1. EDT 627000

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**Project W-314 Acceptance Test Report SNF-4649
for SNF-4648 241-A Pit Leak Detection ANA-WT-
LDSTA-331 for Project W-314**

Jack S. Hammers

Numatec Hanford Company, Richland, WA 99352

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Release Approval
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8/11/99
Date

Approved for Public Release

Acceptance Test Report
HNF - 4649 - REV. 0
For
HNF - 4648
241- AN-A Pit Leak Detection
ANA - WT - LDSTA - 331

Project W-314

Prepared by:

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7-21-99

Date

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8/4/99

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8-11-99

Date

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Appendix A (attached field copy of Acceptance Test Procedure)

1.0 Introduction

The purpose of the test was to verify that the AN Tank Farm AN-A Pit Leak Detector components are functionally integrated and operate in accordance with engineering design specifications.

The Acceptance Test Procedure HNF-4648, 241-AN-A-Pit Leak Detection ANA-WT-LDSTA-331 was conducted between 23 June and 01 July 1999 at the 200E AN Tank Farm. The test has been completed with no open test exceptions.

The test was conducted prior to final engineering "as built" activities being completed this had no impact on the procedure or test results. All components, identified in the procedure were found to be labeled and identified as written in the procedure.

1.1 References

HNF-1733, Rev. 4 "Specific Test and Evaluation Plan" (STEP)

HMF-SD-W314-PDS-003, Rev. 1 "Project Development Specification for Pit Leak Detection" (PDS)

2.0 Description of test

The scope of the system tested by this procedure is limited to the leak detector elements, the local control and indication panel, its power source and the interface terminal connections for some of the remote control and indication functions that are to be installed in the future.

The test required or performed the following:

Circuit breaker identification and 120Vac-line voltage verification for the power feed to the leak detection relay panel.

MTL Trip Amplifier to be adjusted to trip at 1.5Vdc probe voltage.

Local hand switches to be repositioned and circuit operation verified to be in accordance with design requirements.

Leak detector probe height to be set above the pit floor.

Test Switches were installed to demonstrate supervisory circuitry functions as well as the interface for future control and indication circuits.

Leak detection function was demonstrated by addition of salt water to the valve pit until alarm actuation was achieved. The drain valve was operated and alarm reset was verified.

2.1 Requirements

Requirements are extracted from HNF-SD-W314-PDS-003 as defined in STEP HNF- 1733.

- 2.1.1 PDS Requirement 3.2.1.1.3 - "Pit leak detection system sensors shall be positioned no higher than one inch above the floor's in the lowest part of the pit or in a sump in the pit."
- 2.1.2 PDS Requirement 3.2.1.1.6 - "The required response time of the pit leak detection system sensor and control panel shall be electrically supervised"
- 2.1.3 PDS Requirement 3.2.1.2.1 - "Loss of power to the leak detection probes, shall provide an output signal to the local alarm and MPS." (Master Pump Shutdown)
- 2.1.3 PDS Requirement 3.2.1.2.2- "A detected failure in the leak detection system shall provide an output signal to the local alarm and MPS."
- 2.1.4 PDS Requirement 3.2.1.2.3 - "The leak detection system shall perform an operational test of itself when commanded by the MPS. The test shall include alarm, circuitry, and sensor functions of the leak detection system."
- 2.1.5 PDS Requirement 3.2.1.3.1 - "The local alarm shall be a warning light. The light shall identify the pit where the leak or malfunction occurred. Each warning light location shall be determined from Human Factors Analysis."
- 2.1.6 PDS Requirement 3.2.1.3.2 - "The reset/acknowledgement of the local alarm shall be either from an MPS system Human-Machine Interface (HMI) location or the local leak detection relay panel."
- 2.1.7 PDS Requirement 3.2.1.3.3 - " The local alarm shall operate as follows:
 - Immediately upon detecting a leak or malfunction, the local alarm shall flash and produce an audible alarm.

- After the local alarm is acknowledged by an operator located at either the MPS System HMI or the local alarm cabinet, the local alarm shall remain flashing until recovery occurs.
- After the alarm is acknowledged at the MPS System HMI, the audible signal shall be silenced.
- When recovery occurs (the leak or malfunction has been corrected) and after the local alarm is acknowledged, the local alarm shall cease illuminating."

- 2.18 PDS Requirement 3.2.4.4 – "The leak detection system sensors that are located in the pits shall be testable in place by the addition of water to the pit."

3.0 Test results

The AN-A Pit Leak Detector Test was satisfactorily performed and met all the referenced STEP requirements. Two Test Exceptions were written during the conduct of the test. One is remarkable because it identified actual failure of components to perform their design function. The other was generated to compensate for procedural inadequacy.

3.1 Test Exception description and disposition

3.1.1 Test Exception 1

During the conduct of Steps 5.10 and 5.11 the requirement was to read a voltage value of a nominal 24 Volts to verify that a contact configuration. The actual voltage readings were 22 Volts because of voltage drops across coils. "Nominal 24 Volts" was not defined as a qualitative value. The TE was written for clarification only. No impact on test or test results.

3.1.2 Test Exception 2

During the conduct of Steps 5.6 the requirement was to initiate an alarm when a 10-gallon volume of water was introduced to the pit. This did not occur. Investigation determined that the leak detection probes were not properly set. ECN 654959 was issued to provide clarifying instructions. Reperforming section 5.3 reset the probe. Step 5.6 was then tested successfully.

- 3.2 PDS Requirement 3.2.1.3.3 is not fully satisfied because the "as built" system does not contain an audible alarm.

4.0 Conclusions and Recommendations

The test procedure is acceptable as written and performed. It provides adequate documentation that the system, as constructed, meets the basic design requirements and is ready to support advanced system testing and integration.

ATTACHMENT A

TWRS ADMINISTRATION
JOINT TEST REVIEW PROCESS

Manual
Volume
Section
Page
Effective Date

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II, Operations
4.1.3, REV 1a
7 of 12
March 23, 1999

ATTACHMENT A

JOINT TEST REVIEW GROUP APPROVAL

Procedure # HNF-4648 (241-AN-A PIT LEAK DETECTION ANA-WT-LDSTA-331)

TITLE

Position	Name	Phone
Test Director/Supervisor	J. GRUBA	373-1249
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Restrictions or Limitations:

Chief Test Director Approval:

RONALD L. LEGG
Printed Name

Signature

6-22-99
Date

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JUN 09 1999

ENGINEERING DATA TRANSMITTAL

Page 1 of 1
1. EDT 626838

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) TFRSO	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: W-314/TWRS	6. Design Authority/ Design Agent/Cog. Engr.: D.E. Bowers	7. Purchase Order No.: N/A
8. Originator Remarks: This EDT release the approved ATP's for the 241-AN-A and B packages part of Project W-314.		9. Equip./Component No.: N/A
11. Receiver Remarks: 11A. Design Baseline Document? ☐ Yes ☒ No USA not required per HNF-IP-0842, VOL IV, section 5.4, rev 11a. The ATP's in and of themselves are not work authorizing. The ATP's will be performed as part of a JCS work package that will be USA reviewed prior to performance of the work. These ATP's are not a design or facility modification and are not expected to result in an exposure of 1 person REM (whole body) or 210 person-REM (extremities) per the installation, maintenance and operation for the life of the ATP's. For the requirements of HNF-PED-1622, PRO-1623 and HNF-MO-10 the ALARA review will be accomplished as part of the normal Radiological Work Planning process. DES 5-27-99		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

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(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	ATP-W314-001 HNF-4642		0	241-AN-A Valve Pit Manifold Valves & Position Indication ATP	ES Q DES 5/17/99	1	1	1
1	ATP-W314-002 HNF-4644		0	241-AN-B Valve Pit Manifold Valves & Position Indication ATP	ES Q DES 5/17/99	1	1	1
1	ATP-W314-003 HNF-4646		0	241-AN-B Pit Leak Detection ANB-WT-LDSTA-231 ATP	ES Q DES 5/17/99	1	1	1
1	ATP-W314-004 HNF-4648		0	241-AN-A Pit Leak Detection ANA-WT-LDSTA-331 ATP	ES Q DES 5/17/99	1	1	1
1	ATP-W314-005 HNF-4650		0	SN-268 Encasement Leak Detection ANS-WT-LDSTA-335 ATP A DU 6-9-99	ES Q DES 5/27/99	1	1	1

16. KEY		
Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	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 Approval Designator for required signatures)									
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature
1	1	Design Agent	P.J. Bedely	6/3-12		1	1	END TAD, Hoff	6/8/99
1	1	Project Mgr.	M.A. Lane	6/3-12		1	1	Safety OM Jaka	6/11/99
1	1	Eng. Mgr.	J.L. Gilbert	6/3-25		1	1	Radiat RE Elder	6/14/99
1	1	Startup Mgr.	J.S. Hammers	6/3-25		1	1	Maint OR Douville	6/14/99
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1	1	Operations	T.W. Bohan	6/27-99					

18. Signature of EDT Originator Date: 5-24-99	19. Authorized Representative for Receiving Organization N/A Date:	20. Design Authority/Cognizant Manager D.E. Bowers Date: 5/17/99	21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
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HNF-4648, Rev. 0

241-AN-A Pit Leak Detection ANA-WT-LDSTA-331 Acceptance Test Procedure

David W. VanDyke
Maintenance Concepts
Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

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Org Code: LJH20000 Charge Code: 106065
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Key Words: Acceptance Test Procedure

Abstract: This document describes the method used to test design criteria for Safety Class, Intrinsically Safe leak detector system installed in 241-AN-A Valve Pit located at 200E Tank Farms.

