

Sta. 21
JAN 30 1995

ENGINEERING DATA TRANSMITTAL

1 EDT 125409

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5. Proj/Prog/Dept/Div: C-018H		6. Cog/Proj Engr: D.E. Parrish		7. Purchase Order No: N/A	
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1	WHC-SD-C018H-ATP-002		0	Ecectrical/Instrumentation Acceptance Test Procedure for Project C-018H, 242-A Evaporator/PUREX Plant Condensate Treatment Facility	Q	1	1	2

RECEIVED
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16 KEY		
Impact Level (F)	Reason for Transmittal (G)	Disposition (H) & (I)
1, 2, 3, or 4 see MRP 5.43 and EP-1.7	1 Approval 2 Release 3 Information 4 Review 5 Post-Review 6 Dist (Receipt Acknow Required)	1 Approved 2 Approved w/comment 3 Disapproved w/comment 4 Reviewed no/comment 5 Reviewed w/comment 6 Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)											
(G)	(H)	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G)	(H)
1, 2	1, 2	Cog./Proj. Eng D.E. Parrish	<i>[Signature]</i>			N.J. Sullivan				3	
1, 2	1, 2	Cog./Proj. Eng. Mgr. J.J. Noble	<i>[Signature]</i>			OSTI (2 copies)		1/30/95			
1, 2	1, 2	QA T.D. Hays	<i>[Signature]</i>								
		Safety N/A									
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3		I.G. Papp									

18. D.E. Parrish <i>[Signature]</i> 1/30/95 Signature of EDT Originator Date		19. _____ Authorized Representative Date for Receiving Organization		20. J.J. Noble <i>[Signature]</i> 1/30/95 Cognizant/Project Engineer's Manager Date		21. DOE APPROVAL (if required) Ltr No. _____ <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments	
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MASTER

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Document Number: WHC-SD-C018H-ATP-002, Rev. 0

Document Title: Acceptance Test Procedure for C-018H, 242-A
Evaporator/PUREX Plant Process Condensate Treatment
Facility

Release Date: 1/30/95

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

V.L. Birkland

1/30/95

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SUPPORTING DOCUMENT

1. Total Pages 26

2. Title

Acceptance Test Procedure for C-018H, 242-A
Evaporator/PUREX Plant Process Condensate
Treatment Facility

3. Number

WHC-SD-C018H-ATP-
002

4. Rev No.

0

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6. Author

Name: D.E. Parrish

J. Bosch for DP 1/30/95
Signature

7FBSW
Organization/Charge Code CR9583

7. Abstract

8. RELEASE STAMP

OFFICIAL RELEASE
BY NAC
DATE JAN 26 1995
Sta. 21

TEST TITLE Electrical/InstrumentationLOCATION Bldg 242AL71PROJECT NUMBER C-018HWORK ORDER CR9583PROJECT TITLE 200 Area Effluent Treatment Facility

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>G.M. DeC...</u> Originator	<u>8-18-94</u> Date	<u>J. E. Breed</u> Technical Documents	<u>8/16/94</u> Date
<u>M.A. Friederich</u> Checker	<u>8-18-94</u> Date	<u>E. Lundgren</u> Safety	<u>8-17-94</u> Date
<u>R.L. Newell</u> Environmental	<u>8-19-94</u> Date	<u>T.D. Hays</u> Quality Engineering	<u>8-25-94</u> Date
<u>[Signature]</u> Project Management	<u>8-29-94</u> Date		

Westinghouse Hanford Company (WHC)

<u>[Signature]</u> Projects Department	<u>8/30/94</u> Date	<u>[Signature]</u> Quality Assurance	<u>8-30-94</u> Date
<u>[Signature]</u> Safety	<u>8/31/94</u> Date	<u>[Signature]</u> Operations	<u>9-26-94</u> Date
<u>N/A</u>		<u>N/A</u>	
<u>Hanford Fire Department {as reqd}</u>	<u>Date</u>	<u>Security {as reqd}</u>	<u>Date</u>
<u>N/A</u>			
<u>Emergency Director {as reqd}</u>	<u>, Date</u>		

PROCEDURE RELEASE

US Department of Energy (DOE)

<u>A.R. Meyer</u> Construction Division	<u>8/30/94</u> Date
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C018H002.ATP.2499

- 1 -

WHC-SD-C018H-ATP-002
Rev 0
08/16/94

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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 (ICF KH)

Without exceptions _____ With exceptions resolved _____ With exceptions outstanding _____

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

TEST APPROVAL AND ACCEPTANCE

Westinghouse Hanford Company (WHC)

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 Electrical/Instrumentation systems function as required by project criteria.

