

# ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 662252

Proj.  
ECN

<b>2. ECN Category (mark one)</b> Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>		<b>3. Originator's Name, Organization, MSIN, and Telephone No.</b> AL Pajunen, Process Engineering, R3-86, 376-7115		<b>4. USQ Required?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>5. Date</b> 9/22/2000	
		<b>6. Project Title/No./Work Order No.</b> Spent Nuclear Fuel Project		<b>7. Bldg./Sys./Fac. No.</b> 105-KW		<b>8. Approval Designator</b> E, Q, S <sup>N</sup>	
		<b>9. Document Numbers Changed by this ECN (includes sheet no. and rev.)</b> SNF-5952, Rev 1-A		<b>10. Related ECN No(s).</b> N/A		<b>11. Related PO No.</b> N/A	
<b>12a. Modification Work</b> <input type="checkbox"/> Yes (fill out Blk. 12b) <input checked="" type="checkbox"/> No (NA Blks. 12b, 12c, 12d)		<b>12b. Work Package No.</b> N/A		<b>12c. Modification Work Completed</b> N/A Design Authority/Cog. Engineer Signature & Date		<b>12d. Restored to Original Condition (Temp. or Standby ECNs only)</b> N/A Design Authority/Cog. Engineer Signature & Date	
<b>13a. Description of Change</b> 1. Incorporates supplemental ECN 660272. 2. Clarifies that canister hook weight is recorded as the scale tare weight each time a canister is weighed using the canister weigh station. 3. Adds notes to insert NA on data sheets for data points that are not applicable, depending on actual observed fuel condition, in the event that no debris, scrap, or loadable fuel results from processing a particular canister. 4. Adds new data points (Section 9.13) for recording initial canister weight prior to loading coarse/fine scrap to provide flexibility to collect this material in a separate canister. 5. Updates data points and terminology on data sheets in Attachment A to reflect changes and expands space available for recording comments. 6. CLARIFIES SCOPE DESCRIPTION AND PERSONNEL REQUIREMENTS. ALP 10/5/00							
<b>13b. Design Baseline Document?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
USQ Screening Number: K-00-1301 ALP 10/10/00							
<b>14a. Justification (mark one)</b> Criteria Change <input type="checkbox"/> Design Improvement <input checked="" type="checkbox"/> Environmental <input type="checkbox"/> Facility Deactivation <input type="checkbox"/> As-Found <input type="checkbox"/> Facilitate Const. <input type="checkbox"/> Const. Error/Omission <input type="checkbox"/> Design Error/Omission <input type="checkbox"/>		<b>14b. Justification Details</b> Modifies data collection procedure based on experience in test runs using mock fuel.					
<b>15. Distribution (include name, MSIN, and no. of copies)</b> See distribution sheet.						<b>RELEASE STAMP</b> <div style="border: 1px solid black; padding: 10px; text-align: center;">         DATE:           STA: A           HANFORD RELEASE           OCT 11 2000           ID. 2       </div>	

# ENGINEERING CHANGE NOTICE

Page 2 of 2

1. ECN (use no. from pg. 1)

662252

## 16. Design Verification Required

☐ Yes

☒ No

## 17. Cost Impact

### ENGINEERING

Additional ☐ \$ N/A

Savings ☐ \$ N/A

### CONSTRUCTION

Additional ☐ \$ N/A

Savings ☐ \$ N/A

## 18. Schedule Impact (days)

Improvement ☐ N/A

Delay ☐ N/A

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	<input type="checkbox"/>	Seismic/Stress Analysis	<input type="checkbox"/>	Tank Calibration Manual	<input type="checkbox"/>
Functional Design Criteria	<input type="checkbox"/>	Stress/Design Report	<input type="checkbox"/>	Health Physics Procedure	<input type="checkbox"/>
Operating Specification	<input type="checkbox"/>	Interface Control Drawing	<input type="checkbox"/>	Spares Multiple Unit Listing	<input type="checkbox"/>
Criticality Specification	<input type="checkbox"/>	Calibration Procedure	<input type="checkbox"/>	Test Procedures/Specification	<input type="checkbox"/>
Conceptual Design Report	<input type="checkbox"/>	Installation Procedure	<input type="checkbox"/>	Component Index	<input type="checkbox"/>
Equipment Spec.	<input type="checkbox"/>	Maintenance Procedure	<input type="checkbox"/>	ASME Coded Item	<input type="checkbox"/>
Const. Spec.	<input type="checkbox"/>	Engineering Procedure	<input type="checkbox"/>	Human Factor Consideration	<input type="checkbox"/>
Procurement Spec.	<input type="checkbox"/>	Operating Instruction	<input type="checkbox"/>	Computer Software	<input type="checkbox"/>
Vendor Information	<input type="checkbox"/>	Operating Procedure	<input type="checkbox"/>	Electric Circuit Schedule	<input type="checkbox"/>
OM Manual	<input type="checkbox"/>	Operational Safety Requirement	<input type="checkbox"/>	ICRS Procedure	<input type="checkbox"/>
FSAR/SAR	<input type="checkbox"/>	IEFD Drawing	<input type="checkbox"/>	Process Control Manual/Plan	<input type="checkbox"/>
Safety Equipment List	<input type="checkbox"/>	Cell Arrangement Drawing	<input type="checkbox"/>	Process Flow Chart	<input type="checkbox"/>
Radiation Work Permit	<input type="checkbox"/>	Essential Material Specification	<input type="checkbox"/>	Purchase Requisition	<input type="checkbox"/>
Environmental Impact Statement	<input type="checkbox"/>	Fac. Proc. Samp. Schedule	<input type="checkbox"/>	Tickler File	<input type="checkbox"/>
Environmental Report	<input type="checkbox"/>	Inspection Plan	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Environmental Permit	<input type="checkbox"/>	Inventory Adjustment Request	<input type="checkbox"/>		<input type="checkbox"/>

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision

Document Number/Revision

Document Number/Revision

FTP-OP-PSI-054W, Rev 0/H

FTP-OP-PSI-055W, Rev 0/M

FTP-op-PSI-059W, Rev 0/D

## 21. Approvals

Signature	Date
Design Authority <u>GE Stegen</u>	10/9/00
Cog. Eng. <u>AL Pajunen</u>	9/25/00
Cog. Mgr. <u>JR Frederickson</u>	10/7/00
QA <u>PE Davis</u>	10/7/00
Safety <u>CT Miller</u>	10/10/00
Environ. <u>DJ Watson</u>	10-10-00
Other <u>M. Guzman</u>	10/7/00
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<u>JD Mathews</u>	10/10/00
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<u>AL Pitner</u>	9/25/00
<u>SC Schlegel</u>	10/9/00

Signature	Date
Design Agent	
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QA	
Safety	
Design	
Environ.	
Other	
<b>DEPARTMENT OF ENERGY</b>	
Signature or a Control Number that tracks the Approval Signature	
<u>JL Shelor</u>	10/10/00

# DISTRIBUTION SHEET

To Distribution	From Process Engineering	Page 1 of 1 Date 8/11/00 10/11/00 QRP
Project Title/Work Order Phased Startup Initiative Phase 3/4 Test Procedure (OCRWM)		EDT No. N/A ECN No. 661468 662252 QRP

Name	MSIN	Text With All Attach.	Text Only	Attach/ Appendix Only	EDT/ECN Only
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# **Phased Startup Initiative Phase 3/4 Test Procedure (OCRWM)**

