

6 APR 3 2000 58 ENGINEERING DATA TRANSMITTAL Page 1 of 1  
Sta. 4 1. EDT 629001

2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) Process Engineering		4. Related EDT No.: N/A	
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				10. System/Bldg./Facility: N/A	
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				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: March 16, 2000	

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(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Design- nator	Reason for Trans- mittal	Origina- tor Dispo- sition	Receiv- er Dispo- sition
1	SNF-6030	N/A	0	Weigh Station and Grid Plate Testing	E, S <sup>N</sup> , Q	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec 12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION  
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	Design Authority	M. J. Langguth	3/24/00	X3-76	1	1	V. L. Hoefer	J. L. Hoefer	03/22/00	R3-86
1	1	Cog. Eng. J. W. Neskas	John Neskas	3-22-00	R3-86	1	1	J. J. Klos	J. J. Klos	03-24-00	X3-71
1	1	Cog. Eng. A. L. Pajunen	A. L. Pajunen	3/23/00	R3-86	1	1	J. E. Kuntz	J. E. Kuntz	3/24/00	X3-68
1	1	Cog. Mgr. J. R. Frederickson	J. R. Frederickson	3/24/00	R3-86	1	1	M. J. Langguth	M. J. Langguth	3/24/00	X3-76
1	1	QA P. E. Davis	P. E. Davis	3/23/00	X3-80	1	1	J. D. Mathews	J. D. Mathews	3/28/00	X3-65
1	1	Safety C. T. Miller	C. T. Miller	3/23/00	X3-79	1	1	A. L. Pitner	A. L. Pitner	3-22-00	R3-86
1	1	Env. D. J. Watson	D. J. Watson	3/23/00	X3-79	1	1	J. L. Shelor	J. L. Shelor	3/28/00	X3-71
1	1	J. A. Dent	J. A. Dent	3/28/00	X3-65						

18. Signature of EDT Originator John W. Neskas J. W. Neskas 3-30-00		19. Authorized Representative Date for Receiving Organization J. R. Frederickson J. R. Frederickson 3/30/00		20. Design Authority/ Cognizant Manager J. R. Frederickson J. R. Frederickson 3/30/00		21. DOE APPROVAL (if required) Ctrl. No. N/A <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments	
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## DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Process Engineering	Date 3/15/00
Project Title/Work Order		EDT No. 629001
Weigh Station and Grid Plate Testing		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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### Spent Nuclear Fuel Project

P. E. Davis	X3-80	X	
J. A. Dent	X3-65	X	
J. R. Frederickson	R3-86	X	
V. L. Hoefler	R3-86	X	
J. J. Klos	X3-71	X	
J. E. Kurtz	X3-68	X	
M. J. Langevin	X3-76	X	
J. D. Mathews	X3-65	X	
C. T. Miller	X3-79	X	
W. C. Miller	R3-11	X	
J. W. Neskas	R3-86	X	
A. L. Pajunen	R3-86	X	
A. L. Pitner	R3-86	X	
J. L. Shelor	X3-71	X	
D. J. Watson	X3-79	X	
SNF Project Files	R3-11	X	
SNF Project Procedures	X3-86		X
SNF Project Training	S2-45		X

# Weigh Station and Grid Plate Testing

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

# Weigh Station and Grid Plate Testing

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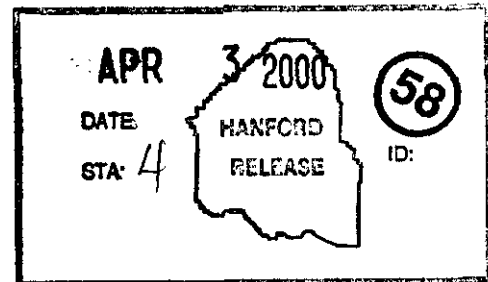
Date Published  
March 2000


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

Project Hanford Management Contractor for the  
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**Fluor Hanford**

P.O. Box 1000  
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Release Approval  
3/30/00  
Date

