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Electrical/Instrumentation Acceptance Test Report
Report for Project C-018H, 242-A Evaporator/PUREX
Plant Condensate Treatment Facility

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002

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6. Author

Name: R. A. Compau, Jr.

Signature *for R.A.C.* *5/30/95*

Signature
8KB50/APM18

Organization/Charge Code

7. Abstract

This report documents ATP-002, Electrical Instrumentation equipment for the Project C-018H Collection System.

8. RELEASE STAMP

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DATE **6-1-95**
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Document Number: WHC-SD-C018H-ATR-002, Rev. 0

Document Title: Electrical/Instrumentation Acceptance Test Report
for Project C-018H, 242-A Evaporator/PUREX Plant
Condensate Treatment Facility

Release Date: May 31, 1995

**This document was reviewed following the
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TEST TITLE Electrical/InstrumentationLOCATION Bldg 242AL71PROJECT NUMBER C-018H - 26WORK 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>GPMDC for C. Nicholas</u>	<u>8-18-94</u>	<u>J E Breed</u>	<u>8/16/94</u>
Originator	Date	Technical Documents	Date
<u>M.A. Friedrich</u>	<u>8-18-94</u>	<u>E Lundgren</u>	<u>8-17-94</u>
Checker	Date	Safety	Date
<u>R.L. Newell</u>	<u>8-19-94</u>	<u>TD Hays</u>	<u>8-25-94</u>
Environmental	Date	Quality Engineering	Date
<u>D. Mason</u>	<u>8-29-94</u>		
Project Management	Date		

Westinghouse Hanford Company (WHC)

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

PROCEDURE RELEASE

US Department of Energy (DOE)

<u>D. R. Meizer</u>	<u>8/30/94</u>
Construction Division	Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

<u>Jeff Faunce</u> Test Director/Organization JEFF FAUNCE ICF KH	<u>1-31-95</u> Date	<u>David Hall Elect</u> Test Operator/Organization	<u>1-31-95</u> Date
<u>Mark N Brown / Kirk Kohler</u> Recorder/Organization MARK BROWN ICF KH / KIRK KOHLER	<u>1-31-95</u> Date		

WITNESSES

<u>A. K. VOGT</u> Witness/Organization	<u> </u> Date	<u>Mark N Brown</u> Title III Inspector	<u>1-31-95</u> Date
<u>DALE E. PARRISH D. Parrish</u> Witness/Organization	<u>1-31-95</u> Date	<u>MARK BROWN N/A</u> Witness/Organization	<u> </u> Date

A-E APPROVAL

ICF Kaiser Hanford Company (ICF KH)

Without exceptions <u>X</u>	With exceptions resolved <u> </u>	With exceptions outstanding <u> </u>
<u>W. S. Roe</u> Acceptance Inspection	<u>5/17/95</u> Date	<u>Arthur M. Nichol</u> Design Engineer
<u> </u> Project Manager	<u>5/23/95</u> Date	<u>5/24/95</u> Date

TEST APPROVAL AND ACCEPTANCE

Westinghouse Hanford Company (WHC)

Without exceptions <u>X</u>	With exceptions resolved <u> </u>	With exceptions outstanding <u> </u>
<u> </u> <Title or Department>	<u>5/23/95</u> Date	<u> </u> <Title or Department>
<u>CVT Projects</u> <Title or Department>	<u>5/23</u> Date	<u> </u> <Title or Department>
		<u> </u> Date

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Prep. By CM Nickolaus		Ck. By [Signature]	

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

ADD & REVISE

ECN No. C-018H-101		Page 4/12	
Ref. Dwg. WHC-SD-C018H-ATR-002		Sh. 3	Rev. 0
Prep. By Cm Nickolaus		Ckd. By C. J. Mammie	

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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

ECN No.	C-018H-101	Page	5/12
Ref. Dwg.	DOC. WHC-SD-C018H-ATP-002	Sh.	4
Rev.	0		
Prep. By	Cm Nickolaus	Chd. By	Lyda Mamio

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
H-2-79653, Sh 2, Rev 2	INSTM - UHF/PLC - WIRING DIAGRAM

ADD

2.2 SPECIFICATIONS

C-018H-C6, Rev 0 Construction Specification

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
 - e. Catch Basin 242AL-42
 - f. Catch Basin 242AL-43
 - g. Catch Basin 242AL-44
 - 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
- 7.1.8 If required, Obtain energized work permit prior to working with EQUIPMENT/INSTRUMENTS Energized wires. ECN No. C-018H-99
- 7.2 Supplied by Test Operator unless otherwise noted.
 - 7.2.1 Voltohmmeter: Fluke 8024B multimeter or equivalent.
Instrument No. S.N. 5330061 Expiration Date 3-95

- ECN No.
C-018H-101

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 ^{4/5/95}~~4/5/95~~

7.2.4 Heat gun.

^{WHC 817-13-20-024}

^{RECAL'D}

^{BI-LOG VOM BL183 S/N 33620 CH. NR 2/96}

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-A1-07 through LDE-A1-10 and LDU-A1 will be tested to verify that the Leak Detection System functions correctly. **REVISE**

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

8.1 PREPARATION

2/1/95 8.1.1 Verify all prerequisites of Para 7.1 have been met. 4/27/95

2/1/95 8.1.2 Verify power to LDU-A1. 4/27/95

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.

