



TMI-1 Maintenance and Construction Department

Installation Procedure No.

Installation Procedure Title:

Removal of Remnant of Partially Inserted Plug From Row-Tube A-143-61

Return to 5.Y.

A25K-51512-IP3

Page 1 of 5

LIST OF EFFECTIVE PAGES

(XX)

<u>PAGE</u>	<u>REV.</u>	<u>EFFECTIVE DATE</u>	<u>EXHIBIT</u>	<u>PAGE</u>	<u>REV.</u>	<u>EFFECTIVE DATE</u>
1.0	0	02/24/83				
2.0	0	02/24/83				
3.0	0	02/24/83				
4.0	0	02/24/83				
5.0	0	02/24/83				

NO ATTACHMENTS

RECEIVED

MAR 16 1983

G. KULL

WA-ADL # 23-3
 Page / Sheet 1 OF 5
 WA # A25K-51512

FORM A200-ADM-1218.1-1

	<u>SIGNATURE</u>	<u>TITLE/DIVISION/DEPARTMENT</u>	<u>DATE</u>
Originator	<i>G. Kull</i>	Job Planner	2/20/83
Concurrence	<i>D.W. Saulowicz</i>	Technical Support	3-14-83
Reviewed By	<i>H. Tropper</i>	Responsible Technical Reviewer	3/1/83
	<i>Chad Nelson</i>	Plant Review Group	3/14/83
	<i>Steve Thuniger</i>	Rad Con	3/1/83
	<i>T. Barber</i>	ISR (Independent Safety Reviewer)	3/14/83
		8506140216 850125 PDR FOIA DETJEN84-897 PDR	
Approved By	<i>J. J. [unclear]</i>	P&S Manager	3/1/83
	<i>[unclear]</i>	O&M Director or N/A	3-15-83
	<i>[unclear]</i>	Mod/Ops ^{OR} Manager or N/A	3/15/83

Revision No. 0 108

1.0 INTRODUCTION AND SCOPE

- 1.1 This procedure shall govern the technique for removal of the remnants of an explosive plug in the lower tubesheet of an OTSG.
- 1.2 This procedure shall be used to remove the remnants of an exploded plug in tube A-143-61. This explosive plug detonated while it was falling out of the tube.

2.0 REFERENCES

- 2.1 B&W Technical Document 64-1139698-00, Removing Remnant of Partially Inserted Exploded Plug from LTS.
- 2.2 MNCR 0215-82
- 2.3 AP 1020
- 2.4 AP 1030
- 2.5 DRF 10639 (B&W FCA 3921, Rev. 0) *[Signature]* 3/10/83
- 2.6 DRF 8755 (SE-120012-009, REV. 0) *[Signature]* 3/14/83

RECEIVED

MAR 16 1983

G. KULL

3.0 RESPONSIBILITIES

- 3.1 M&C Department is responsible for the performance of all aspects of this work.
- 3.2 Plant Engineering shall provide assistance as required.
- 3.3 B&W Personnel will perform the actual plug removal.

4.0 PREREQUISITES

- 4.1 OTSG primary side is drained and upper and lower manway covers are removed.
- 4.2 Adequate lighting is available inside the lower OTSG head and tent and air supply (80 psi @ 48 SCFM min.) available to power the machining tool.
- 4.3 All 110V AC current to tent is on ground fault.

WA-ADL #	<u>23-3</u>
Page / Sheet	<u>2 OF 5</u>
WA #	<u>A25K-51512</u>

- 4.4 All tools and materials necessary to remove the plug remnant are available with the tooling assembled and in proper working order. Tools to meet Class C cleanliness.
- 4.5 All necessary training is complete with sufficient manpower available to perform the required functions.
- 4.6 The tube with the exploded plug remnant has been identified.
- 4.7 Work platform installed in "A" OTSG lower head.
- 4.8 ALARA and RWP requirements have been satisfied.
- 4.9 Cold leg plugs installed, inflated and maintained in accordance with current applicable "STP" or J-leg covers installed. Drain plug installed.