Prepared for the U.S. Department of Energy  
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the  
U.S. Department of Energy under Contract DE-AC06-96RL13200

**Fluor Hanford**

P.O. Box 1000

Richland, Washington

SNF-5952  
Revision 2

ECN 662252

# Phased Startup Initiative Phase 3/4 Test Procedure (OCRWM)

Division: SNF

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WASTREN

Date Published  
October 2000

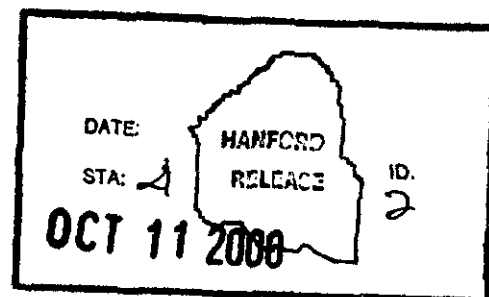
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Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the  
U.S. Department of Energy under Contract DE-AC06-96RL13200

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Printed in the United States of America

SNF-5952, rev 2  
50 total pages



# **Phased Startup Initiative Phase 3/4 Test Procedure (OCRWM)**

**SNF-5952**  
**Revision No. 2**



## Executive Summary

The purpose of this test procedure is to provide step-by-step instructions that guide test personnel through the initial testing of the Fuel Retrieval System and Integrated Water Treatment System with N Reactor fuel. This document supports the requirement for preparation of test procedures indicated in the Test Plan Content Guideline of EN-6-031-00, "Testing Process."

The scope of this test procedure for Phase 3 is to process six fuel canisters, plus contingency canisters. This test procedure will also be used for Phase 4 to process 29 canisters, plus contingency canisters. This test procedure provides directions for the testing activities described in HNF-4898, Rev. 1B, "Phased Startup Initiative Phases 3 and 4 Test Plan and Test Specifications (OCRWM)."

This test procedure is intended to be primarily used by the Test Engineers, Engineering Test Director (ETD), and Operations Test Director (OTD) to ensure that data is recorded at specific steps during the operational use of Functional Test Procedures and Operating Procedures. The completed data sheets provide documentation of the test progress for each canister to satisfy test control and traceability requirements in HNF-PRO-286, "Test Control," and EN-6-031, "Testing Process."

At least three engineers are required for the fuel cleanliness inspection team. One of these engineers is the ETD. The ETD makes testing decisions and provides test direction. The OTD directs operations activities. Communication about test direction for engineering and operations is between the ETD and the OTD.

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**List of Acronyms**

AJHA	Automated Job Hazard Analysis
CAM	Continuous Air Monitor
CCTV	Closed Circuit Television
DI	Deionized
DP	Data Point
ECN	Engineering Change Notice
EOC	Equipment Operations Center
ETD	Engineering Test Director
FRS	Fuel Retrieval System
FTP	Functional Test Procedure
HEPA	High-Efficiency Particulate Air
HPP	High-Pressure Pump
HPU	Hydraulic Power Unit
KOP	Knockout Pot
IWTS	Integrated Water Treatment System
IXM	Ion Exchange Module
M&TE	Measuring and Test Equipment
MCO	Multi-Canister Overpack
PCM	Primary Cleaning Machine
PSI	Phased Startup Initiative
OCRWM	Office of Civilian Radioactive Waste Management
OTD	Operations Test Director
QA	Quality Assurance
QAE/I	Quality Assurance Engineer/Inspector
QC	Quality Control
RBA	Radiological Buffer Area
RMA	Radioactive Material Area
SNF	Spent Nuclear Fuel

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**SPENT NUCLEAR FUEL PROJECT****Procedure Number: SNF-5952****Phased Startup Initiative****Revision: 2****Phase 3/4 Test Procedure****Effective Date: 10/11/00****(OCRWM)****Page 5 of 45**

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TE            Test Engineer

TSB           Telescoping Stiffback

## **1.0 INTRODUCTION**

The purpose of this test procedure is to safely operate the Fuel Retrieval System (FRS) and Integrated Water Treatment System (IWTS) with specific fuel canisters, and show that canisters containing fuel can be retrieved from the canister queue, decapped in the Canister Decapper, and loaded into the Primary Clean Machine (PCM) for fuel cleaning; and that fuel can be sorted on the Process Table, then loaded back into fuel canisters and relocated in basin storage. An option is included to load selected elements into multi-canister overpack (MCO) Fuel Baskets.

Additional Data are collected during this test, beyond that collected during production operations. These data support qualifying the cleaning performance of the PCM, assessing the quantity of scrap generated during the cleaning, and evaluating the impact of fuel retrieval operations on the Basin water quality. The additional data collected primarily consist of weighing fuel and scrap at selected points in the operation, as well as photographing fuel and scrap as it is processed. The time to perform operations is also monitored for comparison with design predictions. Water quality data are collected to establish a baseline to predict the effectiveness of equipment design for control of contamination and visibility during production operation.

## **2.0 SCOPE**

The scope of this test procedure is to validate the operation of FRS and IWTS components as a complete system. Fuel canisters shall be processed in accordance with this test procedure such that fuel inspection results are clearly attributed to a particular set of PCM operating parameters. The Phase 3 test sequence processes a minimum of six canisters. Twenty-four contingency canisters have been identified, and will be processed if additional performance data are required. The Phase 4 test sequence processes a minimum of 29 specific canisters. Twenty-nine contingency canisters have been identified for Phase 4 activities and will be processed to complete process validation, if necessary. The fuel canisters to be processed shall be listed in the Fuel Campaign Letter and are identified in HNF-4898, "Phased Startup Initiative Phases 3 and 4 Test Plan and Test Specifications (OCRWM)". (The acronym OCRWM is required to appear in titles of documents that collect data needed by the Office of Civilian Radioactive Waste Management.)

### **3.0 GENERAL REQUIREMENTS**

- 3.1 This procedure is under the direct control of the Operations Test Director (OTD).
- 3.2 Direction for this procedure for the Test Engineers (TEs) will be provided by the Engineering Test Director (ETD), or designee.
- 3.3 The ETD will coordinate the test, review test results, and determine corrective actions. Test Engineers (TEs) will support the ETD in the recording and evaluation of data.
- 3.4 A pretest briefing for all personnel involved in the performance of the test shall be conducted at the beginning of each shift. When new test team members assume test duties, they can be briefed individually. The time and date of each briefing shall be documented in the test log.
- 3.5 Operations procedures, as applicable, including all safety procedures, shall apply to this test activity. The Pre-Job Safety Briefing Signature Sheet shall attest to having read the required safety procedures, such as the current Automated Job Hazard Analysis (AJHA), criticality postings, and the as low as reasonably achievable (ALARA) Management Worksheet.
- 3.6 Fuel Inspection and Process Engineers involved with testing activities shall have a Phased Startup Initiative (PSI) Qualification (Qual Card) and completed Office of Civilian Radioactive Waste Management (OCRWM) training.
- 3.7 Stuck fuel will not be processed during conduct of this Procedure. If a canister is found to contain stuck fuel, it shall be noted on the data sheet and returned to basin storage.
- 3.8 Fuel shall be inspected by the Fuel Inspection Team per HNF-5271, "Planning Document for Spent Nuclear Fuel Cleanliness Inspection Process (OCRWM)".
- 3.9 Selected fuel elements may be loaded into MCO Fuel Baskets, or back into canisters, at the direction of the Engineering and Operations Test Directors.
- 3.10 Scrap fuel shall be loaded back into canisters. No scrap fuel shall be loaded into MCO Scrap Baskets. The MCO Baskets shall be in place in the Process Table to prevent dropped fuel from falling into the MCO Basket Sockets.
- 3.11 The Fuel Status Inventory that remains on the Process Table at the end of each shift shall be provided to K Area Security.

