1**Change Number: 337270

\*The current revision can be verified on EDMS.

HSM No. \_\_\_\_\_

DATE: \_\_\_\_\_

AFFECTED FILTER HOUSING:     Purge port                       Vent port  
 SEAL REPLACED WITH:             Metallic C-seal             Elastomeric seal

**NOTE:**    *Any changes to this procedure must undergo a 10 CFR Part 72 Screen.*

## 1. INTRODUCTION

### 1.1 Purpose

To change the seals on the vent and purge filter housings of each Three Mile Island Unit 2 (TMI-2) Dry Shielded Canister (DSC).

### 1.2 Scope and Applicability

This procedure defines the systematic actions required to remove/install the vent and purge housings and change-out the seals.

The implementation of this procedure will ensure compliance with applicable Technical Specifications (TS) and provide for long-term safe storage of TMI-2 fuel debris at the Independent Spent Fuel Storage Installation (ISFSI).

## 2. PRECAUTIONS AND LIMITATIONS

2.1 Personnel must follow the applicable hazard mitigations detailed in Appendix A, "Procedure Hazard Analysis."

2.2 If the leak rate of the metallic C-seal exceeds  $1 \times 10^{-2}$  cc/sec, then a contamination survey at the affected DSC-vent housing interface must be performed within 24 hours AND the metallic C-seals must be reseated or replaced within seven days AND a leak check performed. If the vent housing seal leak rate is not restored within 7 days then perform contamination surveys at the affected DSC-vent housing interface monthly AND submit report to NRC describing the condition, analysis, and actions being taken within 90 days. If the metallic seals are replaced with double elastomeric seals, then submit a report to the NRC describing the condition, analysis, and actions being taken within 90 days AND perform a leak check of the elastomeric seals every year AND replace the elastomeric seals after five years in service. The lower explosive limit (LEL) for hydrogen is 5.0% by volume (50,000 ppm). (TMI-2 TS 3.1.1)

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- 2.3 The surface dose rate of each HSM rear access door must not exceed 100 mrem/h (gamma and neutron); and the surface dose rate of each HEPA filter housing must not exceed 1,200 mrem/h (gamma and neutron). If these rates are exceeded, the cause of the dose rates must be evaluated within 7 days AND corrective action must be taken to restore the dose rates within limits within 30 days. (TS 3.2.2)
- 2.4 An ALARA review and subsequent RWP must be completed prior to initiation of this procedure.
- 2.5 A radiological containment must be installed at the back of the HSM containing the DSC designated for seal replacement in accordance with the RWP.
- 2.6 Disposal of waste must be performed per MCP-1390 “Waste Generator Services Waste Management.”
- 2.7 Step completion verifications must be performed as follows:
  - A. The Technical Lead (TL) must initial these steps at the time the step is completed
  - B. All verifications must be documented at the time they are performed
  - C. Steps that are not applicable must be marked “N/A” and initialed by the TL before conducting the next step of the procedure.

### 3. PREREQUISITES

**NOTE:** *Steps 3.1.1 through 3.1.5 may be performed out of sequence to improve operational efficiency at the discretion of the technical lead.*

#### 3.1 Planning and Coordination

3.1.1 TL: As a minimum, ensure the following personnel are available:

- A. TMI-2 ISFSI Tech Lead (1)
- B. Fuel Handling Operator (Minimum—1 for radiological surveys and leak testing, 2 for hydrogen sampling)
- C. QA Representative (Minimum—1 for hydrogen sampling and leak testing. Not required for radiological surveys)
- D. RCT (1)

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E. EO (2) (If counterbalance tool is to be used for filter housing removal.)


3.1.2 TL: Conduct a prejob briefing in accordance with MCP-3003, “Performing Pre-Job Briefings and Documenting Feedback.”