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Release Approval Date 6/9/99

Approved For Public Release

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A-6400-073.1 (10/97)

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Printed on: Jun 9, 99 9:38 am

TANK FARM ACCEPTANCE TEST PROCEDURE

AN FARM TESTING

241-AN-A PIT LEAK DETECTION ANA-WT-LDSTA-331
ACCEPTANCE TEST PROCEDURE

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TEST EXECUTION SHEET

DATE: 6-23-99		DOCUMENT NUMBER: HNF-4648	
DOCUMENT TITLE: 241-AN-A P17 LEAK DETECTION ANA-WT-LDSTA-331 ACCEPTANCE TEST PROCEDURE			
TEST PERSONNEL (PRINT NAMES)			
TEST DIRECTOR: Steven M. Reice		AUTHORIZED INSPECTOR: ED F. ENLOE JR.	
OPERATIONS ENGINEER: JE Andrews		RECORDER: David W. SandDyke	
TEST EXECUTION			
TEST DIRECTOR SIGNATURE/DATE: <i>Steven M. Reice</i> 6/24/99		FLUOR DANIEL NORTHWEST CONSTRUCTION ENGINEER SIGNATURE/DATE: <i>John H. Wright</i> 6/28/99	
OPERATIONS ENGINEER SIGNATURE/DATE: <i>Donell H. Jones</i> 6/27/99		RECORDER SIGNATURE/DATE: <i>David W. SandDyke</i> 6-26-99	
APPROVAL AND ACCEPTANCE OF TEST RESULTS			
WITHOUT EXCEPTION ____ (✓)		WITH EXCEPTIONS RESOLVED WITH EXCEPTIONS REMAINING ____ (✓)	
TEST DIRECTOR SIGNATURE/DATE: <i>Steven M. Reice</i> 7-22-99		W-314 PROJECT MANAGER SIGNATURE/DATE: FDNW <i>Ed Enloe Jr</i> 7/22/99	
FLUOR DANIEL NORTHWEST PROJECT MANAGER SIGNATURE/DATE: <i>Ed Enloe Jr</i> 8/4/99		FDNW QUALITY ASSURANCE SIGNATURE/DATE: <i>David M. Chapin</i> 7-22-99	
LNHC QUALITY ASSURANCE SIGNATURE/DATE: <i>Ed Enloe Jr</i> 8/4/99		OPERATIONS ENGINEER SIGNATURE/DATE: <i>David W. SandDyke</i> 8/3/99	
AUTHORIZED INSPECTOR SIGNATURE/DATE: <i>Ed Enloe Jr</i> 8/4/99		DESIGN AUTHORITY SIGNATURE/DATE: <i>D. E. Bowers</i> 8-2-99	

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1.0 PURPOSE AND SCOPE

1.1 PURPOSE

The purpose of this Procedure is to demonstrate that the pit leak detection relay cabinet and intrinsically safe probe circuit is fully operable.

1.2 SCOPE

This Acceptance Test Procedure will test all functions of the ANA-WT-LDSTA-331 pit leak detection relay cabinet and associated components.

2.0 INFORMATION

2.1 TERMS AND DEFINITIONS

- 2.1.1 ATR - Acceptance Test Report
- 2.1.2 ATP - Acceptance Test Procedure

2.2 RESPONSIBILITIES

- 2.2.1 Each company or organization participating in the conduct of this procedure will designate personnel to assume the responsibilities and duties as defined herein for their respective roles. The names of these designees shall be provided to the Recorder for listing on the Working Copy of the Test Execution Sheet prior to the performance of any part of this procedure.
- 2.2.2 The Fluor Daniel Northwest Project Manager is responsible for the following:
 - Designation of a test director
 - Signing the Test Execution Sheet when the Acceptance Test Procedure is approved and accepted as complete
- 2.2.3 The Operations Engineer is responsible for the following:
 - Setting the safe boundaries for performing this procedure
 - Ensuring plant configuration is in proper status for performing this procedure

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2.2 RESPONSIBILITIES (cont.)

- Signing for operations where applicable in this procedure
 - Performing a Post-Test Review of Acceptance Test documentation
 - Obtaining concurrence from Tank Farm Shift Manager prior to commencing the test, or upon restart of testing after a temporary suspension of testing.
- 2.2.4 The Operations Representative is responsible for the following:
- Ensuring that safe work boundaries for testing are complied with
 - Coordinating all support craft and personnel in field with the Test Director and the Construction Engineer
 - Obtaining release of this ATP for field testing from shift office.
- 2.2.5 The Test Director is responsible for the following:
- Coordination of all acceptance testing
 - Signing the ATP Exception Record when a test exception has been resolved
 - Preparing and issuing an Acceptance Test Report for the approved and accepted Acceptance Test Procedure when testing is completed.
 - Scheduling and conducting a pre-test meeting with acceptance test participants prior to start of testing
 - Notification of the persons performing and witnessing the test prior to the start of testing

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2.2 RESPONSIBILITIES (cont.)

- Notification of all concerned parties when a change is made in the testing schedule
- Acting as liaison between the participants in acceptance testing
- Stopping any test which may cause damage to the system until the Acceptance Test Procedure has been revised
- Approving field changes to the Acceptance Test Procedure in accordance with Section 2.5.
- Obtaining revisions to the Acceptance Test Procedure, as necessary, to comply with authorized field changes or to accommodate existing field conditions in accordance with Section 2.5.
- Taking necessary actions to clear exceptions to the Acceptance Test Procedure
- Evaluating recorded data, discrepancies, and exceptions
- Signing Test Execution Sheet when this Acceptance Test Procedure has been performed
- Signing ATP Exception Record when a retest to clear an exception has been executed and accepted
- Obtaining required signatures on the Acceptance Test Procedure Working Copy prior to reproduction and distribution.

2.2.6 The Recorder is responsible for the following:

- Performing all recording duties using black ink
- Recording the names of all designated personnel on the Working Copy of this procedure prior to start of testing
- Observing tests, recording test data, and maintaining the ATP Performance Log

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2.2 RESPONSIBILITIES (cont.)

- Signing the Test Execution Sheet as the Recorder
- Initialing every test verification step requiring initials on the Working Copy of this Acceptance Test Procedure as that step is successfully performed, to indicate that Acceptance Criterion has been met
- Recording authorized field changes to this Acceptance Test Procedure
- Recording Test Exceptions and individual Test Procedure steps that are not performed satisfactorily on the ATP Exception Record and ensuring that the information is transferred (in ink or typed) to the master Working Copy of ATP Exception Record(s). Additional ATP Exception Records are to be added as needed
- Notifying the Test Director at the time any objection is made during performance of the Acceptance Test Procedure
- Submitting the completed master Working Copy of this Acceptance Test Procedure to the Test Director for approval signatures and distribution.

2.2.7 The Construction Engineer is responsible for the following:

- Ensuring all equipment required for performing this Acceptance Test Procedure listed in Section 4.1 will be available at the start of testing
- Obtaining from the NHC and LMHC Project Engineer any information or changes necessary to clear or resolve objections
- Coordinating field personnel and activities with the Test Director and Operations Representative
- Ensuring that field testing and inspection of the system or portion of the system to be tested has been completed prior to start of this ATP
- Providing technical input to test personnel as needed relating to the configuration of equipment and systems to be tested and utilized in this procedure
- Post Review of Acceptance Test Documentation.

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2.2 RESPONSIBILITIES (cont.)

2.2.8 Fluor Daniel Northwest Quality Assurance is responsible for the following:

- Review and approval of test exception resolutions
- Performing a Post-Test Review of Acceptance Test documentation
- Assisting Construction Engineer in Pre-Test verification of construction documentation (i.e. CWPs, submittals, receiving reports etc.

2.2.9 Lockheed Martin Quality Assurance is responsible for the following:

- Review and approval of test results
- Performing a Post-Test Review of Acceptance Test documentation

2.2.10 Fluor Daniel Hanford Authorized Inspector is responsible for the following:

- Witnessing test execution
- Approval and signature of acceptance upon completion of this procedure.

2.2.11 Industrial Health And Safety Tech. is responsible for the following:

- Monitor for toxic and combustible gases or vapors and report out of compliance levels to TWRS Industrial Hygiene technician
- Evaluate exposure potential using field data and according to HNF-SD-WM-HSP-002 or other industrial hygiene exposure prevention criteria and recording monitored levels in applicable steps in work package.