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## List of Acronyms

AJHA	Automated Job Hazard Analysis
ETD	Engineering Test Director
FRS	Fuel Retrieval System
JCS	Job Control System
OTD	Operations Test Director
PAT	Pre-Operational Acceptance Test
PCM	Primary Cleaning Machine
PSI	Phased Startup Initiative
QA	Quality Assurance
QC	Quality Control
OCRWM	Office of Civilian Radioactive Waste Mangement
OTD	Operations Test Director
TE	Test Engineer

## **WEIGH STATION AND GRID PLATE TESTING**

### **EXECUTIVE SUMMARY**

The purpose of this test plan is to describe the Phased Startup Initiative (PSI) testing of the weigh station and grid plate in the 105 K West Basin. The test procedure is provided as Appendix A in the pre-operational acceptance test PAT format. It is necessary to successfully demonstrate this testing before N Reactor fuel is processed through the Fuel Retrieval System (FRS) in Phase 3.

### **1.0 INTRODUCTION**

The purpose of this test is to verify that the Shortened Fuel Canister Hook with Certified Scale (i.e. Weigh Station) can be used to weigh an empty canister from the Canister Well and the empty Primary Cleaning Machine (PCM) Strainer Basket from the process table. Drawing H-1-84835, "Canister Handling Hook for Fuel Retrieval System Process Table," provides details of the Shortened Fuel Canister Hook. It is also necessary to verify that the grid plate can be lifted and tilted over a canister in the canister well. This testing shall be performed before N Reactor fuel is processed through the FRS in Phase 3. The Phase 3 Test will repeatedly weigh fuel and scrap canisters and the PCM strainer basket containing N Reactor fuel (Pajunen, et. al, 2000). Advance testing of this weigh station will ensure that accurate fuel weight data can be recorded in the Phase 3 Test.

This document satisfies the requirements in EN-6-031-00, "Testing Process" for a test plan, test specification and test procedure.

### **2.0 OBJECTIVE**

The goal of this test is to demonstrate that the Shortened Fuel Canister Hook and Certified Scale can weigh a canister from the Canister Well and weigh the PCM Strainer Basket from the Process Table. Another goal is to lift the Grid Plate from the Process Table and tilt it over a canister in the Canister Well.

### **3.0 SCOPE**

No N Reactor fuel is involved with this test. Mock fuel is not necessary for this test.

### **4.0 DESCRIPTION OF TEST**

#### **4.1 Test Item**

The Shortened Fuel Canister Hook with Certified Scale and the Grid Plate are the items tested. The test shall be controlled and scheduled by the Job Control System (JCS).

## **4.2 Test Environment**

The 105 K West Basin is the test environment.

## **4.3 Equipment and Facilities**

The equipment used includes the Shortened Fuel Canister Hook with Certified Scale (Weigh Station), used in conjunction with the 105 K West Facility Fuel Handling System. The Grid Plate is lifted and tilted with tools such as pole hooks.

## **4.4 Data**

The test data shall be recorded on blank lines provided in Appendix A, "Test Procedure".

## **4.5 Criteria/Constraints**

This test shall be conducted in accordance with the requirements of the Operational Authorization Basis at the 105 K West Basins.

## **5.0 EXPECTED RESULTS**

- 5.1 The Weigh Station can be used to lift the canister from the Canister Well, display the weight, and return the canister to the Canister Well.
- 5.2 The Weigh Station can be used to lift the PCM Strainer from Process Table, display the weight, and return the PCM Strainer to the Process Table.
- 5.3 The weight measurement of a canister submerged in water is compared with the pre-test canister weight in order to determine the weighing uncertainty of the integrated system.
- 5.4 The Grid Plate can be lifted and tilted over a canister in the canister well, in order to simulate the transfer of scrap from the grid plate to the canister.

## **6.0 TEST PROCEDURE**

The Test Procedure is provided as Appendix A.

## **7.0 SAFETY**

All personnel involved with the performance of this test shall attend a Pre-job Safety Briefing and sign the Pre-Job Safety Briefing Signature Sheet provided at the end of Appendix A. The Pre-Job Safety Briefing shall include a review of the Automated Job Hazard Analysis (AJHA), ALARA requirements and Criticality requirements (including Criticality Postings).