3.1.3 TL: Verify qualifications of all personnel that will operate or supervise the operation of equipment identified as important to safety during this procedure. (TMI-TS 5.3.2)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

3.1.4 TL: Notify Security of pending entrance into CPP-1774.

3.1.5 TL: Ensure a ICP Radiation Work Permit (RWP) is in place.

**3.2 Special Tools, Equipment, Parts, and Supplies**

**NOTE:** *The following list of tools specifies the minimum quantities and capacities required.*

3.2.1 TL: Ensure the following equipment and tools are available, are positioned, and are in current calibration as required:

<b>Tools</b>		
✓	Item	Comments
	Wrenches - 32 mm socket and ratchet or adjustable wrench	Used for the horizontal storage module (HSM) rear access door and transportation cover bolts.
	Anti Seize lubricant	For application to bolts prior to installation.
	Rolling ladder with side rails	For access to the DSC purge and vent ports while installed in the HSM.
	Four threaded rods or counterbalance tool	For filter housing removal.
	Broderson Crane or portable crane	Will not be needed if the threaded rods are used for removing the filter housing.
	Appropriate PPE	As required by FSO or ES&H.

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Tools				
✓	Item	Comments		
	Calibrated Torque Wrench (Torque wrench must have a range such that the desired torque of 85 foot pounds falls somewhere in the middle third of the torque wrench range.)	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">Equipment ID No.</td> <td style="width: 50%; text-align: center;">Calibration Due Date</td> </tr> </table>	Equipment ID No.	Calibration Due Date
Equipment ID No.	Calibration Due Date			
	Replacement seals	Either metallic C-seals or elastomeric seals may be used at the discretion of the System Engineer. Must have evidence of QA acceptance.		
	Silver Shield/4H chemical resistant gloves	For use when applying Molykote BG-20 bearing grease to elastomeric seals.		

3.2.2 QA: Verify that the equipment and tools listed in Step 3.2.1 are in current calibration, that calibration information has been recorded correctly, and that torque wrenches are of the correct range.

\_\_\_\_\_

Signature Date

**3.3 Training**

3.3.1 Ensure the training requirements in Appendix A are met.

**3.4 Approvals and Notifications**

3.4.1 TL: Verify all prerequisites have been satisfied, and approval is given for work to commence.

\_\_\_\_\_

Signature Date

**4. INSTRUCTIONS**

**NOTE:** *Steps not having a designated performer before them will be performed by operations personnel.*

\_\_\_\_\_ 4.1 TL: Ensure radiological containment tent or glovebox is installed per RCT and RWP instruction.

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- 4.2 RCT: Perform gamma and neutron radiation survey at the surface of the rear access door. (TMI-2 TS 3.2.2)
  - 4.2.1 TL: Verify combined radiation levels (gamma plus neutron) are less than 100 mrem/h at the surface of the HSM rear access door.

TL Signature: \_\_\_\_\_ Date: \_\_\_\_\_

- 4.2.2 RCT: Establish control boundaries as appropriate.
- 4.3 Open HSM rear access door while RCT monitors for increase in radiation fields.
  - 4.3.1 TL: Inspect rear door to ensure it remains operational and the vent holes in rear door are free of blockage.

4.4 TL: IF the rear door needs maintenance attention, THEN record problem in Facility Log and initiate work request.

4.5 Change out affected seal(s).

\_\_\_\_\_ 4.5.1 OP/RCT: Remove the purge and vent filter housing dust covers.

\_\_\_\_\_ 4.5.2 RCT: Perform gamma and neutron radiation survey at the surface of the purge and vent filter housings. (TMI-2 TS 3.2.2)

4.5.2.1 TL: Verify combined radiation levels (gamma plus neutron) are less than 1,200 mrem/h at the surface of the purge and vent filter housings.

TL Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ 4.5.3 RCT: Perform contamination survey on and around purge and vent filter housings.

4.5.4 RCT: Establish control boundaries as appropriate.

\_\_\_\_\_ 4.5.5 Install plastic or blotter paper beneath the affected filter housing per RCT direction.

\_\_\_\_\_ 4.5.6 Obtain new seals from System Engineer. (Either metallic C-seals or elastomeric seals may be used.)

