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Project Title/Work Order Multiport Riser and Flange Assemblies Acceptance Test Report		EDT No. 600143 ECN No. N/A

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Page 1 of 1

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1. EDT

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2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) TWRs Safety Programs Engineering Support		4. Related EDT No.: N/A	
5. Proj./Prog./Dept./Div.: SY-101 Mitigation/Safety		6. Cog. Engr.: D. R. Precechtel / 2C130/N2832		7. Purchase Order No.: N/A	
8. Originator Remarks: Transmittal of document for approval and release.				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: 241-SY-101	
11. Receiver Remarks:				12. Major Assm. Dwg. No.: N/A	
				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: N/A	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Impact Level	Reason for Trans- mittal	Orig- inator Dispo- sition	Receiv- er Dispo- sition
1	WHC-SD-WM-ATR-084	--	0	Multiport Riser and Flange Assemblies ATR	Q	1,2	1	1

16. KEY					
Impact Level (F)		Reason for Transmittal (G)			Disposition (H) & (I)
1, 2, 3, or 4 (see MRP 5.43)		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 Impact Level for required signatures)										(G)	(H)
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1,2	1	Cog.Eng.	D. R. Precechtel	9/11/94	N1-21						
1,2	1	Cog. Mgr.	R. E. Bauer	9/11/94	L6-37						
1,2	1	QA	M. L. McElroy	9-12-94	S1-57						
		Safety									
		Env.									

18. <i>D. R. Precechtel</i> D. R. Precechtel Signature of EDT Originator Date 9-11-94		19. <i>C. E. Hanson</i> C. E. Hanson Authorized Representative for Receiving Organization Date 9/12/94		20. <i>R. E. Bauer</i> R. E. Bauer Cognizant/Project Engineer's Manager Date 9/11/94		21. DOE APPROVAL (if required) Ltr. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments	
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RELEASE AUTHORIZATION

Document Number: WHC-SD-WM-ATR-084, Rev.0

Document Title: Multiport Riser and Flange Assemblies Acceptance Test Report

Release Date: September 12, 1994

* * * * *

This document was reviewed following the
procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

* * * * *

WHC Information Release Administration Specialist:

V.L. BIRKLAND
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9/12/94
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SUPPORTING DOCUMENT

1. Total Pages 119

2. Title

Multiport Riser and Flange Assemblies Acceptance
Test Report

3. Number

WHC-SD-WM-ATR-084

4. Rev No.

0

5. Key Words

Multiport Riser and Flange Assemblies
Test Plan
Work Plan
Installation/Operation/Removal Procedure
Double-Shell Tank 241-SY-101
MPR Assembly
MPF Assembly

6. Author

Name: D. R. Precechtel

D. R. Precechtel 9/11/94
Signature

Organization/Charge Code 2C130/N2BJ2

7. Abstract

This document presents the results of the acceptance test for the multiport riser (MPR) and multiport flange (MPF) assemblies.

APPROVED FOR
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**MULTIPORT RISER AND FLANGE ASSEMBLIES
ACCEPTANCE TEST REPORT**

D. R. Precechtel
B. K. Schroeder

August 1994

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MULTIPOINT RISER AND FLANGE ASSEMBLIES ACCEPTANCE TEST REPORT

1.0 INTRODUCTION

1.1 PURPOSE

This document presents the results of the acceptance test for the multipoint riser (MPR) and multipoint flange (MPF) assemblies. This document and the ATP satisfy the requirements in EP-4.1, "Design Verification Requirements." The selected mode of design verification is formal design review supported with qualification testing.

1.2 SCOPE

The testing described in this document verifies that the mechanical and interface features are operating as designed and that the unit is ready for field service.

1.3 OBJECTIVES

The objectives of the acceptance testing were as follows:

- Basic equipment functions and mechanical interfaces were verified.
- Installation and removal of equipment were demonstrated to the degree possible.
- Operation of the decon spray system and all valving was confirmed.
- Determine the accumulated leak rate of the MPR and MPF assemblies.

2.0 DESCRIPTION OF TEST

Acceptance testing of the MPR and MPF consisted of four parts:

1. Removing each riser port shield plug (a total of four for each assembly) by overhead crane to assure adequate clearance during removal and installation in the field.
2. Verification that each riser on the assembly is plumb (vertical) relative to the riser mating flange (i.e., the lower 42-inch flange on the assembly). This was accomplished by using a

precision level with the assembly mounted on a simulated 42-inch riser flange.

3. Determine the leak rate from the assembly when pressurized with nitrogen at approximately 1.5 psig. This was accomplished using bottled nitrogen with pressure regulators, a pressure gage, a flow meter, and associated tubing and valves. For the MPR, a relief valve was installed to prevent overpressurization and possible activation of the blowout panels. A schematic of the test configuration is shown in Attachments A, B, and C.
4. The checkout of the decon spray system consisted of flushing the system using the building water supply. Then the nozzles were installed in the ring of each riser and a high pressure water supply connected to the assembly to verify operation of the decon system with nozzles installed. Proper operation was determined by measuring convergence of the water spray below the assembly. The high pressure water (approximately 350 psig) was provided by a positive displacement pump using a water truck as the water source. A schematic of the test configuration is shown in Attachments A, B, and C. For the MPR, the building water system was used to verify proper operation of the spray nozzles.

In addition, the MPR includes alignment pins, level jacks, and a compressible armafex gasket. These items were tested by simulating conditions in the field using a test fixture which simulates the 42-inch riser in the field.

3.0 TEST RESULTS

Below are the technical results from the acceptance test. The Administrative and pretest procedures are contained in the test procedures which are located in the attachments. This includes: a) signature verification data sheets, b) test configuration document list, c) test readiness review check list, d) job hazard analysis and material safety data sheets, e) retest procedure and data sheets, f) setup and installation, and g) preoperational and calibration checks.

Note: The first operation number refers to a step for the MPF and the second operation number refers to the step for the MPR.

TEST OPERATION	TEST RESULTS and CONCLUSIONS
<p><u>Operation 5.0.</u> Remove each shield plug at the 8-in., 12-in., and 20-in. riser port to demonstrate fit-up and simulate equipment installation and removal.</p>	<p>Each shield plug was removed using an overhead crane. In some cases, grinding was required on weld joints so that the shield plug would slip in and out of the riser port without any hang-up.</p> <p>Conclusion: The shield plugs are ready for field service.</p>
<p><u>Operation 6.0.</u> With the shield plug removed, determine the plumb angle of each riser port in relation to the flange.</p>	<p>Levelness measurement for the four riser flanges of each assembly varied as follows:</p> <p>MPF, S/N 2H9400820F - -0.2 to +0.0 degrees MPF, S/N 2H9400457F - -0.2 to +0.1 degrees MPR, S/N 2H9400458F - -0.6 to +0.1 degrees</p> <p>Plumbness (vertical) measurement for the four risers of each assembly varied as follows:</p> <p>MPF, S/N 2H9400820F - -89.4 to +89.3 degrees MPF, S/N 2H9400457F - -89.4 to +89.8 degrees MPR, S/N 2H9400458F - -89.1 to +89.6 degrees</p> <p>The worse case plumbness is the 20-inch riser on the MPR which is 0.9° from vertical (this riser flange levelness was 0.0°). This angle deviation would correspond to 1.9 inch over a 10-foot length. The clearance available between this 20-inch riser and the tank 42-inch riser wall is 2.5 inches.</p> <p>Conclusion: The four risers on each assembly are sufficiently plumb that an interference should not occur during installation or removal of equipment from these risers. Note that plumbness of the tank 42-inch riser is not available and cannot be included in the above evaluation.</p>

TEST OPERATION	TEST RESULTS and CONCLUSIONS
<p>Operation 8.0/9.0. Apply 1.5 psig to MPF/MPR using make-up gas and then measure flow rate of make-up gas.</p>	<p>The following leak rates, as measured by the flow meter, were determined for each assembly:</p> <p>MPF, S/N 2H9400820F - 5.191 cu. ft. per hr. MPF, S/N 2H9400457F - 0.551 cu. ft. per hr. MPR, S/N 2H9400458F - 10.38 cu. ft. per hr.</p> <p>Conclusion: A leak rate should not exceed 600 cubic feet per hour. Therefore, the assemblies are acceptable for field service.</p>
<p>Operations 12.0 & 13.0/20 & 21. Observe spray pattern to determine focal point in relation to lower attachment flange.</p>	<p>Prior to this operation, the lines were flushed to clear them of any debris from fabrication. For the MPF, the focal points were recorded as follows: 20-inch riser = 28 inches, 12-inch riser = 21 inches, and the 8-inch risers = 10-12 inches. During the test, one nozzle on the 20-inch riser became plugged and was subsequently replaced. For the MPR, the focal points were recorded as follows: 20-inch riser = 19 inches, 12-inch riser = 7 inches, and the 8-inch risers = -3 inches (i.e., above the flange).</p> <p><i>Note: For the MPF, high pressure water (i.e., 350 psia) was used and for the MPR, facility water (i.e., 90 psia) was used. This difference in pressure should not significantly effect the focal point.</i></p> <p>Conclusion: Each valve and valve alignment functioned properly, and each spray ring and associated nozzles functioned as intended. Therefore, the decon system is ready for field service.</p>

TEST OPERATION	TEST RESULTS and CONCLUSIONS								
<p>Operation NA/13.0, 14.0, and 16.0. Install MPR in test fixture until the alignment pins engage in the 7/8-inch holes, skirt has entered the riser ID, and jacks are resting on the ground. Using leveling jacks, lower the MPR to compress gasket 0.1 to 0.2 inches. Apply 1.5 psig and monitor for 2 hours and compare with leakage in 9.0 above.</p>	<p>The alignment pin properly engaged the simulated riser flange. The level jacks operated freely and could easily control the compression of the armaflex gasket. The leakage rate corresponded to 29.46 cubic feet per hour. This value is approximately three times greater than the results from Operation 9.0 (see above).</p> <p>Conclusion: The alignment pins and level jacks proved to be an adequate method for installation of the MPR in the field. Also, the armaflex gasket provides an adequate seal against leakage (see Operation 9.0 above).</p>								
<p>Weigh the MPR to determine the weight is within acceptable limits as specified in Section 7.0 of the Safety Assessment (LA-UR-92-3196, Rev. 10).</p>	<p>The MPR assembly and associated fixtures were weighed using load cell 815-2906025:</p> <table data-bbox="652 995 1288 1127"> <tr> <td>Assembly:</td><td>7640 pounds</td></tr> <tr> <td>Legs:</td><td>1200 pounds</td></tr> <tr> <td>Jacks:</td><td>150 pounds (estimated)</td></tr> <tr> <td>Grand Total:</td><td>8690 pounds</td></tr> </table> <p>Conclusion: The assembly (7640 pounds) is below the maximum value of 8240 pounds as specified in LA-UR-92-3196, Rev. 10.</p>	Assembly:	7640 pounds	Legs:	1200 pounds	Jacks:	150 pounds (estimated)	Grand Total:	8690 pounds
Assembly:	7640 pounds								
Legs:	1200 pounds								
Jacks:	150 pounds (estimated)								
Grand Total:	8690 pounds								

The two multiport flange assembly decon spray systems were tested using 325 psi water. During this testing, a hydraulic hose recoil incident resulted in a lost-time injury. This incident is documented in Occurrence Report RL-WHC-General-1994-0011. As a result of this incident, the MPR test procedure was evaluated and it was concluded that acceptable results could be obtained using the lower pressure (90 psi) building water supply.

4.0 CONCLUSIONS

The hardware acceptance testing for the multiport riser and multiport flanged assemblies was successfully completed. This equipment is ready for field installation and operation.

5.0 TEST RESULTS SHEETS

The completed acceptance test procedures (WHC-SD-WM-ATP-084) are attached.