2/1/95 8.1.3 Notify 242A Evaporator Building Manager. 4/27/95

2/1/95 8.1.4 Notify building occupants. State whether evacuation is required. 4/27/95

NOTE: Keep appropriate personnel informed as to test status.

2/1/95 8.1.5 Notify Evaporator MCS operator that test may cause MCS alarms to sound. 4/27/95

> 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 Yellow, Red, and Green LEDs are ON.

8.2.5 Verify LDU-A1 display shows "188".

8.2.6 Release TEST button.

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Prep. By C. M. Nikolaus	Chk. By C. M. Nikolaus	08/16/94

- 8.2.7 Verify Red LED is OFF.
- 8.2.8 Verify Yellow LED is OFF.
- 8.2.9 Remove Sensor LDE-A1-07 from riser.
- 8.2.10 Verify with ohmmeter that the resistance is approximately 0 ohms across Terminal Points 13 and 14 (closed contact).
- 8.2.11 Verify with loop calibrator that the current from "Analog Interface 4-20mA Transmitter" (Terminal Points 11 to 12) is 0.0 ± 0.10 mA.
- 8.2.12 Immerse Sensor Cable LDE-A1-07 in container filled with water.
- 8.2.13 Verify Red LED comes ON.
- 8.2.14 Record zone number displayed at LDU-A1.
- 8.2.15 Press ACKNOWLEDGE button.
- 8.2.16 Verify resistance is approximately infinite across Terminal Points 13 and 14 (open contact).
- 8.2.17 Record current (mA) at Terminal Points 11 and 12.
- 8.2.18 Remove sensor cable from water and dry.
- 8.2.19 Verify Red LED is OFF.
- 8.2.20 Press UPDATE button.
- 8.2.21 Verify LDU-A1 display is BLANK.
- 8.2.22 Verify resistance is approximately 0 ohms across Terminal Points 13 and 14 (closed contact).
- 8.2.23 Verify current at Terminal Points 11 and 12 is 0.0 ± 0.10 mA.
- 8.2.24 Repeat steps 8.2.11 to 8.2.27 as necessary to test leak detectors LDE-A1-07, 08, 09, and 10.
- 8.2.25 Reterminate Wires LDI-A1-13 and common jumper to Terminal Points 13 and 14 of LDU-A1.
- 8.2.26 Reterminate Wires LDI-A1-(+) and LDI-A1-(-) to Terminal Points 11 and 12 of LDU-A1.
- 8.2.27 Replace sensor in riser, install gasket cover, and secure cover to swab riser.

REVISE

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Prep. By C. Nickolaus		Chk. By C. J. Mammie	

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.	NK	NK	NK	NK
8.2.2	Disconnect Terminal Points 11 and 12.	NK	NK	NK	NK
8.2.3	Press the TEST Button.	NK	NK	NK	NK
8.2.4	Yellow, Red, and Green LEDs are ON.	NK	NK	NK	NK
8.2.5	LDU-A1 display shows "188".	NK	NK	NK	NK
8.2.6	Release TEST button.	NK	NK	NK	NK
8.2.7	Red LED is OFF.	NK	NK	NK	NK
8.2.8	Yellow LED is OFF.	NK	NK	NK	NK
8.2.9	Remove sensor from riser.	NK	NK	NK	NK
8.2.10	Resistance across Terminal Points 13 and 14 is approximately 0 ohms.	NK	NK	NK	NK
8.2.11	Current from Terminal Points 11 to 12 is 0.0 ± 0.10 mA.	NK	NK	NK	NK
8.2.12	Immerse sensor cable in water.	NK	NK	NK	NK
8.2.13	Red LED ON.	NK	NK	NK	NK
8.2.14	Zone number displayed at LDU-A1 for LDE A1-07 <u>9</u> , -08 <u>9</u> , -09 <u>10</u> , -10 <u>11</u> .	5-17-95 96218	5-17-95 96218	5-17-95 96218	5-17-95 96218
8.2.15	Press ACKNOWLEDGE button.	NK	NK	NK	NK

REVISE

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Prep. By C. Nickolaus		Ckd. By C. Nickolaus	

DATA SHEET 8.2 (cont)

