ENGINEERING CHANGE NOTICE

Page 1 of 2

1-ECN No 703641
Proj. ECN ER3641-16

2. ECN Category (mark one)		3. Originator's Name, Organization, MSIN, and Telephone No.		4. Date	
☒ Supplemental	☐ Direct Revision	WIGGINS, D.D. 7CF70, RT-49 373-1286		SEPT. 13, 1994	
☐ Change ECN	☐ Temporary	5. Project Title/No./Work Order No.		7. Approval Designator	
☐ Standby	☐ Supersede	8. Document Numbers Changed by this ECN (includes sheet no. and rev.)		10. Related PO No.	
☐ Cancel/Void	☐ 11a. Modification Work	11b. Work Package No.		11d. Restored to Original Condition (Temp. or Standby ECN only)	
☐ No (NA Bk. 11b)	☒ Yes (fill out Bk. 11b)	11c. Modification Work Completed		11e. Engineer Signature & Date	
		N/A		N/A	

12. Description of Change
 REPLACE WHC-SD-ER3641-ATP-003, REV. 0, WITH REV. 1, SAME DOCUMENT. REPLACE IN THE ENTIRETY. CHANGE IS SC3.

13a. Justification (mark one)		13b. Justification Details	
☒ Criteria Change	☐ Design Improvement	THIS REVISION IS THE RESULT OF PRELIMINARY FIELD WALK-DOWNS OF ATP STEPS PERFORMED AS PART OF CH-4-U DECT RESEARCH/UPGRADE.	
☐ As-Found	☐ Facilitate Const.	DESIGN VERIFICATION BY / NORMAL REVIEW (EP 4.1)	
☐ Environmental	☐ Const. Error/Omission		
☐ Design Error/Omission	☐ Design Error/Omission		

14. Distribution (include name, MSIN, and no. of copies)	
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M.R. KOCH (COG) R1-49 (1)	

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 BY WHC
 DATE SEP 15 1994

Page 2 of 2

~~NO 70361~~
FR 3641-16

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RELEASE AUTHORIZATION

Document Number: WHC-SD-ER3641-ATP-003, REV 1

Document Title: INSTRUMENT ACCEPTANCE TEST PROCEDURE FOR 244U DCRT

Release Date: 9/14/94

* * * * *

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

APPROVED FOR PUBLIC RELEASE

* * * * *

WHC Information Release Administration Specialist:

Kara Broz
(Signature)

9/14/94
(Date)

SUPPORTING DOCUMENT		1. Total Pages 37
2. Title INSTRUMENTAION ACCEPTANCE TEST PROCEDURE FOR 244U DCRT		3. Number WHC-SD-ER3641-ATP-003
4. Rev No. 1		
5. Key Words 244U-DCRT INSTRUMENTATION ACCEPTANCE TEST DIPTUBES RECEIVER TANK <i>KMB 7/14/94</i>		6. Author Name: M. R. KOCH/ D. D. WIGGINS <i>M. R. Koch 9/14/94 D.D. Wiggins</i> Signature <i>9/14/94</i> Organization/Charge Code 7CF70/N53D1
7. Abstract THE ATTACHED TEST PROCEDURE PROVIDES DETAILED TEST STEPS TO ASSURE PROPER OPERATION OF THE 244U DCRT INSTRUMENTATION.		
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;"> OFFICIAL RELEASE BY WHC DATE SEP 15 1994 <i>STH 4</i> </div>
9. Impact Level SQ		

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ACCEPTANCE TEST PROCEDURE WHC-SD-ER3641-ATP-003TEST TITLE InstrumentationLOCATION 200 West 244U DCRTPROJECT NUMBER NAWORK ORDER ER4913PROJECT TITLE 244U Double-Contained Receiver Tank Restoration

Prepared By
ICF Kaiser Hanford Company
Richland, Washington

For the U.S. Department of Energy
Contract DE-AC06-93RL12359

PROCEDURE APPROVAL

ICF Kaiser Hanford Company (ICF KH)

<u><i>W. K. Kitzler</i></u> WHC	<u>9/14/94</u>	<u><i>J. E. Breed</i></u>	<u>9-8-94</u>
Originator	Date	Technical Documents	Date
<u><i>Bradley Rarig</i></u>	<u>9/12/94</u>	<u><i>T. Lundgren</i></u>	<u>9-9-94</u>
Checker	Date	Safety B.R. Simon for	Date
<u><i>S.D. Consort</i></u>	<u>9/12/94</u>	<u><i>K.C. Conrad</i></u>	<u>9-12-94</u>
Environmental	Date	Quality Engineering	Date
<u><i>Bradley Rarig</i></u>	<u>9/12/94</u>		
Project Management	Date		

Westinghouse Hanford Company (WHC) *DDW*
(KEH)

<u><i>M. K. Kishner</i></u> 9/14/94 <i>2/14/94</i>	<u>9/14/94</u>	<u><i>John V. ...</i></u>	<u>9-11-94</u>
Projects Department	Date	Quality Assurance	Date
<u><i>N/A DDW</i></u>	<u>9/14/94</u>	<u><i>W. K. Kitzler</i></u>	<u>9/14/94</u>
Safety	Date	Operations	Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

_____ Test Director/Organization	_____ Date	_____ Test Operator/Organization	_____ Date
_____ Recorder/Organization	_____ Date		

WITNESSES

_____ Witness/Organization	_____ Date	_____ Title III Inspector	_____ Date
_____ Witness/Organization	_____ Date	_____ Witness/Organization	_____ Date