ATTACHMENT A

**MULTIPORT RISER ASSEMBLY
S/N 2H9400458F**

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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 152393

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) TWRS Safety Programs Engineering Support	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: SY-101 Mitigation/Safety	6. Cog. Engr.: D. R. Precechtel	7. Purchase Order No.: N/A
8. Originator Remarks: Transmit for approval.		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: 241-SY-101 Tank Farm
11. Receiver Remarks: TEST CONTROL COPY		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Impact Level	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-WM-ATP-084	--	0	Acceptance Test Procedure for Multiport Riser	SQ	1,2	1	1

16. KEY					
Impact Level (F)		Reason for Transmittal (G)			Disposition (H) & (I)
1, 2, 3, or 4 (see MRP 5.43)		1. Approval	4. Review	1. Approved	4. Reviewed no/comment
		2. Release	5. Post-Review	2. Approved w/comment	5. Reviewed w/comment
		3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment	6. Receipt acknowledged

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1	1	Cog. Eng. D. R. Precechtel	<i>[Signature]</i>	6-30-94							
1	1	Cog. Mgr. R. E. Bauer	<i>[Signature]</i>	7/6/94							
1	2	QA M. L. McElroy	<i>[Signature]</i>	7-30-94							
1	1	Safety L. S. Krogsrud	<i>[Signature]</i>	7-30-94							
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18. <i>[Signature]</i> D. R. Precechtel Signature of EDT Originator Date 6-30-94	19. <i>[Signature]</i> C. E. Hanson Authorized Representative for Receiving Organization Date 7/7/94	20. <i>[Signature]</i> R. E. Bauer Engineer's Manager Date 7/6/94	21. DOE APPROVAL (if required) Ltr. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
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		ID Number (include revision, volume, etc.) WHC-SD-WM-ATP-084, Rev. 0	
		List attachments. N/A	
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Title Acceptance Test Procedure for Multiport Riser		Unclassified Category UC- 1.1.1	Impact Level SQ
New or novel (patentable) subject matter? ☒ No ☐ Yes If "Yes", has disclosure been submitted by WHC or other company? ☐ No ☐ Yes (Disclosure Nois).		Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? ☒ No ☐ Yes (Identify)	
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			Name (printed) Signature Date
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Nuclear Information	☐	☒	
Patent - General Counsel	☐	☒	
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Author/Requestor (Printed/Signature) D. R. Precechte <i>R. Bauer for DRP</i>			
Intended Audience ☐ Internal ☒ Sponsor ☐ External			
Responsible Manager (Printed/Signature) J. E. Bauer <i>R. Bauer</i> 7/1/94		Date Date Cancelled Date Disapproved	

SUPPORTING DOCUMENT		1. Total Pages 38
2. Title Acceptance Test Procedure for Multiport Riser	3. Number WHC-SD-WM-ATP-084	4. Rev No. 0
5. Key Words Multiport Riser Acceptance Test Test Plan Work Plan Installation/Operation/Removal Procedure Double-Shell Tank 241-SY-101 MPR Unit MPF Unit Tasks and Responsibilities	6. Author Name: D. R. Precechtel Signature Organization/Charge Code 8D210/	
7. Abstract <p>The objective of this plan is to guide personnel in the performance of acceptance testing of the multiport riser (MPR) and multiport flange (MPF) assemblies for use on the 42-inch riser of Tank 241-SY-101.</p>		
8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed. PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA. DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.		10. RELEASE STAMP <div style="border: 1px solid black; padding: 5px; text-align: center;"><p>OFFICIAL RELEASE BY WHC DATE JUL 11 1994 35 Station 21</p></div> <p>TEST CONTROL COPY</p>
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**ACCEPTANCE TEST PROCEDURE
FOR MULTI-PORT RISER**

May 1994

TEST CONTROL COPY

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TEST CONTROL COPY

ACCEPTANCE TEST PROCEDURE FOR MULTIPOST RISER

1.0 INTRODUCTION

1.1 PURPOSE

This procedure shall be used for acceptance testing of the multiport riser (MPR) and multiport flange (MPF) assemblies. The accepted MPR and MPF assemblies will be used in support of the Hydrogen Mitigation project for double-shell Waste Tank SY-101 and other related projects.

1.2 SCOPE

Completion of this test will verify the MPR and MPF to the functions and requirements in WHC-SD-WM-TP-233, "Multiport Riser Test Plan."

The scope of the acceptance test is as follows:

- Basic equipment functions and mechanical interfaces will be verified.
- Installation and removal of equipment will be demonstrated to the degree possible.
- Spray profiles of the decon nozzles will be confirmed.
- Assurance that decon spray patterns do not inadvertently open the pressure-relief doors will be confirmed.
- Acceptable leak rates of the MPR and MPF assemblies.

2.0 APPLICABLE/REQUIRED DOCUMENTS

- WHC-SD-WM-TP-233, "Multiport Riser Test Plan."
- WHC-SD-WM-FDC-027, "Tank SY-101 Multiport Riser Assembly Functional Design Criteria."
- WHC-SD-WM-FDC-035, "Multiport Riser Flange Functional Design Criteria."
- Signature verification data sheet per Appendix A.
- Engineering and configuration documentation per Appendix B.

TEST CONTROL COPY

3.0 DEFINITIONS

No additional definitions except those found in Section 3.0 of WHC-SD-WM-TP-233, "Multiport Riser Test Plan," are pertinent to this test procedure.

4.0 TEST CONTROLS

4.1 RESPONSIBILITIES

4.1.1 The responsibilities for the conduct of this test procedure are defined in Section 4.0 of WHC-SD-WM-TP-233, "Multiport Riser Test Plan."

4.1.2 The cognizant engineer for this test procedure is *B. R. Schroeder* or *B. R. Schroeder*

Note: The blank line in Section 4.1.2 is filled upon assignment.
Assignment may occur after test procedure approval.

4.1.3 Any and all persons responsible for signature verification(s) during testing shall complete a portion of the signature verification data sheet, Appendix A.

4.2 TEST DATA

4.2.1 Data shall be recorded on data sheets as provided by this procedure.

4.2.2 All changes to the configuration of tested items will be documented by redline markups to the controlled design documentation. These include pen and ink changes to test procedures, draft operating procedures, and redline drawing markups. All redline changes must receive the final approval of the cognizant engineer. Approvals will be documented by the cognizant engineer's initials on the redline item. Lack of immediate redline approval does not constitute a test hold. Continued test progress is at the discretion of the test performer.

4.2.3 A test logbook will be maintained by the test performer(s). The cognizant engineer shall be the designated test custodian. All pertinent observations, off-normal events, sketches, photographs, etc., shall be logged. Chronological tests conducted shall also be logged. All logged entries shall be signed and dated. Additional notes or entries relating to a procedure data sheet entry field or information shall be adequately referenced to the appropriate section of this procedure.

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4.3 TEST CONFIGURATION

- 4.3.1 Drawings, sketches, figures, and other engineering documents which establish the process equipment test configuration shall be listed in Appendix B. The list shall include all configuration documentation for major equipment items, ancillary equipment items, and tooling.
- 4.3.2 Listed configuration documentation items are not a part of this document for the purpose of approval unless specifically included as a part of this procedure for approval.
- 4.3.3 Listed configuration documentation are independently approved and controlled by the applicable document control procedure.
- 4.3.4 For the purpose of the control of test configuration, copies of the listed documents which are part of the controlled test procedure package (per Section 4.4) shall be the justification basis for change control or finalization of the listed documents.
- 4.3.5 All items listed in Appendix B shall be marked as TEST CONTROL COPY and shall be included in the controlled test procedure package for the purpose of conducting the test. The exception to this requirement is for unmodified, manufactured equipment which the configuration documentation is a manufacturer's part number.

4.4 PROCEDURE CONTROL

- 4.4.1 A controlled test procedure package shall be used for testing and shall include the following:
- 4.4.2 A single copy of this test procedure marked TEST CONTROL COPY.
- 4.4.3 All listed items per Section 4.3 marked with TEST CONTROL COPY.
- 4.4.4 The test logbook marked with TEST CONTROL COPY.
- 4.4.5 Other data sheets, travelers, and information directly applicable to testing which are required will be marked with TEST CONTROL COPY.
- 4.4.6 All items of the completed test procedure shall be date stamped prior to completing the test readiness review checklist per Section 8.3. All package deficiencies shall be noted on the review checklist.

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4.5 RETEST PROCEDURE CONTROL

- 4.5.1 If retest is required, additional copies of applicable procedure sections or data sheets of this test procedure may be used or new procedures per Section 8.0 may be used.
- 4.5.2 The addition of procedure sections to be used for retest shall be added in Appendix F, noted in the test, and concurred with by the WHC QA representative. All additions shall be marked with TEST CONTROL COPY.
- 4.5.3 Minor procedure changes such as editorial changes to a step, clarification of a step or steps, elimination or addition of a step or limited sequential changes of steps, and changes which do not fall in the categories of Section 8.0, shall be noted in the procedure by redline entries and noted in the test giving the reason for the change.
- 4.5.4 Items not marked with TEST CONTROL COPY shall not be used for testing and shall not be present in the test area.

4.6 OPEN ITEMS

- 4.6.1 Items and actions identified during the conduct of testing which require future resolution/completion shall be noted on data sheets and in the test logbook. Identified open items shall subsequently be entered into the test completion report to assure final closeout.

5.0 TEST DESCRIPTION

5.1 PROCESS EQUIPMENT

- 5.1.1 Major process equipment description.

5.2 MAJOR PROCESS EQUIPMENT LIST

- 5.2.1 Multiport riser assembly (consisting of):

- Multiport riser assembly
- Leveling jack assembly
- Shield plugs
- Decon spray valves
- Pressure-relief doors

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Note: Appendix B contains all configuration control drawings.

5.2.2 Ancillary equipment and tools:

- Riser flange guide pins
- Pressure supply system
- Water supply system
- Simulated 42-inch riser flange (CAD file: PRESSHAT)

6.0 TEST FACILITY

Acceptance testing of the MPR and MPF assemblies will be conducted in the 306E building high bay or area adjacent to the facility. After acceptance testing has been completed and approved, the accepted assemblies will be relocated to 200W area for installation activities.

7.0 SAFETY

- A Job Hazard Analysis (JHA) form specific to this test may be required in accordance with WHC-CM-4-3, Standard A-3. Existing JSAs may also be applicable.
- The applicable JHAs for this test are listed in Appendix D.
- The applicable MSDSs for this test are listed in Appendix D.
- All applicable JHAs and MSDSs shall be posted or located in the test facility test area.
- All test area personnel shall observe all safety precautions outlined in the MSDS and JHA.

8.0 TEST PROCEDURE

8.1 SETUP AND INSTALLATION

Perform the setup and installation steps per the acceptance test procedure master data sheet (Appendix E).

Completed: Jason Hunter 8/26/94
Test Performer Date

8.2 TEST READINESS REVIEW

Prior to proceeding with Section 8.3, complete the test readiness review per the checklist in Appendix C.

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8.3 TEST PROCEDURE STEPS

Master data sheets as required by the following procedure steps are included in Appendix E.

All operations ~~unless~~ otherwise stated will be performed remotely using the test facility manipulators. Record additional observations as required. Generally, Sections 8.3.1 through 8.3.4 are to be accomplished in sequence.

8.3.1 Perform the preoperational checkout steps per acceptance test procedure master data sheet, "Preoperational Checkout."

Completed: Jason Hunter for BL Hopkins 8/26/94
Test Performer Date

8.3.2 Perform calibration steps per acceptance test procedure master data sheet, "Calibration Checks."

Completed: Jason Hunter 8/26/94
Test Performer Date

8.3.3 Perform 306E functional testing master data sheet, "Operations."

Completed: Jason Hunter 8/26/94
Test Performer Date

8.3.4 Training objectives accomplished per acceptance test procedure master data sheets, "Training Objectives" (training objectives may be accomplished throughout procedure execution).

Completed: Don Grechko 9/1/94
Test Performer Date

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APPENDIX A

SIGNATURE VERIFICATION DATA SHEET

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SIGNATURE VERIFICATION DATA SHEET

NAME (PRINT)	POSITION	COMPANY	SIGNATURE	INITIALS	DATE
D.R. PREERHTEL	Cog. ENGINEER	WHC	<i>D.R. Preerhtel</i>	D.R.P.	8/10/94
E.N. WEGENER	QC	WHC	<i>E.N. Wegener</i>	E.N.W.	8/10/94
B.L. Hopkins	Engr. Tech.	WHC	<i>B. Hopkins</i>	BH	8-10-94
S.M. Demiter	Engr. Tech	WHC	<i>S.M. Demiter</i>	SD	8-10-94
B.K. Schroeder	Cog. Engr	WHC	<i>B.K. Schroeder</i>	BKS	8-24-94
M.E. Dahl	Engr. Tech	WHC	<i>M.E. Dahl</i>	M.E.D	8-24-94
J.B. GUNTER	Engr. Tech	WHC	<i>J.B. Gunter</i>	JBG.	8-25-94

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APPENDIX B

TEST CONFIGURATION DOCUMENTATION LIST

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TEST CONFIGURATION DOCUMENTATION LIST

Item: This may be major equipment, tooling, instrumentation, facility, etc. Use equipment name (and number if assigned).

Document Title: Title of drawing, sketch, figure, publication, vendor information, etc. More than one document may be applicable to a given item. List each document separately.

Document Number: Drawing, sketch, figure, vendor publication numbers, etc.

Released: Enter YES, NO, or N/A (Not Applicable).

Included: Enter procedure or package. If procedure, then the document is included with the test procedure in this Appendix B. The included item is given an appendix page number. If package, then the listed item is assembled with the controlled test procedure package per Section 4.4.