- 3.12 Elapsed time shall be measured for certain process operations by recording the "Start" and "End" clock time. Any process down time that interrupts the normal work procedure of a process being evaluated shall be recorded in the Comments section on Phase 3/4 FRS/IWTS Data Sheet. Examples of process down time are recording Photographs and Weights, Continuous Air Monitor (CAM) alarms, equipment malfunction, or suspended operations.
- 3.13 For each canister, the Test Process shall be documented and tracked by the Phase 3/4 FRS/IWTS Data Sheet (Attachment A), and the End of Shift Test Status Report (Attachment E).
- 3.14 Data Sheets will be specific to a particular canister and assimilated into a canister specific Data package.
- 3.15 Checklists, Data Sheets, Photographs, and other test data collected as the tests are performed will be stamped in red ink as the "Test Control Copy." The test control copy of data will be maintained by the ETD/TE in the Test Data binder, located at the fuel inspection team desk in the basin Equipment Operations Center (EOC) or in a fire proof cabinet within 105KW. At the end of each work day, the ETD/TE will make a copy of new data accumulated over the work day, stamp these data in red ink as "Duplicate of Original, Do Not Revise," and insert the data in the Back-Up Test Data binder located in the ETD's office in MO-285.
- 3.16 Water samples shall be analyzed to calculate waste loading on ion exchange modules (IXMs) IXM-1, IXM-2, and IXM-3. Composite water samples will be taken from the IXM common inlet and the IXM outlets while the IWTS is in service. The sample number, sample bottle change-out time, and composite sampler setting will be recorded in the 105-KW Process Monitoring Sample Label Book. This sample data and the sample analysis results shall be recorded in the Test Data binder.
- 3.17 The start time and end time for the IWTS in service and the garnet filter backwash and top sparge shall be recorded in the comments section of the Phase 3/4 FRS/IWTS Data Sheet.
- 3.18 Upon completion of Phase 4 testing, the PCM wash basket shall be removed from the PCM to inspect the PCM internals and obtain a video recording and hard copy printout of close-ups of the bearing surfaces and bearing wear indicator marks to support the evaluation started in SNF-A.7-PAT-010A, Rev. 1, Step 9.17.2.



#### **4.0 TOOLS, EQUIPMENT, AND SUPPLIES**

- 4.1 Weigh Station (shortened fuel canister hook with scale)
- 4.2 One VCR clock in the EOC shall be selected by the ETD and used to measure elapsed time to the nearest minute for certain operational activities and to record down time.
- 4.3 Special gage to measure scrap depth in canister
- 4.4 Sludge Collection Tray
- 4.5 Grid Plate with 1 inch markings
- 4.6 One inch sieve for separating fine scrap
- 4.7 Sludge Pickup Adapter and Installation Fixture
- 4.8 Turbidimeter near Process Table
- 4.9 PCM Discharge Radiation Monitor
- 4.10 IXM Inlet Radiation Monitor
- 4.11 Continuous Air Monitor (CAM) with recording of Krypton 85 concentration in local operator area near Decapping Station
- 4.12 Items Listed in Functional Test Procedures (FTP):
  - 4.12.1 Fuel basket
  - 4.12.2 Jib crane with empty basket grapple attached in corridor #7
  - 4.12.3 1 ton monorail hoist with empty basket grapple attached at monorail 27 extension
  - 4.12.4 Pallet jack in corridor #10
  - 4.12.5 Basin transfer cart in corridor #7
  - 4.12.6 Long pole hook
  - 4.12.7 Long pole tool
  - 4.12.8 Modified peters tool
  - 4.12.9 Rope hook
  - 4.12.10 Empty Type MK I and MK II fuel canisters
  - 4.12.11 Telescoping stiffback
  - 4.12.12 Decapping tools
  - 4.12.13 Debris bin
  - 4.12.14 Canister lid debris bin

- 4.12.15 Closed Circuit Television (CCTV)
- 4.12.16 Gas tube crimper and cutting tool
- 4.12.17 Deionized (DI) water hose
- 4.12.18 Air compressor (minimum 150 scfm, 90 psig) for IWTS air sparge process
- 4.12.19 Sparger (also called "spray wand")

## **5.0 SAFETY, PRECAUTIONS, AND LIMITATIONS**

### **5.1 General Safety**

- 5.1.1 If an abnormal or unexpected condition arises during the performance of this test, the associated systems will be placed in a safe and stable condition. The OTD will evaluate and implement required actions.
- 5.1.2 Any equipment or facility damage resulting from an abnormal or unexpected condition requires that the test be terminated after placing the associated systems in a safe and stable condition. The OTD, along with the Facility Manager (or designee), will determine restart conditions.

### **5.2 Personnel**

- 5.2.1 Personnel on the test team shall conduct themselves and the test in accordance with ALARA practices. If testing is delayed or direct observation is not required unessential personnel will leave the radiological buffer area/radioactive material area (RBA/RMA) or report to the standby area as indicated on the survey map.
- 5.2.2 Personnel on the test team shall immediately bring any personnel safety concerns to the attention of the OTD, the Facility Manager, or the Shift Supervisor for immediate resolution.

### **5.3 Equipment**

- 5.3.1 If used in automatic sequence mode, the IWTS control system should not be started more than twice within any five minute period.

### **5.4 Environment**

- 5.4.1 The high-efficiency particulate air (HEPA) filters associated with the filter vessel vent are an environmental effluent control device. The HEPA filters must be installed and operational before the filter vessels are allowed to vent or air sparging is allowed to take place with radioactive air emissions.

## **6.0 PERSONNEL REQUIREMENTS**

6.1 Personnel of the following types will be needed to support performance of this test:

<u>Classification</u>	<u>*Quantity</u>
Quality Assurance Engineer/Inspector (QAE/I)	1
Operator	4
Rad. Con.	2
Fuel Cleanliness Inspection Team (minimum of three while inspecting fuel, otherwise not required)	3 to 5
TEs	2
ETD (the ETD is one member of the Fuel Cleanliness Inspection Team)	1
OTD	1

\*Additional numbers of each personnel type may be required at different times during Test performance.