STEP	PERFORM/VERIFY	LEAK DETECTION SENSORS LDE-A1-			
		07	08	09	10
8.2.16	Resistance across Terminal Points 13 and 14 is infinite.	∞	∞	∞	∞
8.2.17	Record current at Terminal Points 11 and 12 for LDE A1-07____, -08____, -09____, -10____ (mA).	6.62 MADE	6.45 MADE	7.29 MADE	7.63 MADE
8.2.18	Remove sensor cable from water and dry.	NK	NK	NK	NK
8.2.19	Red LED is OFF.	NK	NK	NK	NK
8.2.20	Press UPDATE button.	NK	NK	NK	NK
8.2.21	LDU-A1 display is BLANK.	NK	NK	NK	NK
8.2.22	Resistance across Terminal Points 13 and 14 is approximately 0 ohms.	0.4 Ω	0.4 Ω	0.5 Ω	0.4 Ω
8.2.23	Current from Terminal Points 11 and 12 (mA)?	0 MADE	0 MADE	0 MADE	0 MADE
8.2.24	Repeat steps 8.2.11 to 8.2.27 as necessary to test leak detectors LDE-A1-07, 08, 09, and 10.	NK	NK	NK	NK
8.2.25	Reterminate Wire LDA-A1-13 and common jumper to Terminal Points 13 and 14 of LDU-A1.	N/A	N/A	N/A	NK
8.2.26	Reterminate Wire LDI-A1-(+) and LDI-A1-(-) to Terminal Points 11 and 12 of LDU-A1.	N/A	N/A	N/A	NK
8.2.27	Replace sensor in riser, install gasket cover, and secure cover to swab riser.	N/A	N/A	N/A	NK

NK ENTIRE PAGE 4/27/95

REVISE

END OF SECTION 8

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Prep By	cm Nicklaus	Ord By	cm Nicklaus

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

~~14~~ 2/1/95 9.1.1 Verify all prerequisites of Para 7.1 have been met.

~~14~~ 2/1/95 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 RESET 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 (* = 7, 9, 11, or 13 and # = 8, 10, 12, or 14).

9.2.1 Disconnect Wires A9-F*C and A9-F*B from LCU 55M17 Terminal Points TS-F-*C and TS-F-*B

9.2.2 Disconnect Wires A9-F#C and A9-F#B from LCU 55M17 Terminal Points TS-F-#C and TS-F-#B.

9.2.3 Verify Red LED is OFF.

REVISE

9.2.4 Verify with ohmmeter that resistance is approximately 0 ohms across Wires A9-F*C and A9-F*B (closed contact).

9.2.5 Verify resistance is approximately 0 ohms across Wires A9-F#C and A9-F#B (closed contact).

9.2.6 Remove Sensor Cable LDE 60M01# from riser.

9.2.7 Immerse Sensor Cable LDE 60M01# in water.

9.2.8 Verify Red LEAK LED comes ON.

DELETE STEP
RENUMBER

9.2.9 Verify resistance is approximately infinite across Wires A9-F*C and A9-F*B (open contact).

9.2.10 Remove sensor cable from water and dry.

9.2.11 Press RESET button.

CO18H002.CPY

REVISE

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AND

00000

- 9.2.12 Verify resistance is approximately 0 ohms across Wires A9-F*C and A9-F*B (closed contact).
- 9.2.13 Verify Red LEAK LED is OFF.
- 9.2.14 Disconnect sensing cable from Terminal Points 2, 3, 4, and 5.
- 9.2.15 Verify Yellow CABLE BREAK LED comes ON.
- 9.2.16 Verify resistance is approximately infinite across Wires A9-F#C and A9-F#B (open contact).
- 9.2.17 Reconnect Sensing Cable to Terminal Points 2, 3, 4, and 5.
- 9.2.18 Verify Yellow CABLE BREAK LED is OFF.
- 9.2.19 Verify resistance is approximately 0 ohms across Wires A9-F#C and A9-F#B (closed contact).
- 9.2.20 Reconnect Wires A9-F*C and A9-F*B to Terminal Points TS-F-*C and TS-F-*B of LCU 55M17.
- 9.2.21 Reconnect Wires A9-F#C and A9-F#B to Terminal Points TS-F-#C and TS-F-#B of LCU 55M17.
- 9.2.22 Repeat section 9.2 as necessary to test LDS/LXA 60M01A, B, C, and D.
- 9.2.23 Replace sensor in riser, install gasket cover, and secure cover to swab riser.