2 REFERENCES

2.1 DRAWINGS

- H-2-88765, Sh 1, Rev 0 P & ID - SYMBOLS & LEGEND C-018H INFLUENT SYSTEM
- H-2-88766, Sh 1, Rev 0 P & ID - 242A EVAP & C-018H INFLUENT SYSTEM
- H-2-88766, Sh 2, Rev 0 P & ID - LIQUID EFFLUENT RET FACIL & C-018H INFLUENT SYSTEM
- H-2-88766, Sh 3, Rev 0 P & ID - LIQUID EFFLUENT RET FACIL & C-018H INFLUENT SYSTEM
- H-2-88766, Sh 4, Rev 0 P & ID - LIQUID EFFLUENT RET FACIL & C-018H INFLUENT SYSTEM
- H-2-88810, Sh 1, Rev 0 ELECTRICAL/INSTM/CIVIL - INSTRUMENTATION BUILDING INSTM CND ROUTING PLAN
- H-2-88810, Sh 2, Rev 0 ELECTRICAL/INSTM/CIVIL - INSTRUMENTATION BUILDING PLANS, SECT & ELEVATIONS
- H-2-88810, Sh 3, Rev 0 ELECTRICAL/INSTM/CIVIL - INSTRUMENTATION BUILDING PLAN, SECT, EL, DET & DIAG
- H-2-88811, Sh 1, Rev 0 INSTRUMENTATION - INSTALLATION DETAILS LCU55M-17
- H-2-88812, Sh 1, Rev 0 INSTRUMENTATION - LDE INSTALLATION SECT, DET, & ELEVATIONS
- H-2-88812, Sh 2, Rev 0 INSTRUMENTATION - LDE INSTALLATION PLANS, SECTIONS & DETAILS
- H-2-88812, Sh 3, Rev 0 INSTRUMENTATION - LDE INSTALLATION SECT, DET, & ELEVATIONS
- H-2-88813, Sh 1, Rev 0 ELECTRICAL/INSTM - INTERCONN & WIRING DIAG LERF INSTM BLDG
- H-2-88813, Sh 2, Rev 0 ELECTRICAL/INSTM - INTERCONN & WIRING DIAG LERF INSTM BLDG
- H-2-99059, Sh 13, Rev 1 INSTM - INTERCONN DIAGRAM

2.2 SPECIFICATIONS

- C-018H-C6, Rev 0 Construction Specification
- C-018H-P3, Rev 0 Procurement Specification

2.3 ZONE MAPS - For sensor location and zone identification.

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 Area Manager.

3.2.3 Acts as liaison between the participants in acceptance testing.

3.2.4 Distributes the approved testing schedule before start of testing.

3.2.5 Schedules and conducts a pretest kickoff meeting with test participants when necessary.

3.2.6 Notifies the persons performing and witnessing the test 2 days before the start of testing.

3.2.7 Schedules a dry run when necessary.

3.2.8 Notifies concerned parties when a change is made in the testing schedule.

3.2.9 Signs Execution and Test Approval page when test is approved and accepted.

3.2.10 Takes necessary action to clear exceptions to the test.

3.2.11 Signs Exception Form when exception has been resolved.

3.2.12 Provides a distribution list for the approved and accepted ATP(ATR).

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.)
 - 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 KEH)
 - 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 KEH Procedure CON 3.5 (Performance and Recording of Acceptance Test Procedures).

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 CHANGE CONTROL).

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 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 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 start of 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 A Prejob Safety Analysis has been prepared and a Prejob Safety Meeting has been conducted.
- 7.1.4 Test instruments have a valid calibration stamp attached. Test instrument identification numbers and calibration expiration dates have been recorded in Para 7.2.
- 7.1.5 Methods of water disposal have been approved by Facilities Management.
- 7.1.6 Power is available.
- 7.1.7 Voice communications are available between:
 - 7.1.7.1 242A Evaporator Control Room and:
 - a. LDE A1-07
 - b. LDE A1-08
 - c. LDE A1-09
 - d. LDE A1-10
 - 7.1.7.2 Building 242AL71 and:
 - a. LDE 60M01A
 - b. LDE 60M01B
 - c. LDE 60M01C
 - d. LDE 60M01D
 - e. Catch Basin 242AL-42
 - f. Catch Basin 242AL-43
 - g. Catch Basin 242AL-44

7.2 EQUIPMENT/INSTRUMENTS

Supplied by Test Operator unless otherwise noted.