## **7.0 REQUIRED DOCUMENTS AND REFERENCES**

### **7.1 Primary References**

<b><u>Procedure Number</u></b>	<b><u>Procedure Title</u></b>
FTP-OP-PSI-054W	Process Table Fuel Operations (OCRWM)
FTP-OP-PSI-055W	Fuel Decap/Wash Operations
FTP-OP-PSI-059W	Loading and Capping of Fuel/Scrap Canisters

### **7.2 Other References**

<b><u>Procedure Number</u></b>	<b><u>Procedure Title</u></b>
FTP-OP-70-001W	Perform Normal IWTS Electrical Lineup at 105-KW
FTP-OP-70-002W	Perform Initial IWTS Manual Valve Lineup at 105-KW
FTP-OP-70-003W	Fill And Vent IWTS Filter System at 105-KW
FTP-OP-70-004W	Fill And Vent IWTS Distribution Header at 105-KW
FTP-OP-70-005W	Operate IWTS at 105-KW
FTP-OP-70-006W	Backwash Garnet Filter at 105-KW
FTP-OP-70-007W	Top Sparge Garnet Filter
FTP-OP-70-008W	Air Sparge Garnet Filter
FTP-OP-70-009W	Install IWTS IXMs at 105-KW
FTP-OP-70-0010W	Isolate Drain and Remove IWTS IXM at 105-KW
FTP-OP-70-0011W	Switch IWTS IXM Flow at 105-KW
FTP-OP-70-0012W	Perform FRS/IWTS Patrol
FTP-OP-70-0013W	Change Out Knockout Pots
FTP-OP-70-0015W	Collect IWTS IXM Water Samples at 105-KW
FTP-OP-70-050W	Transfer Fuel Baskets from Corridor 10 to Basin
FTP-OP-70-051W	Normal Startup/Shutdown of Manipulator System
FTP-OP-70-053W	Assume EOC Operations
FTP-OP-70-056W	Flexible Transfer Crane
FTP-OP-70-057W	Exercise Manipulator Joints
FTP-OP-70-058W	Sample HPU Hydraulic Fluid
FTP-OP-70-060W	Exercise Manipulator Arms
FTP-OP-70-061W	Off Gas System Operation

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OP-07-113W	Position and Secure Irradiated Fuel at 105 KW
OP-14-002	Perform Pre-Use Test on Hoists
OP-16-002W	Operate Demineralized Water Hose Bib System at 105 KW
OP-43-015	Collect Special Water Samples from Routine Sample Locations
OP-43-035W	Collect Center of Basin Air Permit Water Sample
RP-05-035	Operation of the Triton KR-85 Monitor

**7.3 Drawings**

H-1-80550	KW Fuel Storage Basin IWTS P&ID
H-1-83944	KW Fuel Storage Basin FRS P&ID

## **8.0 PREREQUISITE ACTIONS**

Prerequisite actions may be performed in any order.

Items must be satisfied prior to beginning Daily Pre-Startup Checklist.

### **Test Engineers Pre-Startup Checklist (perform once prior to starting test):**

	Action	Initial/Date	Comments
1	Open items have been evaluated and verified to not affect the performance of this test  NOTE: Type of open items to evaluate include Quality Assurance (QA) nonconformance reports, construction punch list, outstanding engineering or design change notices, startup field requests, or test deficiency reports.		
2	A walkdown inspection of the equipment associated with this test procedure has been performed. All components are labeled in accordance with the approved drawings listed in Section 7.3.		
3	Perform an initial briefing for personnel involved in the performance of this test.		
4	Perform the ALARA Pre-Implementation meeting for personnel involved in the performance of this test.		
5	The ETD has determined appropriate interface and support personnel from other organizations have been notified and are available.		
6	OTD notified of scheduled Test and Time.		
7	Verify that the Fuel Inspection Team members are notified prior to commencement of testing. (preferably 24 hours)		
8	Verify that the Spent Nuclear Fuel (SNF) QA is notified prior to commencement of testing. (preferably 24 hours)		
9	Verify that the DOE facility representative is notified prior to commencement of testing. (preferably 24 hours)		

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10	Verify that Security is notified prior to commencement of testing. (preferably 24 hours)		
11	Verify that FTP-OP-PSI-054W, FTP-OP-PSI-055W, and FTP-OP-PSI-059W in Section 7.1 are the current revision. Record those document revision numbers in the comments section of the Phase 3/4 FRS/IWTS Data Sheet.		
12	Installed equipment calibrations verified and logged on "Installed Equipment Calibration Log" (Attachment D).		
13	Verify Measuring and Test Equipment (M&TE) required has current calibration and logged on "Test Equipment Calibration Log" (Attachment C).		
14	Ensure three extra MKII canisters for testing are staged in the decapping staging area.		
15	Review prerequisite actions from reference FTPs and ensure no foreseeable conditions exist which would prevent completion of these prerequisites at the required time in the Phase 3 Test.		
16	All mock fuel and debris removed from process table.		
17	Pre-operation Acceptance Test Procedure SNF-A.9-PAT-002A, Rev. 0, ITWS Knockout Pot, is complete and data indicating the initial Knockout Pot weight measured with the hose connected are available for entry on the Phase 3/4 FRS/IWTS Data Sheet for the first canister.		
18	Initial PCM strainer basket weight available for entry on the Phase 3/4 FRS/IWTS Data Sheet for the first canister.		

I have reviewed the above prerequisites and initial conditions. The prerequisites and initial conditions that are required to commence Section 9.0 are complete. I recommend that this PSI Test be released for performance.

Engineering Test Director \_\_\_\_\_ Date \_\_\_\_\_



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I have reviewed the above prerequisites and initial conditions. The prerequisites and initial conditions that are required to commence Section 9.0 are complete. I recommend that this PSI Test be released for performance.

Operations Test Director \_\_\_\_\_

Date \_\_\_\_\_

(OTD)

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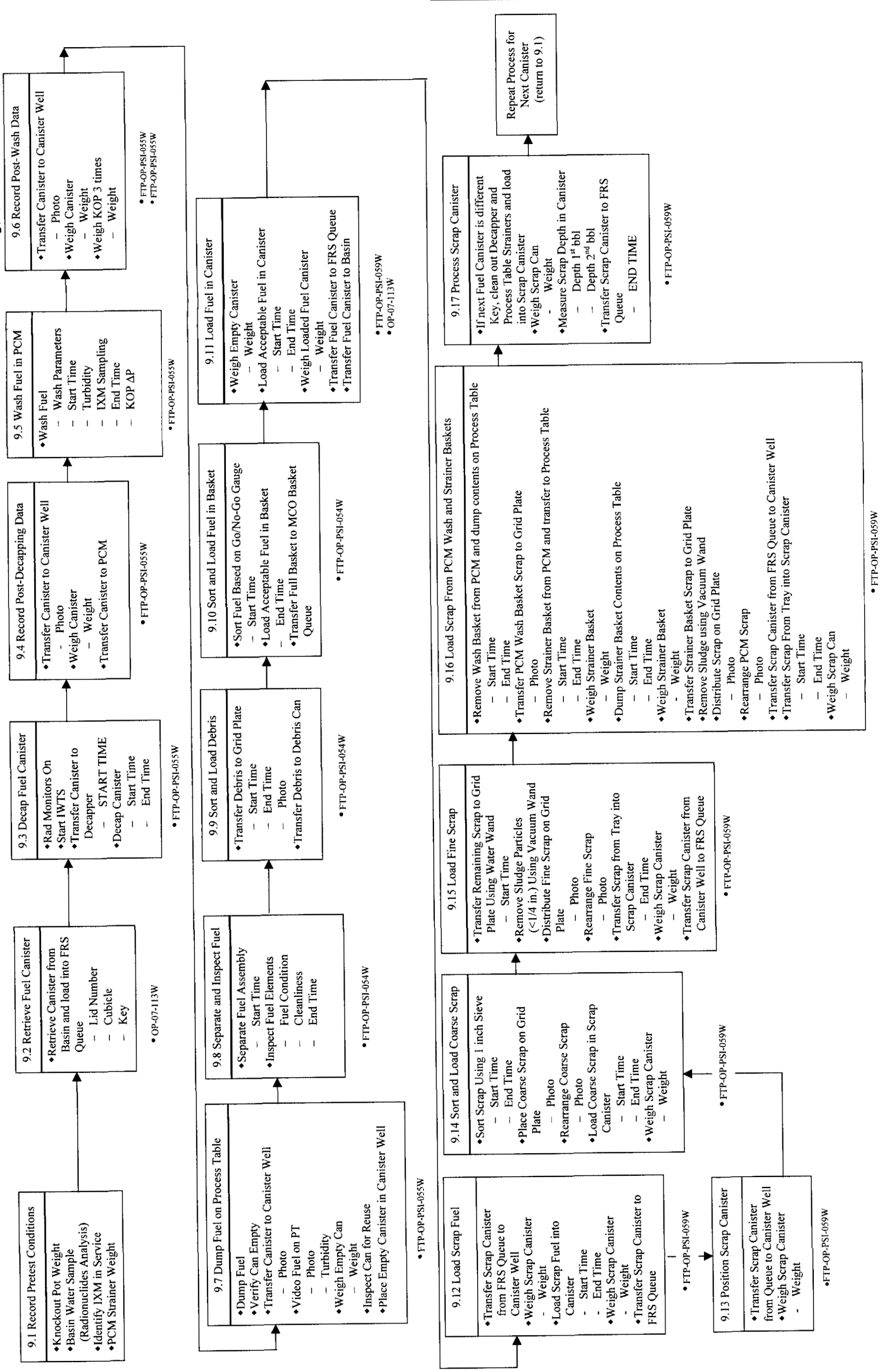
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**DAILY PRE-STARTUP CHECKLIST (perform prior to starting each day of test activity):**