REVISE

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Prep. By cm Nickolaus	Ckd. By E. J. [Signature]		

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-F*C and A9-F*B from LCU 55M17.	NA	NA	NA	NA
9.2.2	Disconnect wires A9-F#C and A9-F#B from LCU 55M17.	NA	NA	NA	NA
9.2.3	Red LED is OFF. <i>REVISE</i>	NA	NA	NA	NA
9.2.4	Resistance is approximately 0 ohms across Wires A9-F*C and A9-F*B.	NA	NA	NA	NA
9.2.5	Resistance is approximately 0 ohms across Wires A9-F#C and A9-F#B.	NA	NA	NA	NA
9.2.6	Remove sensor cable from riser.	NA	NA	NA	NA
9.2.7	Immerse sensor cable in water.	NA	NA	NA	NA
9.2.8	Red LED comes ON.	NA	NA	NA	NA
9.2.9	Resistance is approximately infinite across Wires A9-F*C and A9-F*B.	NA	NA	NA	NA
9.2.10	Remove sensor cable from water.	NA	NA	NA	NA
9.2.11	Press RESET button.	NA	NA	NA	NA
9.2.12	Resistance is approximately 0 ohms across Wires A9-F*C and A9-F*B.	NA	NA	NA	NA
9.2.13	Verify Red LED is OFF.	NA	NA	NA	NA
9.2.14	Disconnect Sensing cable.	NA	NA	NA	NA

REVISE

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DATA SHEET 9.2 (cont.)

STEP	PERFORM/VERIFY	LEAK DETECTION UNIT/SENSORS LDS/LXA/LDE 60M01			
		A	B	C	D
9.2.15	Yellow CABLE BREAK LED is ON.				
9.2.16	Resistance is approximately infinite across Wires A9-F#C and A9-F#B.	NA	NA	NA	NA
9.2.17	Reconnect sensing cable.	NA	NA	NA	NA
9.2.18	Yellow LED is OFF.	NA	NA	NA	NA
9.2.19	Resistance is approximately 0 ohms across Wires A9-F#C and A9-F#B.	NA	NA	NA	NA
9.2.20	Reconnect Wires A9-F#C and A9-F#B to LCU 55M17.	NA	NA	NA	NA
9.2.21	Reconnect Wires A9-F#C and A9-F#B to LCU 55M17.	NA	NA	NA	NA
9.2.22	Repeat section 9.2 as necessary to test LDS/LXS 60M01A, B, C, and D.	NA	NA	NA	NA
9.2.23	Replace sensor in riser, install gasket cover, and secure cover.	NA	NA	NA	NA

REVISE

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Prep. By	cm Nickolaus	Chk. By	cm. J. J. J.

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

M.2.0 2-3-95 10.1.1 Verify all prerequisites of Para 7.1 have been met.

M.2.0 2-3-95 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-F*B and A9-F*C from LCU 55M17.

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

10.2.3 Verify with ohmmeter that resistance is approximately infinite ohms across Terminal Points 5 and 6 (closed 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 5 and 6 (closed contact).

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

10.2.9 Reterminate Wires A9-F*B and A9-F*C to LCU 55M17.

REVISE

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Prop. By CM Nickolas		Chd. By C. J. Dromie	

DATA SHEET 10.2

STEP	PERFORM/VERIFY	FLOW SWITCH		
		P42	P43	P44
10.2.1	Flow switch is disconnected from LCU 55M17 and pump P*-4-4.	NA	NA	NA
10.2.2	Resistance is approximately 0 ohms across Terminal Points 1 and 2 <i>REVISE</i>	NA	NA	NA
10.2.3	Resistance is approximately infinite ohms across Terminal Points 5 and 6.	NA	NA	NA
10.2.4	Remove flow switch from pipe.	NA	NA	NA
10.2.5	Actuating vane in the FLOW position.	NA	NA	NA
10.2.6	Resistance is approximately infinite ohms across Terminal Points 1 and 2.	NA	NA	NA
10.2.7	Resistance is approximately 0 ohms across Terminal Points 5 and 6.	NA	NA	NA
10.2.8	Install flow switch in pipe.	NA	NA	NA
10.2.9	Reterminate LOW FLOW ALARM to LCU 55M17 and LOW FLOW INDICATION to pump.	NA	NA	NA

REVISE

END OF SECTION 10

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Prop. By <i>CM Nickolaus</i>	Std. By <i>C. J. Manning</i>		

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

AK 2/1/95 11.1.1 Verify all prerequisites of Para 7.1 have been met.

AK 2/1/95 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.	<i>OK 2/1/95</i>	<i>OK 2/1/95</i>	<i>OK 2/1/95</i>
11.2.2	Position transmitter wires are disconnected from LCU55M-17.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.3	Control signal wires terminated on Loop Calibrator output.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.4	Position transmitter wires terminated on Loop Calibrator input.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.5	Loop calibrator output set to 4.00 mA.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.6	Transmitter current is 4.0 mA $\pm$ 0.5 mA.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.7	Valve is at FULL CLOSED position.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.8	Loop calibrator output set to 12.00 mA.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.9	Transmitter current is 12.0 mA $\pm$ 0.5 mA.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.10	Valve is at HALF OPEN position.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.11	Loop calibrator output set to 20.00 mA.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.12	Transmitter current is 20.0 mA $\pm$ 0.5 mA.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.13	Valve is at FULL OPEN position.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.14	Disconnect wires from loop calibrator.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.15	Retermine control signal wires to LCU55M-17.	<i>OK</i>	<i>OK</i>	<i>OK</i>
11.2.16	Retermine position transmitter wires to LCU55M-17.	<i>OK</i>	<i>OK</i>	<i>OK</i>

END OF SECTION 11

OK ENTER PAGE 4/28/95

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

~~KK~~ 2/2/85 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.