4.5.6.1 QA: Verify that new metallic C-seal or elastomeric seal being installed has a QA green tag.

QA Rep: \_\_\_\_\_ Date: \_\_\_\_\_

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- \_\_\_\_\_ 4.5.7 IF using the counterbalance tool for removing filter housing,  
THEN perform the following:
- \_\_\_\_\_ 4.5.7.1 Mark N/A on Step 4.5.8.
- \_\_\_\_\_ 4.5.7.2 GO TO Step 4.5.9,  
WITHOUT RETURNING TO this step.
- \_\_\_\_\_ 4.5.8 IF using the threaded rods for removing filter housing,  
THEN perform the following:
- \_\_\_\_\_ 4.5.8.1 Remove four bolts and washers from the affected filter  
housing per supervision direction.
- \_\_\_\_\_ 4.5.8.2 Install the four threaded rods into the bolt holes of the bolts  
just removed.
- \_\_\_\_\_ 4.5.8.3 Remove the remaining bolts from the affected filter housing.
- \_\_\_\_\_ 4.5.8.4 IF necessary,  
THEN thread two bolts or T-handle bolts into the  
transportation cover bolt holes to be used as handles for  
pulling the filter housing.
- \_\_\_\_\_ 4.5.8.5 RCT: Monitor removal of the filter housing for increased  
radiation fields.
- \_\_\_\_\_ 4.5.8.6 Slide the filter housing to the stops on the threaded rods.
- \_\_\_\_\_ 4.5.8.7 TL: Ensure personnel handling seals are wearing safety  
glasses with side shields and leather gloves for removing  
metallic C-seals.
- \_\_\_\_\_ 4.5.8.8 Remove old seals from filter housing.
- \_\_\_\_\_ 4.5.8.9 Clean seating surfaces as directed by system engineer.
- NOTE:** *Lubricant should not be used on metallic C-seals.*
- \_\_\_\_\_ 4.5.8.10 If necessary, apply Molykote BG-20 bearing grease to  
elastomeric seals as follows:
- \_\_\_\_\_ 4.5.8.10.1 Don Silver Shield/4H chemical resistant gloves  
and protective eyeglasses with sideshields.
- \_\_\_\_\_ 4.5.8.10.2 Apply Molykote BG-20 synthetic bearing  
grease to entire surface of the elastomeric seal.

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- \_\_\_\_\_ 4.5.8.11 Place new seals into grooves in filter housing.
- \_\_\_\_\_ 4.5.8.12 Slide filter housing back to DSC.
- \_\_\_\_\_ 4.5.8.13 IF bolts or T-handles need to be removed,  
THEN remove them.
- \_\_\_\_\_ 4.5.8.14 Install bolts and washers in all bolt-holes except those occupied by the threaded rods.
- \_\_\_\_\_ 4.5.8.15 Using torque wrench with appropriate range, torque bolts to 85 ft · lb in three increments (30 ft · lb, 60 ft · lb, 85 ft · lb) using a criss-cross pattern.
- \_\_\_\_\_ 4.5.8.16 Remove the four threaded rods.
- \_\_\_\_\_ 4.5.8.17 Install remaining four bolts using torque wrench with appropriate range. Torque bolts to 85 ft · lb in three increments (30 ft · lb, 60 ft · lb, 85 ft · lb) using a criss-cross pattern.
- \_\_\_\_\_ 4.5.8.18 QA: Verify bolts are torqued to 85 ft · lb.

QA Rep: \_\_\_\_\_ Date: \_\_\_\_\_

- \_\_\_\_\_ 4.5.9 IF using the counterbalance tool for removing filter housing,  
THEN perform the following:
  - \_\_\_\_\_ 4.5.9.1 Attach TD-TMI-906 to the counterbalance tool for removing the purge filter housing OR TD-TMI-905 for removing the vent filter housing.
  - \_\_\_\_\_ 4.5.9.2 Slide the counterbalance to the center position to balance the load.
  - \_\_\_\_\_ 4.5.9.3 EO: Attach counterbalance tool to Broderson or portable crane.
  - \_\_\_\_\_ 4.5.9.4 EO: Lift counterbalance tool into position in front of desired filter housing.
  - \_\_\_\_\_ 4.5.9.5 Bolt counterbalance tool to filter housing transportation cover bolt holes.
  - \_\_\_\_\_ 4.5.9.6 Position counterbalance to position “1” for the vent filter housing, or position “2” for purge filter housing.