ITEM	DOCUMENT TITLE	DOCUMENT NO.	RELEASED	INCLUDED
1	MULTIPOINT RISER TEST PLAN	WHC-SD-WM-TP - 233	JUL 8, 1994	YES
2	ACCEPTANCE TEST PROCEDURE FOR MULTIPOINT RISER	WHC-SD-WM-ATP - 084	JUL 11, 1994	YES
3	MULTIPOINT RISER INSTALLATION TANK SY-101	H-2-821100 SHT 1-3	JUL 29, 1994	YES
4	42" MULTIPOINT ADAPTER RISER ASSEMBLY	H-2-821101 SHT 1-7	JUL 29, 1994	YES
5	MULTIPOINT SUPPORTS AND BASE PLATES	H-2-821095 SHT 1	JUL 29, 1994	YES
6	MULTIPOINT RISER LEVELING JACK	H-2-821096 SHT 1	JUL 29, 1994	YES
7	HANFORD SITE HOISTING AND RIGGING MANUAL	DOE-RL-92-36	JAN. 1, 1993	NO
8	SAFETY DURING PRESS. TESTING	WHC-CM-4-3 Std. PS-3		No

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(Continuation Page)

ITEM	DOCUMENT TITLE	DOCUMENT NO.	RELEASED	INCLUDED

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APPENDIX C

TEST READINESS REVIEW CHECKLIST

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TEST READINESS REVIEW CHECKLIST

Date 8/10/94

REVIEWERS

NAME (PRINT)	POSITION	SIGNATURE	DATE
D.R. PRECECHTEL	Coj. ENGR	D.R. Precechtel	8/10/94
B. L. Hopkins	Engr. Tech.	B. Hopkins	8-10-94
E.N. WIEGNER	QC	E.M. Wagner	8-10-94
S.M. Demiter	Engr. Tech.	S.M. Demiter	8-10-94

CHECKLIST

1. Is this test procedure released?

Yes ☒ No ☐

Comments _____

2. Are there any open items which need to be addressed prior to start of testing?

Yes ☒ No ☒ ⁸⁻¹⁰⁻⁹⁴

Comments _____

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3. Is the test procedure package per Section 4.4 complete and are all pages, attachments, etc., marked with TEST CONTROL COPY?

Yes ☒ No ☐

Comments _____

4. Are all JHAs and MSDSs required by the procedure posted or located in the test area?

Yes ☒ No ☐

Comments N _____

5. Is all equipment per Section 5.1 installed or available at the test area for installation?

Yes ☐ No ☒

Comments PRESSURE RELIEF PANELS NOT AVAILABLE AT
START OF TESTING. (PANELS INSTALLED ON 8/22/99) DRP 8/22/99

6. Are all test materials per Section 5.2 available at the test area?

Yes ☒ No ☐

Comments _____

7. Are the facility support systems available in the test area?

Yes ☒ No ☐

Comments _____

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APPENDIX D

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

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JOB HAZARD ANALYSIS
AND
MATERIAL SAFETY DATA SHEETS

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

(List by title and number as applicable; this may be a hand-written entry, initialed, and dated.)

NUMBER	TITLE	DATE
084-1	Acceptance Test of Multipoint Riser	8-24-94

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Page 18a

HANFORD JOB HAZARD ANALYSIS CHECKLIST										Page 1 of 2	
Prepared By B. K. Schroeder					Date 08/24/94		Area		Bldg. 306E		
Scope/Description: Acceptance Test of the Multiport Riser which includes (a) operability of riser port shield plugs, (b) levelness of risers and riser flanges, (c) leak testing, and (d) spray nozzle testing										☒ New ☐ Revised	
Emergency Contact Person(s): Primary: J. C. Krogness Secondary: F. H. Nunamaker Emergency Radio/Phone Number: 37-6380 376-3807										JHA Number (not required): 084-1 BLS 8/24/94 Not Required	
Specific Work Location(s): Building 306E and East end of Building outside											
KNOWN OR POTENTIAL HAZARDS											
	Yes	No	✓	•	Reference		Yes	No	✓	•	Reference
1. Radiation Area Work		X	✓	•		10. Respiratory Hazards		X	✓	•	
2. Hazardous Waste Operations		X	✓	•		11. Electrical Hazards		X	✓	•	
3. Confined Space Entry		X	✓	•		12. Lock and Tag		X	✓	•	
4. Cutting/Welding		X		•		13. Scaffolding		X			
5. Roof Work		X				14. Aerial Lifts		X	✓		
6. Fall Hazards (> = 10')		X				15. Asbestos Removal		X	✓	•	
7. Excavation/Trenching		X		•		16. Other (see JHA Sht. 2):	X				See Sht 2
8. Asbestos Inspection Report		X		•		✓ = Formal training required.					
9. Hazardous Materials		X	✓			• = Items that require a permit/form/report.					
Other Hazards		Yes	No	Control Measures							
1. Temperature Extremes			X								
2. Noise			X	Wear ear plugs							
3. Poor Lighting			X								
4. Animals/Insects			X								
5. Process Chemicals/Steam			X								
6. Dust			X								
7. Flammable/Combustible Materials			X								
8. Ladders			X								
9. Wet/Slippery Floors			X								
10. Uneven Terrain			X								
11. Open Excavations/Trenches			X								
12. Adjacent Water Hazard			X								
13. Vehicle Traffic		X		Use barricades (1) BLS 8/24/94							
14. Heavy Equipment		X		wear hard hats							
15. Rigging Operation		X		wear hard hats. Follow Rigging Manual as req'd BLS 8/24/94							
16. Manual Lifting			X								
17. Power Tools			X								
18. Pinch Points		X		wear gloves							
19. Falling Objects			X								
20. Sharp Objects			X								
21. Overhead Obstructions			X	wear hard hats							
22. Site Control (Signs/Barricades)		X		establish barricades - pedestrians and vehicles (1) BLS 8/24/94							
23. Remote Work Area			X								
24. Other (see JHA Sht. 2):		X		unwind and secure high pressure water hose during testing (2)							
MINIMUM DRESS REQUIREMENTS: Normal work clothes, safety glasses, hard hats, ear plugs, and gloves BLS 8/24/94											
APPROVALS											
Further evaluation of the job steps, associated hazards, or safety measures need to be performed? ☐ Yes ☒ No											
If yes, continue job hazard analysis on the following pages.											
Supervisor, Person in Charge DR Precechtel/BK Schroeder (Signature) B. Schroeder D.R. Precechtel J. Krogness R.D. Melbress 8/24/94 Industrial Safety/Hygiene (Signature)											

Sequence of Basic Job Steps or Work Activity	Hazards Present	How to Eliminate Hazards
Flushing high press. water line	Loose hose can whip during press	Unwind hose and secure free end of hose using nylon rope
(1) High pressure water testing, if required (~300psi)		Establish barricades at test area to prevent unauthorized access - both vehicle and pedestrian
(2) High pressure water testing, if required (~300psi)		Secure high pressure discharge hose at 3-5 ft intervals using nylon rope (or equivalent) to prevent whipping in the event of hose or hose connection failure
		Conf: Operator at pump switch to turn pump off in the event of catastrophic failure
		Conf: Safety during pressure testing, WHC-CM-4-3, Standard PS-3, 1368 8/24/94

APPENDIX E

MASTER DATA SHEET

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FABRICATION/INSTALLATION/INSPECTION TRAVELER				Page 1 of 8	Number
Job Description MPR Functional Testing Master Data Sheet			Work Order No.		
Cognizant Engineer Approval D. R. Precechtel	Phone 6-3329	Date Required	Impact Level SQ	QA Approval M. L. McElroy	Date
Cog. Engr's Manager Approval R. E. Bauer	Phone 6-5909	Prepared by B. L. Hopkins	Date	Safety Approval L. S. Krogsrud	Date
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig./Stamps	Date	Notes
1.0	Verify all test performer blanks in Section 8.0 and Appendixes A, B, C, and D are completed. Also stamp "Test Control Copy" per Section 4.4 on entire package.	WHC-SD-WM-ATP-084, Rev. 0	Q T N N/A E C N/A	8-12-97 8-12-94 8-12-99	
			Q T N E C		
2.0	Conduct a "prejob meeting" of operations including a review of all procedures, drawings, and other engineering documents required to complete the test.	WHC-SD-WM-ATP-084, Rev. 0	Q T N N/A E C N/A	8-12-94 8-12-94 8-12-99	
			Q T N E C		
3.0	Record serial number of MPR to be functionally tested.	H-2-821101	Q T N N/A E C N/A	8-12-94 8-12-94 8-12-99	S/N 2H9400458 F

E = Engineer

Q = QA Inspector

T = Technician

C = Craft

N = NDE Inspector

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page		Number	
Continuation Sheet		2 of 8			
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
4.0	Prepare a testing area on the concrete pad outside the 306E building.		Q N/A T BT N N/A E N/A C N/A	8-12-94	Testing of Spray System outside of 306-E Bldg. All other testing completed indoors
			Q T N E C		
5.0	Remove each shield plug at the 8-inch, 12-inch, and 20-inch riser ports to demonstrate fit-up and simulate equipment installation and removal.	H-2-821101	Q BT T BT N N/A E DRP C N/A	8-12-94 8-12-94 8-12-94	
			Q T N E C		
6.0	With shield plugs removed, determine the plumb angle of each riser port in relation to the flange.	H-2-821101	Q BT T BT N N/A E DRP C N/A	8-12-94 8-12-94 8-12-94	679-42-02-001 Exp. 8-10-95
	<u>Note:</u> This operation may be eliminated based on satisfactory QA records during fabrication.		Q T N E C		

E = Engineer

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T = Technician

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FIGURE 1

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The following steps shall be completed to determine the plumb angle of each riser port in relation to the lower flange plane on the Multiport Flange assembly:

20" Riser Port

- Level the ~~simulated 42"~~ riser flange to approximately 0.030" in both the X & Y direction. Record the levelness across the diameter using the bolt hole pattern (i.e., 8 measurements). Identify the measured value according to the bolt hole pattern below. Indicate a negative sign (-) if the slope is down in the direction labeled X or Y axis and a positive sign (+) if the slope is up in the direction labeled X or Y axis

in./ft. or angle

- +1.3° 9.
- _____ 10.
- _____ 11.
- +1.1° 12.
- _____ 13. +1.2°
- _____ 14.
- _____ 15.
- +1.4° 16

- Lower the MPF until it is supported on the riser. Install flange bolts and nuts and torque to 190 - 210 ft-lbs.
- Measure and record data on the flatness or angle at each of the following riser ports in both the X & Y directions:

	Precision Level 1 grad = .0005"/ft.		Electronic Level Angle = degrees	
	X-Axis	Y-Axis	X-Axis	Y-Axis
P-1	<u>N/A</u>	<u>N/A</u>	<u>0.0°</u>	<u>0.0°</u>
P-2	<u>N/A</u>	<u>N/A</u>	<u>-0.3°</u>	<u>-0.2°</u>
P-3	<u>N/A</u>	<u>N/A</u>	<u>+0.1°</u>	<u>-0.6°</u>
P-4	<u>N/A</u>	<u>N/A</u>	<u>-0.2°</u>	<u>-0.2°</u>

- Measure and record the vertical angle of the following riser ports in both the X & Y directions. Measure both surfaces (O = outside and I =

NOTE: INK USE TO TRACE ORIGINAL
PENCIL VALUES DFP 8/26/74

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4. Measure and record the vertical angle of the following riser ports in both the X & Y directions. Measure both surfaces (O = outside and I = inside) if clearance permits, see figure. It is important that the level is in the same vertical plane as the riser port. Several independent measurements may be prudent at the same location and then record the average value.

	Angle, Outside		Angle, Inside	
	X-Axis	Y-Axis	X-Axis	Y-Axis
P-1	<u>- 89.4°</u>	<u>- 89.1°</u>	<u>- 89.1°</u>	<u>89.6°</u>
P-2	<u>+ 89.8°</u>	<u>+ 89.6°</u>	<u>- 89.9°</u>	<u>+ 89.6°</u>
P-3	<u>- 89.8°</u>	<u>+ 89.9°</u>	<u>- 89.9°</u>	<u>+ 89.4°</u>
P-4	<u>- 89.6°</u>	<u>- 89.9°</u>	<u>- 89.9°</u>	<u>+ 89.9°</u>

NOTE : INK USED TO TRACE ORIGINAL
PENCIL VALUES DRP 8/26/94

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		FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page	Number
		Continuation Sheet		3 of 8	
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
7.0	Reinstall shield plugs and secure with flange bolts.	H-2-821101	Q N/A T <u>BA</u> N N/A E N/A C N/A	8-12-94	
7.5	INSTALL (3) PRESSURE RELIEF PANELS (94D-0719), P/W 22 PER PER DWG H-2-821101 DRP/8-22-94		Q <u>BA</u> T <u>BA</u> N <u>BA</u> E <u>DRP</u> C <u>BA</u>	8-22-94 8-22-94 8-22-94	
8.0	Attach lifting slings to MPR. Lift assembly and verify the three leveling jacks are fully retracted.	H-2-821101	Q N/A T <u>BA</u> N N/A E <u>DRP</u> C N/A	8-25-94 8-25-94	
			Q T N E C		
9.0	Move the MPR assembly over the simulated 42-inch riser/pressure check fixture. Install Garlock 3000 gasket. Lower the MPR until the two alignment pins engage in the 7/8-inch holes in the riser flange and the skirt has	WHC-SD-WM-ATP-084, Rev. 0	Q <u>BA</u> T <u>BA</u> N N/A E <u>DRP</u> C N/A	8-25-94 8-25-94 8-25-94	
	entered the riser inside diameter. Seat MPR and secure with flange bolts. Torque to 280 psi. Apply 1.5 psig to MPR using make-up gas and then measure flow rate of make-up gas. Optional method: Determine leakage rate by pressure drop method. Record total leakage rate.	H-2-821101 (See Note 5)	Q T N E C		Test #1 with Garlock gasket flow reading = 491 ⇒ .173 CFM