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

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

~~KK~~ 12.2.3 Verify 24 V dc loop power is ON.

~~KK~~ 11.77 MA 12.2.4 Verify and record mA reading from loop calibrator display.

~~KK~~ 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.

~~KK~~ 12.2.6 Visually verify that mA reading on loop calibrator increases as the integral temperature element is heated. *increased to 13.75 MA DC*

~~KK~~ 12.2.7 Remove heat from wall mounted module.

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

~~KK~~ 2/2/85 12.2.9 Terminate temperature transmitter Wires TT60M43-1(+) and TT60M43-1(-) to LCU55M-17.

END OF SECTION 12

13 LEACHATE PUMP STATUS CONTACTS M-P42, M-P43, AND M-P44

Leachate pump Status contacts, M-P42, M-P43, and M-P44, are located in the leachate pump motor control centers. Each contact is used to signal leachate pump operating status to a LCU 55M17 Digital Input.

M-P42, M-P43, and M-P44, will be tested to verify that each functions correctly.

Reference Drawings: H-2-88818, Sh 1

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Prep. By Cm Nickolaus		Check By C. D. Dammie	

13.1 PREPARATION

- ~~4/28/95~~ 13.1.1 Verify all prerequisites of Para 7.1 have been met.
- ~~4/28/95~~ 13.1.2 Verify power to Motor starter under test P-42, P-43, or P-43.
- ~~4/28/95~~ 13.1.3 Verify that LCU 55M17 and primary control power is deenergized electrically.

13.2 LEACHATE PUMP STATUS CONTACTS M-P42, M-P43, AND M-P44 TEST

This test will verify that the leachate pump status input to LCU 55M17 function as required. Record the following steps for the items shown on Data Sheet 13.2 (* = 13, 14, or 15).

- 13.2.1 Disconnect Wire A9-E*C from LCU 55M17 Terminal Point TS-E-*C.
- 13.2.2 Verify leachate pump under test is OFF.
- 13.2.3 Verify resistance is approximately infinite across Terminal Point TS-E-*B and wire A9-E*B (open contact).
- 13.2.4 Turn Pump under test key-operated switch to MAN.
- 13.2.5 Verify leachate pump under test is ON. REVISE
- NOTE: Do not allow pump to run dry for intervals exceeding 15 seconds.
- 13.2.6 Verify resistance is approximately 0 ohms across Terminal Point TS-E-*B and wire A9-E*B (closed contact).
- 13.2.7 Turn key-operated switch to OFF. REVISE
- 13.2.8 Verify leachate pump under test is OFF.
- 13.2.9 Verify resistance is approximately infinite across Terminal Point TS-E-*B and wire A9-E*B (open contact).
- 13.2.10 Reconnect Wires A9-E*C to Terminal Point TS-E-*C of LCU 55M17.
- 13.2.11 Return pump and motor starter to as found condition.
- 13.2.12 Repeat section as necessary to test leachate pump status contacts M-P42, M-P43, and M-P44. Re-energize LCU when test is complete. REVISE

DATA SHEET 13.2

STEP	PERFORM/VERIFY	LEACHATE PUMP STATUS		
		M-P42	M-P43	M-P44
13.2.1	Disconnect Wire A9-E*C from LCU 55M17.	NA	NA	NA
13.2.2	Pump is OFF.	NA	NA	NA
13.2.3	Resistance is approximately infinite across TS-E*B and wire A9-E*C.	NA	NA	NA
13.2.4	Key-operated switch to MAN.	NA	NA	NA
13.2.5	Leachate Pump is ON.	NA	NA	NA
13.2.6	Resistance is approximately 0 ohms across TS-E*B and A9-E*C.	NA	NA	NA
13.2.7	Key-operated switch to OFF.	NA	NA	NA
13.2.8	Leachate Pump is OFF. <i>REVISE</i>	NA	NA	NA
13.2.9	Resistance is approximately infinite across TS-E*B and A9-E*C.	NA	NA	NA
13.2.10	Reconnect Wire A9-E*C to Terminal Point TS-E*C of LCU 55M17.	NA	NA	NA
13.2.11	Return pump, motor starter, and LCU to as found condition.	NA	NA	NA
13.2.12	Repeat as necessary to test M-P42, M-P43, and M-P44. Reenergize LCU on completion.	NA	NA	NA

END OF SECTION 13

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Prep. By C. Nickolaus		Chd. By C. J. Indamine	

BASIN PUMP ON STATUS CONTACTS M-P42-4, M-P43-4, AND M-P44-4

Basin pump Status contacts, M-P42-4, M-P43-4, and M-P44-4, are located in the basin pump motor control centers. Each contact is used to signal basin pump ON operating status to an LCU 55M17 Digital Input.