- 7.2.1 Voltohmmeter: Fluke 8024B multimeter or equivalent.

Instrument No. _____ Expiration Date _____

7.2.2 Container: 1-gallon container, 6-inch depth, for leak detector tests.

7.2.3 Loop Calibrator: Portable multifunction calibrator.

Instrument No. _____ Expiration Date _____

7.2.4 Heat gun.

7.3 ABBREVIATIONS

ECN	Engineering Change Notice
ETF	Effluent Treatment Facility
LCU	Local Control Unit
LDE	Leak Detection Element
LDU	Leak Detection Unit
LERF	Liquid Effluent Retention Facility

The LDU-A1, located in the 242A control room, is the leak detection unit that monitors the existing leak detectors, LDE-A1-01 through LDE-A1-08, in the evaporator transfer line, 3"-EVAP COND-PC5000-M17, to LERF, Line 8"-EVAP COND-PC5010 M17 between Basins 242AL-42 and 242AL-43, and Line 8"-EVAP COND-PC5005-M17 between Basins 242AL-43 and 242AL-44. LDE-A1-07 and LDE-A1-08 wiring will be modified by the installation of Leak Detectors LDE-60M01C and LDE-60M01D. LDE-A1-09 and LDE-A1-10 will be added to the existing system to monitor the extension of the line from LERF to the ETF.

Leak Detectors LDE-A1-08 through LDE-A1-10 and LDU-A1 will be tested to verify that the Leak Detection System functions correctly.

Reference Drawings: H-2-88766, Sh 1, 3, and 4, and H-2-99059, Sh 13.

8.1 PREPARATION

_____ 8.1.1 Verify all prerequisites of Para 7.1 have been met.

_____ 8.1.2 Verify power to LDU-A1

NOTE: If unit has been in OFF state, wait 5 minutes to allow temperature to stabilize. If an alarm is observed, press the ACKNOWLEDGE button.

_____ 8.1.3 Notify 242A Evaporator Building Manager.

_____ 8.1.4 Notify building occupants. State whether evacuation is required.

NOTE: Keep appropriate personnel informed as to test status.

8.2 LEAK DETECTION HARDWARE VERIFICATION

This test will verify that the new and modified leak detectors and the Leak Detection System will function as required. Record the following steps for the items shown on Data Sheet 8.2.

8.2.1 Disconnect Wire LDA-A1-13 and common jumper from Terminal Points 13 and 14 of LDU-A1.

8.2.2 Disconnect Wires LDI-A1-(+) and LDI-A1-(-) from Terminal Points 11 and 12 of LDU-A1.

8.2.3 Press the TEST Button.

NOTE: Button will be released in Step 8.2.7.

8.2.4 Verify alarm SOUNDS.

8.2.5 Verify Yellow, Red, and Green LEDs are ON.

8.2.6 Verify LDU-A1 display shows "188".

8.2.7 Release TEST button.

- 8.2.8 Verify alarm is SILENT.
- 8.2.9 Verify Red LED is OFF.
- 8.2.10 Verify Yellow LED is OFF.
- 8.2.11 Remove Sensor LDE-A1-07 from riser.
- 8.2.12 Verify with ohmmeter that the resistance is approximately 0 ohms across Terminal Points 13 and 14 (closed contact).
- 8.2.13 Verify with loop calibrator that the current from "Analog Interface 4-20mA Transmitter" (Terminal Points 11 to 12) is 0.0 ± 0.10 mA.
- 8.2.14 Immerse Sensor Cable LDE-A1-07 in container filled with water.
- 8.2.15 Verify Red LED comes ON.
- 8.2.16 Verify alarm SOUNDS.
- 8.2.17 Press ACKNOWLEDGE button.
- 8.2.18 Verify alarm is SILENT.
- 8.2.19 Record zone number displayed at LDU-A1.
- 8.2.20 Verify resistance is approximately infinite across Terminal Points 13 and 14 (open contact).
- 8.2.21 Record current (mA) at Terminal Points 11 and 12.
- 8.2.22 Remove sensor cable from water and dry.
- 8.2.23 Verify red LED is OFF.
- 8.2.24 Press UPDATE button.
- 8.2.25 Verify LDU-A1 display is BLANK.
- 8.2.26 Verify resistance is approximately 0 ohms across Terminal Points 13 and 14 (closed contact).
- 8.2.27 Verify current at Terminal Points 11 and 12 is 0.0 ± 0.10 mA.
- 8.2.28 Reterminate Wires LDI-A1-13 and common wire to Terminal Points 13 and 14 of LDU-A1.
- 8.2.29 Reterminate Wires LDI-A1-(+) and LDI-A1-(-) to Terminal Points 11 and 12 of LDU-A1.
- 8.2.30 Replace sensor in riser, install gasket cover, and secure cover to swab riser.