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T = Technician

C = Craft

N = NDE Inspector

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Continuation Sheet		Page 4 of 8	Number
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Initials	Date	Notes
10.0	Remove MPR from test fixture and replace Garlock gasket with Armaflex gasket.	H-2-821101	Q N/A T JBS N N/A E DLP C N/A	8-25-94 8-25-94	
			Q T N E C		
11.0	Verify the uncompressed flange seal dimensions in at least 4 places and record in "Notes" section.		Q N/A T JBS N N/A E DLP C N/A	8-25-94 8-25-94	SEAL DIMENSIONS AT 4 PLACES WAS 1/2 INCH.
			Q T N E C		
12.0	Adjust the three jacks such that an 8-inch clearance will exist between the MPR flange and ground level.		Q N/A T JBS N N/A E DLP C N/A	8-25-94 8-25-94	
			Q T N E C		

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page	Number		
Continuation Sheet		5 of 8			
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
13.0	Install MPR in test fixture once again until the alignment pins engage in 7/8-inch holes, skirt has entered riser inside diameter, and jacks are resting on the ground. Unload crane hook leaving slack in the lifting slings.	H-2-821101	Q N/A T <u>9/3/94</u> N N/A E <u>DRP</u> C N/A	8-25-94 8-25-94	
			Q T N E C		
14.0	Using leveling jacks, lower MPR until the flange is compressed .1 inch to .2 inch while maintaining the 20-inch riser port flange level to <u>inch. DRP</u> 0.0 - 0.1 - 8-25-94		Q <u>9/3/94</u> T <u>9/3/94</u> N N/A E <u>DRP</u> C N/A	8-25-94 8-25-94 8-25-94	
			Q T N E C		
15.0	Verify the compressed flange seal dimensions in at least 4 places and record in the "Notes" section.		Q <u>9/3/94</u> T <u>9/3/94</u> N N/A E <u>DRP</u> C N/A	8-25-94 8-25-94 8-25-94	SEAL DIMENSION (gap) = 1/2" IN ALL 4 PLACES
			Q T N E C		

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page	Number		
Continuation Sheet		6 of 8			
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Initials	Date	Notes
16.0	Apply 1.50 psig and monitor for 2 hrs. Record total leakage and compare to Step 9.0. Repeat as required compressing gasket until reaching desired results.		Q <u>1/8</u> T <u>1/8</u> N N/A E DRP C N/A	8-26-94 8-26-94	TEST #2 with ARMAFLEX GASKET + 001 DRP FLOW READING = 14.70 C 14.70 PSia ⇒ 0.00 CFM
			Q <u>1/8</u> T <u>1/8</u> N N/A E DRP C N/A		FLOW READING = 1898 C 15.75 PSia ⇒ 0.423 CFM FLOW READING = 1392 C 15.90 PSia
	THE FOLLOWING STEPS WILL VERIFY OPERATIONS OF THE DECON SPRAY RINGS.		Q <u>1/8</u> T <u>1/8</u> N N/A E DRP C N/A		⇒ 0.491 CFM NOTE ATM. = 14.45 PSia
17.0	With the shield plugs reinstalled, attach the high pressure water pump and in line totalizer to the MPR. Verify sufficient water supply. <u>LINES</u>		Q N/A T <u>1/8</u> N N/A E DRP C N/A	8-26-94 8-26-94	NOTE: DECON SPRAY SYSTEM TESTING COMPLETED USING
17.5	INSTALL FLAT SPRAY NOZZLES P/N 23 & 24 INTO SPRAY RING P/N 12, 13 AND 14 DRP/8-26-94	H-2-821101	Q <u>1/8</u> T <u>1/8</u> N N/A E DRP C N/A	8-26-94 8-26-94 8-26-94	LOW PRESSURE WATER (90 PSI MAX). DRP 8-26-94
18.0	Open decon spray valves (HV100 and HV101) and verify that Valves HV102, HV103, HV104, and HV105 are in the closed position. Test the 20-inch (P-1) port spray ring.	H-2-821088	Q N/A T <u>1/8</u> N N/A E DRP C N/A	8-26-94 8-26-94	

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Continuation Sheet		Page 7 of 8	Number
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Steps	Date	Notes
19.0	Hoist the MPR ^{2"} feet off the ground and secure in place. Start the high low pressure water pump and adjust water flow to <u>gpm</u> at <u>psi</u> . <u>RECORD PRESSURE 90 PSI</u>	WHC-SD-WM-ATP-084, Rev. 0	Q <u>100</u> T <u>00</u> N <u>N/A</u> E <u>DRP</u> C <u>N/A</u>	8-26-94 8-26-94 8-26-94	TEST EQUIPMENT CONFIGURATION DOES NOT MEASURE FLOW TO NOZZLES DRP 8-26-94
			Q T N E C		
20.0	Observe spray pattern to determine location of focal point in relation to lower attachment flange. Record <u>SEE</u> approximate focal point location <u>NOTES</u> . <u>Note:</u> Shield plug may be removed to allow visual look at spray pattern through riser port.	WHC-SD-WM-ATP-084, Rev. 0	Q <u>100</u> T <u>00</u> N <u>N/A</u> E <u>DRP</u> C <u>N/A</u>	8-26-94 8-26-94 8-26-94	P-1 $\approx$ 19" BELOW FLANGE P-2 $\approx$ 7" BELOW FLANGE P-3 $\approx$ 3" ABOVE FLANGE P-4 $\approx$ 3" ABOVE FLANGE
			Q T N E C		
			Q T N E C		
			Q T N E C		

E = Engineer Q = QA Inspector T = Technician C = Craft N = NDE Inspector

N = NDE Inspector

WMC-SD-MM-ATR-084
Rev. 0
Page 44

TEST CONTROL COPY

MULTI-PORT PRESSURE TEST

CADFILE: TEST_2

REV: A

DATE: 06-28-94

VIEW D-D

MATL: 1/2" PLATE ASTM A36

CADFILE: PRESSHAT

REV: A

DATE: 06-03-94

TEST CONTROL COPY

APPENDIX F

RETEST PROCEDURE AND DATA SHEETS

TEST CONTROL COPY

RETEST PROCEDURE AND DATA SHEETS

Q = Quality T = Test Performer E = Cognizant Engineer O = Other DEFINED _____

Index additions by hand-written entries, initial, and date.

[illegible]

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ATTACHMENT B

**MULTIPORT FLANGE ASSEMBLY
S/N 2H940820F**

JUL 11 1994
35 Station 21

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

152393

2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) TWRS Safety Programs Engineering Support		4. Related EDT No.: N/A	
5. Proj./Prog./Dept./Div.: SY-101 Mitigation/Safety		6. Cog. Engr.: D. R. Precechtel		7. Purchase Order No.: N/A	
8. Originator Remarks: Transmit for approval.				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: 241-SY-101 Tank Farm	
11. Receiver Remarks: TEST CONTROL COPY				12. Major Assm. Dwg. No.: N/A	
				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: N/A	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Impact Level	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-WM-ATP-084	--	0	Acceptance Test Procedure for Multiport Riser	SQ	1,2	1	1

16.		KEY			
Impact Level (F)	Reason for Transmittal (G)			Disposition (H) & (I)	
1, 2, 3, or 4 (see MRP 5.43)	1. Approval	4. Review		1. Approved	4. Reviewed no/comment
	2. Release	5. Post-Review		2. Approved w/comment	5. Reviewed w/comment
	3. Information	6. Dist. (Receipt Acknow. Required)		3. Disapproved w/comment	6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)										(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog. Eng. D. R. Precechtel	<i>[Signature]</i>	6-30-94							
1	1	Cog. Mgr. R. E. Bauer	<i>[Signature]</i>	7/6/94							
1	2	QA M. L. McElroy	<i>[Signature]</i>	6-30-94							
1	1	Safety L. S. Krogsrud	<i>[Signature]</i>	6-30-94							
		Env.									

18. <i>[Signature]</i> D. R. Precechtel Signature of EDT Originator Date 6-30-94		19. <i>[Signature]</i> C. E. Hanson Authorized Representative Date 7/1/94		20. <i>[Signature]</i> R. E. Bauer Cognizant/Project Engineer's Manager Date 7/6/94		21. DOE APPROVAL (if required) Ltr. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments	
---	--	---	--	---	--	--	--

Received:
JUL 11 1994

INFORMATION RELEASE REQUEST

Reference:
WHC-CM-3-4

Complete for all Types of Release			
Purpose		ID Number (include revision, volume, etc.) WHC-SD-WM-ATP-084, Rev. 0	
☐ Speech or Presentation	(Check only one suffix)	☐ Reference	List attachments. N/A
☐ Full Paper		☒ Technical Report	
☐ Summary		☐ Thesis or Dissertation	
☐ Abstract		☐ Manual	
☐ Visual Aid		☐ Brochure/Flier	
☐ Speakers Bureau		☐ Software/Database	Date Release Required
☐ Poster Session		☐ Controlled Document	
☐ Videotape		☐ Other	
Title Acceptance Test Procedure for Multiport Riser		Unclassified Category UC- 1.1.1.3	Impact Level SQ
New or novel (patentable) subject matter? ☒ No ☐ Yes If "Yes", has disclosure been submitted by WHC or other company? ☐ No ☐ Yes Disclosure No(s).		Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? ☒ No ☐ Yes (Identify)	
Copyrights? ☒ No ☐ Yes If "Yes", has written permission been granted? ☐ No ☐ Yes (Attach Permission)		Trademarks? ☒ No ☐ Yes (Identify)	
Complete for Speech or Presentation			
Title of Conference or Meeting		Group or Society Sponsoring	
Date(s) of Conference or Meeting	City/State	Will proceedings be published?	☐ Yes ☐ No
		Will material be handed out?	☐ Yes ☐ No
Title of Journal			
CHECKLIST FOR SIGNATORIES			
Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval
			Name (printed) Signature Date
Classification/Unclassified Controlled Nuclear Information	☐	☒	
Patent - General Counsel	☐	☒	
Legal - General Counsel	☐	☒	
Applied Technology/Export Controlled Information or International Program	☐	☒	
WHC Program/Project	☐	☒	
Communications	☐	☒	
RL Program/Project	☐	☒	
Publication Services	☐	☒	
Other Program/Project	☐	☒	
Information conforms to all applicable requirements. The above information is certified to be correct.			
References Available to Intended Audience		INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP	
Transmit to DOE-HQ/Office of Scientific and Technical Information		Stamp is required before release. Release is contingent upon resolution of mandatory comments.	
Author/Requestor (Printed/Signature) Date D. R. Precechte [Signature] 7/11/94		TEST CONTROL COPY	
Intended Audience ☐ Internal ☒ Sponsor ☐ External			
Responsible Manager (Printed/Signature) Date J. E. Bauer [Signature] 7/11/94			
		Date Cancelled	Date Disapproved

SUPPORTING DOCUMENT		1. Total Pages 38
2. Title Acceptance Test Procedure for Multiport Riser	3. Number WHC-SD-WM-ATP-084	4. Rev No. 0
5. Key Words Multiport Riser Acceptance Test Test Plan Work Plan Installation/Operation/Removal Procedure Double-Shell Tank 241-SY-101 MPR Unit MPF Unit Tasks and Responsibilities	6. Author Name: D. R. Precechtel Signature Organization/Charge Code 8D210/	
7. Abstract The objective of this plan is to guide personnel in the performance of acceptance testing of the multiport riser (MPR) and multiport flange (MPF) assemblies for use on the 42-inch riser of Tank 241-SY-101.		
8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed. PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA. DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.		10. RELEASE STAMP OFFICIAL RELEASE BY WHC DATE JUL 11 1994 35 STATION 21 TEST CONTROL COPY
9. Impact Level QS		

ACCEPTANCE TEST PROCEDURE
FOR MULTIPOINT RISER
S/N 2H 9400 820F

May 1994

TEST CONTROL COPY

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ACCEPTANCE TEST PROCEDURE FOR MULTIPORT RISER

1.0 INTRODUCTION

1.1 PURPOSE

This procedure shall be used for acceptance testing of the multiport riser (MPR) and multiport flange (MPF) assemblies. The accepted MPR and MPF assemblies will be used in support of the Hydrogen Mitigation project for double-shell Waste Tank SY-101 and other related projects.

1.2 SCOPE

Completion of this test will verify the MPR and MPF to the functions and requirements in WHC-SD-WM-TP-233, "Multiport Riser Test Plan."

The scope of the acceptance test is as follows:

- Basic equipment functions and mechanical interfaces will be verified.
- Installation and removal of equipment will be demonstrated to the degree possible.
- Spray profiles of the decon nozzles will be confirmed.
- Assurance that decon spray patterns do not inadvertently open the pressure-relief doors will be confirmed.
- Acceptable leak rates of the MPR and MPF assemblies.

2.0 APPLICABLE/REQUIRED DOCUMENTS

- WHC-SD-WM-TP-233, "Multiport Riser Test Plan."
- WHC-SD-WM-FDC-027, "Tank SY-101 Multiport Riser Assembly Functional Design Criteria."
- WHC-SD-WM-FDC-035, "Multiport Riser Flange Functional Design Criteria."
- Signature verification data sheet per Appendix A.
- Engineering and configuration documentation per Appendix B.

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3.0 DEFINITIONS

No additional definitions except those found in Section 3.0 of WHC-SD-WM-TP-233, "Multiport Riser Test Plan," are pertinent to this test procedure.