M-P42-4, M-P43-4, and M-P44-4, will be tested to verify that each functions correctly. The Basin pumps will be electrically isolated from the motor starter to prevent pump start during this test.

Reference Drawings: H-2-88818, Sh 1

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Doc. By	Em Nikolaus	Rev	0

14.1 PREPARATION

- ~~4/28/95~~ 14.1.1 Verify all prerequisites of Para 7.1 have been met.
- ~~4/28/95~~ 14.1.2 Verify power to Motor starter under test is on.
- ~~4/28/95~~ 14.1.3 Verify that LCU 55M17 and primary control power is deenergized electrically.

14.2 BASIN PUMP ON STATUS CONTACTS M-P42-4, M-P43-4, AND M-P44-4 TEST

This test will verify that the Basin pump ON status inputs to LCU 55M17 function as required. Record the following steps for the items shown on Data Sheet 14.2 (* = 15, 16, or 17).

- 14.2.1 Verify pump under test is NOT connected electrically to receptacle. Electrically isolate receptacle and temporarily store away from test personnel.
- 14.2.2 Disconnect Wire A9-F*C from LCU 55M17 Terminal Point TS-F-*C.
- 14.2.3 Verify Green light on motor starter is ON.
- 14.2.4 Verify resistance is approximately infinite across Terminal Point TS-F-*B and wire A9-F*C (open contact).
- 14.2.5 Press START button.
- 14.2.6 Verify Green light on motor starter goes OFF.
- 14.2.7 Verify Red light on motor starter comes ON.
- 14.2.8 Verify resistance is approximately 0 ohms across Terminal Point TS-F-*B and wire A9-F*C (closed contact).
- 14.2.9 Press STOP button.
- 14.2.10 Verify Red light on motor starter goes OFF.
- 14.2.11 Verify Green light on motor starter comes ON.
- 14.2.12 Verify resistance is approximately infinite across Terminal Point TS-F-*B and wire A9-F*C (open contact).

ADD

- 14.2.13 Reconnect Wire A9-F*C to Terminal Point TS-F-*C.
- 14.2.14 Return pump and motor starter to as found condition.
- 14.2.18 Repeat section as necessary to test basin pump ON status contacts M-P42-4, M-P43-4, and M-P44-4. Re-energize LCU when test is complete.

ADD

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Prep. By	C. Nikolaus	Chk. By	memio

DATA SHEET 14.2

STEP	PERFORM/VERIFY	LEACHATE PUMP STATUS		
		M-P42-4	M-P43-4	M-P44-4
14.2.1	Pump under test is NOT connected electrically to motor starter.	NA	NA	NA
14.2.2	Disconnect Wires A9-F*C from LCU 55M17 Terminal Point TS-F-*C.	NA	NA	NA
14.2.3	Green light is ON.	NA	NA	NA
14.2.4	Resistance is approximately infinite across Terminal Points TS-F-*B and wire A9-F*C.	NA	NA	NA
14.2.5	Press START button.	NA	NA	NA
14.2.6	Green light on motor starter is OFF.	NA	NA	NA
14.2.7	Red light is ON.	NA	NA	NA
14.2.8	Resistance is approximately 0 ohms across Terminal Points TS-F-*C and wire A9-F*C.	NA	NA	NA
14.2.9	Press STOP button.	NA	NA	NA
14.2.10	Red light is OFF.	NA	NA	NA
14.2.11	Green light is ON.	NA	NA	NA
14.2.13	Resistance is approximately infinite across Terminal Points TS-F-*C and wire A9-F*C.	NA	NA	NA
14.2.14	Reconnect Wire A9-F*C to Terminal Point TS-F-*C.	NA	NA	NA
14.2.15	Return pump and motor starter to as found condition.	NA	NA	NA
14.2.16	Repeat as necessary to test basin pump ON status contacts M-P42-4, M-P43-4, and M-P44-4. Reenergize LCU.	NA	NA	NA

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 By C. M. Nickolas

END OF SECTION 14

ADD

15 CATCH BASIN LEAK DETECTORS LDA-42-1, LDA-43-1, LDA-44-1

Test the operation of the induction type liquid detection switch to ensure that the secondary coil of the induction circuit will magnetize when the liquid electrode circuit is closed by shorting the electrode contacts at the terminal. Test the liquid detection switch input to the LCU.

Reference Drawings: H-2-88818, Sh 1

15.1 PREPARATION

- ~~M.D.B. 4-28-95~~ 15.1.1 Verify all prerequisites of Para 7.1 have been met.
- ~~M.D.B. 4-28-95~~ 15.1.2 Verify power to leak detector under test.
- ~~M.D.B. 5-1-95~~ 15.1.3 Verify that LCU 55M17 and primary control power is deenergized electrically.