A-E APPROVAL

ICF Kaiser Hanford Company

Without exceptions _____	With exceptions resolved _____	With exceptions outstanding _____
--------------------------	--------------------------------	-----------------------------------

_____ Acceptance Inspection	_____ Date	_____ Design Engineer	_____ Date
_____ Project Manager	_____ Date		

TEST APPROVAL AND ACCEPTANCE

Westinghouse Hanford Company

Without exceptions _____	With exceptions resolved _____	With exceptions outstanding _____
--------------------------	--------------------------------	-----------------------------------

_____ <Title or Department>	_____ Date	_____ <Title or Department>	_____ Date
_____ <Title or Department>	_____ Date	_____ <Title or Department>	_____ Date

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	NOTE: At completion of test, enter pages added during performance of test to this Table of Contents.	

1 PURPOSE

This Acceptance Test Procedure (ATP) has been prepared to demonstrate that the sensing elements, instruments, and control systems newly installed and existing on the 244U DCRT System 3 function as required by project criteria.

2 REFERENCES

2.1 DRAWINGS

H-2-73798, Sh 1, Rev 3	Engineering Flow Diagram - System 3
Sh 2, Rev 3	Engineering Flow Diagram - System 3
H-2-73802, Sh 1, Rev 6	Instrumentation - Panel Arrangement & Det
Sh 2, Rev 4	Instrumentation - Panel Arrangement & Det
H-2-73803, Sh 3, Rev 1	Instrumentation - Rear of Panel Wiring
H-2-73805, Sh 1, Rev 4	Instrumentation - Inst Building Arrangement
Sh 2, Rev 3	Instrumentation - Inst Building Arrangement
H-2-73808, Sh 1, Rev 0	Instrumentation - Miscellaneous Details
H-2-73811, Sh 3, Rev 0	Instrumentation - Interconnection Diagram
H-2-73820, Sh 1, Rev 6	Electrical - One Line & Elementary Diagram
H-2-73830, Sh 2, Rev 2	Electrical - Instr Bldg 244-U
H-2-73838, Sh 1, Rev 6	HVAC - Airflow and Control Diagram and Schedules
Sh 2, Rev 1	HVAC - Airflow and Control Diagram and Schedules

2.2 SPECIFICATIONS

B-180-P1, Rev 0	General Instrumentation
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2.3 OTHER

ICF Kaiser Hanford (ICF KH)

Procedure CON 3.5, Rev 0	Performance and Recording of Acceptance Test Procedures
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2.4 ENGINEERING CHANGE NOTICES (ECN)

Prior to final test approval, enter ECNs written against this ATP.

3 RESPONSIBILITIES

3.1 GENERAL

Each company or organization participating in this ATP will designate personnel to assume the responsibilities and duties as defined herein for their respective roles. The designees shall become familiar with this ATP and the systems involved to the extent that they can perform their assigned duties.

3.2 WHC PROJECT ENGINEER

- 3.2.1 Designates a Test Director.
- 3.2.2 Coordinates testing with the 244-U Tank Farm manager.
- 3.2.3 Coordinates testing of emergency alarm systems with the Building Emergency Director.
- 3.2.4 Acts as liaison between the participants in acceptance testing.
- 3.2.5 Distributes the approved testing schedule before start of testing.
- 3.2.6 Schedules and conducts a pretest kickoff meeting with test participants when necessary.
- 3.2.7 Notifies the persons performing and witnessing the test 2 days before the start of testing.
- 3.2.8 Schedules a dry run when necessary.
- 3.2.9 Notifies concerned parties when a change is made in the testing schedule.
- 3.2.10 Signs Execution and Test Approval page when test is approved and accepted.
- 3.2.11 Takes necessary action to clear exceptions to the test.
- 3.2.12 Signs Exception form when exception has been resolved.
- 3.2.13 Provides a distribution list for the approved and accepted ATP.

3.3 TEST DIRECTOR

- 3.3.1 Coordinates and directs acceptance testing.
- 3.3.2 Confirms that field testing and inspection of the system or portion of the system to be tested has been completed.
- 3.3.3 Stops any test which, in his or her judgment, may cause damage to the system until the problem has been resolved.
- 3.3.4 After verifying there is no adverse impact, may alter the sequence in which systems or subsystems are tested.

- 3.3.5 Ensures that required environmental conditions are maintained.
 - 3.3.6 If a test is to be suspended for a period of time, ensures that the system is left in a safe mode.
 - 3.3.7 Before restarting suspended test, re-verifies the test prerequisites.
 - 3.3.8 Initiates ECNs to document required changes to the ATP.
 - 3.3.9 Reviews recorded data, discrepancies, and exceptions.
 - 3.3.10 Obtains information or changes necessary to clear or resolve objections during the performance of the test.
 - 3.3.11 Signs Execution and Test Approval page when test has been performed.
 - 3.3.12 Signs Exception form when exception has been resolved.
 - 3.3.13 Obtains required signatures on the ATP Master prior to reproduction and distribution.
- 3.4 WITNESSES (Provided by Participating Organizations. One witness shall be a Title III acceptance inspector, who will be a field engineer assigned by the Project Engineer.)
- 3.4.1 Witness the tests.
 - 3.4.2 Review results of testing.
 - 3.4.3 Assist the Test Director when requested.
 - 3.4.4 Sign Execution and Test Approval page when test has been performed.
 - 3.4.5 Sign Exception form when exception has been resolved.
- 3.5 RECORDER (Provided by Kaiser Engineers Hanford)
- 3.5.1 Prepares a Field copy from the ATP Master.
 - 3.5.2 Records names of all designated personnel on Field copy of ATP prior to start of testing.
 - 3.5.3 Records test instrument identification numbers and calibration expiration dates.
 - 3.5.4 Initials and dates every test step on the Field copy as it is completed next to the step number or on a data sheet, when provided. Records test data. On data sheets where there is not room for both the initial and date, date may be entered at bottom of column.
 - 3.5.5 Records objections and exceptions on an Exception form. Uses additional Exception forms as needed. Notifies the Test Director at time the objection is made.