2.2.12 Quality Control is responsible for the following:

- Witness and signing, lift and records and the installation and removal of all temporary wiring and devices as applicable in this procedure.

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2.3 RECORDS

- 2.3.1 The completed master "Working Copy" of this Acceptance Test Procedure, Acceptance test report, the completed "Test Execution Sheet", the completed "ATP Performance Log" and "ATP Exception Log", and all "Test Exception Sheets" generated during performance of this Acceptance Test Procedure will be kept as permanent records.

2.4 REFERENCES

- 2.4.1 The following documents were used to write or are referenced in this procedure:
- H-14-100930, "AN STRUCTURAL COVER BLOCKS 241-AN-A PLAN AND DETAILS"
 - H-14-100936, SH 1 "ELECTRICAL INSTALLATION DETAILS VALVE PIT 241-AN-A"
 - H-14-100941, "P & ID VALVE PIT 241-AN-A"
 - H-14-100978, "PIPING FLOOR DRAIN SEAL ASSEMBLY VALVE PITS 241-AN-A&B"
 - H-14-100983, "INSTM LEAK DETECTION RELAY PNL, ASSY & DETAILS"
 - H-2-71931, SH.1 "ELECTRICAL LEAK DETECTION ELEMENTARY DIAGRAMS"
 - H-14-100937, "ELECTRICAL PANELBOARD SCHEDULE EDS-DP-105"
 - H-14-100988, "INSTM FIELD TERMINAL BOX INTERCONNECTION DIAGRAM"
 - H-14-100989, SH. 1 "INSTM VALVE PIT LEAK DETECTION LDE-331 LOOP DIAGRAM".

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2.5 GENERAL INFORMATION

- 2.5.1 All steps in this Acceptance Test Procedure are performed at the 241-AN-A Valve Pit.
- 2.5.2 ACCEPTANCE CRITERIA: All Test Procedure steps using the word VERIFY are considered Acceptance Criteria steps, and each must have successful execution indicated by having initials and the date entered in the provided space to be considered complete.
- 2.5.3 All entries recorded in this procedure shall be made in black ink, except for those noted using the redline method.
- 2.5.4 Required editorial changes to this procedure may be made by the Test Director and Cognizant Engineer per HNF-IP-0842, "Technical Procedure Requirements", as long as the changes do not impact operational facility safety function or performance, and will not compromise or influence the test data. Any technical change must be made by ECN.
- 2.5.5 Acceptance Test steps detailed in individual Tests in Section 5.0 shall be performed sequentially, unless otherwise noted or as directed by the Test Director.
- Individual Test Procedure Sections may be performed out of sequence at the direction of the Test Director, if the intent of the test is not compromised
 - As required by subsection 2.2.6, as each step is completed, the Recorder will check off (or enter "N/A" for), or initial each Test step as required in the spaces provided on the Working Copy of this Acceptance Test Procedure
 - Any step that requires verification of data must also include recording data on the Working Copy.

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2.5 GENERAL INFORMATION (Cont.)

- 2.5.6 It is the intent to perform this Acceptance Test Procedure uninterrupted from beginning to end. If testing is terminated due to time constraints at the end of an individual Test Section, the system will be placed in a safe configuration by the Test Director, with concurrence of the Operations Engineer, and the terminated test configuration noted in the ATP Performance Log. The test will restart at the next scheduled shift by establishing the noted test configuration, and documenting this in ATP Performance Log.
- 2.5.7 Any non-conformance of the instrumentation, unexpected results or exceptions during testing shall be sequentially numbered and recorded in the ATP Exception Log and on individual ATP Exception Records. Thus, case-by-case resolution, recording, approval, and distribution of each exception will be achieved.
- 2.5.8 When an exception is identified during testing, initiate an ATP Exception Record in the following manner (an example of a test exception would be when the system, fabricated per the design media, does not perform as expected):
- Number each exception sequentially as it occurs and record it on the ATP Exception Log
 - Enter the sequential exception number, Date, and a description of the exception on an ATP Exception Record; identify additional detail as required
 - Enter the name and/or the organization of the objecting party for each exception in the "Description of Exception" section of the ATP Exception Record
 - Enter a description of actions planned to resolve each exception on the ATP Exception Record when such a determination is made.

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2.5 GENERAL INFORMATION (Cont.)

2.5.9 Resolve test exceptions in the following manner:

- Record the action taken to resolve each exception in the "Resolution of Exception" section of the ATP Exception Record (the action taken does not have to be the same as the recorded planned action)
- When the action taken results in an acceptable retest, initial and date the Correction Approval section of the Exception Sheet
- When the action taken does not result in an acceptable retest, provide a detailed explanation of why the retest action was not acceptable, and what additional plans are required. The explanation may include why the system should be Accepted-As-Is. The NHC Project Engineer then signs and dates the Resolution of Exception section of the ATP Exception Record, and obtains any other approvals required
- Distribute requisite copies of the completed ATP Exception Records to the client at the completion of the Acceptance Test Procedure.

2.5.10 Upon completion of the Acceptance Test Procedure, obtain approval of the test performance. Each Test Execution Sheet will stand alone as approval for the system under test. The Acceptance Test will be complete when all the outstanding tests have been performed and the Acceptance Test Report is prepared. The test will be approved by checking the proper response, with or without exceptions, on the Test Execution Sheet under the "Approval and Acceptance of Test Results" section of the Test Execution Sheet.

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2.5 GENERAL INFORMATION (Cont.)

NOTE - The following three steps detail the possible conditions that may exist at the completion of the Acceptance Test Procedure, and the steps necessary to complete Procedure acceptance in those conditions.

2.5.11 The completed test may be approved without test exceptions:

- Check applicable space on Test Execution Sheet to show that the Acceptance Test Procedure has been performed and no exceptions have been recorded
- Appropriate individual Test Performers will sign and date the Test Execution Sheet in the spaces provided
- Distribute requisite copies as directed by the client
- Send the Master Copy of the completed Acceptance Test Procedure to the client.

2.5.12 The completed test may be approved with exceptions resolved:

- Check applicable space on Test Execution Sheet to show that this procedure has been performed with exceptions recorded and resolved
- Appropriate individual Test Performers will sign and date the Test Execution Sheet in the spaces provided
- Distribute requisite copies as directed by the client
- Send the Master Copy of the completed Acceptance Test Procedure to the client.

2.5.13 The completed test may be approved with test exceptions outstanding:

- Check applicable space on Test Execution Sheet to show that this procedure has been performed with exceptions recorded, part or all of which are presently outstanding, unresolved
- Appropriate individual Test Performers will sign and date the Test Execution Sheet in the spaces provided
- Distribute requisite copies as directed by the client
- Send the Master Copy of the completed Acceptance Test Procedure to the client.
- All outstanding exceptions shall be added to project punchlist.

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3.0 PRECAUTIONS AND LIMITATIONS

3.1 PERSONNEL SAFETY

- 3.1.1 Individuals shall carry out their assigned work in a safe manner to protect themselves, others, and the equipment from undue hazards and to prevent damage to property and environment.
- 3.1.2 Operations Representative shall assure the safety of all activities within their areas to prevent injury, property damage, or interruption of operation.
- 3.1.3 Any hazard identified during the performance of the procedure shall be reported to the appropriate waste tank farm Operations Representative.
- 3.1.4 A daily pre-job safety briefing will be held with all test participants and documented in the Pre-Job Safety form. (JSA or Pre Job Safety form)
- 3.1.5 Performance of test activities shall always include safety and health aspects as delineated in the Operations Manuals and as directed by the Test Director.
- 3.1.6 An Energized Work Permit is needed to perform this procedure.

3.2 RADIATION AND CONTAMINATION CONTROL

- 3.2.1 Work in Radiological Areas will be performed using an approved Radiation Work Permit, following review by Radiological Control per the ALARA Program (HNF-IP-0842, Volume VII, Section 1.1)

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4.0 PREREQUISITES

4.1 SPECIAL TOOLS, EQUIPMENT, AND SUPPLIES

- 4.1.1 The following supplies shall be available at the test site:
- Electrician protective gloves
 - Electrician protective eyewear (goggles or face shield)
 - Calibrated Volt Ohm Meter (Fluke)
 - Long-shank lockout padlock
 - Ruler, with minimum scale markings of 1/16 inch
 - Fuse Puller
 - Torquing Screwdriver (0-20 inch lbs)
 - 24 volt dc Power Supply.
 - Adjustable Voltage source 0-10 Volt dc
 - Single pole, single throw switch rated (minimum) 5 amp 120 Vac
 - Salt Approx. 10 tsp.
 - 10 Gallon container (minimum) for "potable water" with ability to regulate flow out of container to (1 Gal/Hr).

NOTE - Calibrated electrical test equipment data shall be recorded at the beginning of each individual test section.