5.0 SPECIAL/SAFETY PRECAUTIONS

- 5.1 Exercise extreme care to prevent dropping tools or parts inside the OTSG or piping since such an accident will result in lengthy retrieval operations. Use of nylon lanyards or equivalent means of positive capture is required.
- 5.2 Observe all applicable limits and precautions of the Radiation Protection Plan.
- 5.3 During performance of the liquid penetrant test, every effort is to be made to minimize the amount of liquid penetrant material left in the OTSG. This includes the following:
 - A. Apply the penetrant with a brush instead of spraying.
 - B. Use a template or plastic cover to cover adjacent holes when spraying developer.
 - C. Clean remaining developer and penetrant with approved solvents from all accessible areas.

RECEIVED

MAR 16 1983

G. KULL

WA-ADL #	<u>23-3</u>
Page / Sheet	<u>3 OF 5</u>
WA #	<u>A25K-51512</u>

- 5.4 All personnel performing the actual work described in this procedure, and related ones, should be thoroughly familiar with the procedures, the handling and operation of all special tools and materials, and all applicable safety precautions.
- 5.5 Detailed handling, placement, operation and manner of use of all special tools and material shall be per the direction of the B&W task leader.
- 5.6 Assure that lower head cold leg covers or plugs and lower dome drain plug are installed prior to any work commencing in the OTSG concerning explosive plug removal.
- 5.7 The tube with the partially inserted plug shall be identified in a manner that will not interfere with the plug removal tooling.
- 5.8 An enclosure shall be provided around the opening to the steam generator (SG) to ensure that any contaminated air is contained. This area shall be free from oil, scale, chips, wire, grease, chemicals and other foreign materials which may be detrimental to the primary system.

6.0 INSTALLATION REQUIREMENTS

- 6.1 Properly identify tube to be worked on.
- 6.2 Center positioning jig over Tube 61 - Row 143.
- 6.3 Drill 29/64" hole completely through remaining section of plug.

NOTE: Be prepared for some water to fall out of tube once center of plug is drilled out. Ensure absorbent material is placed under plug.

RECEIVED

MAR 16 1983

G. KULL

WA ADL #	23-3
Page / Sheet	4 of 5
WA #	A25K-51512

- 6.4 Remove drill assembly. MAR 16 1983
- 6.5 Tap plug hole with 1/2" -20 tap. G. KULL
- 6.6 Insert 1/2" -20 drill rod through the drilled hole and position plug puller.
- 6.7 Using explosive plug puller, attempt to remove plug from tube end.
- 6.8 If plug comes out, proceed to Step 6.14.
- 6.9 If plug cannot be removed by using the plug removal puller, remove the plug puller.
- 6.10 Replace 29/64" drill bit with 33/64" drill bit.
- 6.11 Install drill assembly and drill 33/64" hole completely through remaining section of plug.
- 6.12 Replace 33/64" drill bit with 14mm (.5512") drill bit.
- 6.13 Drill 14mm hole completely through remaining section of plug.
- 6.14 Remove plug removal equipment from OTSG head.
- 6.15 Remove any remaining pieces of the explosive plug. Ensure explosive plug retaining sleeve is removed from the tube.
- 6.16 Insert honing tool and clean I.D. of tube to accept an explosive plug.
- 6.17 Perform PT of tube and tube to tubesheet weld in accordance with site approved procedures to assure that the tube still provides a leak tight boundary. Acceptance criteria shall be no linear indications. Q.C. shall perform visual inspection of first 2" of tube I.D. to insure that no remarkable damage was caused by the drill bit.
- 6.18 Refer to Explosive Plugging Procedure for further instructions.