15.2 CATCH BASIN LEAK DETECTORS LDA-42-1, LDA-43-1, LDA-44-1 TEST

This test will verify that the Catch Basin leak detector inputs to LCU 55M17 contacts function as required. Record the following steps for the items shown on Data Sheet 15.2 (* = 4, 5, or 6).

- 15.2.1 Disconnect Wire A9-E*C from LCU 55M17 Terminal Point TS-E-*C.
- 15.2.2 At the LDY relay enclosure place test jumpers at the electrode terminals and the ground terminal. Do not ground electrode yet.
- 15.2.3 Verify resistance is approximately 0 ohms across Terminal Point TS-E-*B and wire A9-E*C (closed contact).
- 15.2.4 Short the liquid sensing electrode to ground.
- 15.2.5 Verify resistance is approximately infinite across Terminal Point TS-E-*B and wire A9-E*C (open contact).
- 15.2.6 Reconnect Wire A9-E*C to Terminal Point TS-E-*C. **REVISE**
- 15.2.7 Remove jumpers and return LDY relay enclosure to as found condition.
- 15.2.8 Repeat section as necessary to test basin pump ON status contacts LDY-42-1, LDY-43-1, and LDY-44-1. Re-energize LCU when test is complete.

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DATA SHEET 15.2

STEP	PERFORM/VERIFY	LEACHATE PUMP STATUS		
		LDY-42-1	LDY-43-1	LDY-44-1
15.2.1	Disconnect Wire A9-E*C from LCU 55M17 Terminal Point TS-E-*C.	Wire No. 4 C M.D.B. 5-1-95	Wire No. 5 C M.D.B. 5-1-95	Wire No. 6 C M.D.B. 5-1-95
15.2.2	Remove LDY relay enclosure place test jumpers. Do not ground electrode yet.	M.D.B. 5-1-95	M.D.B. 5-1-95	M.D.B. 5-1-95
15.2.3	Resistance is approximately 0 ohms across Terminal Point TS-E-*B and wire A9-E*C.	M.D.B. 5-1-95	M.D.B. 5-1-95	M.D.B. 5-1-95
15.2.4	Short the sensing electrode to ground.	M.D.B. 5-1-95	M.D.B. 5-1-95	M.D.B. 5-1-95
15.2.5	Resistance is approximately infinite across Terminal Point TS-E-*B and wire A9-E*C.	M.D.B. 5-1-95	M.D.B. 5-1-95	M.D.B. 5-1-95
15.2.6	Reconnect Wire A9-E*C to Terminal Point TS-E-*C.	M.D.B. 5-1-95	M.D.B. 5-1-95	M.D.B. 5-1-95
15.2.7	Remove jumpers and return LDY relay enclosure to as found condition.	M.D.B. 5-1-95	M.D.B. 5-1-95	M.D.B. 5-1-95
15.2.8	Repeat section as necessary to test basin LDY-42-1, LDY-43-1, and LDY-44-1. Re-energize LCU when test is complete.	M.D.B. 5-1-95	M.D.B. 5-1-95	M.D.B. 5-1-95

END OF SECTION 15

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Prep. By CM Nickolaus		Ck. By C. J. Morris	

16 LEACHATE CONTINUOUS LEVEL MONITOR LT 42-1

This test will verify that the Leachate Continuous Level Monitor functions as required. Level signals received at the 242A MCS will also be verified. The level transmitters will be tested in place.

Reference Drawings: H-2-88813, Sh 1; H-2-79653, Sh2

16.1 PREPARATION

M.H. 5-4-95 16.1.1 Verify all prerequisites of Para 7.1 have been met.

M.H. 5-4-95 16.1.2 Verify power to level transmitter under test, LERF-PLC-20, and LCU 55M17.

16.2 LEACHATE CONTINUOUS LEVEL MONITOR LT 42-1 TEST

M.H. 5-1-95 16.2.1 Record leachate level from local indicator LI 42-1 6.2 (inch).

M.H. 5-1-95 16.2.2 Verify Basin MCS faceplate LI-LCH42 level is equal to the leachate level recorded in step 16.2.1 ± 1.4 inches.

END OF SECTION 16

REUSE

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Prep. By <u>cm Nickolas</u>		Ckd. By <u>C. J. Marino</u>	

17 LEACHATE CONTINUOUS LEVEL MONITOR LT 43-1

This test will verify that the Leachate Continuous Level Monitor functions as required. Level signals received at the 242A MCS will also be verified. The level transmitters will be tested in place.