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4.5.9.7 TL: Verify counterbalance is positioned at “1” for vent filter housing removal, or “2” for purge filter housing removal.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_ 4.5.9.8 Remove filter housing bolts from the affected filter housing.

\_\_\_\_\_ 4.5.9.9 EO: Move affected filter housing away from DSC far enough for seal replacement.

\_\_\_\_\_ 4.5.9.10 TL: Ensure personnel handling seals are wearing safety glasses with side shields and leather gloves for removing metallic C-seals.

\_\_\_\_\_ 4.5.9.11 Remove old seals from filter housing.

\_\_\_\_\_ 4.5.9.12 Clean seating surfaces as directed by system engineer.

**NOTE:** *Lubricant should NOT be used on metallic C-seals.*

\_\_\_\_\_ 4.5.9.13 If necessary, apply Molykote BG-20 bearing grease to elastomeric seals as follows:

\_\_\_\_\_ 4.5.9.13.1 Don Silver Shield/4H chemical resistant gloves and protective eyeglasses with side shields.

\_\_\_\_\_ 4.5.9.13.2 Apply Molykote BG-20 synthetic bearing grease to entire surface of the elastomeric seal.

\_\_\_\_\_ 4.5.9.14 Place new seals into grooves in filter housing.

\_\_\_\_\_ 4.5.9.15 EO: Position filter housing for installation on DSC.

\_\_\_\_\_ 4.5.9.16 Install bolts and washers in filter housing.

\_\_\_\_\_ 4.5.9.17 Using torque wrench with appropriate range, +

4.5.9.18 torque bolts to 85 ft · lb in three increments (30 ft · lb, 60 ft · lb, 85 ft · lb) using a criss-cross pattern.

4.5.9.19 QA: Verify bolts are torqued to 85 ft · lb.

QA Rep: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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\_\_\_\_\_ 4.5.10 RCT: Perform gamma and neutron radiation survey at the surface of the purge and vent filter housings. (TMI-2 TS 3.2.2)

4.5.10.1 TL: Verify combined radiation levels (gamma plus neutron) are less than 1200 mrem/h at the surface of the purge and vent filter housings.

TL Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ 4.5.11 RCT: Perform contamination survey of vent and purge filter housing area.

4.5.12 If necessary, decon vent and purge filter housing area as directed by RCT.

\_\_\_\_\_ 4.5.13 If necessary, remove containment tent or glovebox as directed by RCT.

4.6 GO TO TPR-7066, Appendix C, and perform a leak test, THEN RETURN TO Step 4.7. (TMI-2 TS 3.1.1)

**NOTE 1:** *Rear access door may be closed in accordance with TPR-7066 at the discretion of the Technical Lead.*

**NOTE 2:** *Anti-seize lubricant may be applied to the rear access bolts as needed.*

\_\_\_\_\_ 4.7 Close and lock the HSM rear access door.

\_\_\_\_\_ 4.8 TL: Ensure that the HSM drain is free of visible obstructions.

\_\_\_\_\_ 4.9 TL: Ensure HSM rear access door is locked.

\_\_\_\_\_ 4.10 RCT: Perform radiation survey at the surface of the rear access door.

4.10.1 TL: Verify combined radiation levels (gamma plus neutron) are less than 100 mrem/h at the surface of the HSM rear access door.

TL Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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4.11 Perform procedure closeout.