4.0 TEST CONTROLS

4.1 RESPONSIBILITIES

4.1.1 The responsibilities for the conduct of this test procedure are defined in Section 4.0 of WHC-SD-WM-TP-233, "Multiport Riser Test Plan."

4.1.2 The cognizant engineer for this test procedure is D.R. Recaltil or B.K. Schroeder

Note: The blank line in Section 4.1.2 is filled upon assignment.
Assignment may occur after test procedure approval.

4.1.3 Any and all persons responsible for signature verification(s) during testing shall complete a portion of the signature verification data sheet, Appendix A.

4.2 TEST DATA

4.2.1 Data shall be recorded on data sheets as provided by this procedure.

4.2.2 All changes to the configuration of tested items will be documented by redline markups to the controlled design documentation. These include pen and ink changes to test procedures, draft operating procedures, and redline drawing markups. All redline changes must receive the final approval of the cognizant engineer. Approvals will be documented by the cognizant engineer's initials on the redline item. Lack of immediate redline approval does not constitute a test hold. Continued test progress is at the discretion of the test performer.

4.2.3 A test logbook will be maintained by the test performer(s). The cognizant engineer shall be the designated test custodian. All pertinent observations, off-normal events, sketches, photographs, etc., shall be logged. Chronological tests conducted shall also be logged. All logged entries shall be signed and dated. Additional notes or entries relating to a procedure data sheet entry field or information shall be adequately referenced to the appropriate section of this procedure.

TEST CONTROL COPY

4.3 TEST CONFIGURATION

- 4.3.1 Drawings, sketches, figures, and other engineering documents which establish the process equipment test configuration shall be listed in Appendix B. The list shall include all configuration documentation for major equipment items, ancillary equipment items, and tooling.
- 4.3.2 Listed configuration documentation items are not a part of this document for the purpose of approval unless specifically included as a part of this procedure for approval.
- 4.3.3 Listed configuration documentation are independently approved and controlled by the applicable document control procedure.
- 4.3.4 For the purpose of the control of test configuration, copies of the listed documents which are part of the controlled test procedure package (per Section 4.4) shall be the justification basis for change control or finalization of the listed documents.
- 4.3.5 All items listed in Appendix B shall be marked as TEST CONTROL COPY and shall be included in the controlled test procedure package for the purpose of conducting the test. The exception to this requirement is for unmodified, manufactured equipment which the configuration documentation is a manufacturer's part number.

4.4 PROCEDURE CONTROL

- 4.4.1 A controlled test procedure package shall be used for testing and shall include the following:
- 4.4.2 A single copy of this test procedure marked TEST CONTROL COPY.
- 4.4.3 All listed items per Section 4.3 marked with TEST CONTROL COPY.
- 4.4.4 The test logbook marked with TEST CONTROL COPY.
- 4.4.5 Other data sheets, travelers, and information directly applicable to testing which are required will be marked with TEST CONTROL COPY.
- 4.4.6 All items of the completed test procedure shall be date stamped prior to completing the test readiness review checklist per Section 8.3. All package deficiencies shall be noted on the review checklist.

TEST CONTROL COPY

4.5 RETEST PROCEDURE CONTROL

- 4.5.1 If retest is required, additional copies of applicable procedure sections or data sheets of this test procedure may be used or new procedures per Section 8.0 may be used.
- 4.5.2 The addition of procedure sections to be used for retest shall be added in Appendix F, noted in the test, and concurred with by the WHC QA representative. All additions shall be marked with TEST CONTROL COPY.
- 4.5.3 Minor procedure changes such as editorial changes to a step, clarification of a step or steps, elimination or addition of a step or limited sequential changes of steps, and changes which do not fall in the categories of Section 8.0, shall be noted in the procedure by redline entries and noted in the test giving the reason for the change.
- 4.5.4 Items not marked with TEST CONTROL COPY shall not be used for testing and shall not be present in the test area.

4.6 OPEN ITEMS

- 4.6.1 Items and actions identified during the conduct of testing which require future resolution/completion shall be noted on data sheets and in the test logbook. Identified open items shall subsequently be entered into the test completion report to assure final closeout.

5.0 TEST DESCRIPTION

5.1 PROCESS EQUIPMENT

- 5.1.1 Major process equipment description.

5.2 MAJOR PROCESS EQUIPMENT LIST

- 5.2.1 Multiport riser assembly (consisting of):

- Multiport riser assembly
- Leveling jack assembly
- Shield plugs
- Decon spray valves
- Pressure-relief doors

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Note: Appendix B contains all configuration control drawings.

5.2.2 Ancillary equipment and tools:

- Riser flange guide pins
- Pressure supply system
- Water supply system
- Simulated 42-inch riser flange (CAD file: PRESSHAT)

6.0 TEST FACILITY

Acceptance testing of the MPR and MPF assemblies will be conducted in the 306E building high bay or area adjacent to the facility. After acceptance testing has been completed and approved, the accepted assemblies will be relocated to 200W area for installation activities.

7.0 SAFETY

- A Job Hazard Analysis (JHA) form specific to this test may be required in accordance with WHC-CM-4-3, Standard A-3. Existing JSAs may also be applicable.
- The applicable JHAs for this test are listed in Appendix D.
- The applicable MSDSs for this test are listed in Appendix D.
- All applicable JHAs and MSDSs shall be posted or located in the test facility test area.
- All test area personnel shall observe all safety precautions outlined in the MSDS and JHA.

8.0 TEST PROCEDURE

8.1 SETUP AND INSTALLATION

Perform the setup and installation steps per the acceptance test procedure master data sheet (Appendix E).

Completed: Jason Ginter for BL Hopkins 8/26/94
Test Performer Date

8.2 TEST READINESS REVIEW

Prior to proceeding with Section 8.3, complete the test readiness review per the checklist in Appendix C.

TEST CONTROL COPY

8.3 TEST PROCEDURE STEPS

Master data sheets as required by the following procedure steps are included in Appendix E.

~~All operations unless otherwise stated will be performed remotely using the test facility manipulators. Record additional observations as required. Generally, Sections 8.3.1 through 8.3.4 are to be accomplished in sequence.~~

DRP 9/2/94

8.3.1 Perform the preoperational checkout steps per acceptance test procedure master data sheet, "Preoperational Checkout."

Completed: Jason Hunter For BL Hopkins 8/24/94
Test Performer Date

8.3.2 Perform calibration steps per acceptance test procedure master data sheet, "Calibration Checks."

Completed: Jason Hunter 9/26/94
Test Performer Date

8.3.3 Perform 306E functional testing master data sheet, "Operations."

Completed: Jason Hunter 9/26/94
Test Performer Date

8.3.4 Training objectives accomplished per acceptance test procedure master data sheets, "Training Objectives" (training objectives may be accomplished throughout procedure execution).

Completed: Don Precourt 9/1/94
Test Performer Date

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APPENDIX A

SIGNATURE VERIFICATION DATA SHEET

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SIGNATURE VERIFICATION DATA SHEET

NAME (PRINT)	POSITION	COMPANY	SIGNATURE	INITIALS	DATE
D.R. PRERECHTEL	Cog. ENGINEER	WHC	<i>D.R. Prerechtel</i>	D.R.P.	8/10/94
E.N. WEGENER	QC	WHC	<i>E.N. Wegener</i>	E.N.W.	8/10/94
B.L. Hopkins	Engr. Tech.	WHC	<i>B. Hopkins</i>	B.H.	8-10-94
B.K. Schroeder	Cog Engineer	WHC	<i>B.K. Schroeder</i>	B.K.S.	8-11-94
J.B. Gonten	ENGR. Tech	WHC	<i>J.B. Gonten</i>	J.B.G.	8/24/94

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APPENDIX B

TEST CONFIGURATION DOCUMENTATION LIST

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TEST CONFIGURATION DOCUMENTATION LIST

Item: This may be major equipment, tooling, instrumentation, facility, etc. Use equipment name (and number if assigned).

Document Title: Title of drawing, sketch, figure, publication, vendor information, etc. More than one document may be applicable to a given item. List each document separately.

Document Number: Drawing, sketch, figure, vendor publication numbers, etc.

Released: Enter YES, NO, or N/A (Not Applicable).

Included: Enter procedure or package. If procedure, then the document is included with the test procedure in this Appendix B. The included item is given an appendix page number. If package, then the listed item is assembled with the controlled test procedure package per Section 4.4.

ITEM	DOCUMENT TITLE	DOCUMENT NO.	RELEASED	INCLUDED
1	MULTI-PORT RISER TEST PLAN	WHC-SD-WM-TP -233	JUL 8, 1994	YES
2	ACCEPTANCE TEST PROCEDURE FOR MULTI-PORT RISER	WHC-SD-WM-ATP -084	JUL 11, 1994	YES
3	42" MULTI-PORT FLANGED RISER ASSY	H-2-818144 SHT 1-3	JUL 29, 1994	YES
4	HANFORD SITE HOISTING AND RIGGING MANUAL	DOE-RL-92-36	JAN 1, 1993	NO

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(Continuation Page)

[illegible]

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APPENDIX C

TEST READINESS REVIEW CHECKLIST

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TEST READINESS REVIEW CHECKLIST

Date 8/10/94

REVIEWERS

NAME (PRINT)	POSITION	SIGNATURE	DATE
D.R. PRECHTEL	Cog. ENGR.	D.R. Prechtel	8/10/94
B.L. Hopkins	Engr. Tech.	B. Hopkins	8-10-94
E.N. WIESENEN	Q.C.	E.N. Wiesen	8-10-94
B.K. Schroeder	Cog Engr	B.K. Schroeder	8-10-94

CHECKLIST

1. Is this test procedure released?

Yes ☒ No ☐

Comments _____

2. Are there any open items which need to be addressed prior to start of testing?

Yes ☐ No ☒

Comments _____

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3. Is the test procedure package per Section 4.4 complete and are all pages, attachments, etc., marked with TEST CONTROL COPY?

Yes ☒ No ☐

Comments _____

4. Are all JHAs and MSDSs required by the procedure posted or located in the test area?

Yes ☒ No ☐

Comments _____

5. Is all equipment per Section 5.1 installed or available at the test area for installation?

Yes ☒ No ☐

Comments _____

6. Are all test materials per Section 5.2 available at the test area?

Yes ☒ No ☐

Comments _____

7. Are the facility support systems available in the test area?

Yes ☒ No ☐

Comments _____

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APPENDIX D

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

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JOB HAZARD ANALYSIS
AND
MATERIAL SAFETY DATA SHEETS

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

(List by title and number as applicable; this may be a hand-written entry, initialed, and dated.)

NUMBER	TITLE	DATE
None BLS	5/18/94	

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APPENDIX E

MASTER DATA SHEET

Pages 20 through 28 are intentionally
omitted and are the master data sheets.
for the MPR

Blschraeder
8-18-94

TEST CONTROL COPY

FABRICATION/INSTALLATION/INSPECTION TRAVELER				Page 1 of 5	Number
Job Description MPF Functional Testing Master Data Sheet			Work Order No.		
Cognizant Engineer Approval D. R. Precechtel		Phone 6-3329	Date Required	Impact Level SQ	QA Approval M. L. McElroy
Cog. Engr's Manager Approval R. E. Bauer		Phone 6-5908	Prepared by B. L. Hopkins	Date	Safety Approval L. S. Krogsrud

Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
1.0	Verify all test performer blanks in Section 8.0 and Appendixes A, B, C, and D are completed. Also stamp "Test Control Copy" per Section 4.4 on entire package.	WHC-SD-WM-ATP-084, Rev. 0	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;"> 110 8-11-94 </div> Q BN T BN N N/A E DRP C N/A	8-11-94 8-11-94 8-11-94	
			Q T N E C		
2.0	Conduct a "prejob meeting" of operations including a review of all procedures, drawings, and other engineering documents required to complete the test.	WHC-SD-WM-ATP-084, Rev. 0	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;"> 110 8-11-94 </div> Q BN T BN N N/A E DRP C N/A	8-11-94 8-11-94 8-11-94	
			Q T N E C		
3.0	Record serial number of MPF to be functionally tested.	H-2-818144	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;"> 110 8-11-94 </div> Q BN T BN N N/A E DRP C N/A	8-11-94 8-11-94 8-11-94	S/N 2H9400820 F

E = Engineer

Q = QA Inspector

T = Technician

C = Craft

N = NDE Inspector

TEST CONTROL COPY

TEST CONTROL COPY

FABRICATION/INSTALLATION/INSPECTION TRAVELER Continuation Sheet		Page 2 of 5	Number	
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Initials Date	Notes
4.0	Prepare a testing area on the concrete pad outside the 306E building.		Q N/A T <i>BN</i> N N/A E N/A C N/A 8-15-94	Testing of Spray System outside of 306-E Bldg. All other testing completed inside.
			Q T N E C	
5.0	Remove each shield plug at the 8-inch, 12-inch, and 20-inch riser port to demonstrate fit-up and simulate equipment installation and removal.	H-2-818144	Q T <i>BN</i> N N/A E C N/A 8-15-94 8-15-94	
			Q T N E C	
6.0	With shield plugs removed, determine the plumb angle of each riser port in relation to the flange. See Pages 30a to 30c to 30c. <i>BN 8-18-94</i>	H-2-818144	Q T <i>BN</i> N N/A E <i>DRP</i> C N/A 8-15-94 8-15-94 8-15-94	679-42-02-001 Exp. 8-10-95
	<u>Note:</u> This operation may be eliminated based on satisfactory QA records during fabrication process.		Q T N E C	