4.2 PERFORMANCE DOCUMENTS

The following procedures may be needed to perform this procedure:

○ As-Built Drawings

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4.3 CONDITIONS AND ACTIONS

The following conditions must be met before this Acceptance Test Procedure (ATP) may commence.

NOTE- A jumper has been installed preventing Master Pump Shut down. This jumper shall be part of the inspection of system to be tested.

NOTE- All signators on this procedure shall document their signature on Procedure Signature Sheet.

4.3.1 All field testing and inspection of the system or portions of the system to be tested has been completed

John Wright 6/26/99
Construction Engineer Signature Date

4.3.2 A pre-job briefing has been held, and all participants have been thoroughly briefed on job safety, hazards, and their responsibilities before performing this ATP.

JMP 6/24/99
Test Director Signature Date

4.3.3 Test Director VERIFY that 241-AN-A Valve Pit is isolated from all other tanks.

JMP 6/24/99
Test Director Signature Date

4.3.4 VERIFY with Shift Manager that NO transfers are occurring or planned during the time period of the test, by SIGNING below.

JMP 6/24/99
Test Director Signature Date

4.3.5 VERIFY IH&S Tech. has performed monitoring of pit and signed in applicable sections of work package.

JMP 6/26/99
Test Director Signature Date

4.3.6 Test Director VERIFY Section 4.0 has been COMPLETED by SIGNING below.

JMP 6/26/99
Test Director Signature Date

5.0 PROCEDURE

NOTE - These tests may require certain individuals to carry and operate hand held communication devices. This is necessary for communications from the AN Tank Farm Testing area to the 241-AN-271 building while generating alarms.

5.1 POWER REQUIREMENTS TEST

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fuke 20 III	69431061	31 July -99	DV / 6-26-99

CIRCUIT BREAKER RATINGS

DV 5.1.1 LOCATE AND VERIFY that 120 Vac circuit breaker, circuit No. 30 in panelboard EDS-DP-105 (reference drawing H-14-100937, ELECTRICAL PANELBOARD SCHEDULE) has a trip rating of 20 Amps.

AMP
Test Director Initial

6/26/99
Date

VOLTAGE VERIFICATION

DV 5.1.2 REMOVE cover of electrical panelboard EDS-DP-105.

NOTE - Voltage in the following step should be between 114 to 126 volts.

DV 5.1.3 MEASURE AND RECORD, using a volt/ohm meter, the main bus voltage from phase A to ground.

VOLTAGE 121 VAC

DV 5.1.4 MEASURE AND RECORD, using a volt/ohm meter, the main bus voltage from phase B to ground.

VOLTAGE 120.6 VAC

DV 5.1.5 ENSURE circuit breaker 30 in Panelboard EDS-DP-105 is in the CLOSED or ON position.

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5.1 POWER REQUIREMENTS TEST (CONT.)

NOTE - Voltage in the following step should be between 114 to 126 volts.

DV

5.1.6 MEASURE AND RECORD the load side voltage of circuit No. 30 to ground.

VOLTAGE 120.4 VAC

N/A

5.1.7 IF voltage is NOT within the 114-126 volt range THEN IDENTIFY AND CORRECT voltage deficiency, AND REPEAT Step 5.1.6.

DV

5.1.8 REPLACE cover of electrical panelboard EDS-DP-105.

DV

5.1.9 ENSURE that panel ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331 is in the OPEN or OFF position.

NOTE - Voltage should be BETWEEN 114 and 126 Volts. It may be necessary to remove the line shield Item No. 39, drawing H-14-100983, attached to the disconnect switch Item No. 35, drawing H-14-100983, to verify voltages. Disconnect power to the leak detection relay cabinet by opening circuit breaker No. 30 panelboard EDS-DP-105, before attempting to remove the disconnect line shield. If the line voltage does not fall between the above voltage range, identify and correct the wiring deficiency to ANA-WT-LDSTA-331.

DV

5.1.10 MEASURE AND RECORD the voltage supplied to panel ANA-WT-LDSTA-331.

120.3 VAC DV

VOLTAGE ~~120.3~~ VAC DV 6/26/99

N/A

5.1.11 REPLACE line shield removed on the previous Step, if necessary.

DV

5.1.12 ENSURE disconnect switch ANA-WT-DS-331 for ANA-WT-LDSTA-331 is left in the ON or CLOSED position.

5.1.13 VERIFY that Test 5.1 is COMPLETE by SIGNING below.

DM Price
Test Director Signature

6/26/99
Date

Donald Price
Operations Signature

6/26/99
Date

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RWO

5.2 SETTING THE MTL TRIP AMPLIFIER

NOTE - The following set-up must be completed before further testing. The MTL Trip Amplifier (Item No. 22, Drawing No. H-14-100983) must be set prior to testing the leak detection relay cabinet assembly.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fluke 201T	6943 10 61	31 July-99	DV - 6-26-99
Kliue Torque Driver	950-88-01-087	6-9-00	DV - 6-26-99

DV 5.2.1 DEENERGIZE the leak detection relay panel ANA-WT-LDSTA-331 AND OPEN the front door.

DV 5.2.2 DISCONNECT AND ISOLATE ELECTRICALLY probe circuit wire ANA-WT-LDE-331B-2(-) at terminal block ANA-WT-TB-331-12. Ref. Dwg. H-14-100989 sh.1

(QC)

DV 5.2.3 QC RECORD lifted wire data on Lift/Land table below.

DV 5.2.4 DISCONNECT AND ISOLATE ELECTRICALLY circuit wires ANA-WT-LD-331-2 at relay ANA-WT-K-331C. (2 wires)

(QC)

DV 5.2.5 QC RECORD lifted wire data on Lift/Land table below.

LIFT / LAND TABLE

WIRE NUMBER	Step No.	Date Lifted	QC INITIAL	Step No.	DATE LANDED	QC INITIAL
ANA-WT-LDE-331B-2(-)	5.2.2	6-26-99	VP	5.2.12	6-26-99	VP
ANA-WT-LD-331-2	5.2.4	6-26-99	VP	5.2.14	6-26-99	VP
ANA-WT-LD-331-2	5.2.4	6-26-99	VP	5.2.14	6-26-99	VP

DV 5.2.6 ENERGIZE the leak detection relay panel ANA-WT-LDSTA-331. AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C.

DV 5.2.7 VERIFY AND RECORD on TABLE 1, the initial state of each output set of contacts on Voltage relay Trip Amp ANA-WT-EV-331 (Terminal No.'s 10 & 11 and 13 & 14, Drawing No. H-14-100989, sh 2) as OPEN or CLOSED with the use of the volt/ohm meter.

Test Director Initial

Date

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5.2 SETTING THE MTL TRIP AMPLIFIER (Cont).

- DV 5.2.8 APPLY 1.5 Volts dc to terminals 1 and 4. (Reference Item No. 22, Drawing No. H-14-100983). (This can be done using terminals 10 & 12 on Term Block).
- DV 5.2.9 ADJUST the set point potentiometer on the MTL Trip Amplifier (Item No. 22, Drawing No. H-14-100983) until it actuates or the output contacts change state from the state recorded above at the applied 1.5 Volts dc.
- DV 5.2.10 VERIFY AND RECORD on TABLE 1, the state of each set of contacts after adjusting the set point potentiometer. Each contact verified in Step 5.2.7 should have changed state.

TABLE 1

Contact Term #	Initial State 5.2.7		Energized State 5.2.10	
	OPEN /	CLOSED /	OPEN /	CLOSED /
#10 and #11	✓			✓
#13 and #14	✓			✓

SNP
Test Director Initial

6/26/99
Date

- DV 5.2.11 DEENERGIZE the leak detection relay cabinet.
- DV 5.2.12 REPLACE the probe circuit wire ANA-WT-LDE-331B-2(-) at terminal block ANA-WT-TB-331-12 AND TORQUE termination screw to 7 inch/lbs. 6-26-99
- QC 5.2.13 QC RECORD landed wire data on Lift/Land table.
- DV 5.2.14 REPLACE both circuit wires ANA-WT-LD-331-2 at relay ANA-WT-K-331C AND TORQUE termination screw to 7 inch/lbs. 6-26-99
- QC 5.2.15 QC RECORD landed wire data on Lift/Land table.
- DV 5.2.16 CLOSE the panel door.
- 5.2.17 VERIFY that Test 5.2 is COMPLETE by SIGNING below.

SNP
Test Director Signature

6/26/99
Date

David R. Smith
Operations Signature

6/26/99
Date

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5.3 SETTING THE PROBE ELEVATIONS

- 5.3.1 VERIFY IH&S Tech. has monitored pit prior to performing this section.

[Signature]
Test Director Initial

6-30-99
Date

- 5.3.2 INSTALL camera system for visually monitoring probe and cables to probes per TO-020-005.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
<i>N/A</i>			

- 5.3.3 VERIFY the probes are installed correctly. Refer to drawing H-14-100981, sht 1& 2, "INSTM PIT LEAK DETECTOR ASSY".