## **8.0 QUALITY ASSURANCE**

The canister used in this test shall be accepted by Quality Assurance (QA) and approved for use in the Basin (acceptance tagged). A Quality Control (QC) certification of the grid squares on the Grid Plate shall be provided (acceptance tagged). These testing activities do not require an Office of Civilian Radioactive Water Management (OCRWM) review.

## **9.0 ORGANIZATION AND FUNCTION RESPONSIBILITIES**

These tests shall be performed as a portion of the PSI in preparation for Phase 3 testing. The on-duty Shift Manager has overall responsibility for activities within the 105 K West facility. The Operations organization shall perform these tests and record the required data under the direction of the Operations Test Director (OTD), who will report to the on-duty Shift Manager. The Test Engineer (TE) and Engineering Test Director (ETD) shall support the activities of the OTD. The ETD will have overall technical authority during these tests. The engineers involved with testing activities shall have a PSI Provisional Qualification (Qual Card) and completed OCRWM training.

Facility Engineering shall provide the Shortened Fuel Canister Hook with certified scale. Process Engineering shall provide the Grid Plate, analyze the data collected, and issue a Test Report.

The QA organization shall participate in the verification of performance of the calibration of the scale on the Shortened Fuel Canister Hook. The Safety organization shall provide an AJHA. The Engineering organization shall provide supporting documentation and revisions to this Test Plan.

Radiological Control will address radiological concerns associated with this test activity.

K Basins Work Control will perform any planning and scheduling activities required to support these tests.

K Basins Maintenance will provide any needed craft support for this activity.

## **10.0 SCHEDULE**

This test shall be scheduled by the Job Control System (JCS) and completed in preparation for Phase 3 of the Phased Startup Initiative (PSI).

## **11.0 REPORTS**

A copy of the completed Test Procedure (Appendix A) along with the data analysis shall constitute the Test Report.

## **12.0 REFERENCES**

Pajunen, A. L., A. L. Pitner, D. W. Smith, 2000, HNF-4898, Rev. 0, *Phased Startup Initiative Phases 3 and 4 Test Plan and Test Specifications (OCRWM)*, February 28, 2000, Fluor Hanford, Inc., Richland, Washington..

## **13.0 DATA SHEETS**

Data collection is provided within the Test Procedure in Appendix A. The Pre-Job Safety Briefing Signature Sheet is provided at the end of Appendix A.

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<b>WEIGH STATION AND GRID PLATE</b>	<b>Revision No.</b>	<b>0</b>
<b>TESTING</b>	<b>Effective Date</b>	<b>3/28/00</b>
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**APPENDIX A**

**Test Procedure**

**Weigh Station and Grid Plate Testing**

**SNF-6030**  
**Revision No. 0**

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AJHA	Automated Job Hazard Analysis
ALARA	As Low As Reasonably Achievable
ETD	Engineering Test Director
I&C	Instrumentation and Controls
IWTS	Integrated Water Treatment System
IXM	Ion Exchange Module
M&TE	Measurement and Test Equipment
OTD	Operations Test Director
PCM	Primary Cleaning Machine
QA	Quality Assurance
QC	Quality Control
OCRWM	Office of Civilian Radioactive Waste Management
OTD	Operations Test Director
SNF	Spent Nuclear Fuel
TD	Test Director
TSB	Telescoping Stiff Back

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**SPENT NUCLEAR FUEL PROJECT  
WEIGH STATION AND GRID PLATE  
TESTING**

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## **1.0 INTRODUCTION**

The purpose of this Test is to verify that the Shortened Fuel Canister Hook with certified Scale (i.e., Weigh Station) can be used to weigh an empty canister from the Canister Well and the empty Primary Cleaning Machine (PCM) Strainer Basket from the Process Table. It is also necessary to verify that the Grid Plate can be lifted and tilted over a canister in the canister well. This testing shall be performed in preparation for the Phase 3 Testing Activities. The Phase 3 Test will repeatedly weight fuel and scrap canisters and the PCM Strainer Basket containing N Reactor fuel. Advance testing of this weigh station will ensure that accurate fuel weight data can be recorded in the Phase 3 Test.