4.11.1 TL: Request all personnel signing or initialing steps in this procedure to complete the information in the table below:

Printed Name	S Number	Job Function	Initials	Signature

4.11.2 TL: Perform a post-job review as directed by MCP-3003, “Performing Pre-Job Briefings and Documenting Feedback.”

4.11.3 TL: Ensure that all procedure steps have been completed, initialed or initialed and signed as appropriate.

\_\_\_\_\_  
Technical Lead

\_\_\_\_\_  
Date

4.11.4 IF the metallic C-seals were replaced with elastomeric seals, THEN remind ISFSI facility manager of the following:

4.11.4.1 IF the metallic C-seals were replaced with elastomeric seals, THEN submit report to the NRC within 90 days describing the condition, analysis, and actions being taken. (TS 3.1.1)

4.11.4.2 IF the metallic C-seals were replaced with elastomeric seals, THEN schedule annual leak tests for the affected DSC. (TS 3.1.1)

4.11.4.3 IF the metallic C-seals were replaced with elastomeric seals, THEN schedule replacement of the elastomeric seal in five years. (TS 3.1.1)

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## 5. RECORDS

Consumable copies of this procedure including all data sheets when completed.

**NOTE:** *The Records Schedule Matrix, located on the intranet at [http://edms.inel.gov/docs/matrix/mtx\\_menu.html](http://edms.inel.gov/docs/matrix/mtx_menu.html), and the applicable facility, organization, program, or project records management plan and record types list provide current information on uniform file codes, disposition authorities, and retention periods for these records.*

## 6. REFERENCES

Drawing 513915, “INEEL Dry Shielded Canister Purge Port Filter Assembly (DSC12T-004 thru -029)”

Drawing 513916, “INEEL Dry Shielded Canister Vent Port Filter Assembly (DSC12T-004 thru -029)”

MCP-1390, “Waste Generator Services Waste Management”

MCP-3003, “Performing Pre-Job Briefings and Documenting Feedback”

MCP-3562, “Hazard Identification, Analysis, and Control of Operational Activities”

SAR-II-8.4, “TMI-2 Safety Analysis Report”

TPR-7066, “Periodic HSM Monitoring, DSC Sampling, and Filter Housing Leak Tests”

TSR-8.4, “Technical Specifications for Three Mile Island–Unit 2 Independent Spent Fuel Storage Installation”

## 7. APPENDIXES

Appendix A, Procedure Hazard Analysis

Appendix B, Procedure Basis

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**Appendix A**

**Procedure Hazard Analysis**

<b>Highly Hazardous Activity?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<b>HPSC No.:</b> TPR-7068		
<b>Disciplines (SMEs) involved in hazard analysis:</b> (Checking the box indicates discipline is/was involved in the hazard analysis for this procedure.)					
	<b>Discipline</b>		<b>Discipline</b>		<b>Discipline</b>
<input checked="" type="checkbox"/>	Industrial Safety	<input checked="" type="checkbox"/>	RCT/RAD Eng.	<input checked="" type="checkbox"/>	Engineering
<input checked="" 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:
<b>Required Job Training/Required Personal Protective Equipment</b>					
<b>Training</b>			<b>PPE</b>		
RadWorker II			Anti-c clothing as required per RWP		
TMI General Employee Training			Leather or rubber gloves		
TMI-2 ISFSI Storage Operations Lead			Protective eyeglasses with side shield		
Heat Stress			Substantial footwear (when working under this TPR)		
Portable Ladders			Safety shoes (for work in areas where heavy dropped, falling, or rolling object hazards exist)		
Hantavirus					
Lead awareness training					

Sequence Of Basic Job Steps	Potential Hazards	Hazard Control/PPE
1. General work hazards on the TMI-2 ISFSI pad	1a. Slipping or tripping	1a. Remove ice and sand icy spots as appropriate or maintain awareness of surroundings, and wear safety shoes.
	1b. Extreme temperature environment	1b. Establish work stay times per MCP-2704, "Heat and Cold Stress." Wear cold weather clothing and gloves or ice vests as appropriate.
	1c. Contamination and radiation	1c.1 Complete Radiation Work Permit. Put in RadCon hold points at procedure steps where RCT surveys radiation or contamination levels are identified.
		1c.2 Wear Anti-c clothing per RWP.
1d. Eye or Skin Irritant from Anti Seize	1d. Whenever anti-seize lubricant is applied; the user must wear protective eyeglasses with side shields and leather or rubber gloves.	
2. Gather equipment and supplies	2a. Work may disturb areas with rodent feces or urine	2a. Do <u>NOT</u> disturb area and contact appropriate personnel for cleanup.
	2b. Back strain	2b. Use proper lifting techniques when moving or removing equipment/supplies, and discuss techniques during pre-job briefing.
	2c. Pinch points	2c. Maintain awareness of surroundings, maintain safe body positioning, and wear leather gloves.