	<b>Action</b>	<b>Initial/Date</b>	<b>Comments</b>
1	Required Witnesses Available: QAE/I ____ Fuel Inspection Team ____		
2	Verify test personnel and witnesses have read and signed AJHA.		
3	Personnel who will be involved with this procedure have provided the required signature verification information on the "Pre-Job Safety Briefing Signature Sheet" (Attachment F).		
4	IWTS operating with IXM inlet radiation monitor and strip chart recorder activated.		
5	FRS operational and ready to process fuel.		
6	Manipulator system started-up and ready to process fuel.		
7	Campaign Letter.		
8	Scrap Basket cover installed.		
9	Record center of basin grab sample number and obtain analysis results.		
10	PCM parameters are adjusted per ETD		

Daily PreStartup Checklist Verified Complete \_\_\_\_\_ Date \_\_\_\_\_

PSI Phase 3 Flow Diagram



**9.0 PROCEDURE STEPS****9.1 Record Pretest Conditions**

1. Signature verifications on Section 8.0 Checklists signify that the Prerequisite Actions are complete.
  2. Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies that the current procedure revision of FTP-OP-PSI-054W, FTP-OP-PSI-055W, and FTP-OP-PSI-059W is being used. This verification also confirms that any changes to the primary references in Section 7.1 have been evaluated for any effect to this Test Procedure. Any required changes to this Test Procedure shall be incorporated by an Engineering Change Notice (ECN) and approved by Engineering, Environmental, Operations, Nuclear Safety, and QA.
  - DP-1 3. Record Knockout Pot (KOP) Load Cell Tare Weight indicated on the Phase 3/4 FRS/IWTS Data Sheet for the previous canister processed (note data source in data sheet comments).
  - DP-2 4. Record KOP weight data from the end weights indicated on the Phase 3/4 FRS/IWTS Data Sheet for the previous canister processed (note data source in data sheet comments).
- NOTE: If this is the first canister processed, Knockout Pot weight is obtained from Pre-operational Acceptance Test SNF-A.9-PAT-002A results.
- DP-3 5. Record sample number for the center of basin grab sample, obtained per Process Standard 408, on the Phase 3/4 FRS/IWTS Data Sheet.
  - DP-4 6. Identify IXMs in service and record on Phase 3/4 FRS/IWTS Data Sheet.
  - DP-5 7. Record PCM Strainer Scale Tare Weight indicated on the Phase 3/4 FRS/IWTS Data Sheet for the previous canister processed (note data source in data sheet comments).
  - DP-6 8. Record PCM Strainer Weight data from the end weight indicated on the Phase 3/4 FRS/IWTS Data Sheet for the previous canister processed (note data source in data sheet comments).

NOTE: If this is the first canister processed, the empty PCM strainer weight is obtained from preliminary tests.

## **9.2 Retrieve Fuel Canister**

1. Request Operations to position fuel canister listed in the Fuel Campaign letter in fuel queue. (OP-07-113W)
- DP-7 2. Record the following data on Phase 3 /4 FRS/IWTS Data Sheet:
  - Date
  - Phase
  - Canister Lid #
  - Cubicle Location
  - Key #

## **9.3 Decap Fuel Canister**

1. Request OTD to verify with RadCon Supervisor that Krypton 85 Monitor is in operation per RP-05-035.
2. Request OTD to activate Decapper/PCM Discharge Radiation Monitor.  
  
NOTE: Signature verification on Phase 3 /4 FRS/IWTS Data Sheet signifies that the Decapper/PCM Discharge Radiation Monitor is activated.
3. Request OTD to start with Decapping process (FTP-OP-PSI-055W).
- DP-8 4. Record START TIME on Phase 3/4 FRS/IWTS Data Sheet.
- DP-9 5. Record Decapping Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-10 6. Record Decapping End Time on Phase 3 /4 FRS/IWTS Data Sheet.

## **9.4 Obtain Post-Decapping Data**

1. Request OTD to remove decapped canister from Decapping Station (FTP-OP-PSI-055W).
- DP-11 2. Record Top View Photograph of fuel in decapped canister.  
  
NOTE: Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies that Top Photo has been recorded.
3. Notify OTD that photograph has been recorded.
- DP-12 4. Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.

DP-13      5.      Record Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.

#### **9.5      Wash Fuel in PCM**

- DP-14      1.      Record Wash Start Time on Phase 3/4 FRS/IWTS Data Sheet.
2.      Notify the OTD of the high-pressure pump (HPP) flow to be used in the next PCM cleaning cycle.
3.      Request OTD to start PCM Wash Cycle (FTP-OP-PSI-055W).
4.      Request OTD to obtain Reading for Turbidity of Water midway through cleaning cycle.

DP-15      5.      Record Turbidity data on Phase 3/4 FRS/IWTS Data sheet.

DP-16      6.      Record Wash End Time on Phase 3/4 FRS/IWTS Data Sheet.

DP-17      7.      Record Knockout Pot Pressure Drop on Phase 3/4 FRS/IWTS Data Sheet.

#### **9.6      Record Post-Washed Data**

1.      Record canister information on Phase 3/4 Cleaning Process Data Sheet (OCRWM) from 105 KW Fuel Movement Data Sheet-PSI
2.      Record PCM operating parameters on Phase 3/4 Cleaning Process Data Sheet (OCRWM) from 105 KW Fuel Movement Data Sheet - PSI.
- DP-18      3.      Record Top View Photograph of washed fuel in canister.
- NOTE: Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies that Top Photo has been recorded.
4.      Notify OTD that photograph has been recorded.
- DP-19      5.      Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-20      6.      Record Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.
7.      Request OTD to weigh Knockout Pot three times (FTP-OP-PSI-055W).
- DP-21      8.      Record Load Cell Lifting Tool Tare Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-22      9.      Record KOP Weight on Phase 3/4 FRS/IWTS Data Sheet.