DATA SHEET 8.2

STEP	PERFORM/VERIFY	LEAK DETECTION SENSORS LDE-A1-			
		07	08	09	10
8.2.1	Disconnect Terminal Points 13 and 14.				
8.2.2	Disconnect Terminal Points 11 and 12.				
8.2.3	Press the TEST Button.				
8.2.4	Alarm SOUNDS.				
8.2.5	Yellow, Red, and Green LEDs are ON.				
8.2.6	LDU-A1 display shows "188".				
8.2.7	Release TEST button.				
8.2.8	Alarm is SILENT.				
8.2.9	Red LED is OFF.				
8.2.10	Yellow LED is OFF.				
8.2.11	Remove sensor from riser.				
8.2.12	Resistance across Terminal Points 13 and 14 is approximately 0 ohms.				
8.2.13	Current from Terminal Points 11 to 12 is 0.0 ± 0.10 mA.				
8.2.14	Immerse sensor cable in water.				
8.2.15	Red LED ON.				
8.2.16	Alarm SOUNDS.				
8.2.17	Press ACKNOWLEDGE button.				
8.2.18	Alarm is SILENT.				
8.2.19	Zone number displayed at LDU-A1.				

DATA SHEET 8.2 (cont)

STEP	PERFORM/VERIFY	LEAK DETECTION SENSORS LDE-A1-			
		07	08	09	10
8.2.20	Resistance across Terminal Points 13 and 14 is infinite.				
8.2.21	Record current at Terminal Points 11 and 12 (mA).				
8.2.22	Remove sensor cable from water and dry.				
8.2.23	Red LED is OFF.				
8.2.24	Press UPDATE button.				
8.2.25	LDU-A1 display is BLANK.				
8.2.26	Resistance across Terminal Points 13 and 14 is approximately 0 ohms.				
8.2.27	Current at Terminal Points 11 and 12 is 0.0 ± 0.10 mA.				
8.2.28	Retermine Wire LDA-A1-13 and common wire to Terminal Points 13 and 14 of LDU-A1.				
8.2.29	Retermine Wire LDI-A1-(+) and LDI-A1-(-) to Terminal Points 11 and 12 of LDU-A1.				
8.2.30	Replace sensor in riser, install gasket cover, and secure cover to swab riser.				

END OF SECTION 8

9 LEAK DETECTION SYSTEM TRANSFER LINES 8"-EVAP COND-PC5010-M17, 8"-EVAP COND-PC5005-M17, AND 4"-60M-002-M17

LDS/LXA 60M01A, B, C, and D located in instrument building 242AL71 are the leak detection units that monitor Leak Detectors LDE 60M01A through LDE 60M01D, in Catch Basins 43 and 44, and the LERF transfer line, 4"-60M-002-M17.

Leak Detectors LDE 60M01A through LDE 60M01D and LDS/LXA 60M01A through LDS/LXA 60M01D will be tested to verify that the Leak Detection System functions correctly.

Reference Drawings: H-2-88766, Sh 3 and 7, H-2-88813, Sh 1, and H-2-88818, Sh 1.

9.1 PREPARATION

9.1.1 Verify all prerequisites of Para 7.1 have been met.

9.1.2 Verify power to all LDS/LXAs

NOTE: If units have been in OFF state, wait 5 minutes to allow temperature to stabilize. If an alarm is observed, press the ACKNOWLEDGE button.