- 3.5.6 Signs Execution and Test Approval page when test has been performed.
- 3.5.7 After test is finished, assigns alpha numeric page numbers to added data sheets and Exception forms. Records page numbers in the Table of Contents.
- 3.5.8 Transfers Field copy entries for each step to the Master in ink or type, signs, and dates. Transmits the completed Master to the Test Director for approval signature routing. Transmits the Field copy to Construction Document Control for inclusion in the official project file.
- 3.5.9 Signs Exception form when exception has been resolved and transmits to Test Director.

3.6 TEST OPERATOR

- 3.6.1 Performs test under direction of the Test Director.
- 3.6.2 Provides labor, equipment, and test instruments required for performing tests which have not been designated as being provided by others.
- 3.6.3 Requests in writing from the Test Director those services, materials, or equipment that have been designated as being supplied by others.
- 3.6.4 Confirms that all equipment required for performing test will be available at the start of testing.
- 3.6.5 Signs the Execution and Test Approval page.

3.7 A-E ACCEPTANCE INSPECTION, DESIGN ENGINEER, AND PROJECT MANAGER

- 3.7.1 Evaluate results.
- 3.7.2 Sign for A-E Approval on Execution and Test Approval page.

4 CHANGE CONTROL

Required changes to this ATP must be processed on ECNs in accordance with company procedures. If a need for change is discovered in the course of running the test, the test shall be stopped until the ECN is approved. However, this does not prevent the running of another portion of the test unaffected by the change.

5 EXECUTION

5.1 OCCUPATIONAL SAFETY AND HEALTH

Individuals shall carry out their assigned work in a safe manner to protect themselves and others from undue hazards and to prevent damage to property and environment. Facility line managers shall assure the safety of activities within their areas to prevent injury, property damage, or interruption of operation. Performance of test activities shall always include safety and health aspects.

5.2 PERFORMANCE

5.2.1 Conduct testing in accordance with ICF KH Procedure CON 3.5 (Performance and Recording of ATPs).

5.2.2 Perform test following the steps and requirements of this procedure.

6 EXCEPTIONS

6.1 GENERAL

Exceptions to the required test results are sequentially numbered and recorded on individual Exception forms. This enables case-by-case resolution and approval of each exception.

Errors/exceptions in the ATP itself shall NOT be processed as test exceptions (see Section 4.0).

6.2 RECORDING

6.2.1 Number each exception sequentially as it occurs and record it on an Exception form (KEH-428), sample appended.

6.2.2 Enter name and organization of objecting party for each exception.

6.2.3 Enter planned action to resolve each exception when such determination is made.

6.3 RETEST/RESOLUTION

Record the action taken to resolve each exception. Action taken may not be the same as planned action.

6.3.1 When action taken results in an acceptable retest, sign and date Retest Execution and Acceptance section of the Exception form.

6.3.2 When action taken does not involve an acceptable retest, strike out the Retest Execution and Acceptance section of the Exception form.

6.4 APPROVAL AND ACCEPTANCE

The customer Project Engineer provides final approval and acceptance of exceptions by checking one of the following on Exception form:

- 6.4.1 Retest Approved and Accepted: Applicable when Retest Execution and Acceptance section is completed.
- 6.4.2 Exception Accepted-As-Is: Requires detailed explanation.
- 6.4.3 Other: Requires detailed explanation.

The customer Project Engineer signs and dates the Exception form and obtains other customer internal approvals, if required.

6.5 DISTRIBUTION

A copy of the approved Exception form is distributed to each participant. The signed original is attached to the ATP Master.

7 PREREQUISITES, EQUIPMENT/INSTRUMENTS, ABBREVIATIONS, AND ANNUNCIATORS

7.1 PREREQUISITES

The following conditions shall exist at the start of the testing for that portion of the system being tested.

- 7.1.1 Systems have been inspected for compliance with construction documents.
- 7.1.2 Reference documents (including this ATP) have been verified for correct revision number and outstanding ECNs.
- 7.1.3 Power is available to all components of system.
- 7.1.4 Annunciator lights have been tested.
- 7.1.5 Test instruments have a valid calibration stamp attached. Test instrument identification numbers and calibration expiration dates have been recorded in subsection 7.2.
- 7.1.6 Use appropriate gloves and barriers, when working with live parts greater than 50 volts, to prevent inadvertent contact.
- 7.1.7 Steam and other process lines are valved off.
- 7.1.8 Voice communication shall be available between Instrument Buildings and Evaporator.
- 7.1.9 Each of the sections of this ATP may be considered as a separate test. The sequence of performance may be arbitrary.

7.2 EQUIPMENT/INSTRUMENTS

Supplied by Test Operator unless otherwise noted.