#### **9.7      Dump Fuel on Process Table**

1.      Request OTD to Dump Fuel onto Process Table (FTP-OP-PSI-055W).

- DP-23      2.      Record Top View Photograph of empty canister.  
NOTE: Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies that Empty Canister Top Photo has been recorded.
- DP-24      3.      Record Photograph of dumped fuel.  
Note: Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies Dumped Fuel Photo has been recorded.
4.      Notify OTD that fuel and canister photographs have been recorded.
5.      Request OTD to obtain Turbidity Reading.
- DP-25      6.      Record Turbidity on Phase 3/4 FRS/IWTS Data Sheet.  
NOTE: If canister contains stuck fuel, the dumped fuel shall be placed back into the canister and returned to Basin Storage.  
NOTE: If dumped fuel cannot be returned to the canister, it will be packaged into a new canister and returned to Basin Storage.
- DP-26      7.      Record "Yes" or "No" for Stuck Fuel on Phase 3/4 FRS/IWTS Data Sheet.
- DP-27      8.      Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-28      9.      Record Empty Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.

NOTE: The order of data collected in Sections 9.8, 9.9, and 9.10 may vary depending on actual fuel canister contents and conditions. NA data collection points that do not apply.

#### **9.8      Separate and Inspect Fuel**

1.      Ensure a minimum of three members of the fuel inspection team are present to evaluate fuel separation.
2.      Request OTD to proceed with sorting fuel elements (FTP-OP-PSI-054W).
- DP-29      3.      Record Fuel Inspection Start Time on Phase 3/4 FRS/IWTS Data Sheet.
4.      Start video recording of fuel inspection.

5. Record Inspection Team Fuel Condition assessment of each fuel element/assembly viewed on Phase 3/4 FRS Cleaning Process Data Sheet
6. Request OTD to provide alternate assembly view, if required.
7. Record Inspection Team Cleanliness Assessment of Each Fuel Element viewed on Phase 3/4 FRS Cleaning Process Data Sheet .
8. Request OTD to provide alternate element and sludge collection tray views, if required.
9. Notify OTD when element inspection is complete.
10. Request OTD to clean sludge collection tray using vacuum wand or sludge pickup adapter if requested by Inspection Team.
11. Perform Steps 5 through 10 for each fuel element/assembly viewed.
12. Stop Fuel Inspection Video Tape.

NOTE: Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies that video of inspections has been recorded.

- DP-30      13. Record on Phase 3/4 FRS/IWTS Data Sheet the Inspection End Time.

#### **9.9 Sort and Load Debris**

1. Request Operations to sort and load debris (FTP-OP-PSI-054W).
- DP-31      2. Record Debris Sorting Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-32      3. Record Debris Sorting End Time on Phase 3/4 FRS/IWTS Data Sheet.

- DP-33      4. Record Photograph of debris.

NOTE: Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies that Photo of Debris has been recorded.

5. Notify OTD that debris photograph has been recorded.

#### **9.10 Sort and Load Fuel in Basket**

1. Request OTD to Sort Fuel through Go/No-Go Gauge (FTP-OP-PSI-054W).
- DP-34      2. Record Fuel Sort and Load Start Time on Phase 3/4 FRS/IWTS Data Sheet.



3. Consult with OTD to load fuel into MCO Fuel Basket
4. Request OTD to Load Fuel into MCO Fuel Basket.
- DP-35 5. Record Top View Photograph of Fuel loaded into MCO Fuel Basket.  
  
NOTE: Signature verification on Phase 3/4 FRS/IWTS Data Sheet signifies that Fuel Basket Photograph has been recorded.
- DP-36 6. Record Fuel Sort and Load End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-37 7. Record number of Assemblies loaded into MCO Fuel Basket on Phase 3/4 FRS/IWTS Data Sheet.

NOTE: Completion of Sections 9.11 through 9.17 depends on actual observed fuel condition. NA data collection points that are not applicable during processing of a particular canister on the Phase 3/4 FRS/IWTS Data Sheet.

#### **9.11 Load Fuel in Canister**

1. Request OTD to Load fuel in canister (FTP-OP-PSI-059W).
- DP-38 2. Record Weigh Station Canister Hook weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-39 3. Record Fuel Starting Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-40 4. Record Fuel Canister Loading Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-41 5. Record Fuel Canister Loading End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-42 6. Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-43 7. Record Loaded Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.
8. Request OTD to transfer loaded fuel canister to Basin Storage location per OP-07-113W.

#### **9.12 Load Scrap Fuel**

1. Request OTD to load scrap fuel pieces larger than 3-inches in their greatest dimension (FTP-OP-PSI-059W).
- DP-44 2. Record Weigh Station Canister Hook Weight on Phase 3/4

FRS/IWTS Data Sheet.

- |       |    |   |
|-------|----|---|
| DP-45 | 3. | Record Scrap Fuel Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.               |
| DP-46 | 4. | Record Scrap Fuel Loading Start Time on Phase 3/4 FRS/IWTS Data Sheet.            |
| DP-47 | 5. | Record Scrap Fuel Loading End Time on Phase 3/4 FRS/IWTS Data Sheet.              |
| DP-48 | 6. | Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.       |
| DP-49 | 7. | Record Scrap Fuel Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.               |
|       | 8. | Request OTD to transfer loaded canister to Basin Storage location per OP-17-113W. |

#### **9.13 Position Canister for Coarse/Fine Scrap Loading**

- |       |    |  |
|-------|----|--|
|       | 1. | Request OTD to position canister for coarse/fine scrap loading (FTP-OP-PSI-059W) |
| DP-50 | 2. | Record Weigh Station Canister Hook weight on Phase 3/4 FRS/IWTS Data Sheet       |
| DP-51 | 3. | Record Scrap Canister Weigh on Phase 3/4 FRS/IWTS Data Sheet.                    |

#### **9.14 Sort and Load Coarse Scrap**

- |       |    |   |
|-------|----|---|
|       | 1. | Request OTD to sort and load coarse scrap (FTP-OP-PSI-059W).  |
| DP-52 | 2. | Record Coarse Scrap Sorting Start Time on Phase 3/4 FRS/IWTS Data Sheet.  |
| DP-53 | 3. | Record Coarse Scrap Sorting End Time on Phase 3/4 FRS/IWTS Data Sheet.  |
| DP-54 | 4. | Record first photograph of coarse scrap on grid plate.<br><br>NOTE: Signature Verification on Phase 3/4 FRS/IWTS Data Sheet signifies that First Photo of coarse scrap on grid plate has been recorded.   |
|       | 5. | Notify OTD that first coarse scrap photograph has been recorded.  |
| DP-55 | 6. | Record second photograph of coarse scrap on grid plate.<br><br>NOTE: Signature Verification on Phase 3/4 FRS/IWTS Data Sheet signifies that Second Photo of coarse scrap on grid plate has been recorded. |

7. Notify OTD that second coarse scrap photograph has been recorded.
- DP-56 8. Record Coarse Scrap Loading Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-57 9. Record Coarse Scrap Loading End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-58 10. Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-59 11. Record Scrap Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.