## **2.0 SCOPE**

No N-Reactor fuel is involved with this test. Mock fuel is not necessary for this test

## **3.0 GENERAL REQUIREMENTS**

- 3.1 This procedure is under the direct control and supervision of the Operations Test Director (OTD).
- 3.2 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.
- 3.3 Operations procedures, as applicable, including all safety procedures shall apply to this testing activity. The Test Engineers participating in the performance of this test procedure shall have read and be familiar with, all applicable facility safety procedures prior to initiation of testing activities specified in this procedure. The engineers involved with testing activities shall have a PSI Provisional Qualification (Qual Card) and completed Office of Civilian Radioactive Waste Management (OCRWM) training. A signature sheet attesting to having read the required safety procedures, such as the Automated Job Hazard Analysis (AJHA) or the pretest checklist, as a minimum, is included herein as Exhibit A.

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

### **4.1 Tools**

#### **4.1.1 Pole Hook(s)**

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## 4.2 Equipment

### 4.2.1 Grid Plate

### 4.2.2 Shortened Fuel Canister Hook with Certified Scale (Weigh Station)

## 4.3 Supplies

### 4.3.1 Miscellaneous consumables

## 5.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

### 5.1 Personnel

5.1.1 All personnel on the test team shall immediately bring any personnel safety concerns to the attention of the OTD for immediate resolution.

5.1.2 All personnel involved with the performance of this Test shall attend a Pre-job Safety Briefing and sign the Pre-Job Safety Briefing Signature Sheet provided as Exhibit C. The Pre-Job Safety Briefing shall include a review of the AJHA, ALARA requirements and Criticality requirements (including Criticality Postings).

### 5.2 Equipment

5.2.1 If any equipment damage is observed, the OTD shall be notified and the damage evaluated. (Excessive damage may require replacement of equipment before proceeding.)

### 5.3 Environment

5.3.1 During the performance of this test, the requirements for underwater work control and basin water quality found in Process Standard 408 shall be adhered to, i.e.; either the Integrated Water Treatment System (IWTS) is operating or at least a sand filter and one Ion Exchange Module (IXM) are on-line. In addition, the 105 K West Basin Cs-137 concentration shall be  $\leq 10 \mu\text{Ci/l}$ , this can be confirmed with the on-duty shift manager.

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## 6.0 INTERFACE REQUIREMENTS

6.1 These testing activities are performed on the Process Table.

6.2 Personnel required to support performance of this test:

<u>Classification</u>	<u>Quantity</u>
Test Engineer	1
Engineering Test Director	1
Operations Test Director	1
Operators	2
I&C Technician	1
Health Physics Technician	1
TOTAL	<u>7</u>

## 7.0 INITIAL CONDITIONS

7.1 The new canister used in this test shall be accepted by Quality Assurance (QA) and approved for use in the Basin (acceptance tagged). A Quality Control (QC) calibration of the scale on the Shortened Fuel Canister Hook shall be completed to determine the accuracy of the scale. A QC certification of the grid squares on the Grid Plate shall be completed.

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**8.0 PREREQUISITE ACTIONS**

Unless otherwise specified, prerequisite actions may be performed in any order.

- |     |   |   |
|-----|---|---|
| 8.1 | All open items have been evaluated and verified to not affect the performance of this test (QA nonconformance reports, construction punch list, outstanding engineering or design change notices, startup field requests or test deficiency reports). | / |
| 8.2 | Perform a walkdown inspection of the systems tested by this procedure.  | / |
| 8.3 | Perform an initial briefing for all personnel involved in the performance of this test.   | / |
| 8.4 | The TE will determine that appropriate interface support from other organizations is available.   | / |
| 8.5 | All personnel who will be involved with this procedure have provided the required signature verification information in Exhibit A.  | / |
| 8.6 | All Measurement and Test Equipment (M&TE) required for this test is listed on Exhibit B, "Test Equipment Calibration Log," and is in the Current calibration cycle.   | / |
| 8.7 | Verify that the ETD and OTD are notified prior to commencement of testing (preferably 24 hours).  | / |
| 8.8 | Verify that Spent Nuclear Fuel (SNF) QA is notified prior to commencement of testing (preferably 24 hours).   | / |
| 8.9 | I have reviewed the above prerequisites and conditions required to commence Section 9.0 to be complete. I recommend that this Test be released for performance.   |   |

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



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**INITIAL/DATE**

- 8.10 I have reviewed the above prerequisites and conditions required to commence Section 9.0 to be complete. This Test is released for performance.