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Sequence Of Basic Job Steps	Potential Hazards	Hazard Control/PPE
3. Enter INTEC-1774	3a. Back strain	3a. Use proper lifting techniques when manually removing snow or ice and discuss techniques during pre-job briefing.
4. RCT survey radiation and contamination levels at various points at the rear of the HSM and establish appropriate controls	4a. Contamination and radiation	4a. See general work hazards.
5. Open HSM rear access door	5a. Eye or skin irritant from Anti Seize	5a. Wear protective eyeglasses with side shields and rubber or leather gloves when handling Anti Seize.
	5b. Pinch points	5b. Maintain awareness of surroundings, maintain safe body positioning, and wear leather gloves.
	5c. Removal of shielding	5c.1 Work per Radiation Work Permit. 5c.2 RadCon survey prior to and during opening rear access door.
6. Remove purge and vent filter housing dust covers	6a. Ladder use	6a. Personnel must have had Portable Ladder training. Use rolling ladder with side rails.
7. RCT surveys radiation and contamination levels at the purge and vent filter housings	7a. Contamination and radiation	7a. See general work hazards.
8. Change out affected seal(s)	8a. Eye or skin irritant from Anti Seize	8a. Wear protective eyeglasses with side shields, rubber or leather gloves when handling Anti Seize
	8b. Pinch points	8b. Maintain awareness of surroundings, maintain safe body positioning, wear leather gloves.
	8c. Manual lifting of covers	8c. Use proper lifting techniques, wear safety shoes.
	8d. Ergonomic hazards	8d.1 Use ladder or platform to properly position body.
		8d.2 Bolts or T-handle bolts should be used to assist in removal of heavy filter housing, if necessary.
	8e. Lead coated material (only when using purge filter cover containing lead seal)	8e. Lead Awareness training and wear leather gloves.
8f. Chemical hazard (when applying Molykote BG-20 bearing grease to elastomeric seals)	8f. Personnel must wear Silver Shield/4H chemical resistant gloves.	
9. Install the vent filter housing dust cover	9a. Using a ladder	9a. Personnel must have had Portable Ladder training. Use rolling ladder with side rails.
10. Close and lock HSM rear access door	10a. Eye or skin irritant from Anti Seize	10a. Wear protective eyeglasses with side shields, rubber or leather gloves when handling Anti Seize.
	10b. Pinch points	10b. Maintain awareness of surroundings, maintain safe body positioning, and wear leather gloves.
	10c. Eye or Skin Irritant from Anti Seize	10c. Whenever anti-seize lubricant is applied; the user must wear protective eyeglasses with side shields and leather or rubber gloves.

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**Appendix B**

**Procedure Basis**

Procedure Review Table							
Review Discipline	Rev.	DFC Intent <sup>b</sup> Change	DFC Nonintent <sup>c</sup> Change	Review Discipline	Rev.	DFC Intent <sup>b</sup> Change	DFC Nonintent <sup>c</sup> Change
OSB Chairperson	X <sup>a</sup>	X	X	Industrial Safety	X	X	X
Qualified Operator	X	X	X	Engineering			
Radiological Engineering				Industrial Hygiene			
Environmental				Facility Safety Officer	X	X	X
Quality	X	X	X	Safety Analysis	X	X	X
NFM/Doc Owner	X	X	X	Compliance Lead	X	X	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
2.1	Personnel must follow the applicable hazard mitigations detailed in Appendix A, “Procedure Hazards Analysis.”	Procedure hazard analysis	