9.2 LEAK DETECTION HARDWARE VERIFICATION

This test will verify that the new leak detectors and the LDS/LXAs will function as required. Record the following steps for the items shown on Data Sheet 9.2.

9.2.1 Disconnect Wires A9-H and A9-7 from LCU-55M-17 Terminal Points 13 and 14.

9.2.2 Disconnect Wires A9-H and A9-8 from LCU-55M-17 Terminal Points 16 and 17.

9.2.3 Verify Red LED is OFF.

9.2.4 Verify with ohmmeter that resistance is approximately 0 ohms across Terminal Points 13 and 14 (closed contact).

9.2.5 Verify resistance is approximately 0 ohms across Terminal Points 16 and 17 (closed contact).

9.2.6 Remove Sensor LDE 60M01A from riser.

9.2.7 Immerse Sensor Cable LDE 60M01A in water.

9.2.8 Verify Red LED comes ON.

9.2.9 Verify alarm SOUNDS.

9.2.10 Press ACKNOWLEDGE button.

9.2.11 Verify alarm is SILENT.

- 9.2.12 Verify resistance is approximately infinite across Terminal Points 13 and 14 (open contact).
- 9.2.13 Remove sensor cable from water and dry.
- 9.2.14 Press RESET button.
- 9.2.15 Verify resistance is approximately 0 ohms across Terminal Points 13 and 14 (closed contact).
- 9.2.16 Verify Red LED is OFF.
- 9.2.17 Disconnect sensing cable for Terminal Points 2, 3, 4, and 5.
- 9.2.18 Verify alarm SOUNDS.
- 9.2.19 Press ACKNOWLEDGE button.
- 9.2.20 Verify alarm is SILENT.
- 9.2.21 Verify resistance is approximately infinite across Terminal Points 16 and 17 (open contact).
- 9.2.22 Reconnect Wires A9-H and A9-7 to Terminal Points 13 and 14 of LCU55M-17.
- 9.2.23 Reconnect Wires A9-H and A9-8 to Terminal Points 16 and 17 of LCU55M-17.
- 9.2.24 Replace sensor in riser, install gasket cover, and secure cover to swab riser.

DATA SHEET 9.2

STEP	PERFORM/VERIFY	LEAK DETECTION UNIT/SENSOR LXA/LDA/LDE 60M01			
		A	B	C	D
9.2.1	Disconnect Wires A9-H and A9-7 from LCU55M-17.				
9.2.2	Disconnect wires A9-H and A9-8 from LCU55M-17.				
9.2.3	Red LED is OFF.				
9.2.4	Resistance is approximately 0 ohms across Terminal Points 13 and 14.				
9.2.5	Resistance is approximately 0 ohms across Terminal Points 16 and 17.				
9.2.6	Remove sensor from riser.				
9.2.7	Immerse sensor cable in water.				
9.2.8	Red LED comes ON.				
9.2.9	Alarm SOUNDS.				
9.2.10	Press ACKNOWLEDGE button.				
9.2.11	Verify alarm is SILENT.				
9.2.12	Resistance is approximately infinite across Terminal Points 13 and 14.				
9.2.13	Remove sensor cable from water.				
9.2.14	Press RESET button.				
9.2.15	Resistance is approximately 0 ohms across Terminal Points 13 and 14.				
9.2.16	Verify Red LED is OFF.				
9.2.17	Disconnect Sensing cable.				

DATA SHEET 9.2 (cont)

STEP	PERFORM/VERIFY	LEAK DETECTION UNIT/SENSORS LDS/LXA/LDE 60M01			
		A	B	C	D
9.2.18	Alarm SOUNDS.				
9.2.19	Press ACKNOWLEDGE button.				
9.2.20	Verify alarm is SILENT.				
9.2.21	Resistance is approximately infinite across Terminal Points 16 and 17.				
9.2.22	Reconnect Wires A9-H and A9-7 to LCU55M-17.				
9.2.23	Reconnect Wires A9-H and A9-8 to LCU55M-17.				
9.2.24	Replace sensor in riser, install gasket cover, and secure cover.				

END OF SECTION 9

10 LERF PUMP FLOW SWITCH FSL P42-4-1, P43-4-1, AND P44-4-1

FSL P42-4-1, P43-4-1, P44-4-1 are located in lines RB-R-42-5, RB-R-43-5, and RB-R-44-5. Each flow switch monitors effluent flow from LERF Pump P-42-4, P-43-4, or P-44-4 and shuts the pump down on low flow.