Reference Drawings: H-2-88813, Sh 1; H-2-79653, Sh2

17.1 PREPARATION

M. J. B. 5-8-95 17.1.1 Verify all prerequisites of Para 7.1 have been met.

M. J. B. 5-8-95 17.1.2 Verify power to level transmitter under test, LERF-PLC-20, and LCU 55M17.

17.2 LEACHATE CONTINUOUS LEVEL MONITOR LT 43-1 TEST

M. J. B. 5-8-95 17.2.1 Record leachate level from local indicator LI 43-1 6.0 (inch).

M. J. B. 5-8-95 17.2.2 Verify Basin MCS faceplate LI-LCH43 level is equal to the leachate level recorded in step 17.2.1 ± 1.4 inches

END OF SECTION 17

REVISE

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Prop. By <u>CM Nickolas</u>		Chk. By <u>C. J. Morris</u>	

18 LEACHATE CONTINUOUS LEVEL MONITOR LT 44-1

This test will verify that the Leachate Continuous Level Monitor functions as required. Level signals received at the 242A MCS will also be verified. The level transmitters will be tested in place.

Reference Drawings: H-2-88813, Sh 1; H-2-79653, Sh2

18.1 PREPARATION

M.D. 5-1-95 18.1.1 Verify all prerequisites of Para 7.1 have been met.

M.D. 5-1-95 18.1.2 Verify power to level transmitter under test, LERF-PLC-20, and LCU 55M17.

18.2 LEACHATE CONTINUOUS LEVEL MONITOR LT 44-1 TEST

M.D. 5-1-95 18.2.1 Record leachate level from local indicator LI 44-1 5.2 (inch).

M.D. 5-1-95 18.2.2 Verify Basin MCS faceplate LI-LCH44 level is equal to the leachate level recorded in step 18.2.1 ± 1.4 inches

END OF SECTION 18

REVISE

ECN No.	C-018H-102	Page	17
Ref. Dwg.	DOC. WHC-SD-C018H-ATR-002	Sh.	N/A
Prep. By	Em Nickolaus	Skd. By	C. J. Prime

19 BASIN CONTINUOUS LEVEL MONITOR LT 42-2

This test will verify that the Basin Continuous Level Monitor functions as required. Level signals received at the 242A MCS will also be verified. The level transmitters will be tested in place.

Reference Drawings: H-2-88813, Sh 1; H-2-79653, Sh2

19.1 PREPARATION

M.T.R. 5-1-95 19.1.1 Verify all prerequisites of Para 7.1 have been met.

M.T.B. 5-1-95 19.1.2 Verify power to level transmitter under test, LERF-PLC-20, and LCU 55M17.

19.2 BASIN CONTINUOUS LEVEL MONITOR LT 42-2 TEST

M.T.B. 5-1-95 19.2.1 Record Basin level from local indicator LI 42-2 4.2 (feet).

M.T.B. 5-1-95 19.2.2 Verify Basin MCS faceplate LI-BSN42 level is equal to the basin level recorded in step 19.2.1 ± 1.2 feet

END OF SECTION 19

REVISE

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Prep. By <u>CTM Nickolaus</u>		Chd. By <u>C. J. Mermie</u>	

BASIN CONTINUOUS LEVEL MONITOR LT 43-2

This test will verify that the Basin Continuous Level Monitor functions as required. Level signals received at the 242A MCS will also be verified. The level transmitters will be tested in place.

Reference Drawings: H-2-88813, Sh 1; H-2-79653, Sh2

20.1 PREPARATION

~~M.D.B. 5-1-95~~ 20.1.1 Verify all prerequisites of Para 7.1 have been met.

~~M.D.B. 5-1-95~~ 20.1.2 Verify power to level transmitter under test, LERF-PLC-20, and LCU 55M17.

20.2 BASIN CONTINUOUS LEVEL MONITOR LT 43-2 TEST

~~M.D.B. 5-1-95~~ 20.2.1 Record Basin level from local indicator LI 43-2 18.1 (feet).

~~M.D.B. 5-1-95~~ 20.2.2 Verify Basin MCS faceplate LI-BSN43 level is equal to the basin level recorded in step 20.2.2 ± 1.2 feet

END OF SECTION 20

REVISE

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			N/A	0
Prep. By	Cm Nickolaus		Chd. By	C. L. Ormario

21 BASIN CONTINUOUS LEVEL MONITOR LT 44-2

This test will verify that the Basin Continuous Level Monitor functions as required. Level signals received at the 242A MCS will also be verified. The level transmitters will be tested in place.

Reference Drawings: H-2-88813, Sh 1; H-2-79653, Sh2

21.1 PREPARATION

M.H.B. 5-1-95 21.1.1 Verify all prerequisites of Para 7.1 have been met.

M.H.B. 5-1-95 21.1.2 Verify power to level transmitter under test, LERF-PLC-20, and LCU 55M17.

21.2 BASIN CONTINUOUS LEVEL MONITOR LT 44-2 TEST

M.H.B. 5-1-95 21.2.1 Record Basin level from local indicator LI 44-2 7.1 (feet).

M.H.B. 5-1-95 21.2.2 Verify Basin MCS faceplate LI-BSN44 level is equal to the basin level recorded in step 21.2.2 ± 1.2 feet

END OF SECTION 21

REVISE

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Prep. By	CM Nickolaus	Chk. By	C. J. [Signature]
		Rev.	0

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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