7.2.1 Manometer: Range TBD

Instrument No. _____ Expiration Date _____

7.2.2 Variable test pressure source (VTPS): 0-20 inH₂O, 0-180 inH₂O.

Instrument No. _____ Expiration Date _____

Instrument No. _____ Expiration Date _____

7.2.3 Thermocouple calibration device: _____

Instrument No. _____ Expiration Date _____

7.2.4 Resistance decade box:

Instrument No. _____ Expiration Date _____

7.2.5 Dewpoint Indicator:

Instrument No. _____ Expiration Date _____

7.2.6 Ammeter:

Instrument No. _____ Expiration Date _____

7.3 ABBREVIATIONS

ECN Engineering Change Notice

VTPS Variable Test Pressure Source

8 TEMPERATURE TRANSMITTER (TT): This test will check Receiver Vessel's internal temperature monitoring system.

- _____ 8.1 Verify prerequisites of paragraph 7.1 have been met.
- _____ 8.2 Notify Building Manager at start of test.
Note: Notify Building Manager when status changes.
- _____ 8.3 Close Circuit Breakers (CB) 2 _____, 3 _____, and 4 _____ on Panelboard A in Instrument Building 244-U.
- _____ 8.4 Connect the following to their power supply:
- _____ 8.4.1 TR-244-U-1 (Building 244-U).
- _____ 8.4.2 TT-244-U-1 (Building 244-U). —
- _____ 8.5 Record the ambient temperature of the Receiver Vessel:
TR-244-U-1 _____%
- _____ 8.6 Disconnect the thermocouple extension leads TE-244-U-1 from TT-244-U-1 and connect simulator device.
- _____ 8.7 Use simulator device to simulate temperatures 75°F (13.6%) and 150°F (37.3%).
- NOTE: Range is 32 to 348°F. Span is 316°F.
- _____ 8.8 Record and verify outputs at:
	<u>75°F</u>	<u>150°F</u>
TR-244-U-1	_____ % (± 3.75)	_____ % (± 7.5)
Calibration Device	_____ °F	_____ °F
- _____ 8.9 Disconnect calibration device and then reconnect thermocouple extension leads to TT-244-U-1.
- _____ 8.10 Open CBs 2 _____, 3 _____, and 4 _____ on Panelboard A.

END OF SECTION

9 INSTRUMENT AIR PRESSURE VALVES (PRV): This test will check the air regulating system for the pneumatic instruments. Refer to Figure 1 for Loop Diagram.

- _____ 9.1 Close CB 2 on Panelboard A.
- _____ 9.2 In Instrument Building 244-U at Air Pressure Reducing Valve PRV-3, open:
 - _____ 9.2.1 Gate Valves GV-1 and GV-3.
 - _____ 9.2.2 Ball Valve BV-10.
 - _____ 9.2.3 And adjust pressure downstream of PRV-3 to 20 psig as indicated on PI-3.
- _____ 9.3 Verify Valve GV-2 closed.
- _____ 9.4 Verify Air Dryer 1 is operating and air is discharging alternately from each exhaust port in a regular cycle.
- _____ 9.5 Increase downstream pressure and record the pressure at which Relief Valve SRV-2 actuates. _____ psig. (Do NOT exceed 30 psig and reduce pressure if SRV-2 does not actuate.)
- _____ 9.6 Record dewpoint of discharge air from PRV-3. _____ °F (-40°F) for future reference. This may be done at Transmitter/Converter Rack.
- _____ 9.7 At Air Pressure Reducing Valve PRV-3, close:
 - _____ 9.7.1 Gate Valves GV-1 and GV-3.
 - _____ 9.7.2 Ball Valve BV-10.
- _____ 9.8 Open Circuit Breaker 2 in Panelboard A.

END OF SECTION

10 ROTAMETERS (FI): This test will check the rotameters that regulate the air entering the bubbler system in the Receiving Tank.

10.1 Open the following valves:

_____ 10.1.1 GV-1

_____ 10.1.2 GV-3

_____ 10.1.3 BV-10

NOTE: Record verifications for each step in Data Sheet 10. (* is used in lieu of number given in table on next page.)

10.2 Open Ball Valve BV-* on air supply side of FI-*.

10.3 Open Ball Valve BV-* on dip tube side of FI-*.

10.4 Adjust Needle Valve (NV) on FI-* to bring float to mid-scale.

10.5 Close air supply side BV-*.

10.6 Close dip tube side BV-*.

10.7 Close needle valve.

10.8 Close the following valves:

_____ 10.8.1 GV-1

_____ 10.8.2 GV-3

_____ 10.8.3 BV-10

DATA SHEET 10

ROTAMETERS						
		INST AIR			LLI-1	SLI-1
STEP	VERIFY	FI-1	FI-2	FI-3	FI-8	FI-6
10.2	Open BV-*	*1	*2	*3	*12	*8
10.3	Open BV-*	*5	*6	*7	----	----
10.4	Adj NV float mid-scale					
10.5	Close BV-*	*1	*2	*3	*12	*8
10.6	Close BV-*	*5	*6	*7	----	----
10.7	Close needle valve(NV)					
DATE						

END OF SECTION

11 WEIGHT AND SPECIFIC GRAVITY TRANSMITTERS (WFT, SGT): This test will check the level monitoring systems transmitters, recorders, and annunciators. Refer to Figure 2 for Flow Diagram.

NOTE: An asterisk (*) will be used in lieu of 244-U in the instrument numbers.