**9.15 Load Fine Scrap**

1. Request OTD to load fine scrap into canister (FTP-OP-PSI-059W).
- DP-60 2. Record Fine Scrap Loading Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-61 3. Record first photograph of scrap on grid plate.  
NOTE: Signature Verification on Phase 3/4 FRS/IWTS Data Sheet signifies that First Photo of fine scrap on grid plate has been recorded.
- DP-62 4. Notify OTD that first fine scrap photograph has been recorded.  
5. Record second photograph of fine scrap on grid plate.  
NOTE: Signature Verification on Phase 3/4 FRS/IWTS Data Sheet signifies that Second Photo of fine scrap on grid plate has been recorded.
- DP-63 6. Notify OTD that second fine scrap photograph has been recorded.  
7. Record Fine Scrap Loading End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-64 8. Record Weigh Station Canister Hook Weight OTD on Phase 3/4 FRS/IWTS Data Sheet.
- DP-65 9. Record Scrap Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.

**9.16 Load Scrap from PCM Wash and Strainer Baskets**

1. Request OTD to load PCM wash and strainer basket scrap into canister per FTP-OP-PSI-059W.
- DP-66 2. Record PCM Wash Basket Clean-Out Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-67 3. Record PCM Wash Basket Clean-Out End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-68 4. Record PCM wash basket scrap photograph on grid plate .  
NOTE: Signature Verification on Phase 3/4 FRS/IWTS Data Sheet signifies that PCM Wash Basket photograph has been recorded.
5. Notify OTD that PCM wash basket scrap photograph has been recorded.
- DP-69 6. Record PCM Strainer Removal Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-70 7. Record PCM Strainer Removal End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-71 8. Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-72 9. Record Strainer Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-73 10. Record PCM Strainer Cleanout Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-74 11. Record PCM Strainer Cleanout End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-75 12. Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-76 13. Record PCM Strainer Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-77 14. Record first PCM wash basket scrap and strainer scrap photograph on grid plate.  
NOTE: Signature Verification on Phase 3/4 FRS/IWTS Data Sheet signifies that first photo of PCM wash and strainer scrap has been recorded.
15. Notify OTD that first PCM wash basket scrap and strainer scrap photograph has been recorded.

- DP-78      16.    Record second photograph of scrap on grid plate.
- NOTE: Signature Verification on Phase 3/4 FRS/IWTS Data Sheet signifies that second photo of PCM Strainer Scrap has been recorded.
17.    Notify OTD that second PCM wash basket scrap and strainer scrap photograph has been recorded.
- DP-79      18.    Record PCM Scrap Loading Start Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-80      19.    Record PCM Scrap Loading End Time on Phase 3/4 FRS/IWTS Data Sheet.
- DP-81      20.    Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet.
- DP-82      21.    Record Scrap Canister Weight on Phase 3/4 FRS/IWTS Data Sheet.

**9.17 Process Scrap Canister**

1.    Request OTD to process scrap canister per FTP-OP-PSI-059W.
- DP-83      2.    Record Weigh Station Canister Hook Weight on Phase 3/4 FRS/IWTS Data Sheet, if applicable.
- DP-84      3.    Record Scrap Canister Weight on Phase 3/4 FRS/IWTS Data Sheet, if applicable.
- DP-85      4.    Record Scrap Depth on Phase 3/4 FRS/IWTS Data Sheet.
- DP-86      5.    Record END TIME on Phase 3/4 FRS/IWTS Data Sheet.

**10.0 DATA SHEETS**

Examples of the following data sheets are attached.

Attachment A	Phase 3/4 FRS/IWTS Data Sheet.
Attachment B	FRS Cleaning Process Data Sheet
Attachment C	Test Equipment Calibration Log
Attachment D	Installed Equipment Calibration Log
Attachment E	End of Shift Test Status Report
Attachment F	Pre-Job Safety Briefing Signature Sheet

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## ATTACHMENT A PHASE 3/4 FRS/IWTS DATA SHEET

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.1 Record Pretest Conditions  Complete _____ / _____	DP-1 DP-2a DP-2b DP-2c DP-3 DP-4 DP-5 DP-6	Procedure Revision Numbers Current and Incorporated _____ / _____  Load Cell Tare Weight _____ lb. 1 <sup>st</sup> KOP Weight _____ lb. 2 <sup>nd</sup> KOP Weight _____ lb. 3 <sup>rd</sup> KOP Weight _____ lb.  Basin Water Radionuclides _____ IXMs in Service _____ Canister Hook Weight _____ lb. PCM Strainer Weight _____ lb.	
9.2 Retrieve Fuel Canister  Complete _____ / _____	DP-7a DP-7b	Cubicle _____ Key Number _____	
Additional Comments: _____			

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## Attachment A Phase 3/4 FRS/IWTS Data Sheet

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.3 Decap Fuel Canister Complete _____ / _____	DP-8 DP-9 DP-10	Decapper/PCM Discharge Radiation Monitor On _____ / _____ START TIME _____ Decapping Start Time _____ Decapping End Time _____	
9.4 Obtain Post-Decapping Data Complete _____ / _____	DP-11 DP-12 DP-13	Top Photo _____ Canister Hook Weight _____ lb. Canister Weight _____ lb.	
Additional Comments: _____			



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## ATTACHMENT A PHASE 3 /4 FRS/IWTS DATA SHEET

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.5 Wash Fuel in PCM		Decapper/PCM Discharge Radiation Monitor On _____/_____	
Complete _____/_____	DP-14	Wash Start Time _____	
	DP-15	Turbidity _____ NTU	
	DP-16	Wash End Time _____	
	DP-17	KOP Δ P _____ psi	
9.6 Record Post Washed Data	DP-18	Top Photo _____	
Complete _____/_____	DP-19	Canister Hook Weight _____ lb.	
	DP-20	Canister Weight _____ lb.	
	DP-21	Load Cell Tare Weight _____ lb.	
	DP-22a	1 <sup>st</sup> KOP Weight _____ lb.	
	DP-22b	2 <sup>nd</sup> KOP Weight _____ lb.	
	DP-22c	3 <sup>rd</sup> KOP Weight _____ lb.	
Additional Comments: _____			

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**ATTACHMENT A PHASE 3 /4 FRS/IWTS DATA SHEET**

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.7 Dump Fuel on Process Table	DP-23	Empty Canister Top Photo _____ / _____	
Complete _____ / _____	DP-24	Dumped Fuel Photo _____ / _____	
	DP-25	Turbidity _____ NTU	
	DP-26	Stuck Fuel? Yes _____ No _____	
	DP-27	Canister Hook Weight _____ lb.	
	DP-28	Empty Canister Weight _____ lb.	
9.8 Separate and Inspect Fuel	DP-29	Fuel Inspection Start Time _____	
Complete _____ / _____		Inspection Video Recorded _____ / _____	
	DP-30	Fuel Inspection End Time _____	
Additional Comments: _____			

# SPENT NUCLEAR FUEL PROJECT

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## ATTACHMENT A PHASE 3 /4 FRS/IWTS DATA SHEET

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.9 Sort and Load Debris Complete _____/_____	DP-31 DP-32 DP-33	Debris Sorting Start Time _____ Debris Sorting End Time _____ Debris Photo _____/_____	
9.10 Sort and Load Fuel in Basket Complete _____/_____	DP-34 DP-35 DP-36 DP-37a DP-37b	Fuel Sort and Load Start Time _____ Fuel Basket Top Photo _____/_____ Fuel Sort and Load End Time _____ Fuel Loaded into Basket: Number of Assemblies _____; Basket Number _____ Number of Assemblies _____; Basket Number _____	
Additional Comments: _____			