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

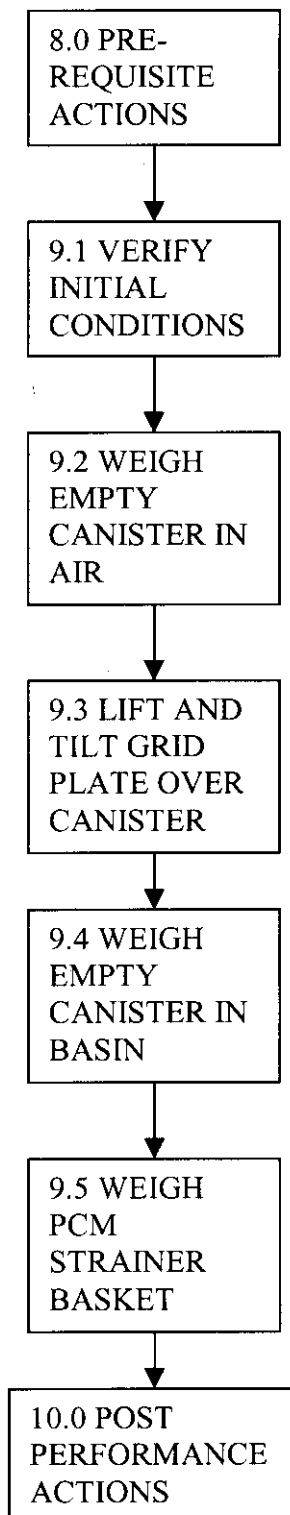
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**9.0 PROCEDURE STEPS**

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9.1 Verify that the Safety, Precautions, and Limitations of Section 5.0 are complete.

/

9.2 Observe the Interface Requirements of Section 6.0 are complete.

/

9.3 Verify that the Initial Conditions and Prerequisites of Sections 7.0 and 8.0 are complete.

/

9.4 Weigh Empty Canister in Air

9.4.1 Verify Certified Scale Calibration is current by checking date on calibration sticker.  
Record Expiration Date: \_\_\_\_\_

/

**QA**

9.4.2 In air, weigh the approved empty canister without lids using the Weigh Station scale and record the pre-test canister weight:  
\_\_\_\_\_ lb.

/

/

9.4.3 Remove canister well lid from canister well.

/

9.4.4 Place approved empty canister without lids into basin and position canister in canister well.

/

9.5 Lift and Tilt Grid Plate Over Canister

/

9.5.1 Place Grid Plate on Process Table.

/

9.5.2 Lift Grid Plate and place spout over one canister barrel.

/

9.5.3 Lift rear bail in order to tilt the Grid Plate over the canister barrel.

/

9.5.4 Store Grid Plate per OTD instructions.

/

9.6 Weigh Empty Canister in Basin

/

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**INITIAL/DATE**

- |       |  |   |
|-------|--|---|
| 9.6.1 | Record Verification Signature/Date that the weigh station has been installed at the 105 K West Basin and is in position above the Process Table. | / |
| 9.6.2 | Record Scale Tare Weight with Shortened Fuel Canister Hook attached: _____ lb.   | / |
| 9.6.3 | Weigh canister with weigh station and record weight: _____ lb.   | / |
| 9.6.4 | Store canister per OTD instructions.   | / |
| 9.6.5 | Put canister well lid in place over canister well.   | / |
| 9.7   | Weigh PCM Strainer Basket  | / |
| 9.7.1 | Remove PCM wash basket by performing the following:  | / |
| 9.7.2 | Ensure canister well lid is in place in the north table.   | / |
| 9.7.3 | Ensure PCM lid is open.  | / |
| 9.7.4 | If PCM lid is not open, then perform the following steps to open lid:  | / |
| 9.7.5 | a. Place PCM Lid Oper Maint key switch HS-250-PCM-2C in "Oper" position, "Lid Operation" light lit.  | / |
|       | b. Place Drive Lock selector switch HS-250-PCM-1D in "Lock" position, "Drive Locked" light lit.  | / |
|       | c. Ensure PCM Drive Lock Cylinder PCM-CYL-7251 is locked.  | / |
|       | d. Place PCM Basket selector switch HS-250-PCM-2B in "Lock" position, "Basket Locked" light lit.   | / |