11.1 Set LR-1 Level Alarm Setpoints (LAS).

_____ 11.1.1 LAS-1 to 50%.

_____ 11.1.2 LAS-2 to 25%.

11.2 Connect the following to their power source at given locations.
Transmitter/Converter Rack Building 244-U.

_____ 11.2.1 WFT-1.

_____ 11.2.2 SGT-1.

Instrument Panel Building 244-U

_____ 11.2.3 WFR/SGR/TR-1.

_____ 11.2.4 DC power supply.

11.3 Prepare WFT-1 and SGT-1 as follows:

_____ 11.3.1 Open equalizing valve on 3-valve manifold (WFT-3 and SGT-3).

_____ 11.3.2 Close high-pressure isolation valve on 3-valve manifold (WFT-1 and SGT-2).

_____ 11.3.3 Close low-pressure isolation valve on 3-valve manifold (WFT-2 and SGT-1).

_____ 11.3.4 Remove high-pressure input plug.

_____ 11.3.5 Close equalizing valve on 3-valve manifold (WFT-3 and SGT-3).

_____ 11.3.6 Remove low-pressure input plug to vent low side to atmosphere.

_____ 11.3.7 Connect manometer and variable test pressure source (VTPS) to high side (SGT 0-20 inH₂O, WFT 0-180 inH₂O).

_____ 11.4 Close Circuit Breakers 2 _____, 3 _____, 4 _____, and 11 _____ in Circuit Breaker Panel A in Building 244-U.

11.5 Verify ZERO ($\pm$ 5%) readings on the following:

_____ 11.5.1 WFR-1.

_____ 11.5.2 SGR-1.

- _____ 11.6 Apply WFT test pressure of zero and increase SGT test pressure to 10 inH₂O.
- _____ 11.6.1 Record reading of LR-*-1. _____% (Desired 0%)
- _____ 11.7 Maintain SGT test pressure at 10 inH₂O.
- _____ 11.8 Apply 75 inH₂O to WFT and decrease until Low Level Annunciator LA-2A activates.
- _____ 11.8.1 Record reading of LR-*-1. _____%
- _____ 11.8.2 Verify Low-Level Alarm LA-2 activates in Building 241-U-271.
- _____ 11.9 Apply 75 inH₂O to WFT and increase until High Level Annunciator LA-1A activates.
- _____ 11.9.1 Record reading of LR-*-1. _____%
- _____ 11.9.2 Verify High Level Alarm LA-1A activates in Building 241-U-271.
- _____ 11.10 Increase WFT test pressure to 180 inH₂O and increase SGT test pressure to 20 inH₂O, then record:
- _____ 11.10.1 WFR-*-1. _____%
- _____ 11.10.2 SGR-*-1. _____%
- _____ 11.10.3 LR-*-1. _____%
- _____ 11.11 Maintain SGT pressure of 20 inH₂O and decrease WFT pressure to 90 inH₂O.
- _____ 11.11.1 Record reading of LR-*-1. _____%
- _____ 11.12 Maintain SGT pressure at 20 inH₂O and decrease the WFT pressure to zero H₂O.
- _____ 11.12.1 Record reading of LR-*-1. _____%
- NOTE: If you anticipate performance of Section 12 in the near future, perform these steps on WFT-*-1 only, otherwise perform on both transmitters WFT-1 and SGT-1.
- _____ 11.13 WFT-1
- _____ 11.13.1 Open high-pressure isolation valve on 3-valve manifold (WFT-1).
- _____ 11.13.2 Open low-pressure isolation valve on 3-valve manifold (WFT-2).
- _____ 11.13.3 Open equalizing valve on 3-valve manifold (WFT-3).
- _____ 11.13.4 Disconnect manometer and variable test pressure source to high side (SGT 0-20 inH₂O, WFT 0-180 inH₂O).

- _____ 11.13.5 Replace high-pressure input plug.
- _____ 11.13.6 Replace low-pressure input plug.
- _____ 11.14 SGT-1
- _____ 11.14.1 Open high-pressure isolation valve on 3-valve manifold (SGT-2).
- _____ 11.14.2 Open low-pressure isolation valve on 3-valve manifold (SGT-1).
- _____ 11.14.3 Open equalizing valve on 3-valve manifold (SGT-3).
- _____ 11.14.4 Disconnect manometer and variable test pressure source to high side (SGT 0-20 inH₂O, WFT 0-180 inH₂O).
- _____ 11.14.5 Replace high-pressure input plug.
- _____ 11.14.6 Replace low-pressure input plug.
- _____ 11.15 OPEN Circuit Breakers 2 ____, 3 ____, 4 ____, and 11 ____.

END OF SECTION

DILUTION AND TRANSFER FLOW CONTROLLERS (FIC): This test will check the Dilution and Transfer control valves and their associated annunciators. Refer to Figure 3 for Flow Diagram.

NOTES:

1. The flowmeters will be tested dry with Flowmeter Calibrators.
2. An asterisk (*) will be used in lieu of 244-U in the instrument numbers.