[Signature]
Test Director Initial

6-30-99
Date

- 5.3.4 REMOVE the electrode holder cover plate.

- 5.3.5 LOOSEN the probe wire cord grip until the probe wires are allowed to be lowered to the bottom of the pit floor.

NOTE - DO NOT allow slack to accumulate in the probe wires once the probes have touched the bottom of the pit floor. Observe with camera system.

- 5.3.6 LOWER the probe wires toward the valve pit floor until the probes are just touching the pit floor.

- 5.3.7 MARK the probe wires at the top of the probe wire cord grips with the use of a permanent marker or other marking device.

- 5.3.8 RAISE the probe wires AND MEASURE a distance, down toward the electrodes, of 3/8 (0.25 to 0.5) inches.

SEE TEST EXCEPTION #2

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5.3 SETTING THE PROBE ELEVATIONS (Cont).

[Signature] 5.3.9 MARK the probe wires at 3/8 (0.25 to 0.5) inches down from the mark identified in Step 5.3.7 Refer to drawing H-14-100985, sht 1, "INSTM 241-AN-A VALVE PIT ELEVATION & DETAILS", for tolerances in this measurement.

[Signature] 5.3.10 LOWER the probes back toward the valve pit floor until the lower mark is at the top of the probe wire cord grips.

[Signature] 5.3.11 TIGHTEN the probe wire cord grip, at the position indicated in Step 5.3.9.

[Signature] 5.3.12 VERIFY the cord grips are tightened at the mark made in Step 5.3.9.

[Signature] Test Director Initial

[Signature] 6-30-99
Date

[Signature] 5.3.13 REPLACE the electrode holder cover plate.

5.3.14 VERIFY that Test 5.3 is COMPLETE by SIGNING below.

[Signature] Test Director Signature

[Signature] 6-30-99
Date

[Signature] Operations Signature

[Signature] 6/30/99
Date

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5.4 B/W LEAK DETECTION RELAY SWITCH TEST

NOTE - This test verifies the functionality of the B/W intrinsically safe relay. By rotating the selector switch to the "PROBE TEST" position, an internal resistor simulates a load across the probes and activates the B/W intrinsically safe leak detection relay.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fluke 75III	69431061	31-July-99	DV-6-26-99

DV 5.4.1 LOCATE AND ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331 (Drawing No. H-14-100989) is in the CLOSED position or ON, AND the local alarm strobe light is deactivated.

DV 5.4.2 ROTATE selector switch ANA-WT-SS-331 to the "PROBE TEST" position, THEN RELEASE allowing spring return to the "Operate" position.

DV 5.4.3 VERIFY that the local strobe light alarm ANA-WT-LDA-331A located on ANA-WT-LDSTA-331 is activated.

AMP
Test Director Initial

6/24/99
Date

DV 5.4.4 ROTATE AND HOLD selector switch ANA-WT-SS-331 to the "PROBE TEST" position.

DV 5.4.5 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-59 and TB-DC2-58 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 0

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5.4 B/W LEAK DETECTION RELAY SWITCH TEST (Cont.)

DV

- 5.4.6 VERIFY the voltage recorded in Step 5.4.5 is at a nominal value of "0" Volts dc.

SNP
Test Director Initial

6/26/99
Date

DV

- 5.4.7 RELEASE selector switch ANA-WT-SS-331 from the "PROBE TEST" position. (Switch should return to "OPERATE" position).

DV

- 5.4.8 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C.

DV

- 5.4.9 VERIFY the local strobe light alarm in Step 5.4.3 is NOT operating.

SNP
Test Director Initial

6/26/99
Date

DV

- 5.4.10 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-59 and TB-DC2-58 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 24

DV

- 5.4.11 VERIFY the voltage recorded in Step 5.4.10 is at a nominal value of "24" Volts dc.

SNP
Test Director Initial

6/26/99
Date

- 5.4.12 VERIFY that Test 5.4 is COMPLETE by SIGNING below.

SNP
Test Director Signature

6/26/99
Date

1. D. A. J.
Operations Signature

6/26/99
Date

5.5 LAMP TEST

NOTE - The "LAMP TEST" push-button ANA-WT-PB-331E is designed to test the strobe light from the field. The following procedure demonstrates how to perform this function.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Phase III	69431061	31 July 94	DV 6-26-99

- DV 5.5.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, drawing reference No. H-14-100989, SH. 1, is in the CLOSED position or ON, AND the local alarm strobe light is deactivated.
- DV 5.5.2 DEPRESS the "LAMP TEST" switch ANA-WT-PB-331E, Drawing No. H-14-100989, SH. 1, AND HOLD.
- DV 5.5.3 VERIFY that the local strobe light alarm ANA-WT-LDA-331A, Drawing No. H-14-100989, SH. 1, is activated.

JMP
Test Director Initial

6/26/99
Date

- DV 5.5.4 RELEASE the "LAMP TEST" switch ANA-WT-PB-331E.
- DV 5.5.5 VERIFY that the local strobe light alarm ANA-WT-LDA-331A is NOT activated.

JMP
Test Director Initial

6/26/99
Date

- 5.5.6 VERIFY that Test 5.5 is COMPLETE by SIGNING below.

Donald R. Jones
Test Director Signature

6/26/99
Date

Donald R. Jones
Operations Signature

6/26/99
Date

5.6 B/W LEAK DETECTION RELAY LEAK SIMULATION TEST

NOTE - The B/W leak detection relay leak simulation tests the probe circuit by adding liquid to the 241-AN-A valve pit. Adding Salt Water to the 241-AN-A valve pit will be detected by the probe circuit and local alarms and remote signals will be generated.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
FLUKE VOM	1055	7-31-99	128 6-30-99

- 128 5.6.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, Drawing No. H-14-100989, SH. 1, is in the CLOSED position or ON, AND local strobe light alarm is DEACTIVATED.
- 128 5.6.2 VERIFY the low point drain assembly, drawing reference H-14-100978, "FLOOR DRAIN SEAL ASSEMBLY", is in the CLOSED, unretracted position.
- 128 5.6.3 LOCATE the South West view port, drawing reference H-14-100930, on top of the valve pit cover block.
- 128 5.6.4 REMOVE the shielding plug located in the cover block view port.
- 128 5.6.5 ADD 10 tsp. of salt to 10 gal. potable water and stir solution until salt is dissolved.
- NOTE - Use care to avoid splashing salt solution on jumpers in pit during water addition.
- NOTE - In the following step liquid will be introduced to the pit. At a rate not to exceed 16 oz./min. (Maximum of 10 gal. total).
- NOTE - Stop adding liquid to pit when leak detection alarm actuates.
- 128 5.6.6 POUR Salt Water solution into the view port.

SEE TEST EXCEPTION #2

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5.6 B/W LEAK DETECTION RELAY LEAK SIMULATION TEST (Cont.)

122 5.6.7 RECORD, On TABLE 2 the start time for the liquid being poured into the valve pit.

TABLE 2

Start Time 5.6.7	Leak Detector Activation Time 5.6.8	Amount Of Liquid Used At Time Of Activation 5.6.9
4:58	5:35	5 GAL

SEE
TEST
EXCEPTION
2

122 5.6.8 RECORD, On TABLE 2 the time the leak detector activates.

122 5.6.9 RECORD, On TABLE 2 the amount of salt water solution required to activate the leak detector.

122 5.6.10 VERIFY the amount of salt water solution required to activate the leak detector is less than or equal to 10 gallons.

[Signature] 6-30-99
Test Director Initial Date

122 5.6.11 VERIFY that the local strobe light alarm ANA-WT-LDA-331A located on ANA-WT-LDSTA-331 is activated.

[Signature] 6-30-99
Test Director Initial Date

NOTE - The MPS is jumpered out and MPS system should NOT receive a shutdown signal.

122 5.6.12. ADD remaining liquid using caution not splash solution on jumpers and devices in pit.

122 5.6.13 RECORD on ALARM RESET DATA TABLE, the time liquid addition is complete. 5:47

122 5.6.14 INSTALL shield plug removed in step 5.6.4.

122 5.6.15 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C located on ANA-WT-LDSTA-331.

122 5.6.16 VERIFY the local strobe light alarm remains operational.

[Signature] 6-30-99
Test Director Initial Date

122 5.6.17 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-58 and TB-DC2-59 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 0.03

SEE TEST EXCEPTION # 2

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5.6 B/W LEAK DETECTION RELAY LEAK SIMULATION TEST (Cont.)

ps 5.6.18 VERIFY the voltage recorded in Step 5.6.17 at a nominal value of "0" Volts dc.

ps
Test Director Initial

6-30-99
Date

NOTE - During the next 24 hour period the ALARM reset switch ANA-WT-PB-231C located on ANA-WT-LDSTA-231 will be actuated at least once every 60 minutes until alarm condition clears, Or the 24 hour period is exceeded. It is recommended to attempt reset of alarm every 30 mins. (The intent of this is to fulfill the 24 hr. requirement for drain seal).

ps 5.6.19 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-231C At least once every 60 min until alarm clears or 24 period is exceeded.

ps 5.6.20 RECORD each RESET attempt on ALARM RESET DATA TABLE.