E = Engineer

Q = QA Inspector

T = Technician

C = Craft

N = NDE Inspector

FIGURE 1

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The following steps shall be completed to determine the plumb angle of each riser port in relation to the lower flange plane on the Multiport Flange assembly:

1. Level the simulated 42" riser flange to approximately 0.030" in both the X & Y direction. Record the levelness across the diameter using the bolt hole pattern (i.e., 8 measurements). Identify the measured value according to the bolt hole pattern below. Indicate a negative sign (-) if the slope is down in the direction labeled X or Y axis and a positive sign (+) if the slope is up in the direction labeled X or Y axis

in./ft. or angle

1. <u>-0.8°</u>	9. <u>-0.6°</u>
2. <u>-1.0°</u>	10. <u>-1.1°</u>
3. <u>-0.9°</u>	11. <u>-0.5°</u>
4. <u>-1.0°</u>	12. <u>-0.7°</u>
5. <u>-0.9°</u>	13. <u>-1.3°</u>
6. <u>-0.8°</u>	14. <u>-0.7°</u>
7. <u>-0.7°</u>	15. <u>-0.9°</u>
8. <u>-0.8°</u>	16. <u>-0.9°</u>

2. Lower the MPF until it is supported on the riser. Install flange bolts and nuts and torque to 190 - 210 ft-lbs.
3. Measure and record data on the flatness or angle at each of the following riser ports in both the X & Y directions:

	Precision Level 1 grad = .0005"/ft.		Electronic Level Angle = degrees	
	X-Axis	Y-Axis	X-Axis	Y-Axis
P-1	<u>N/A</u>	<u>N/A</u>	<u>-0.1°</u>	<u>-0.1°</u>
P-2	<u>N/A</u>	<u>N/A</u>	<u>-0.2°</u>	<u>-0.2°</u>
P-3	<u>N/A</u>	<u>N/A</u>	<u>-0.2°</u>	<u>0.0°</u>
P-4	<u>N/A</u>	<u>N/A</u>	<u>-0.1°</u>	<u>-0.2°</u>

4. Measure and record the vertical angle of the following riser ports in both the X & Y directions. Measure both surfaces (O = outside and I =

Note: Ink use to trace original
Pencil values BLS 8-18-94

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4. Measure and record the vertical angle of the following riser ports in both the X & Y directions. Measure both surfaces (O = outside and I = inside) if clearance permits, see figure. It is important that the level is in the same vertical plane as the riser port. Several independent measurements may be prudent at the same location and then record the average value.

	Angle, Outside		Angle, Inside	
	X-Axis	Y-Axis	X-Axis	Y-Axis
P-1	<u>+89.4°</u>	<u>+89.3°</u>	<u>+89.3°</u>	<u>+89.3°</u>
P-2	<u>-89.7°</u>	<u>-89.6°</u>	<u>-89.4°</u>	<u>-89.6°</u>
P-3	<u>+89.9°</u>	<u>+89.9°</u>	<u>+89.9°</u>	<u>+89.9°</u>
P-4	<u>+89.7°</u>	<u>-89.7°</u>	<u>-89.6</u>	<u>+89.5°</u>

Note : Ink used to trace original
Pencil values Bels 8-18-94

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page	Number
Continuation Sheet		3 of 5	
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp Date
7.0	Reinstall shield plugs and secure with flange bolts.	H-2-818144	Q N/A T BR N N/A E N/A C N/A 8-15-94
			Q T N E C
8.0	Move the MPF assembly over the simulated 42-inch riser/pressure check fixture. Install Garlock 3000 gasket. Lower the MPF until the two alignment pins engage in the 7/8-inch holes in the riser flange and the skirt has	WHC-SD-WM-ATP-084, Rev. 0	Q T BR N 15/15/94 E DRP C N/A 8-15-94 8-15-94 8-15-94
	entered the riser inside diameter. Seat MPF and secure with flange bolts. Torque to ___ psi. Apply 1.5 psig to MPF using make-up gas and then measure flow rate of make-up gas. Optional method: Determine leakage rate by pressure drop method. Record total leakage rate.	H-2-818144 (See Note 5)	Q T N E C
	Where $28,317 \text{ CC}^3 = 1 \text{ ft}^3$ MKS Reading $\text{Flow} = 254 \times 10 = 2540 \left(\frac{1}{28,317 \text{ CC/min}} \right) \left(\frac{60 \text{ min}}{\text{HR}} \right)$		Q T N E C 679-28-03-024 Exp. 8-10-95
	Flow = 5.191 CFH		Q T N E C

E = Engineer

Q = QA Inspector

T = Technician

C = Craft

N = NDE Inspector

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page		Number	
Continuation Sheet		4 of 5			
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
	THE FOLLOWING STEPS WILL VERIFY OPERATIONS OF THE DECON SPRAY RINGS.		Q <i>Rel</i> T N E C		
9.0	With the shield plugs reinstalled, attach the high pressure water pump and in-line totalizer to the MPF. Verify sufficient water supply.		Q N/A T BA N N/A E <i>Rel</i> C N/A	8-17-94 8-17-94	
9.5	INSTALL FLAT SPRAY NOZZLES IN 20" INTO SPRAY RINGS IN 13, 14 AND 15 ORP 8-17-94	H-2-88149	Q <i>Rel</i> 8/18/94 T <i>Rel</i> N N/A E <i>Rel</i> C N/A	8-17-94 8-26-94	
10.0	Open decon spray valves (HV100 and HV101) and verify that Valves HV102, HV103, HV104, and HV105 are in the closed position. Test the 20-inch (P-1) port spray ring.	H-2-821088	Q N/A T BA N N/A E <i>Rel</i> C N/A	8-17-94 8-17-94	
			Q <i>Rel</i> T N E C		
11.0	Hoist the MPF 4 feet off the ground and secure in place. Start the high pressure water pump and adjust water flow to _____ gpm at _____ psi. record pressure 350 PSI	WHC-SD-WM-ATP-084, Rev. 0	Q <i>Rel</i> T <i>Rel</i> N N/A E <i>Rel</i> C N/A	8-17-94 8-17-94 8/17/94	Test equipment configuration does not allow measure flow to nozzles

E = Engineer

Q = QA Inspector

T = Technician

C = Craft

N = NDE Inspector

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page		Number							
Continuation Sheet		5 of 5									
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Signatures	Date	Notes						
12.0	Observe spray pattern to determine location of focal point in relation to lower attachment flange. Record approximate focal point location <i>See Notes.</i> <u>Note:</u> Shield plug may be removed to allow visual look at spray pattern through riser port.	WHC-SD-WM-ATP-084, Rev. 0	Q T N N/A E C N/A	8-17-94 8-17-94 8-17-94	P-1 ~ 28" P-2 ~ 21" P-3 10"-12" P-4 10"-12"						
			Q T N E C								
13.0	Repeat above operations for each riser port (8-inch (2 places) and 12-inch) by opening and closing appropriate valves to test each spray ring.		Q T N N/A E C N/A	8-17-94 8-17-94 8-17-94							
	<table border="1"> <thead> <tr> <th>Riser Port</th> <th>Valves Open</th> <th>Valves Closed</th> </tr> </thead> <tbody> <tr> <td>P-2 12"</td> <td>HV100 HV102</td> <td>HV101 HV103 HV104 HV105</td> </tr> </tbody> </table>	Riser Port	Valves Open	Valves Closed	P-2 12"	HV100 HV102	HV101 HV103 HV104 HV105		Q T N E C		focal point - see step 12.0
Riser Port	Valves Open	Valves Closed									
P-2 12"	HV100 HV102	HV101 HV103 HV104 HV105									
	<table border="1"> <thead> <tr> <th>Riser Port</th> <th>Valves Open</th> <th>Valves Closed</th> </tr> </thead> <tbody> <tr> <td>P-3 8"</td> <td>HV100 HV103</td> <td>HV101 HV102 HV104 HV105</td> </tr> </tbody> </table>	Riser Port	Valves Open	Valves Closed	P-3 8"	HV100 HV103	HV101 HV102 HV104 HV105		Q T N E C		focal point - see step 12.0
Riser Port	Valves Open	Valves Closed									
P-3 8"	HV100 HV103	HV101 HV102 HV104 HV105									
	<table border="1"> <thead> <tr> <th>Riser Port</th> <th>Valves Open</th> <th>Valves Closed</th> </tr> </thead> <tbody> <tr> <td>P-4 8"</td> <td>HV100 HV104</td> <td>HV101 HV102 HV103 HV105</td> </tr> </tbody> </table>	Riser Port	Valves Open	Valves Closed	P-4 8"	HV100 HV104	HV101 HV102 HV103 HV105		Q T N E C		focal point - see step 12.0
Riser Port	Valves Open	Valves Closed									
P-4 8"	HV100 HV104	HV101 HV102 HV103 HV105									

E = Engineer

Q = QA Inspector

T = Technician

C = Craft

N = NDE Inspector

14.0 VERIFY THAT ALL STEPS IN THIS PROCEDURE HAVE BEEN COMPLETED.

DRP
8-26-94

Q 8-26-94
T 8-26-94
E 8-26-94

FLANGED MULTI-PORT PRESSURE TEST

CADFILE: TEST_1

REV: A

DATE: 06-28-94

VIEW D-D

MATL: 1/2" PLATE ASTM A36
CADFILE: PRESSHAT
REV: A
DATE: 06-03-94

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APPENDIX F

RETEST PROCEDURE AND DATA SHEETS

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RETEST PROCEDURE AND DATA SHEETS

Q = Quality T = Test Performer E = Cognizant Engineer O = Other DEFINED _____

Index additions by hand-written entries, initial, and date.

None BL 8-18-94

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ATTACHMENT C

**MULTIPORT FLANGE ASSEMBLY
S/N 2H9400457F**

JUL 11 1994
35 Station 01

ENGINEERING DATA TRANSMITTAL

Page 1 of 1
1. EDT 152393

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) TWRS Safety Programs Engineering Support	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: SY-101 Mitigation/Safety	6. Cog. Engr.: D. R. Precechtel	7. Purchase Order No.: N/A
8. Originator Remarks: Transmit for approval.		9. Equip./Component No.: N/A
11. Receiver Remarks: TEST CONTROL COPY		10. System/Bldg./Facility: 241-SY-101 Tank Farm
		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

15. DATA TRANSMITTED				(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Impact Level	Reason for Transmittal	Originator Disposition
1	WHC-SD-WM-ATP-084	--	0	Acceptance Test Procedure for Multiport Riser	SQ	1,2	1

16. KEY	
Impact Level (F)	Reason for Transmittal (G)
1, 2, 3, or 4 (see MRP 5.43)	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 Impact Level for required signatures)										(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog. Eng. D. R. Precechtel	<i>[Signature]</i>	6-30-94	6-30-94						
1	1	Cog. Mgr. R. E. Bauer	<i>[Signature]</i>	7/6/94	L6-37						
1	2	QA M. L. McElroy	<i>[Signature]</i>	7-31-94	7-31-94						
1	1	Safety L. S. Krogsrud	<i>[Signature]</i>	7-31-94	R3-08						
		Env.									