- _____ 12.1 Remove signal leads from the terminal strip on the back of:
CVT-*-1 _____ CVT-*-2 _____
- _____ 12.2 Connect Flow Simulator to each CVT in accordance with the manufacturer's instructions.
CVT-*-1 _____ CVT-*-2 _____
- _____ 12.3 Plug in the following instrument power cords:
FIC-1/FIC-2 _____ FR-*-1 _____
- _____ 12.4 Open Air Supply Valve BV-11 to EPCs and BV-14 to Volume Boosters on Transmitter/Converter Rack.
BV-11 _____ BV-14 _____
- _____ 12.5 Set the FR-1 low alarm setpoints to 80%.
FAS-*-1 _____ FAS-*-2 _____
- _____ 12.6 Open Air Dryer Valves GV-1 _____ and GV-3 _____.
- _____ 12.7 Set PRV-3 to 20 psig.
- _____ 12.8 Close Circuit Breakers 2 _____, 3 _____, 4 _____, and 11 _____ in Panelboard A in Building 244-U.
- _____ 12.9 Verify following Raw Water manual valves located on Flush Pit are CLOSED.
- _____ 12.9.1 U-25.
- _____ 12.9.2 U-26.
- _____ 12.9.3 U-27.
- _____ 12.10 Set FIC-1/2 to Manual Mode.

NOTE: Coverblock will have to be removed to verify DOV-2 position.

_____ 12.10.1 Adjust manual output of FIC-*-1 as follows and verify DOV-1 position:

<u>FIC-*-1 Output</u>	<u>DOV-*-1 Position</u>
0%	Closed _____
50%	1/2 Open _____
100%	Open _____

_____ 12.11 ADJUST manual output of FIC-*-2 as follows and verify DOV-2 position:

<u>FIC-*-2 Output</u>	<u>DOV-*-2 Position</u>
0%	Closed _____
50%	1/2 Open _____
100%	Open _____

_____ 12.12 If VTPS was removed from SGT-1 in Step 11.14, connect Variable Test Pressure Source (VTPS) to SGT-*-1 in accordance with Steps 11.3.1 through 11.3.7.

Otherwise continue with procedure.

_____ 12.13 Set FIC-2 to AUTO Mode.

_____ 12.14 Increase VTPS input on SGT-*-1 to 10 inH₂O.

NOTE: Because each test signal may affect several controllers, change ONLY the test signal specified in each step.

_____ 12.15 Adjust Flow Simulator input, for CVT-1, to 50%.

CVT-*-1 (75 gpm)

12.16 Verify:

_____ 12.16.1 FR-1 indicates 50% ($\pm 2.5\%$) flow.

_____ 12.16.2 DOV-2 is 50% opened.

_____ 12.17 Increase CVT-1 simulated input to 100%.

_____ 12.18 Increase SGT-1 input to 20 inH₂O.

_____ 12.19 Verify:

_____ 12.19.1 FR-1 indicates 100% ($\pm 5\%$) flow.

_____ 12.19.2 DOV-2 is 0% opened.

- _____ 12.20 Return SGT-1 input to 10 inH₂O.
- _____ 12.20.1 Slowly decrease flow simulator input until Annunciator FA-1A alarms.
FA-1A _____ (80% ±3%) in Instrument Building 244-U.
- _____ 12.20.2 Verify FA-1 alarms in Instrument Building 241-U-271.
FA-1 _____ (80% ±3%)
- NOTE: Acknowledge alarms if necessary.
- _____ 12.21 Decrease CVT-1 input to 0%.
- _____ 12.22 Set FIC-2 to MANUAL mode. _____
- _____ 12.23 Set FIC-1 to AUTO mode.
- _____ 12.24 Increase CVT-2 input to 50% (12.5 GPM) and maintain SGT-1 input at 10 inH₂O.
- 12.25 Verify:
- _____ 12.25.1 FR-2 indicates 50% (± 2.5%) flow.
- _____ 12.25.2 DOV-1 is 50% opened.
- _____ 12.26 Decrease CVT-2 simulated input to 0% (0 gpm).
- _____ 12.27 Increase SGT-1 input to 20 inH₂O.
- 12.28 Verify:
- _____ 12.28.1 FR-2 indicates 0% flow.
- _____ 12.28.2 DOV-1 is 100% opened.
- _____ 12.29 Return SGT-1 input to 10 inH₂O.
- _____ 12.29.1 Apply 100% simulated flow to CVT-2 and Slowly decrease flow until annunciator FA-2A alarms.
FA-2A _____ (80% ± 3%)
- _____ 12.29.2 Verify FA-2 alarm activates in Building 241-U-271.
FA-2 _____ (80% ± 3%)
- NOTE: Acknowledge alarms if necessary.
- _____ 12.30 Disconnect Flow Simulators from CVTs in accordance with the manufacturer's instructions.
CVT-*-1 _____ CVT-*-2 _____

- _____ 12.31 Connect signal leads to terminal strip for:
CVT-*-1 _____ CVT-*-2 _____
- _____ 12.32 Unplug the following instrument power cords:
FIC-1/FIC-2 _____ FR-*-1 _____
- _____ 12.33 Close Air Supply Valves BV-11 to EPCs and BV-14 to Volume Boosters on
Transmitter/Converter Rack.
BV-11 _____ BV-14 _____
- _____ 12.34 Close Air Dryer Valves GV-1 _____ and GV-3 _____.
- _____ 12.35 OPEN Circuit Breakers 2 _____, 3 _____, 4 _____, and 11 _____ in
Panelboard A in Building 244-U.

END OF SECTION

13 PRESSURE SWITCH (PS): This test will check the pressure switch, in the Flush Pit, that regulates the flush valve to the Receiving Tank. See Figure 4.

_____ 13.1 In Flush Pit, disconnect Pressure Switch PS-*-1 from pipeline.

_____ 13.2 Set PS-*-1 setpoint to 50% of range (2.5 psig).

_____ 13.3 Close Circuit Breaker 11 in Panelboard A in Instrument Building 244-U.

NOTE: Acknowledge annunciators, if required.