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5.6 B/W LEAK DETECTION RELAY LEAK SIMULATION TEST (Cont.)

ALARM RESET DATA TABLE
Time Of Liquid Addition Completion

1747

6-30-99

RESET ATTEMPT	TIME OF ATTEMPT	ALARM RESET		INITIAL
		NO	YES	
✓	1800	✓		Ja
✓	1830	✓		Ja
✓	1900	✓		Ja
✓	1930	✓		Ja
✓	2000	✓		Ja
✓	2030	✓		Ja
✓	2100	✓		Ja
✓	2130	✓		Ja
✓	2200	✓		Ja
✓	2230	✓		Ja
✓	2300	✓		Ja
✓	2330	✓		Ja
✓	2400	✓		Ja
✓	0030	✓		Ja
✓	0100	✓		Ja
✓	0130	✓		Ja
✓	0200	✓		Ja
✓	0230	✓		Ja
✓	0300	✓		Ja
✓	0330	✓		Ja
✓	0400	✓		Ja
✓	0430	✓		Ja
✓	0500	✓		Ja
✓	0530	✓		Ja
✓	0600	✓		Ja
✓	0630	✓		Ja

7-1-99

RESET ATTEMPT	TIME OF ATTEMPT	ALARM RESET		INITIAL
		NO	YES	
✓	0700	✓		SV
✓	0730	✓		SV
✓	0800	✓		SV
✓	0830	✓		SV
✓	0900	✓		SV
✓	0930	✓		SV
✓	10:00	✓		SV
✓	10:30	✓		SV
✓	11:00	✓		SV
✓	12:00	✓		SV
✓	12:30	✓		SV
✓	13:00	✓		SV
✓	13:30	✓		SV
✓	14:00	✓		SV
✓	14:30	✓		SV
✓	1500	✓		SV
✓	15:30	✓		SV
✓	1600	✓		Ja
✓	1630	✓		Ja
✓	1700	✓		Ja
✓	1730	✓		Ja
✓	1747	✓		SV

NO FURTHER ENTRIES
71-99

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~~NO FURTHER ENTER~~
28 2-199

5.6 B/W LEAK DETECTION RELAY LEAK SIMULATION TEST (Cont.)

N/A 5.6.21 IF ALARM RESETS prior to the 24 hour limit THEN document on TEST EXCEPTION LOG AND GO TO step 5.6.24.

DV 5.6.22 PLACE the low point drain assembly in the OPEN or RETRACTED position.

DV 5.6.23 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-231C.

DV 5.6.24 VERIFY the local strobe light alarm is NOT operating.

AMP 7/1/99
Test Director Initial Date

DV 5.6.25 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-58 and TB-DC2-59 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 24

DV 5.6.26 VERIFY the voltage recorded in Step 5.6.25 at a nominal value of "24" Volts DC.

AMP 7/1/99
Test Director Initial Date

DV 5.6.27 ENSURE low point drain assembly is in OPEN or RETRACTED position, AND FLUSH with 10 gal. RAW WATER.

DV 5.6.28 REPEAT FLUSH with 11 gal. RAW WATER.

DV 5.6.29 REPEAT FLUSH with 12 gal. RAW WATER.

DV 5.6.30 RESTORE the low point drain assembly to the CLOSED or UNRETRACTED position AFTER draining is complete.

5.6.31 VERIFY that Test 5.6 is COMPLETE by SIGNING below.

[Signature]
Test Director Signature

7/1/99
Date

[Signature]
Operations Signature

7/1/99
Date

MTE DATA

69431061 31

July 99

DU-701-99

48 A-36

HNF-4649
Rwo

5.7 MTL FAIL SAFE RELAY SWITCH TEST

NOTE - The leak detection fail safe relay switch test identifies the functionality of the fail safe testing circuit. The test relay opens a probe circuit wire and activates the MTL Trip Amplifier.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fluke 70 III	69431061	31-July 99	DV/6-26-99

- DV 5.7.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, reference drawing No. H-14-100989, SH. 1, is in the CLOSED position or ON, AND the local alarm strobe light is deactivated.
- DV 5.7.2 ROTATE selector switch ANA-WT-SS-331 to the "FAIL RELAY TEST" position, then RELEASE allowing spring return to the "Operate" position.
- DV 5.7.3 VERIFY that the local strobe light alarm ANA-WT-LDA-331A, reference drawing No. H-14-100989, SH. 1, is activated.

[Signature]

Test Director Initial

[Signature]

Date

- DV 5.7.4 ROTATE AND HOLD selector switch ANA-WT-SS-331 to the "FAIL RELAY TEST" position.
- DV 5.7.5 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-60 and TB-DC2-59 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 0

- DV 5.7.6 VERIFY the voltage recorded in Step 5.7.5 is at a nominal value of "0" Volts dc.

[Signature]

Test Director Initial

[Signature]

Date

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5.7 MTL FAIL SAFE RELAY SWITCH TEST (Cont.)

DV

5.7.7 RELEASE selector switch ANA-WT-SS-331 from the "FAIL RELAY TEST" position. (Switch should return to "OPERATE" position).

DV

5.7.8 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C, reference drawing H-14-100989, SH. 1.

DV

5.7.9 VERIFY the local strobe light alarm is NOT operating.

AMP 16/24/99
Test Director Initial Date

DV

5.7.10 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-60 and TB-DC2-59 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 24

DV

5.7.11 VERIFY the voltage recorded in Step 5.7.10 is at a nominal value of "24" Volts dc.

AMP 16/24/99
Test Director Initial Date

5.7.12 VERIFY that Test 5.7 is COMPLETE by SIGNING below.

Joe L. Luce 16/24/99
Test Director Signature Date
Wendell R. Jones 6/26/99
Operations Signature Date

5.8 MTL FAIL SAFE RELAY SIMULATION TEST

NOTE - The MTL fail safe relay simulation test verifies the systems ability to alarm in the event of the continuously monitored probe circuit is disconnected or damaged. This test will be accomplished by removing one of the plugs in the probe circuit.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fluke 70 III	69431061	31-July-99	DV / 6-26-99

DV

- 5.8.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, reference drawing No. H-14-100989, SH. 1, is in the CLOSED or ON position AND local alarm strobe light is deactivated.

DV

- 5.8.2 LOCATE AND REMOVE one end of cord set #CS1 between terminal box ANA-WT-TBX-W314-05P and terminal box ANA-WT-TBX-W314-05, reference drawing No. H-14-100989, sh. 1, and H-14-100936, SH. 1.

DV

- 5.8.3 VERIFY that the local strobe light alarm ANA-WT-LDA-331A, reference drawing No. H-14-100989, SH. 1, is activated.

[Signature]
Test Director Initial

6/26/99
Date

DV

- 5.8.4 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C, reference drawing No. H-14-100989, SH. 1.

DV

- 5.8.5 VERIFY the strobe light alarm remains operational.

[Signature]
Test Director Initial

6/26/99
Date

DV

- 5.8.6 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-60 and TB-DC2-59 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 0

5.8 MTL FAIL SAFE RELAY SIMULATION TEST (Cont.)

DV 5.8.7 VERIFY the voltage recorded in Step 5.8.6 is at a nominal value of "0" Volts dc.

SNP
Test Director Initial

6/24/99
Date

DV 5.8.8 PLUG IN the cord end removed in Step 5.8.2.

DV 5.8.9 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C, drawing reference No. H-14-100989, SH. 1.

DV 5.8.10 VERIFY the strobe light alarm is NOT operating.

SNP
Test Director Initial

6/24/99
Date

DV 5.8.11 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-60 and TB-DC2-59 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 24

DV 5.8.12 VERIFY the voltage recorded in Step 5.8.11 is at a nominal value of "24" Volts dc.

SNP
Test Director Initial

6/24/99
Date

5.8.13 VERIFY that Test 5.8 is COMPLETE by SIGNING below.

Donald R. In
Test Director Signature

6/24/99
Date

Donald R. In
Operations Signature

6/26/99
Date

5.9 REMOTE RESET TEST

NOTE - The remote leak detection relay test is a function that allows the operator to reset the leak detection relay panel from the HMI. For the purposes of this Acceptance Test Procedure, a signal will be generated from Field Terminal Box AN241-WT-TBX-101 the field device. An insulated temporary switch with jumper wires will be needed for this procedure.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fluke 70TIT	69431061	31-July-99	DV 6-26-99

DV

5.9.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, reference drawing No. H-14-100989, SH. 1, is in the OPEN or OFF position.