18. <i>[Signature]</i> D. R. Precechtel Signature of EDT Originator Date 6-30-94	19. <i>[Signature]</i> C. F. Hanson Authorized Representative for Receiving Organization Date 7/7/94	20. <i>[Signature]</i> R. E. Bauer Cognizant/Project Engineer's Manager Date 7/6/94	21. DOE APPROVAL (if required) Ltr. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
---	---	--	--

Received:
JUL 11 1994

INFORMATION RELEASE REQUEST

Reference:
WHC-CM-3-4

Complete for all Types of Release			
Purpose		ID Number (include revision, volume, etc.) WHC-SD-WM-ATP-084, Rev. 0	
☐ Speech or Presentation	(Check only one suffix)	☐ Reference	List attachments. N/A
☐ Full Paper		☐ Technical Report	
☐ Summary		☐ Thesis or Dissertation	
☐ Abstract		☐ Manual	
☐ Visual Aid		☐ Brochure/Flier	
☐ Speakers Bureau		☐ Software/Database	Date Release Required 11/11
☐ Poster Session		☐ Controlled Document	
☐ Videotape		☐ Other	
Title Acceptance Test Procedure for Multiport Riser		Unclassified Category UC- 1.1.1	Impact Level SQ
New or novel (patentable) subject matter? ☒ No ☐ Yes If "Yes", has disclosure been submitted by WHC or other company? ☐ No ☐ Yes Disclosure No(s).		Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? ☒ No ☐ Yes (Identify)	
Copyrights? ☒ No ☐ Yes If "Yes", has written permission been granted? ☐ No ☐ Yes (Attach Permission)		Trademarks? ☒ No ☐ Yes (Identify)	
Complete for Speech or Presentation			
Title of Conference or Meeting		Group or Society Sponsoring	
Date(s) of Conference or Meeting	City/State	Will proceedings be published? ☐ Yes ☐ No	Will material be handed out? ☐ Yes ☐ No
Title of Journal			
CHECKLIST FOR SIGNATORIES			
Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval
			Name (printed) Signature Date
Classification/Unclassified Controlled			
Nuclear Information	☐	☒	
Patent - General Counsel	☐	☒	
Legal - General Counsel	☐	☒	
Applied Technology/Export Controlled			
Information or International Program	☐	☒	
WHC Program/Project	☐	☒	
Communications	☐	☒	
RL Program/Project	☐	☒	
Publication Services	☐	☒	
Other Program/Project	☐	☒	
Information conforms to all applicable requirements. The above information is certified to be correct.			
References Available to Intended Audience ☐ Yes ☒ No		INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP	
Transmit to DOE-HQ/Office of Scientific and Technical Information ☐ Yes ☒ No		Stamp is required before release. Release is contingent upon resolution of mandatory comments.	
Author/Requestor (Printed/Signature) Date D. R. Precechte <i>DRP</i> 7/11/94		TEST CONTROL COPY	
Intended Audience ☐ Internal ☒ Sponsor ☐ External			
Responsible Manager (Printed/Signature) Date E. Bauer <i>EB</i> 7/11/94			
		Date Cancelled	Date Disapproved

SUPPORTING DOCUMENT		1. Total Pages 38
2. Title Acceptance Test Procedure for Multiport Riser	3. Number WHC-SD-WM-ATP-084	4. Rev No. 0
5. Key Words Multiport Riser Acceptance Test Test Plan Work Plan Installation/Operation/Removal Procedure Double-Shell Tank 241-SY-101 MPR Unit MPF Unit Tasks and Responsibilities	6. Author Name: D. R. Precechtel Signature Organization/Charge Code 8D210/...	
7. Abstract <p>The objective of this plan is to guide personnel in the performance of acceptance testing of the multiport riser (MPR) and multiport flange (MPF) assemblies for use on the 42-inch riser of Tank 241-SY-101.</p>		
8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed. PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA. DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.		10. RELEASE STAMP <p>OFFICIAL RELEASE BY WHC DATE JUL 11 1994 35 Station 21</p> <p>TEST CONTROL COPY</p>
9. Impact Level QS		

ACCEPTANCE TEST PROCEDURE
FOR MULTIPOINT RISER
S/N 249400457F

May 1994

TEST CONTROL COPY

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ACCEPTANCE TEST PROCEDURE FOR MULTIPOINT RISER

1.0 INTRODUCTION

1.1 PURPOSE

This procedure shall be used for acceptance testing of the multipoint riser (MPR) and multipoint flange (MPF) assemblies. The accepted MPR and MPF assemblies will be used in support of the Hydrogen Mitigation project for double-shell Waste Tank SY-101 and other related projects.

1.2 SCOPE

Completion of this test will verify the MPR and MPF to the functions and requirements in WHC-SD-WM-TP-233, "Multipoint Riser Test Plan."

The scope of the acceptance test is as follows:

- Basic equipment functions and mechanical interfaces will be verified.
- Installation and removal of equipment will be demonstrated to the degree possible.
- Spray profiles of the decon nozzles will be confirmed.
- Assurance that decon spray patterns do not inadvertently open the pressure-relief doors will be confirmed.
- Acceptable leak rates of the MPR and MPF assemblies.

2.0 APPLICABLE/REQUIRED DOCUMENTS

- WHC-SD-WM-TP-233, "Multipoint Riser Test Plan."
- WHC-SD-WM-FDC-027, "Tank SY-101 Multipoint Riser Assembly Functional Design Criteria."
- WHC-SD-WM-FDC-035, "Multipoint Riser Flange Functional Design Criteria."
- Signature verification data sheet per Appendix A.
- Engineering and configuration documentation per Appendix B.

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3.0 DEFINITIONS

No additional definitions except those found in Section 3.0 of WHC-SD-WM-TP-233, "Multiport Riser Test Plan," are pertinent to this test procedure.

4.0 TEST CONTROLS

4.1 RESPONSIBILITIES

4.1.1 The responsibilities for the conduct of this test procedure are defined in Section 4.0 of WHC-SD-WM-TP-233, "Multiport Riser Test Plan."

4.1.2 The cognizant engineer for this test procedure is *D. R. Pecht*
B. Schroeder
Note: The blank line in Section 4.1.2 is filled upon assignment.
Assignment may occur after test procedure approval.

4.1.3 Any and all persons responsible for signature verification(s) during testing shall complete a portion of the signature verification data sheet, Appendix A.

4.2 TEST DATA

4.2.1 Data shall be recorded on data sheets as provided by this procedure.

4.2.2 All changes to the configuration of tested items will be documented by redline markups to the controlled design documentation. These include pen and ink changes to test procedures, draft operating procedures, and redline drawing markups. All redline changes must receive the final approval of the cognizant engineer. Approvals will be documented by the cognizant engineer's initials on the redline item. Lack of immediate redline approval does not constitute a test hold. Continued test progress is at the discretion of the test performer.

4.2.3 A test logbook will be maintained by the test performer(s). The cognizant engineer shall be the designated test custodian. All pertinent observations, off-normal events, sketches, photographs, etc., shall be logged. Chronological tests conducted shall also be logged. All logged entries shall be signed and dated. Additional notes or entries relating to a procedure data sheet entry field or information shall be adequately referenced to the appropriate section of this procedure.

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4.3 TEST CONFIGURATION

- 4.3.1 Drawings, sketches, figures, and other engineering documents which establish the process equipment test configuration shall be listed in Appendix B. The list shall include all configuration documentation for major equipment items, ancillary equipment items, and tooling.
- 4.3.2 Listed configuration documentation items are not a part of this document for the purpose of approval unless specifically included as a part of this procedure for approval.
- 4.3.3 Listed configuration documentation are independently approved and controlled by the applicable document control procedure.
- 4.3.4 For the purpose of the control of test configuration, copies of the listed documents which are part of the controlled test procedure package (per Section 4.4) shall be the justification basis for change control or finalization of the listed documents.
- 4.3.5 All items listed in Appendix B shall be marked as TEST CONTROL COPY and shall be included in the controlled test procedure package for the purpose of conducting the test. The exception to this requirement is for unmodified, manufactured equipment which the configuration documentation is a manufacturer's part number.

4.4 PROCEDURE CONTROL

- 4.4.1 A controlled test procedure package shall be used for testing and shall include the following:
- 4.4.2 A single copy of this test procedure marked TEST CONTROL COPY.
- 4.4.3 All listed items per Section 4.3 marked with TEST CONTROL COPY.
- 4.4.4 The test logbook marked with TEST CONTROL COPY.
- 4.4.5 Other data sheets, travelers, and information directly applicable to testing which are required will be marked with TEST CONTROL COPY.
- 4.4.6 All items of the completed test procedure shall be date stamped prior to completing the test readiness review checklist per Section 8.3. All package deficiencies shall be noted on the review checklist.

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4.5 RETEST PROCEDURE CONTROL

- 4.5.1 If retest is required, additional copies of applicable procedure sections or data sheets of this test procedure may be used or new procedures per Section 8.0 may be used.
- 4.5.2 The addition of procedure sections to be used for retest shall be added in Appendix F, noted in the test, and concurred with by the WHC QA representative. All additions shall be marked with TEST CONTROL COPY.
- 4.5.3 Minor procedure changes such as editorial changes to a step, clarification of a step or steps, elimination or addition of a step or limited sequential changes of steps, and changes which do not fall in the categories of Section 8.0, shall be noted in the procedure by redline entries and noted in the test giving the reason for the change.
- 4.5.4 Items not marked with TEST CONTROL COPY shall not be used for testing and shall not be present in the test area.

4.6 OPEN ITEMS

- 4.6.1 Items and actions identified during the conduct of testing which require future resolution/completion shall be noted on data sheets and in the test logbook. Identified open items shall subsequently be entered into the test completion report to assure final closeout.

5.0 TEST DESCRIPTION

5.1 PROCESS EQUIPMENT

- 5.1.1 Major process equipment description.

5.2 MAJOR PROCESS EQUIPMENT LIST

- 5.2.1 Multiport riser assembly (consisting of):

- Multiport riser assembly
- Leveling jack assembly
- Shield plugs
- Decon spray valves
- Pressure-relief doors

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Note: Appendix B contains all configuration control drawings.

5.2.2 Ancillary equipment and tools:

- Riser flange guide pins
- Pressure supply system
- Water supply system
- Simulated 42-inch riser flange (CAD file: PRESSHAT)

6.0 TEST FACILITY

Acceptance testing of the MPR and MPF assemblies will be conducted in the 306E building high bay or area adjacent to the facility. After acceptance testing has been completed and approved, the accepted assemblies will be relocated to 200W area for installation activities.

7.0 SAFETY

- A Job Hazard Analysis (JHA) form specific to this test may be required in accordance with WHC-CM-4-3, Standard A-3. Existing JSAs may also be applicable.
- The applicable JHAs for this test are listed in Appendix D.
- The applicable MSDSs for this test are listed in Appendix D.
- All applicable JHAs and MSDSs shall be posted or located in the test facility test area.
- All test area personnel shall observe all safety precautions outlined in the MSDS and JHA.

8.0 TEST PROCEDURE

8.1 SETUP AND INSTALLATION

Perform the setup and installation steps per the acceptance test procedure master data sheet (Appendix E).

Completed: Jason J. Smith for BL Hopkins 5/26/94
Test Performer Date

8.2 TEST READINESS REVIEW

Prior to proceeding with Section 8.3, complete the test readiness review per the checklist in Appendix C.

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8.3 TEST PROCEDURE STEPS

Master data sheets as required by the following procedure steps are included in Appendix E.

~~All operations unless otherwise stated will be performed remotely using the test facility manipulators. Record additional observations as required. Generally, Sections 8.3.1 through 8.3.4 are to be accomplished in sequence.~~
DRP 7/2/94

8.3.1 Perform the preoperational checkout steps per acceptance test procedure master data sheet, "Preoperational Checkout."

Completed: James Smith for BL Hopkins 8/26/94
Test Performer Date

8.3.2 Perform calibration steps per acceptance test procedure master data sheet, "Calibration Checks."

Completed: James Smith 8/26/94
Test Performer Date

8.3.3 Perform 306E functional testing master data sheet, "Operations."

Completed: James Smith 8/26/94
Test Performer Date

8.3.4 Training objectives accomplished per acceptance test procedure master data sheets, "Training Objectives" (training objectives may be accomplished throughout procedure execution).

Completed: Don Presantel 9/1/94
Test Performer Date

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APPENDIX A

SIGNATURE VERIFICATION DATA SHEET

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SIGNATURE VERIFICATION DATA SHEET

NAME (PRINT)	POSITION	COMPANY	SIGNATURE	INITIALS	DATE
D.R. PREECHTEL	Cog. ENGINEER	WHC	<i>D.R. Preechtel</i>	D.R.P	8/10/94
E.N. WIEGNER	QC	WHC	<i>E.N. Wiegner</i>	ENW	8/10/94
B. L. HOPKINS	Engr. Tech.	WHC	<i>B. Hopkins</i>	BH	8-10-94
S.M. Demiter	Engr. Tech.	WHC	<i>S.M. Demiter</i>	SD	8-10-94
J. B. GUNTER	ENGR. Tech.	WHC	<i>Jason Gunter</i>	JBG	8/26/94

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APPENDIX B

TEST CONFIGURATION DOCUMENTATION LIST

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TEST CONFIGURATION DOCUMENTATION LIST

Item: This may be major equipment, tooling, instrumentation, facility, etc. Use equipment name (and number if assigned).

Document Title: Title of drawing, sketch, figure, publication, vendor information, etc. More than one document may be applicable to a given item. List each document separately.

Document Number: Drawing, sketch, figure, vendor publication numbers, etc.

Released: Enter YES, NO, or N/A (Not Applicable).

Included: Enter procedure or package. If procedure, then the document is included with the test procedure in this Appendix B. The included item is given an appendix page number. If package, then the listed item is assembled with the controlled test procedure package per Section 4.4.

ITEM	DOCUMENT TITLE	DOCUMENT NO.	RELEASED	INCLUDED
1	MULTI-PORT RISER TEST PLAN	WHC-SD-WM-TP- 233	JUL 8, 1994	YES
2	ACCEPTANCE TEST PROCEDURE FOR MULTI-PORT RISER	WHC-SD-WM-ATP - 089	JUL 11, 1994	YES
3	42" MULTI-PORT FLANGED RISER ASSY	H-2-818144 SHT 1-3	JUL 29, 1994	YES
4	HANFORD S/E HOSTING AND RIGGING MANUAL	DOE-RL-92-36	JAN 1, 1993	NO

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APPENDIX C

TEST READINESS REVIEW CHECKLIST

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TEST READINESS REVIEW CHECKLIST

Date 8/10/94

REVIEWERS

NAME (PRINT)	POSITION	SIGNATURE	DATE
D.R. PREECHTEL	Cog. ENGR	D.R. Preechtel	8/10/94
B.L. Hopkins	Engr. Tech.	B. Hopkins	8-10-94
E.N. WIEGNER	QC	E.N. Wiegner	8-10-94
S.M. Demiter	Engr. Tech.	S.M. Demiter	8-10-94

CHECKLIST

1. Is this test procedure released?

Yes ☒ No ☐

Comments _____

2. Are there any open items which need to be addressed prior to start of testing?

Yes ☐ No ☒

Comments _____

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3. Is the test procedure package per Section 4.4 complete and are all pages, attachments, etc., marked with TEST CONTROL COPY?