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Step	Basis	Source	Citation
2.2, 4.6, 4.11.4	If the leak rate of the metallic C-seal exceeds $1 \times 10^{-2}$ cc/sec, then a contamination survey at the affected DSC-vent housing interface must be performed within 24 hours AND the metallic C-seals must be resealed or replaced within seven days AND a leak check performed. IF the vent housing seal leak rate is not restored within 7 days THEN perform contamination surveys at the affected DSC-vent housing interface monthly AND submit report to NRC describing the condition, analysis, and actions being taken within 90 days. IF the metallic seals are replaced with double elastomeric seals, THEN submit a report to the NRC describing the condition, analysis, and actions being taken AND perform a leak check of the elastomeric seals every year AND replace the elastomeric seals after five years in service. The lower explosive limit (LEL) for hydrogen is 5.0% by volume (50,000 ppm).	TMI-2 ISFSI	TS-3.1.1
2.3	The surface dose rate of each HSM rear access door must not exceed 100 mrem/h (gamma and neutron); and the surface dose rate of each HEPA filter housing must not exceed 1,200 mrem/h (gamma and neutron). If these rates are exceeded, the cause of the dose rates must be evaluated within 7 days AND corrective action must be taken to restore the dose rates within limits within 30 days.	TS 3.2.2	
2.4	An ALARA review and subsequent RWP must be completed prior to initiation of this procedure.	RPP Requirement	
2.6	All waste produced by TMI-2 ISFSI is handled and disposed of in accordance with the existing procedures for handling waste at the INL.	TMI-2 SAR	6.0, 6.4, 6.5
2.6, 4.1	A radiological containment tent may be set up as required by the RWP when replacing HEPA filters to control radiological and contamination hazards.	Procedure hazard analysis	

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Step	Basis	Source	Citation
2.7	<p>Step completion verifications must be performed as follows:</p> <p>A. The Technical Lead (TL) must initial these steps at the time the step is completed</p> <p>B. All verifications must be documented at the time they are performed</p> <p>C. Steps that are not applicable must be marked “N/A” and initialed by the TL before conducting the next step of the procedure.</p>	Best management practice	
3.1.1,	Ensure training requirements for this job have been met	Procedure hazard analysis	
3.1.2	During the prejob briefing, the hazards of the job and the work area and control of those hazards are discussed.	Procedure hazard analysis	
3.1.3	Personnel who operate or supervise the operation of equipment identified as important to safety must be trained and certified under the NRC approved training program.	TMI-2 ISFSI TS	TS-5.3.2
3.1.4	Security must be notified of pending entrance into CPP-1774, which is a secured facility.	Security Requirement	
3.1.5	Form 441.49, “ICP Radiation Work Permit,” must be completed and on hand or readily available and must designate the appropriate anti-C clothing that must be worn during the operation.	Procedure hazard analysis	
4.2, 4.5.2, 4.5.10, 4.10.1	The surface dose rate of each HSM rear access door must not exceed 100 mrem/hour gamma and neutron; and the surface dose rate of each HEPA filter housing must not exceed 1,200 mrem/hour gamma and neutron.	TMI-2 ISFSI TS	LCO 3.2.2
4.5.8.4	Use bolts or T-handle bolts to assist in removal of heavy filter housing – if necessary.	Procedure hazard analysis	
4.5.8.7	C-seals are coated with lead. Leather gloves and safety glasses with sashes must be worn when handling the C-seals.	Procedure hazard analysis	

<b>REPLACE SEALS ON TMI-2 ISFSI DSC FILTER HOUSING</b>	Identifier: TPR-7068 Revision*: 6 Page: 17 of 17
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Step	Basis	Source	Citation
4.5.8.10, 4.5.9.13	Molykote BG-20 synthetic bearing grease must be used as the lubricant for elastomeric seals.	Approved lubricant for EPDM.	
4.5.8.10, 4.5.9.13	Wear Silver Shield/4H chemical resistant gloves when handling molykote BG-20 synthetic bearing grease.	Procedure hazard analysis	
4.5.8.17, 4.5.9.17	Torque value for housing bolts is: 82 ft · lb ± 5 ft · lb per TMI drawing.	TMI-2 ISFSI Drawing 513915 and 513916	Note 8
4.7	Whenever Anti Seize lubricant is applied, the user must wear protective eyeglasses with side shields and leather or rubber gloves.	Exposure Assessment No. 1278.00 Procedure hazard analysis	