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e. Place PCM lid selector switch HS-250-PCM-2A  
in "Open" position.

/

f. Ensure PCM lid opened fully

/

9.7.6 Move north manipulator to safe position and disable.

/

9.7.7 Engage PCM wash basket with the Telescoping Stiff  
Back (TSB).

/

9.7.8 Visually verify proper TSB hook engagement,  
requires independent confirmation by second  
operator.

/

9.7.9 Move wash basket to tipper station with TSB.

/

9.7.10 Move strainer basket to process table using TSB.

/

9.7.11 Record Scale Tare Weight: \_\_\_\_\_ lb.

/

9.7.12 Weigh the PCM Strainer Basket with the Weigh  
Station and record the PCM Strainer Basket Weight:  
\_\_\_\_\_ lb.

/

9.7.13 Store the Weigh Station per OTD instructions.

/

9.7.14 Install strainer basket in PCM.

/

9.7.15 Install wash basket in PCM.

/

9.7.16 Close PCM lid by performing the following steps:

/

a. Ensure PCM Lid Oper Maint key switch HS-250-  
PCM-2C in "Oper" position, "Lid Operation" light  
lit.

/

b. Place PCM lid selector switch HS-250-PCM-2A  
in "Closed" Position.

/

---

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9.7.17 Ensure PCM lid closed fully by observing "Lid  
Closed" indicator flag is visible.

\_\_\_\_\_ / \_\_\_\_\_

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### 10.0 POST PERFORMANCE ACTIONS

- 10.1 The Test Engineer shall verify that this procedure has been completed.
- 10.2 Performance of testing required by this procedure has been reviewed by the OTD. It is determined that testing required by this procedure is field complete
- \_\_\_\_\_/\_\_\_\_\_  
OTD                      Date
- 10.3 Process Engineering will analyze the data and issue a test report.

### 11.0 ACCEPTANCE CRITERIA

CRITERIA	STEP
11.1 Grid Plate can be lifted and tilted over a canister in the Canister Well.	9.3.3
11.2 The weigh station can be used to lift the canister from the Canister Well, display the weight, and return the canister to the Canister Well.	9.4.3
11.3 The weigh station can be used to lift the PCM Strainer from the Process Table, display the weight, and return the PCM Strainer to the Process Table.	9.5.10
11.4 The weight measurement of a canister submerged in water is compared with the pre-test canister weight in order to determine the weighing uncertainty of the integrated system.	10.3

### 12.0 REFERENCES

Pajunen, A. L., A. L. Pitner, D. W. Smith, HNF-4898, Rev. 0, "Phased Startup Initiative Phases 3 and 4 Test Plan and Test Specifications (OCRWM)," March 2000, Fluor Hanford, Richland, Washington.

### 13.0 EXHIBITS AND ATTACHMENTS

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All persons involved in procedure performance, data recording, and verification or evaluation of test steps shall provide their name, job title, signature, and initials in the following table.

DATE	NAME (PRINT)	TITLE	SIGNATURE	INITIAL



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**EXHIBIT B. TEST EQUIPMENT CALIBRATION LOG**

Measuring and Test Equipment (M&TE) Calibration Log				
Page ____ of ____				
M&TE No.	M&TE Description (include accuracies)	Calibration Due Date	Range Used	Initial/Date

Notes:

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**EXHIBIT C. PRE-JOB SAFETY BRIEFING SIGNATURE SHEET**

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<b>NAME (PRINTED)</b>	<b>SIGNATURE</b>	<b>INITIALS</b>	<b>DATE</b>