FSL P42-4-1, P43-4-1, P44-4-1 will be tested to verify that each functions correctly.

Reference Drawings: H-2-88766, Sh 2 through 4 and H-2-88818, Sh 1.

10.1 PREPARATION

_____ 10.1.1 Verify all prerequisites of Para 7.1 have been met.

_____ 10.1.2 Verify power to all FSLs is disconnected

10.2 FLOW SWITCH FSL P*-4-1 VERIFICATION (P* = P42, P43, or P44)

This test will verify that the new flow switches will function as required. Record the following steps for the items shown on Data Sheet 10.2.

10.2.1 Disconnect Wires A9-H and A9-4 from LCU55M-17.

10.2.2 Verify with ohmmeter that resistance is approximately 0 ohms across Terminal Points 1 and 2 (closed contact).

10.2.3 Verify resistance is approximately infinite ohms across Terminal Points 3 and 4 (open contact).

10.2.4 Remove FSL P*-4-1 from pipe RB-R-42-5.

10.2.5 Move flow switch actuating vane to the FLOW position.

10.2.6 Verify resistance is approximately infinite ohms across Terminal Points 1 and 2 (open contact).

10.2.7 Verify resistance is approximately 0 ohms across Terminal Points 3 and 4 (closed contact).

10.2.8 Install FSL P*-4-1 in pipe RB-R-42-5.

10.2.9 Reterminate Wires A9-H and A9-4 to LCU55M-17.

DATA SHEET 10.2

STEP	PERFORM/VERIFY	FLOW SWITCH		
		P42	P43	P44
10.2.1	Flow switch is disconnected from LCU55M-17 and pump P*-4-4.			
10.2.2	Resistance is approximately 0 ohms across Terminal Points 1 and 2			
10.2.3	Resistance is approximately infinite ohms across Terminal Points 3 and 4.			
10.2.4	Remove flow switch from pipe.			
10.2.5	Actuating vane in the FLOW position.			
10.2.6	Resistance is approximately infinite ohms across Terminal Points 1 and 2.			
10.2.7	Resistance is approximately 0 ohms across Terminal Points 3 and 4.			
10.2.8	Install flow switch in pipe.			
10.2.9	Reterminate LOW FLOW ALARM to LCU55M-17 and LOW FLOW INDICATION to pump.			

END OF SECTION 10

11 LERF PUMP LEVEL CONTROL VALVE LV P42-4-1, P43-4-1, AND P44-4-1

LV P42-4-1, P43-4-1, P44-4-1 are located in lines RB-R-42-5, RB-R-43-5, and RB-R-44-5. Each Level Control Valve throttles LERF Pump P-42-4, P-43-4, or P-44-4 flow based on a 4-20 mA control signal from the ETF surge tank level controller in LCU55M-17. Valve position is then output to LCU55M-17 through 4-20 mA transmitters ZT P42-4-1, P43-4-1, or P44-4-1.

LV P42-4-1, P43-4-1, P44-4-1 and ZT P42-4-1, P43-4-1, and P-44-4-1 will be tested to verify that each functions correctly.

Reference Drawings: H-2-88766, Sh 2 through 4 and H-2-88813, Sh 1.

11.1 PREPARATION

11.1.1 Verify all prerequisites of Para 7.1 have been met.

11.1.2 Verify power to Valve actuator and Transmitter.

11.2 LEVEL CONTROL LV P*-4-1 VALVE VERIFICATION (P* = 42, 43, or 44)

This test will verify that the new level control valves and their position indicating transmitters will function as required. Record the following steps for the items shown on Data Sheet 11.2.