DV

5.9.2 WIRE a temporary switch, S-1, BETWEEN Terminal TB-DC4-50 and TB-DC2-55 in Field Terminal Box AN241-WT-TBX-101.

(cc)

DV

5.9.3 QC VERIFY temporary switch installed.

W. P. [Signature]
QC Initial

6-26-99
Date

DV

5.9.4 ENSURE the temporary switch is in the OPEN or OFF position.

DV

5.9.5 ENSURE Panel ANA-WT-PNL-331 DISCONNECT SWITCH ANA-WT-DS-331 is in the CLOSED or ON Position AND local alarm strobe light is deactivated.

DV

5.9.6 ROTATE selector switch ANA-WT-SS-331 to the "PROBE TEST" position, then RELEASE allowing spring return to the "Operate" position.

DV

5.9.7 VERIFY that the local strobe light alarm ANA-WT-LDA-331A, reference drawing No. H-14-100989, SH.2, is activated.

[Signature]
Test Director Initial

6/24/99
Date

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5.9 REMOTE RESET TEST (Cont.)

DV 5.9.8 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC4-50 and TB-DC2-55 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 24

DV 5.9.9 VERIFY the voltage recorded in Step 5.9.8 is at a nominal value of "24" Volts dc.

AMP
Test Director Initial6/26/99
Date

DV 5.9.10 Momentarily CLOSE THEN OPEN the temporary switch BETWEEN Terminal TB-DC4-50 and TB-DC2-55 in Field Terminal Box AN241-WT-TBX-101 S-1, installed in Step 5.9.2.

DV 5.9.11 VERIFY that the local strobe light alarm ANA-WT-LDA-331A, reference drawing No. H-14-100989, SH. 1, is NOT operational.

AMP
Test Director Initial6/26/99
Date

DV 5.9.12 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, reference drawing No. H-14-100989, SH. 1, is in the OPEN or OFF position.

DV 5.9.13 REMOVE temporary switch, S-1, BETWEEN Terminal TB-DC4-50 and TB-DC2-55 in Field Terminal Box AN241-WT-TBX-101.

QC 5.9.14 QC VERIFY temporary switch removed.

W. A. Smith
QC Initial6-26-99
Date

5.9.15 VERIFY that Test 5.9 is COMPLETE by SIGNING below.

[Signature]
Test Director Signature6/26/99
Date[Signature]
Operations Signature6/26/99
Date

5.10 REMOTE TRIP AMPLIFIER / VOLTAGE RELAY TEST

NOTE - The remote leak detection relay test is a function that allows the operator to reset the leak detection relay panel from the HMI. For the purposes of this Acceptance Test Procedure, a signal will be generated from Field Terminal Box AN241-WT-TBX-101 the field device. An insulated temporary switch with jumper wires will be needed for this procedure.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fluke 7011	69431061	31-Jul-99	DV 6-26-99

DV

5.10.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, reference drawing No. H-14-100989, SH. 1, is in the OPEN or OFF position.

DV

5.10.2 WIRE a temporary switch, S-1, BETWEEN Terminal TB-DC4-50 and TB-DC2-57 in Field Terminal Box AN241-WT-TBX-101.

(QC)

DV

5.10.3 QC VERIFY temporary switch installed.

W. H. H. P. 6-26-99
QC Initial Date

DV

5.10.4 ENSURE the temporary switch is in the OPEN or OFF position.

DV

5.10.5 ENSURE Panel ANA-WT-PNL-331 DISCONNECT SWITCH is in the CLOSED or ON Position AND local alarm strobe light is deactivated.

DV

5.10.6 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC4-50 and TB-DC2-57 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 24 22 VAC

129
Exception #1

5.10.7 VERIFY the voltage recorded in Step 5.10.6 is at a nominal value of "24" Volts dc.

J. B. 7-21-99
Test Director Initial Date

5.10 REMOTE TRIP AMPLIFIER / VOLTAGE RELAY TEST (Cont.)

DV

5.10.8 Momentarily CLOSE then OPEN the temporary switch BETWEEN Terminal TB-DC4-50 and TB-DC2-57 in Field Terminal Box AN241-WT-TBX-101.

DV

5.10.9 VERIFY that the local strobe light alarm ANA-WT-LDA-331A, reference drawing No. H-14-100989, SH. 1, is operational.

SNP

Test Director Initial

6/26/99

Date

DV

5.10.10 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C, reference drawing No. H-14-100989, SH. 1.

DV

5.10.11 VERIFY that the local strobe light alarm ANA-WT-LDA-331A is NOT operational.

SNP

Test Director Initial

6/26/99

Date

DV

5.10.12 ENSURE Panel ANA-WT-PNL-331 DISCONNECT SWITCH is in the OPEN or OFF Position.

DV

5.10.13 REMOVE temporary switch, S-1, BETWEEN Terminal TB-DC4-50 and TB-DC2-57 in Field Terminal Box AN241-WT-TBX-101.

QCDV

5.10.14 QC VERIFY temporary switch removed.

P
QC Initial6-26-99
Date

5.10.15 VERIFY that Test 5.10 is COMPLETE by SIGNING below.

SNP

Test Director Signature

6/26/99

Date

Donald R. In

Operations Signature

6/26/99
Date

CONTINUOUS

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0

Release Date

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RWD

5.11 REMOTE LEAK DETECTION RELAY TEST (Pit leak detection probe test)

NOTE - The remote leak detection relay test is a function that allows the operator to reset the leak detection relay panel from the HMI. For the purposes of this Acceptance Test Procedure, a signal will be generated from Field Terminal Box AN241-WT-TBX-101 the field device. An insulated temporary switch with jumper wires will be needed for this procedure.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Fluke 70TTC	69431061	31-July-99	DV / 6-26-99

DV

5.11.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, reference drawing No. H-14-100989, SH. 1, is in the OPEN or OFF position.

DV

5.11.2 WIRE a temporary switch, S-1, BETWEEN Terminal TB-DC4-50 and TB-DC2-56 in Field Terminal Box AN241-WT-TBX-101.

(QC)

DV

5.11.3 QC VERIFY temporary switch installed.

P
QC Initial

6-26-99
Date

DV

5.11.4 ENSURE the temporary switch is in the OPEN or OFF position.

DV

5.11.5 ENSURE Panel ANA-WT-PNL-331 DISCONNECT SWITCH is in the CLOSED or ON Position AND local alarm strobe light is deactivated.

DV

5.11.6 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC4-50 and TB-DC2-56 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE 22.06

5.11.7 VERIFY the voltage recorded in Step 5.11.6 is at a nominal value of "24" Volts dc.

[Signature]
Test Director Initial

6/26/99
Date

Exception
#1

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0

Release Date

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5.11 REMOTE LEAK DETECTION RELAY TEST (Cont.)
(Pit leak detection probe test)

DV 5.11.8 Momentarily CLOSE then OPEN the temporary switch BETWEEN Terminal TB-DC4-50 and TB-DC2-56 in Field Terminal Box AN241-WT-TBX-101.

DV 5.11.9 VERIFY that the local strobe light alarm ANA-WT-LDA-331A, reference drawing No. H-14-100989, SH. 1, is operational.

AMP
Test Director Initial

6/26/99
Date

DV 5.11.10 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C, reference drawing No. H-14-100989, SH. 1.

DV 5.11.11 VERIFY that the local strobe light alarm ANA-WT-LDA-331A is NOT operational.

AMP
Test Director Initial

6/26/99
Date

DV 5.11.12 ENSURE Panel ANA-WT-PNL-331 DISCONNECT SWITCH ANA-WT-DS-331 is in the OPEN or OFF Position.

DV 5.11.13 REMOVE the temporary switch BETWEEN Terminal TB-DC4-50 and TB-DC2-56 in Field Terminal Box AN241-WT-TBX-101.

QC

DV 5.11.14 QC VERIFY temporary switch removed.

P
QC Initial

6-26-99
Date

5.11.15 VERIFY that Test 5.11 is COMPLETE by SIGNING below.

AMP
Test Director Signature

6/26/99
Date

Donald R. Jan
Operations Signature

6/26/99
Date

ATP PERFORMANCE LOG

This page may be reproduced as necessary.

Page 1 of 2

ATP PERFORMANCE EVENT	DATE	INITIALS
Held pre Job - started ATP - Completed successfully TEST. S.1, S.2, S.4, S.5, S.7, S.8, S.9	6-26-99	DV
Skipped S.3 + S.6 had exceptions on S.10 + S.11 SEE ATP		
1310 - ENTERED S.3 AFTER PTB. JEFF GROBA ROBERT TAYLOR, JOHN WIRETE, GARY COOPER, DON SNIDER, ROGER FRIESE	6-26-99 6-27-99	DV
1400 COMPLETED SECT S.3	6-27-99	12.8
STARTED section S.6 after pre Job added 10 gallons saltwater to pit. Did not receive Strobe Alarm left water in pit + Panel De-energized Terminated test for evening	6-29-99	DV
Retested section S.6	6-30-99	DV
NO ENTRY		
This page		

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ATP EXCEPTION RECORD

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ATP STEP NUMBER: 5.10.7 + 5.11.7		ATP EXCEPTION LOG#: 1	
DESCRIPTION OF EXCEPTION: VOLTAGE NOT NOMINAL 24 VDC			
NAME / ORGANIZATION OF INITIATOR: STEVEN PRICE / FDNW			
DATE OF EXCEPTION: 6-26-99			
RESOLUTION OF EXCEPTION: ACCEPT 22 VOLTS AS NOMINAL 24 VOLTS			
TEST DIRECTOR SIGNATURE: <i>[Signature]</i>		DATE: 7-21-99	
PROJECT ENGINEER SIGNATURE: <i>[Signature]</i>		DATE: 7-21-99	
QUALITY ASSURANCE SIGNATURE: Hank M. Chapin		DATE: 7/22/99	
		DATE: 7-22-99	

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Rev D

Planned Resolution

Read S-1 switch to earth to verify no path to earth. Read across switch contacts to verify switch is open.