_____ 13.4 Verify that Relay PK-1 is energized.

_____ 13.5 Connect the VTPS to PS-*-1.

_____ 13.6 With the VTPS on psig range, increase the pressure output until relay PK-1 is de-energized.

NOTE: Acknowledge annunciators, if required.

_____ 13.7 Record the pressure output of VTPS when PK-1 de-energized.
_____ psig.

_____ 13.8 Reduce the pressure to 0 psig and verify PK-1 energized.

_____ 13.9 Remove the VTPS from PS-*-1.

_____ 13.10 Reconnect PS-*-1 to pipeline.

_____ 13.11 Open Circuit Breaker 11.

END OF SECTION

DIFFERENTIAL PRESSURE INDICATING CONTROLLERS (DPIC): This test will check the exhaust HEPA filter's signals transmitted to Instrument Building 244-U. Refer to Figures 5, 6, and 7 for Loop Diagrams.

CAUTION: Confined space monitoring shall have been completed before entering a confined space.

14.1 In Filter Pit assure the following equipment are in the indicated positions:

_____ 14.1.1 U-19 is OPEN.

_____ 14.1.2 U-20 is OPEN.

_____ 14.1.3 U-21 is OPEN.

_____ 14.1.4 U-22 is OPEN.

_____ 14.1.5 U-23 is OPEN.

_____ 14.1.6 U-24 is OPEN.

_____ 14.1.7 MOV-1 is CLOSED.

_____ 14.1.8 Exhaust Fan EF-1 is OFF.

_____ 14.2 Close CBs 1 _____, 2 _____, 6 _____, 11 _____, 12 _____, and 14 _____.

NOTE: May need operations support to start EF-1. Refer to Tank Farms Procedure TO-505-030.

_____ 14.3 Place all filter branch key switches in "OFF" position.

_____ 14.4 Push MS-4 START button in Instrument Building 244-U.

_____ 14.4.1 Verify EF-1 is RUNNING.

_____ 14.4.2 Verify MOV-1 is OPEN.

_____ 14.4.3 Verify IIC-1 on Instrument panel indicates HTC-1 is ON. (Indicates in amperes.)

On HVAC panel

_____ 14.4.4 Using ammeter verify HTC-2 is ON.

_____ 14.4.5 Verify DPI-1 indicates 0 inH₂O.

_____ 14.4.6 Verify DPI-2 indicates 0 inH₂O.

_____ 14.4.7 Verify PI-1 indicates 0 inH₂O.

_____ 14.4.8 Place #1 filter branch key switch in "BYPASS" position.

- _____ 14.5 Close Valves U-19 and U-20 in Filter Pit.
- _____ 14.6 Locate DPICs in Instrument Building 244-U.
- _____ 14.7 Equalize DPIC-6 by opening High and Low side valves and disconnect instrument lines from system.
- _____ 14.8 Connect manometer and VTPS to high side of DPIC-6.
- _____ 14.9 Apply 1 inH₂O and slowly increase test input to DPIC-6 until Annunciator DPA-1A annunciates.
- _____ 14.9.1 Verify that DPA-1 in Building 241-U-271 has alarmed.
- NOTE: Acknowledge annunciators if necessary.
- _____ 14.10 Disconnect manometer and VTPS from DPIC-6 and reconnect instrument lines to DPIC-6.
- _____ 14.11 Equalize DPIC-3 by opening High and Low side valves and disconnect instrument lines from system.
- _____ 14.12 Connect manometer and VTPS to high side of DPIC-3.
- _____ 14.13 Apply 1 inH₂O test input to high side of DPIC-3 and place #1 filter branch key switch to "OFF." Slowly decrease until Annunciator MSA-4A activates.
- _____ 14.13.1 Verify the following when MSA-4A activates:
- _____ 14.13.1.1 MSA-4 alarms in Building 241-U-271.
- _____ 14.13.1.2 EF-1 Exhaust Fan has turned OFF.
- _____ 14.13.1.3 MOV-1 has CLOSED.
- _____ 14.13.1.4 HTC-2 has turned OFF using portable ammeter.
- NOTE: Acknowledge annunciators if necessary.
- _____ 14.14 Disconnect manometer and VTPS and reconnect lines to DPIC-3.
- _____ 14.15 Position #2 filter branch key switch to "BYPASS."
- _____ 14.16 In Filter Pit assure the following valves are in the indicated positions:
- _____ 14.16.1 U-19 is OPEN
- _____ 14.16.2 U-20 is OPEN
- _____ 14.16.3 U-21 is CLOSED
- _____ 14.16.4 U-22 is CLOSED