Yes ☒ No ☐

Comments _____

4. Are all JHAs and MSDSs required by the procedure posted or located in the test area?

Yes ☒ No ☐

Comments _____

5. Is all equipment per Section 5.1 installed or available at the test area for installation?

Yes ☒ No ☒ ^{DRP 8-10-94}

Comments ~~DRP 8-10-94~~ ^{DRP 8-10-94} _____

6. Are all test materials per Section 5.2 available at the test area?

Yes ☒ No ☐

Comments _____

7. Are the facility support systems available in the test area?

Yes ☒ No ☐

Comments _____

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APPENDIX D

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

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JOB HAZARD ANALYSIS

AND

MATERIAL SAFETY DATA SHEETS

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

(List by title and number as applicable; this may be a hand-written entry, initialed, and dated.)

[illegible]

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APPENDIX E

MASTER DATA SHEET

Pages 20 through 28 are tentatively
omitted and are the master data sheets
for the MPR

B. Schroeder
8-18-94

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FABRICATION/INSTALLATION/INSPECTION TRAVELER				Page 1 of 5	Number
Job Description MPF Functional Testing Master Data Sheet				Work Order No.	
Cognizant Engineer Approval D. R. Precechtel		Phone 6-3329	Date Required	Impact Level SQ	QA Approval M. L. McElroy
Cog. Engr's Manager Approval R. E. Bauer		Phone 6-5908	Prepared by B. L. Hopkins	Date	Safety Approval L. S. Krogsrud

Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
1.0	Verify all test performer blanks in Section 8.0 and Appendixes A, B, C, and D are completed. Also stamp "Test Control Copy" per Section 4.4 on entire package.	WHC-SD-WM-ATP-084, Rev. 0	Q T N N/A E C N/A	8-11-94 8-11-94 8-11-94	
			Q T N E C		
2.0	Conduct a "prejob meeting" of operations including a review of all procedures, drawings, and other engineering documents required to complete the test.	WHC-SD-WM-ATP-084, Rev. 0	Q T N N/A E C N/A	8-11-94 8-11-94 8-11-94	
			Q T N E C		
3.0	Record serial number of MPF to be functionally tested.	H-2-818144	Q T N N/A E C N/A	8-11-94 8-11-94 8-11-94	S/N 2H9400457 F

E = Engineer

Q = QA Inspector

T = Technician

C = Craft

N = NDE Inspector

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FABRICATION/INSTALLATION/INSPECTION TRAVELER			Page	Number	
Continuation Sheet			2 of 5		
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamps	Date	Notes
4.0	Prepare a testing area on the concrete pad outside the 306E building.		Q N/A T <i>BN</i> N N/A E N/A C N/A	8-11-94	Testing of Spray system outside of 306 E Bldg. ALL other testing completed indoors
			Q T N E C		
5.0	Remove each shield plug at the 8-inch, 12-inch, and 20-inch riser port to demonstrate fit-up and simulate equipment installation and removal.	H-2-818144	Q <i>BN</i> T <i>BN</i> N N/A E <i>DRP</i> C N/A	8-11-94 8-11-94 8-11-94	
			Q T N E C		
6.0	With shield plugs removed, determine the plumb angle of each riser port in relation to the flange. See pages 30a to 30c <i>all 8-18-94</i>	H-2-818144	Q <i>BN</i> T <i>BN</i> N N/A E <i>BN</i> C N/A	8-11-94 8-11-94 8-11-94	679-42-02-001 Exp. 8-10-95
	<u>Note:</u> This operation may be eliminated based on satisfactory QA records during fabrication process.		Q T N E C		

E = Engineer

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FIGURE 1

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322
8-18-94

The following steps shall be completed to determine the plumb angle of each riser port in relation to the lower flange plane on the Multiport Flange assembly:

1. Level the simulated 42" riser flange to approximately 0.030" in both the X & Y direction. Record the levelness across the diameter using the bolt hole pattern (i.e., 8 measurements). Identify the measured value according to the bolt hole pattern below. Indicate a negative sign (-) if the slope is down in the direction labeled X or Y axis and a positive sign (+) if the slope is up in the direction labeled X or Y axis

in./ft. or angle

1. <u>+ 0.1°</u>	9. <u>- 0.2°</u>
2. <u>+ 0.0°</u>	10. <u>- 0.4°</u>
3. <u>+ 0.3°</u>	11. <u>- 0.3°</u>
4. <u>+ 0.2°</u>	12. <u>- 0.4°</u>
5. <u>+ 0.3°</u>	13. <u>- 0.1°</u>
6. <u>+ 0.1°</u>	14. <u>+ 0.1°</u>
7. <u>0.0°</u>	15. <u>+ 0.2°</u>
8. <u>+ 0.2°</u>	16. <u>+ 0.3°</u>

2. Lower the MPF until it is supported on the riser. Install flange bolts and nuts and torque to 190 - 210 ft-lbs.
3. Measure and record data on the flatness or angle at each of the following riser ports in both the X & Y directions:

	Precision Level 1 grad = .0005"/ft.		Electronic Level Angle = degrees	
	X-Axis	Y-Axis	X-Axis	Y-Axis
P-1	<u>N/A</u>	<u>N/A</u>	<u>0.0°</u>	<u>- 0.2°</u>
P-2	<u>N/A</u>	<u>N/A</u>	<u>- 0.2</u>	<u>- 0.2°</u>
P-3	<u>N/A</u>	<u>N/A</u>	<u>- 0.2</u>	<u>- 0.1</u>
P-4	<u>N/A</u>	<u>N/A</u>	<u>+ 0.1</u>	<u>- 0.2</u>

4. Measure and record the vertical angle of the following riser ports in both the X & Y directions. Measure both surfaces (O = outside and I =

Note: Ink used to trace original
Pencil values

322 8-18-94

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4. Measure and record the vertical angle of the following riser ports in both the X & Y directions. Measure both surfaces (O = outside and I = inside) if clearance permits, see figure. It is important that the level is in the same vertical plane as the riser port. Several independent measurements may be prudent at the same location and then record the average value.

	Angle, Outside			Angle, Inside	
	X-Axis	Y-Axis		X-Axis	Y-Axis
P-1	<u>-89.9</u>	<u>+89.9</u>	All 8/18/94	<u>+89.8°</u> <u>88.5°</u>	<u>89.8°</u>
P-2	<u>-89.6°</u>	<u>+89.6</u>		<u>-89.8</u>	<u>89.9</u>
P-3	<u>89.9</u>	<u>-89.6</u>		<u>+89.8</u>	<u>-89.8°</u>
P-4	<u>89.8°</u>	<u>-89.6</u>		<u>-89.4°</u>	<u>-89.6°</u>

Note: Ink used to trace original
Pencil recorded values
Bld 8-18-94

FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page	Number		
Continuation Sheet		3 of 5			
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
7.0	Reinstall shield plugs and secure with flange bolts.	H-2-818144	Q N/A T BN N N/A E N/A C N/A	8-11-94	
			Q BN T BN N BN E BN C BN		
8.0	Move the MPF assembly over the simulated 42-inch riser/pressure check fixture. Install Garlock 3000 gasket. Lower the MPF until the two alignment pins engage in the 7/8-inch holes in the riser flange and the skirt has	WHC-SD-WM-ATP-084, Rev. 0	Q BN T BN N BN E BN C N/A	8-12-94 8-12-94 8/12/94	
	entered the riser inside diameter. Seat MPF and secure with flange bolts. Torque to 160 ft-lb. Apply 1.5 psig to MPF using make-up gas and then measure flow rate of make-up gas. Optional method: Determine leakage rate by pressure drop method. Record total leakage rate.	H-2-818144 (See Note 5)	Q BN T BN N BN E BN C BN		
	where $28,317 \text{ cc}^3 = 1 \text{ ft}^3$ MKS Reading $\text{Flow} = 0.26 \times 10 = 260 \left(\frac{1}{28,317 \text{ cc/min}} \right) \left(\frac{60 \text{ min}}{1 \text{ hr}} \right)$		Q BN T BN N BN E BN C BN		679-28-03-024 Expires 8-10-95
	Flow = .551 ft ³ /hr		Q BN T BN N BN E BN C BN		

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page	4 of 5	Number	
Continuation Sheet					
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Sig/Stamp	Date	Notes
	THE FOLLOWING STEPS WILL VERIFY OPERATIONS OF THE DECON SPRAY RINGS.		☒ Q ☐ T ☐ N ☐ E ☐ C <u>8/18/94</u>		
9.0	With the shield plugs reinstalled, attach the high pressure water pump and in-line totalizer to the MPF. Verify sufficient water supply.		☐ Q N/A ☐ T <u>BA</u> ☐ N N/A ☐ E <u>BA</u> ☐ C N/A <u>8-17-94</u> <u>8-17-94</u>		
9.5	INSTALL FLAT SPRAY NOZZLES AW 20 & 21 INTO SPRAY RINGS AW 13, 14 AND 15 DPP 8/20/94	H-2-818144	☒ Q <u>8/18/94</u> ☐ T <u>BA</u> ☐ N N/A ☐ E <u>BA</u> ☐ C N/A <u>8-26-94</u>		
10.0	Open decon spray valves (HV100 and HV101) and verify that Valves HV102, HV103, HV104, and HV105 are in the closed position. Test the 20-inch (P-1) port spray ring.	H-2-821088	☐ Q N/A ☐ T <u>BA</u> ☐ N N/A ☐ E <u>BA</u> ☐ C N/A <u>8-17-94</u>		
11.0	Hoist the MPF 4 feet off the ground and secure in place. Start the high pressure water pump and adjust water flow to <u>350</u> gpm at <u>350</u> psi. Record Pressure <u>350</u> psi.	WHC-SD-WM-ATP-084, Rev. 0	☒ Q <u>8/18/94</u> ☐ T <u>BA</u> ☐ N N/A ☐ E <u>BA</u> ☐ C N/A <u>8-17-94</u> <u>8/17/94</u>		Test equipment configuration does not measure flow to nozzle

E = Engineer Q = QA Inspector T = Technician C = Craft N = NDE Inspector

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FABRICATION/INSTALLATION/INSPECTION TRAVELER		Page		Number	
Continuation Sheet		5 of 5			
Operation Number	Fabrication/Inspection/Instruction	Ref., Dwg., Proc., Spec.	Completion Signatures	Date	Notes
12.0	Observe spray pattern to determine location of focal point in relation to lower attachment flange. Record approximate focal point location <i>see notes</i> . <u>Note:</u> Shield plug may be removed to allow visual look at spray pattern through riser port.	WHC-SD-WM-ATP-084, Rev. 0	Q <i>[Signature]</i> T <i>[Signature]</i> N <i>[Signature]</i> E <i>[Signature]</i> C N/A	8-17-94 8-17-94 8-17-94	Focal length P1 = 32" one nozzle plugged <i>[Signature]</i> replaced on 8/18/94 and verified free with sanitary water system on 8/18/94 <i>[Signature]</i>
			<i>[Signature]</i> 8/18/94 T N E C		
13.0	Repeat above operations for each riser port (8-inch (2 places) and 12-inch) by opening and closing appropriate valves to test each spray ring.		Q <i>[Signature]</i> T <i>[Signature]</i> N <i>[Signature]</i> E <i>[Signature]</i> C N/A	8-17-94 8-17-94 8-17-94	
	<u>Riser Port</u> <u>Valves Open</u> <u>Valves Closed</u> P-2 12" HV100 HV101 HV102 HV103 HV104 HV105		<i>[Signature]</i> 8/18/94 T N E C		Focal length (P-2) $\approx 24"$
	P-3 8" HV100 HV101 HV103 HV102 HV104 HV105		<i>[Signature]</i> 8/18/94 T N E C		Focal length (P-3) $\approx 10"-12"$
	P-4 8" HV100 HV101 HV104 HV102 HV103 HV105		<i>[Signature]</i> 8/18/94 T N E C		Focal length (P-4) $\approx 10"-12"$

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C = Craft

N = NDE Inspector

14.0 VERIFY THAT ALL STEPS IN THIS TRAVELER/ PROCEDURE HAVE BEEN COMPLETED
PP 8-26-94

Q *[Signature]* 8-26-94
T *[Signature]* 8/26/94
E *[Signature]* 8/26/94

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FLANGED MULTI-PORT PRESSURE TEST

CADFILE: TEST_1
 REV: A
 DATE: 06-28-94

8/26/94
 PEG

VIEW D-D

MATL: 1/2" PLATE ASTM A36

CADFILE: PRESSHAT

REV: A

DATE: 06-03-94

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APPENDIX F

RETEST PROCEDURE AND DATA SHEETS

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RETEST PROCEDURE AND DATA SHEETS

Q = Quality T = Test Performer E = Cognizant Engineer O = Other DEFINED _____

Index additions by hand-written entries, initial, and date.

None BLS 8-18-94

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