11.2.1 Verify level control valve LV P*-4-1 Wires LV P*-4-1(+) and LV P*-4-1(-) are disconnected from LCU55M-17.

11.2.2 Verify valve position transmitter ZT P*-4-1 Wires ZTP*-4-1(+) and ZTP*-4-1(-) are disconnected from LCU55M-17.

11.2.3 Terminate Valve Control Wires LV P*-4-1(+) and LV P*-4-1(-) to output terminals of Loop Calibrator.

11.2.4 Terminate Valve Position Wires ZTP*-4-1(+) and ZTP*-4-1(-) to input of Loop Calibrator.

11.2.5 Set loop calibrator to 4.00 mA output.

11.2.6 Verify current from transmitter is 4.0 mA \pm 0.5 mA.

11.2.7 Visually verify valve is at FULL CLOSED position.

11.2.8 Set loop calibrator to 12.00 mA output.

11.2.9 Verify current from transmitter is 12.0 mA \pm 0.5 mA.

11.2.10 Visually verify valve is at HALF OPEN position.

11.2.11 Set loop calibrator to 20.00 mA output.

11.2.12 Verify current from transmitter is 20.0 mA \pm 0.5 mA.

- 11.2.13 Visually verify valve is at FULL OPEN position.
- 11.2.14 Disconnect wires from loop calibrator.
- 11.2.15 Reterminate Wires LV P*-4-1(+) and LV P*-4-1(-) to LCU55M-17.
- 11.2.16 Reterminate Wires ZTP*-4-1(+) and ZTP*-4-1(-) to LCU55M-17.

DATA SHEET 11.2

STEP	PERFORM/VERIFY	LEVEL CONTROL VALVE LV/ZT		
		P42	P43	P44
11.2.1	Control signal wires are disconnected from LCU55M-17.			
11.2.2	Position transmitter wires are disconnected from LCU55M-17.			
11.2.3	Control signal wires terminated on Loop Calibrator output.			
11.2.4	Position transmitter wires terminated on Loop Calibrator input.			
11.2.5	Loop calibrator output set to 4.00 mA.			
11.2.6	Transmitter current is 4.0 mA \pm 0.5 mA.			
11.2.7	Valve is at FULL CLOSED position.			
11.2.8	Loop calibrator output set to 12.00 mA.			
11.2.9	Transmitter current is 12.0 mA \pm 0.5 mA.			
11.2.10	Valve is at HALF OPEN position.			
11.2.11	Loop calibrator output set to 20.00 mA.			
11.2.12	Transmitter current is 20.0 mA \pm 0.5 mA.			
11.2.13	Valve is at FULL OPEN position.			
11.2.14	Disconnect wires from loop calibrator.			
11.2.15	Retermine control signal wires to LCU55M-17.			
11.2.16	Retermine position transmitter wires to LCU55M-17.			

END OF SECTION 11

12 BUILDING 242AL71 ROOM AIR TEMPERATURE MONITOR

TT 60M4302 and an integral temperature sensing element is located on the west wall of building 242AL71. The temperature transmitter transmits a 4-20 mA signal related to room air temperature to LCU55M-17.

TT 60M4302 and the temperature sensing element will be tested to verify that each functions correctly.

Reference Drawings: H-2-88766, Sh 2 and H-2-88813, Sh 1.

12.1 PREPARATION

_____ 12.1.1 Verify all prerequisites of Para 7.1 have been met.

12.2 ROOM AIR TEMPERATURE MONITOR VERIFICATION

This test will verify that the new room air temperature monitor will function as required.

_____ 12.2.1 Verify temperature transmitter TT 60M4302 Wires TT60M43-1(+) and TT60M43-1(-) are disconnected from LCU55M-17.

_____ 12.2.2 Terminate TT60M43-1(+) and TT60M43-1(-) to Loop Calibrator.

_____ 12.2.3 Verify 24 V dc loop power is ON.

_____ 12.2.4 Verify and record mA reading from loop calibrator display.

_____ 12.2.5 Use heat gun to apply heated air to outside of wall mounted module.

CAUTION: Do not overheat wall mounted module as plastic frame may be affected.

_____ 12.2.6 Visually verify that mA reading on loop calibrator increases as the integral temperature element is heated.

_____ 12.2.7 Remove heat from wall mounted module.

_____ 12.2.8 Visually verify that mA reading on loop calibrator stabilizes and begins to decrease as the wall mounted unit cools.

_____ 12.2.9 Terminate temperature transmitter Wires TT60M43-1(+) and TT60M43-1(-) to LCU55M-17.

END OF SECTION 12

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							
<input type="checkbox"/> Retest Approved and Accepted			<input type="checkbox"/> Exception Accepted-as-is*			<input type="checkbox"/> Other*	
* Explanation:							
Approver 1		Date		Approver 2		Date	
Approver 3		Date		Approver 4		Date	

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