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## ATTACHMENT A PHASE 3 /4 FRS/IWTS DATA SHEET

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.11 Load Fuel in Canister  Complete _____ / _____	DP-38 DP-39 DP-40 DP-41 DP-42 DP-43	Canister Hook Weight _____ lb. Starting Canister Weight _____ lb. Fuel Canister Loading Start Time _____ Fuel Canister Loading End Time _____ Canister Hook Weight _____ lb. Loaded Canister Weight _____ lb.	
9.12 Load Scrap Fuel  Complete _____ / _____	DP-44 DP-45 DP-46 DP-47 DP-48 DP-49	Canister Hook Weight _____ lb. Scrap Fuel Canister Weight _____ lb. Scrap Fuel Loading Start Time _____ Scrap Fuel Loading End Time _____ Canister Hook Weight _____ lb. Scrap Fuel Canister Weight _____ lb.	
9.13 Position Canister for Coarse/Fine Scrap Loading  Complete _____ / _____	DP-50 DP-51	Canister Hook Weight _____ lb. Scrap Canister Weight _____ lb.	
Additional Comments: _____			

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## ATTACHMENT A PHASE 3 /4 FRS/IWTS DATA SHEET

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.14 Sort and Load Coarse Scrap Complete _____ / _____	DP-52 DP-53 DP-54 DP-55 DP-56 DP-57 DP-58 DP-59	Coarse Scrap Sorting Start Time _____ Coarse Scrap Sorting End Time _____ 1 <sup>st</sup> Photo Coarse Scrap _____ / _____ 2 <sup>nd</sup> Photo Coarse Scrap _____ / _____ Coarse Scrap Loading Start Time _____ Coarse Scrap Loading End Time _____ Canister Hook Weight _____ lb. Scrap Canister Weight _____ lb.	
9.15 Load Fine Scrap Complete _____ / _____	DP-60 DP-61 DP-62 DP-63 DP-64 DP-65	Fine Scrap Loading Start Time _____ 1 <sup>st</sup> Photo Fine Scrap _____ / _____ 2 <sup>nd</sup> Photo Fine Scrap _____ / _____ Fine Scrap Loading End Time _____ Canister Hook Weight _____ lb. Scrap Canister Weight _____ lb.	
Additional Comments: _____			

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Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.16 Load Scrap from PCM Wash and Strainer Baskets	DP-66	PCM Wash Basket Cleanup	
Complete _____ / _____		Start Time _____	
	DP-67	PCM Wash Basket Cleanup	
		End Time _____	
	DP-68	PCM Wash Basket Scrap Photo _____ / _____	
	DP-69	PCM Strainer Removal Start Time _____	
	DP-70	PCM Strainer Removal End Time _____	
	DP-71	Canister Hook Weight _____ lb.	
	DP-72	PCM Strainer Weight _____ lb.	
	DP-73	PCM Strainer Cleanup Start Time _____	
	DP-74	PCM Strainer Cleanup End Time _____	
	DP-75	Canister Hook Weight _____ lb.	
	DP-76	PCM Strainer Weight _____ lb.	
	DP-77	1 <sup>st</sup> PCM Scrap Photo _____ / _____	
	DP-78	2 <sup>nd</sup> PCM Scrap Photo _____ / _____	
	DP-79	PCM Scrap Loading Start Time _____	
	DP-80	PCM Scrap Loading End Time _____	
	DP-81	Canister Hook Weight _____ lb.	
	DP-82	Scrap Canister Weight _____ lb.	

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## ATTACHMENT A PHASE 3 /4 FRS/IWTS DATA SHEET

Date _____	Phase _____	Phase 3/4 FRS/IWTS Data Sheet	Canister Lid Number _____
Step	DP	Data	Comments/Down Time/ Date Change
9.17 Process Scrap Canister	DP-83	Canister Hook Weight _____ lb.	
Complete _____ / _____	DP-84	Scrap Canister Weight _____ lb.	
	DP-85a	Scrap Depth 1 <sup>st</sup> barrel _____ in.	
	DP-85b	Scrap Depth 2 <sup>nd</sup> barrel _____ in.	
	DP-86	END TIME _____	
Additional Comments:			

Data Collection Complete: \_\_\_\_\_

QAE/I

Date

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**ATTACHMENT B PHASE 3/4 FRS CLEANING PROCESS DATA SHEET (OCRWM)**  
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Date: \_\_\_\_\_ Time: \_\_\_\_\_ CANISTER ID: \_\_\_\_\_

## CANISTER INFORMATION

Canister Type: \_\_\_\_\_ Mark I Aluminum, \_\_\_\_\_ Mark I Stainless Steel, \_\_\_\_\_ Mark II Stainless Steel

Fuel Type: \_\_\_\_\_ MKIV, \_\_\_\_\_ MKIA, \_\_\_\_\_ SPR, \_\_\_\_\_ NAT

Key Number \_\_\_\_\_

## OPERATING PARAMETERS

Cleaning Cycle Time = \_\_\_\_\_ minutes

Number of PCM Rotations: \_\_\_\_\_

High Pressure Flush Nozzles Flow Rate: \_\_\_\_\_ gpm

Flush Nozzles Pressure: \_\_\_\_\_ psig

**Discharge Flow Rate (75 gpm or greater):**

Assembly	Inner/Outer	Fuel Condition				Inspection Results		Comments
		Intact	Breached	Defective	Bad	Clean	Not Clean	
1	Inner							
	Outer							
2	Inner							
	Outer							
3	Inner							
	Outer							
4	Inner							
	Outer							
5	Inner							
	Outer							
6	Inner							
	Outer							
7	Inner							
	Outer							
8	Inner							
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9	Inner							
	Outer							
10	Inner							
	Outer							
11	Inner							
	Outer							
12	Inner							
	Outer							
13	Inner							
	Outer							
14	Inner							
	Outer							
Total								



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Canister No. \_\_\_\_\_

**Attachment B Phase 3/4 FRS Cleaning Process Data Sheet (OCRWM) Page 2 of 2**

Comments:

**Fuel Inspection Team Members Signatures**

**Print Name**

**Signature**

**Date**

\_\_\_\_\_

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**Data Collection Complete (QAE/I)**

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## ATTACHMENT C TEST EQUIPMENT CALIBRATION LOG

[illegible]

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## ATTACHMENT D INSTALLED EQUIPMENT CALIBRATION LOG

[illegible]

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**ATTACHMENT E END-OF SHIFT TEST STATUS REPORT, PSI PHASE 3/4**

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Date/Time: \_\_\_\_\_

Canister In-Process: \_\_\_\_\_ (original lid # or N/A)

**End of Shift Procedure Status**

**SNF-5952 Test Procedure Step**

Completed through end of shift: \_\_\_\_\_

Referenced FTP Step completed

Through end of shift: FTP #: \_\_\_\_\_

Step #: \_\_\_\_\_

Comments:

**Expected Test Restart Description**

Continue with SNF-5952 Test Procedure Step: \_\_\_\_\_

By performing (if required) FTP #: \_\_\_\_\_

Step #: \_\_\_\_\_

Comments (clarify planned next procedure step after daily prestart completed):

Prepared by: \_\_\_\_\_

Name/Signature/Date

## Phased Startup Initiative Phase 3/4 Test Procedure (OCRWM)

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## ATTACHMENT F PRE-JOB SAFETY BRIEFING SIGNATURE SHEET

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