GENERAL PUBLIC UTILITIES
OTSG REPAIRS

DATE 3/16/83
DATE
REQUIRED

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>RESPONSIBILITY</u>	<u>DATE REQUIRED</u>
1.	Round Robin Samples-NWT Lab <ul style="list-style-type: none"> . Spent Fuel . BWST . Decay Heat - Monthly Samples . Ship Next Monthly Samples 	J. Colitz	End of Month 3/31
2.	Restoration Secondary Side A. Temp. Chem. System		
3.	Ops OTSG Status <ul style="list-style-type: none"> . A and B OTSG Full Wet Layup . Receive Backing Plates for "A" Upper Manway 		2/7 4/1
4.	Post Expansion <ul style="list-style-type: none"> . Felt Plug Blowing Device-Store at Reactor Bldg . Final Freepath - Blow Plugs from Top . B&W Equipment . B&W Proposal MT Vernon Test 		TBD 3/27
5.	Immuno1 Flush System <ul style="list-style-type: none"> . Receive Vyton Tubing . Revised Spec for Flushing 	T. Functions	TBD TBD
6.	Tube Plug Stabilization <ul style="list-style-type: none"> . Spec for Plugging Final Rev 9 Issue . Resolve Plug Pulling Process . M&C Procedure Requirements QA IP1 Rev. 1 Stabilizer Endmilling QA IP2 Rev. 0 Remove Old Stabilizers QA IP3 Rev. 0 Removal of Remnant. WALC IP4 Rev. 0 Remove W Roll Plugs WALC IP5 Rev. 0 Tapered Plug Removal QA IP6 Rev. 1 Stabilization and Plugging ENGR IP7 Rev. 0 Jump Pack Assembly IP8 Rev. 0 Exp. Plugging, Lower Hd. . Receive Eddy Current Templates . Explosive Plugs on-site Monday 	C. K. Lee Westinghouse	3/15 TBD
		G. Kull	3/16
		G. Kull	3/16
		G. Kull	3/16
		G. Kull	3/16
		G. Kull	TBD
		G. Kull	3/16
		G. Kull	TBD
		G. Kull	3/18
			3/18
			3/21

DRF on W plug
 6 stabilizers in the A OTSG
 Lower Tube sheet

-2-
OTSG REPAIRS

DATE 3/16/83
DATE
REQUIRED

ITEM DESCRIPTION RESPONSIBILITY

7. Miscellaneous Items to Resolve
 . Hydrogen Peroxide Tube Soak

8. Waiting Documentation
MNCR

Responsibility

215-82	Plug Exploded at Wrong Area of Tube	B&W
345-82	2 Tubes Plugged Incorrectly	
354-82	Documentation for Immunol-1st Batch	Eng
426-82	Wire Brush B6-1	
009-83	Immunol at Cold Legs	
041-83	Tube Ends	Eng.

9. Tube Endmilling
 . Complete 5 Tubes on "A" *done*

10. Rad Con Exposure Data (Based on SRDs) as of 3/14
 . Total OTSG Exposure since 1st Blast - 678.8 Man Rem
 . Total OTSG Exposure since Nov 1981 - 855.0 Man Rem

11. Bubble and Drip Test		
Draft Detailed Spec		T. Reichter
Final		3/18
Cleaning of the Cold Legs		3/25
	<i>appm 4104</i>	
	<i>Hand roll</i>	

12. Anticipated Jumps		
<u>Date</u>	<u>Description</u>	<u>Responsibility</u>
3/16	A - Upper - <i>stabilization</i>	Levin/Catalytic
	A - Lower -	
3/16	B - Upper - <i>NONE (MARKERS) back shifts</i>	
	B - Lower -	

*1000 Sulfur program
 100 Hydrogen peroxide*

GENERAL PUBLIC UTILITIES
OTSG REPAIRS

DATE 3/17/83
DATE
REQUIRED

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>RESPONSIBILITY</u>	<u>DATE REQUIRED</u>
1.	Round Robin Samples-NWT Lab <ul style="list-style-type: none"> . Spent Fuel . BWST . Decay Heat - Monthly Samples . Ship Next Monthly Samples 	J. Colitz	End of Month 3/31
2.	Restoration Secondary Side <ul style="list-style-type: none"> A. Temp. Chem. System 		
3.	Ops OTSG Status <ul style="list-style-type: none"> . A and B OTSG Full Wet Layup . Receive Backing Plates for "A" Upper Manway 		2/7 4/1
4.	Post Expansion <ul style="list-style-type: none"> . Felt Plug Blowing Device-Store at Reactor Bldg . Final Freepath - Blow Plugs from Top . B&W Equipment . B&W Proposal . Mt. Vernon Test <i>will not be done Wednesday</i> . Technique for Marking Plugs 		TBD 3/27
5.	Immuno1 Flush System <ul style="list-style-type: none"> . Revised Spec for Flushing 	T. Functions	TBD
6.	Tube Plug Stabilization <ul style="list-style-type: none"> . Spec for Plugging Final Rev 9 Issue . Resolve Plug Pulling Process . M&C Procedure Requirements <ul style="list-style-type: none"> IP1 Rev. 1 Stabilizer Endmilling IP2 Rev. 0 Remove Old Stabilizers IP3 Rev. 0 Removal of Remnant' IP4 Rev. 0 Remove W Roll Plugs IP5 Rev. 0 Tapered Plug Removal IP6 Rev. 1 Stabilization and Plugging IP7 Rev. 0 Jump Pack Assembly IP8 Rev. 0 Exp. Plugging, Lower Hd. . Receive Eddy Current Templates . Explosive Plugs On-site 	C. K. Lee Westinghouse G. Kull G. Kull G. Kull G. Kull G. Kull G. Kull G. Kull G. Kull	3/15 TBD 3/16 3/16 3/16 TBD TBD 3/16 3/18 3/18 3/18 3/21