- _____ 14.16.5 U-23 is OPENED
- _____ 14.16.6 U-24 is OPENED
- _____ 14.17 Equalize DPIC-7 by opening High and Low side valves and disconnect instrument lines from system.
- _____ 14.18 Connect manometer and VTPS in accordance with manufacturer's instructions to high side of DPIC-7.
- _____ 14.19 Apply 1 inH₂O and slowly increase test input to DPIC-7 until Annunciator DPA-1A annunciates.
- _____ 14.19.1 Verify that DPA-1 in Building 241-U-271 has alarmed.
- NOTE: Acknowledge annunciators if necessary.
- _____ 14.20 Disconnect manometer and VTPS from DPIC-7 and reconnect instrument lines to DPIC-7.
- _____ 14.21 Equalize DPIC-4 by opening High and Low side valves and disconnect instrument lines from system.
- _____ 14.22 Connect manometer and VTPS in accordance with manufacturer's instructions to high side of DPIC-4.
- _____ 14.23 Apply 1 inH₂O test input to DPIC-4 and place #2 filter branch key switch in "OFF." Start EF-1 and slowly decrease until Annunciator MSA-4A activates.
- 14.23.1 Verify the following when MSA-4A activates:
- _____ 14.23.1.1 MSA-4 alarms in Building 241-U-271.
- _____ 14.23.1.2 Exhaust Fan EF-1 has turned OFF.
- _____ 14.23.1.3 MOV-1 has CLOSED.
- _____ 14.23.1.4 HTC-2 has turned OFF using portable ammeter.
- NOTE: Acknowledge annunciator if necessary.
- _____ 14.24 Disconnect manometer and VTPS and reconnect instrument lines to DPIC-4.
- _____ 14.25 Place #3 filter branch key switch in "BYPASS" position.
- 14.26 In Filter Pit, assure the following equipment are in the indicated positions:
- _____ 14.26.1 U-19 is OPEN
- _____ 14.26.2 U-20 is OPEN

- _____ 14.26.3 U-21 is OPEN
- _____ 14.26.4 U-22 is OPEN
- _____ 14.26.5 U-23 is CLOSED
- _____ 14.26.6 U-24 is CLOSED
- _____ 14.27 Equalize DPIC-8 by opening High and Low side valves and disconnect instrument lines from system.
- _____ 14.28 Connect manometer and VTPS in accordance with manufacturer's instructions to high side of DPIC-8.
- _____ 14.29 Apply 1 inH₂O and slowly increase test input to DPIC-8 until Annunciator DPA-1A annunciates.
- _____ 14.29.1 Verify that DPA-1 in Building 241-U-271 has alarmed.
- NOTE: Acknowledge annunciators if necessary.
- _____ 14.30 Disconnect manometer and VTPS from DPIC-8 and reconnect instrument lines to DPIC-8.
- 14.31 Equalize DPIC-5 by opening High and Low side valves and disconnect instrument lines from system.
- _____ 14.32 Connect manometer and VTPS in accordance with manufacturer's instructions to high side of DPIC-5.
- _____ 14.33 Apply 1 inH₂O test input to DPIC-5 and place #3 filter branch key switch to "OFF." Start Exhaust Fan EF-1 and slowly decrease test pressure until Annunciator MSA-4A activates.
- 14.33.1 Verify the following when MSA-4A activates:
 - _____ 14.33.1.1 MSA-4 alarms in Building 241-U-271.
 - _____ 14.33.1.2 Exhaust Fan EF-1 has turned OFF.
 - _____ 14.33.1.3 MOV-1 has CLOSED.
 - _____ 14.33.1.4 HTC-2 has turned OFF using portable ammeter.
- NOTE: Acknowledge annunciators if necessary.
- _____ 14.34 Disconnect manometer and VTPS and reconnect lines to DPIC-5.
- 14.35 Set following valves in Filter Pit to "CLOSE" position:
 - _____ 14.35.1 Valve U-19.
 - _____ 14.35.2 Valve U-20.

- _____ 14.35.3 Valve U-21.
- _____ 14.35.4 Valve U-22.
- _____ 14.35.5 Valve U-23.
- _____ 14.35.6 Valve U-24.
- 14.36 Push MS-4 STOP button and verify:
- _____ 14.36.1 EF-1 is OFF.
- _____ 14.36.2 MOV-1 is CLOSED.
- _____ 14.37 OPEN CB's 1 _____, 2 _____, 6 _____, 11 _____, 12 _____, and 14 _____.

END OF SECTION

FIGURE 1
AIR SUPPLY SYSTEM

NOTE 3: SHUTS DOWN TRANSFER PUMP ON LOW PRESSURE

NOTE 6: SHUTS DOWN 241-U TK FARM SALT WELL PUMPS
ON HIGH LEVEL

FIGURE 2
TANK LEVEL SYSTEM

FIGURE 3
TRANSFER AND DILUTION CONTROL

NOTE 8: SHUTS DOWN TRANSFER PUMP ON FLUSH LINE
HIGH PRESSURE

FIGURE 4
FLUSH LINE PRESSURE

FIGURE 5
TANK EXHAUST TEMPERATURE

NOTE 12: SHUTS DOWN EXHAUST FAN EF-1, ON LOW DIFFERENTIAL PRESSURE ON BRANCH 1, BRANCH 2, OR BRANCH 3

FIGURE 6
TANK EXHAUST FILTRATION

FIGURE 7
EXHAUST FILTER DIFFERENTIAL PRESSURE

EXCEPTION NO.		Project No.		ATP No.		Rev.		
Recorded by			Organization		Date Recorded		ATP Page No.	
Step No.		Requirement						
Description of Problem								
Objector 1 (Name/Organization)				Objector 2 (Name/Organization)				
Planned Action								
Action Taken								
RETEST EXECUTION AND ACCEPTANCE								
Retest Installation Contractor		Date		Recorder		Date		
Witness 1 (Name/Organization)		Date		Witness 2 (Name/Organization)		Date		
Field Engineering		Date		Test Director (Name/Organization)		Date		
Design Engineering (Author of ATP)		Date		A-E Project Engineer		Date		
APPROVAL AND ACCEPTANCE – OPERATING CONTRACTOR								
☐ Retest Approved and Accepted ☐ Exception Accepted-as-is* ☐ Other*								
* Explanation								
Approver 1		Date		Approver 2		Date		
Approver 3		Date		Approver 4		Date		

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