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1	SNF-6123	N/A	0	Acceptance Test Plan for the Sludge Pickup Adapter		Q	1	1	
<b>16. KEY</b>									
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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	
<b>17. SIGNATURE/DISTRIBUTION</b> (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. Langevin	3/29/00	R3-76				
		Design Agent							
1	1	Cog. Eng.	A. L. Pitner	3/29/00	R3-86				
1	1	Cog. Mgr.	J.R. Frederickson	3/29/00	R3-86				
1	1	QA	D. W. Smith	3/29/00	S2-48				
		Safety							
		Env.							
18. <i>A. L. Pitner</i> A. L. Pitner 3/29/00 Signature of EDT Originator Date		19. _____ Authorized Representative for Receiving Organization Date		20. <i>J.R. Frederickson</i> J. R. Frederickson 3/29/00 Design Authority/ Cognizant Manager Date		21. DOE APPROVAL (if required) Ctrl. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments			

SNF-6123  
Revision 0

# Acceptance Test Plan for the Sludge Pickup Adapter

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**

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Richland, Washington

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Fluor Hanford

Date Published  
March 2000

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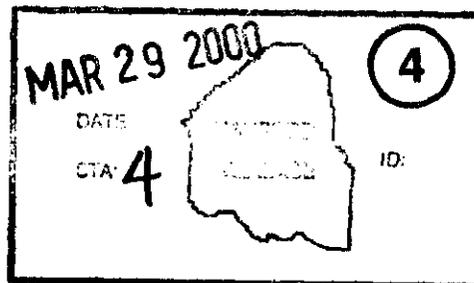
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Release Approval 3/29/00  
Date



Release Stamp

## ACCEPTANCE TEST PLAN FOR THE SLUDGE PICKUP ADAPTER

### 1.0 INTRODUCTION

This test plan documents the acceptance testing of the sludge pickup adapter for potential use during PSI Phases 3 and 4 fuel cleanliness inspection activities. The adapter is attached to the strainer tip of the vacuum wand and used to suction up residual sludge captured in a sludge collection tray. The material is vacuumed into a chamber of known volume in the sludge pickup adapter. The device serves as an aid in helping to determine whether the observed quantity of sludge is within allowable limits (1.4 cm<sup>3</sup> per fuel assembly).

This functionality test involves underwater testing in the 305 Building Cold Test Facility to verify that sludge can be successfully vacuumed from a collection tray. Ancillary activities in this acceptance test include demonstration that the sludge pickup adapter can be successfully attached to and detached from the vacuum wand underwater.

### 2.0 EQUIPMENT LIST

The following equipment and materials shall be available to perform the acceptance test.

- Prototype vacuum wand
- Pump capable of providing a flow rate of 80 ± 10 gpm (calibration not required)
- Underwater camera
- Sludge pickup adapter
- Sludge collection tray with fixture for capturing sludge sample
- Adapter installation fixture
- Sludge simulant (standard mixture of sand, flyash, and tungsten powder)

Test Engineer \_\_\_\_\_

Cognizant Engineer \_\_\_\_\_

Operations \_\_\_\_\_

Quality Assurance \_\_\_\_\_

### 3.0 PRETEST REQUIREMENTS

The following requirements shall be verified prior to conducting the acceptance test.

- This test procedure package is marked **TEST CONTROL COPY**
- All applicable JHAs and MSDSs are posted or located in the test area (Attachment 1)
- Equipment is installed or available for installation at the test area
- Test materials are available at the test area
- Facility support systems are available at the test area
- The pre-job briefing is complete (Attachment 2)

Test Engineer \_\_\_\_\_

Cognizant Engineer \_\_\_\_\_

Operations \_\_\_\_\_

Quality Assurance \_\_\_\_\_

### 4.0 PROCEDURE

- 4.1 Preload the sludge capture fixture in the sludge collection tray with a measured 1.4 cm<sup>3</sup> of sludge simulant.
- 4.2 Fill the sludge capture fixture with water and lower the collection tray to the bottom of the water basin.
- 4.3 Lower the sludge pickup adapter into the water basin and position in the adapter installation fixture.
- 4.4 Push the vacuum wand down into the sludge pickup adapter to affix it to the end of the wand. Record the approximate total time to complete Steps 4.3 and 4.4.

Elapsed time for installing adapter on wand \_\_\_\_\_ minutes

- 4.5 Activate the pump and adjust the flow rate to 80 ± 10 gpm.

Flow rate \_\_\_\_\_ gpm

- 4.6 Expose the sludge sample in the collection tray by opening the capture fixture.

- 4.7 Vacuum the sludge sample from the tray until completely collected or until the adapter plugs and ceases to vacuum any more material. Estimate the total amount vacuumed up by visually observing the quantity remaining in the collection tray and inspecting the surface of the filter in the sludge pickup adapter. The acceptance criterion is that at least 75% of the starting 1.4 cm<sup>3</sup> volume of sludge simulant is estimated to have been vacuumed up.

Estimated amount of material vacuumed up \_\_\_\_\_ %

- 4.8 Turn off the pump.
- 4.9 Detach the sludge pickup adapter from the vacuum wand using the detachment feature on the adapter installation fixture. Record the approximate time required to detach the adapter from the wand.

Elapsed time for detaching adapter from wand \_\_\_\_\_ minutes

**5.0 VERIFICATION**

The following approvals attest that the above procedural steps were successfully executed and satisfactorily completed.

Test Engineer \_\_\_\_\_

Cognizant Engineer \_\_\_\_\_

Operations \_\_\_\_\_

Quality Assurance \_\_\_\_\_

ATTACHMENT 1

**JOB HAZARD ANALYSIS AND MATERIAL SAFETY DATA SHEETS**

The following JHAs and MSDSs are posted in the test area.

Number	Title	Date



## DISTRIBUTION SHEET

<b>To</b>	<b>From</b>	<b>Page 1 of 1</b>
<b>Distribution</b>	<b>Process Engineering</b>	<b>Date 3/29/00</b>
<b>Project Title/Work Order</b>		<b>EDT No. 629013</b>
<b>Acceptance Test Plan for the Sludge Pickup Adapter</b>		<b>ECN No. N/A</b>

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

G. M. Davis	X3-80	X			
J. A. Dent	X3-65	X			
J. R. Frederickson	R3-86	X			
V. L. Hoefler	R3-86	X			
R. A. Kaye	X3-78	X			
M. J. Langevin	X3-76	X			
W. C. Miller	R3-11	X			
J. W. Niskas	R3-86	X			
J. W. Oliver	L6-13	X			
A. L. Pajunen	R3-86	X			
A. L. Pitner	R3-86	X			
M. J. Schliebe	L6-13	X			
R. A. Sexton	R3-86	X			
J. L. Shelor	X3-71	X			
D. W. Smith	S2-48	X			
G. E. Stegen	X3-76	X			
J. A. Swenson	R3-11	X			
J. A. Tittle	X3-80	X			
P. A. Young	X3-88	X			
SNF Project	R3-11	X			
SNF Training	S2-45	X			
SNF Procedures	X3-86	X			