Sealed

100°F / 50°F

DEF
DEF for W Plugs

06 Jan

16
22
44 done

⊗ Templates mark the tubes

GENERAL PUBLIC UTILITIES
OTSG REPAIRS

DATE 3/18/83
DATE
REQUIRED

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>RESPONSIBILITY</u>	<u>DATE REQUIRED</u>
1.	Round Robin Samples-NWT Lab <ul style="list-style-type: none"> . Spent Fuel <i>welds</i> . BWST . Decay Heat - Monthly Samples . Ship Next Monthly Samples 	J. Colitz	End of Month 3/31
2.	Restoration Secondary Side A. Temp. Chem. System		
3.	Ops OTSG Status <ul style="list-style-type: none"> . A and B OTSG Full Wet Layup . Receive Backing Plates for "A" Upper Manway 		2/7 4/1
4.	Post Expansion <ul style="list-style-type: none"> . Felt Plug Blowing Device-Store at Reactor Bldg . Final Freepath - Blow Plugs from Top . B&W Equipment . B&W Proposal . Mt. Vernon Test . Technique for Marking Plugs 		TBD 3/27 3/23
5.	Immuno1 Flush System <ul style="list-style-type: none"> . Revised Spec for Flushing 	T. Functions	TBD
6.	Tube Plug Stabilization <ul style="list-style-type: none"> . Resolve Plug Pulling Process . M&C Procedure Requirements . IP4 Rev. 0 Remove W Roll Plugs . IP5 Rev. 0 Tapered Plug Removal . IP6 Rev. 2 Stabilization and Plugging . IP7 Rev. 0 Jump Pack Assembly . IP8 Rev. 0 Exp. Plugging, Lower Hd. . Receive Eddy Current Templates . Explosive Plugs On-site <i>Monday 0700</i> 	Westinghouse G. Kull G. Kull G. Kull G. Kull G. Kull	TBD TBD TBD 3/18 3/18 3/18 3/21

Wet Procedure

out

*put two in the burner
hole*

DRC

A 87

List for plug

W | 105 B
281 A

DATE 3/18/83
DATE
REQUIRED

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>RESPONSIBILITY</u>	<u>DATE REQUIRED</u>
7.	Miscellaneous Items to Resolve • Hydrogen Peroxide Tube Soak <i>Safety Evaluation</i>		
8.	Waiting Documentation <u>MNCR</u>	<u>Responsibility</u>	
→ 215-82	Plug Exploded at Wrong Area of Tube	B&W	
→ 345-82	2 Tubes Plugged Incorrectly		
354-82	Documentation for Immunol-1st Batch	Eng	
426-82	Wire Brush B6-1		
009-83	Immunol at Cold Legs		
→ 041-83	Tube Ends	Eng.	
9.	Tube Endmilling <i>photographs</i>		
10.	Rad Con Exposure Data (Based on SRDs) as of 3/16-17 • Total OTSG Exposure since 1st Blast - 687.2 Man Rem • Total OTSG Exposure since Nov 1981 - 863.4 Man Rem		692 868
11.	Bubble and Drip Test Draft Detailed Spec Final	T. Reichter	3/18 3/25
12.	Cleaning of the Cold Legs		
13.	Anticipated Jumps <u>Date</u> <u>Description</u>	<u>Responsibility</u>	
3/18	A - Upper - <i>stab</i> A - Lower -	Levin/Catalytic	
3/18	B - Upper - <i>stab</i> B - Lower -		

West on Monday / start of on Thursday

*Drip
Felt plug
clean cold legs
bubble test
may H₂ Peroxide*