If no path to earth or short across switch is present continue with test.

Justification

The intent of the voltage verification is to verify that the switch is OPEN. A small voltage drop across the switch is not detrimental to the test. A review of the drawing H-14-100989 Rev. 2, Sht. 1, does not show an alternate path for voltage drop.

Conclusion

The test switch will perform its intended function of simulating the HMI RESET and TESTFLR handswitches.

Resolution of Exception.

Readings across the S-1 switch with the test FLUKE VOM indicate the switch is OPEN.

Reading from the S-1 switch case to earth, indicates no short to earth is present.

Accept reading of 22 VDC and 22.06 VDC as in the "nominal range of 24 Volts dc."

The voltage drop across the S-1 test switch occurred at the following test steps.

TEST STEP	RELAY	INSPECTED FOR SHORT CIRCUITS
5.10.7	K-331B	Switch inspected no faults found
5.11.7	K-331A	Switch inspected no faults found

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ATP EXCEPTION RECORD

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Page 1 of 7

ATP STEP NUMBER: <u>5.6.8</u>	ATP EXCEPTION LOG#: <u>#2</u>
DESCRIPTION OF EXCEPTION: <u>See Attached Form</u>	
NAME / ORGANIZATION OF INITIATOR: <u>Steven Price / FDNW</u>	
DATE OF EXCEPTION: <u>6/30/99</u>	
RESOLUTION OF EXCEPTION:	
<u>ISSUED ECR 654959</u>	
<u>REPERFORMED STEP 5.3</u>	
<u>COMPLETED 5.6</u>	
DATE OF RESOLUTION: <u>7-1-99</u>	
TEST DIRECTOR SIGNATURE:	DATE: <u>7-21-99</u>
PROJECT ENGINEER SIGNATURE:	DATE: <u>7/22/99</u>
QUALITY ASSURANCE SIGNATURE: <u>Hank M. Chapin</u>	DATE: <u>7-22-99</u>

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Rev0

Remove the Floor Drain Seal Retracting Device (H-14-100978 Sht. 1) to allow visual observation of the area around the Drain Seal.

Verify that the seal has not leaked. This is to be accomplished by having a person familiar with the drain seal leak testing activities making a judgment on the volume and pattern of the water in the area of the drain seal.

If water is not present or in the opinion of the observer it appears that the water has drained, contact engineering for resolution of the leaking drain.

If water is present, perform steps 5.6.22, 5.6.27 through 5.6.30 to re-establish a clean non-flooded pit condition.

When the pit is restored to initial test conditions install a camera in accordance with the JCS and HNF-4648.

Perform Steps 5.6.1 through 5.6.6.

Use the camera to observe the formation of the puddle around the drain seal and the relationship of the puddle shape and depth to the leak detection probes.

If the probes are marginally immersed in the fluid or very close to the surface of the puddle reset the probe elevation to the lower limit of .25 inches in accordance with section 5.3.. after performing steps 5.6.22, 5.6.27 through 5.6.30 to re-establish a clean non-flooded pit condition.

After the probes have been set to the low limit perform steps 5.6.1 through 5.6.6.

Use the camera to observe the formation of the puddle around the drain seal and the relationship of the puddle shape and depth to the leak detection probes.

If the probes are not within the boundary of the puddle notify engineering.

Position the probes to an elevation, provided by engineering, that will allow the 10 gallon puddle to be detected and monitored to verify the environmental commitment of detecting a 10 gallon leak in a 24 hour period.

Perform steps 5.6.22, 5.6.27 through 5.6.30 to re-establish a clean non-flooded pit condition. Then perform section 5.6.

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RWO

Resolution

Issued ECN 654959 to provide clarification on setting probe elevation

Reperformed 5.3, setting the probes in accordance with ECN 654959. Reperformed section 5.6, achieved alarm actuation after 5 gallons of water was introduced to the pit.

Remove pages 26 and 27 from body of procedure and replace with new pages to provide clean documentation. Attach original pages 26 and 27 dated 6/29/99 to Test Exception # 2 for historical record.

Remove pages 21 and 22 from body of procedure and replace with new pages to provide clean documentation. Attach original pages dated 6/27/99 to Test Exception # 2 for historical record.

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TRW0

5.3 SETTING THE PROBE ELEVATIONS

- 5.3.1 VERIFY IH&S Tech. has monitored pit prior to performing this section.

AS
Test Director Initial

6-27-99
Date

- 5.3.2 INSTALL camera system for visually monitoring probe and cables to probes per TO-020-005.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
N/A			
N/A			
N/A			

- AS
5.3.3 VERIFY the probes are installed correctly. Refer to drawing H-14-100981, sht 1& 2, "INSTM PIT LEAK DETECTOR ASSY".

AS
Test Director Initial

6-27-99
Date

- AS
5.3.4 REMOVE the electrode holder cover plate.

- AS
5.3.5 LOOSEN the probe wire cord grip until the probe wires are allowed to be lowered to the bottom of the pit floor.

NOTE - DO NOT allow slack to accumulate in the probe wires once the probes have touched the bottom of the pit floor. Observe with camera system.

- AS
5.3.6 LOWER the probe wires toward the valve pit floor until the probes are just touching the pit floor.

- AS
5.3.7 MARK the probe wires at the top of the probe wire cord grips with the use of a permanent marker or other marking device.

- AS
5.3.8 RAISE the probe wires AND MEASURE a distance, down toward the electrodes, of 3/8 (0.25 to 0.5) inches.

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RWO

5.3 SETTING THE PROBE ELEVATIONS (Cont).

128 5.3.9 MARK the probe wires at 3/8 (0.25 to 0.5) inches down from the mark identified in Step 5.3.7 Refer to drawing H-14-100985, sht 1, "INSTM 241-AN-A VALVE PIT ELEVATION & DETAILS", for tolerances in this measurement.

128 5.3.10 LOWER the probes back toward the valve pit floor until the lower mark is at the top of the probe wire cord grips.

128 5.3.11 TIGHTEN the probe wire cord grip, at the position indicated in Step 5.3.9.

128 5.3.12 VERIFY the cord grips are tightened at the mark made in Step 5.3.9.

128 Test Director Initial

6-27-99
Date

129 5.3.13 REPLACE the electrode holder cover plate.

5.3.14 VERIFY that Test 5.3 is COMPLETE by SIGNING below.

Test Director Signature

6-27-99
Date

Operations Signature

6-27-99
Date

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5.6 B/W LEAK DETECTION RELAY LEAK SIMULATION TEST

NOTE - The B/W leak detection relay leak simulation tests the probe circuit by adding liquid to the 241-AN-A valve pit. Adding Salt Water to the 241-AN-A valve pit will be detected by the probe circuit and local alarms and remote signals will be generated.

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE
Flute 20TW	69431061	31-July 99	DV / 6-29-99 1055
			amp 6/27/99

DV 5.6.1 ENSURE that ANA-WT-LDSTA-331 disconnect switch ANA-WT-DS-331, Drawing No. H-14-100989, SH. 1, is in the CLOSED position or ON, AND local strobe light alarm is DEACTIVATED.

DV 5.6.2 VERIFY the low point drain assembly, drawing reference H-14-100978, "FLOOR DRAIN SEAL ASSEMBLY", is in the CLOSED, unretracted position.

Test Director Initial

Date

DV 5.6.3 LOCATE the South West view port, drawing reference H-14-100930, on top of the valve pit cover block.

DV 5.6.4 REMOVE the shielding plug located in the cover block view port.

DV 5.6.5 ADD 10 tsp. of salt to 10 gal. potable water and stir solution until salt is dissolved.

NOTE - Use care to avoid splashing salt solution on jumpers in pit during water addition.

NOTE - In the following step liquid will be introduced to the pit. At a rate not to exceed 16 oz./min. (Maximum of 10 gal. total).

NOTE - Stop adding liquid to pit when leak detection alarm actuates.

DV 5.6.6 POUR Salt Water solution into the view port.

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5.6 B/W LEAK DETECTION RELAY LEAK SIMULATION TEST (Cont.)

DV 5.6.7 RECORD, On TABLE 2 the start time for the liquid being poured into the valve pit.

TABLE 2

Start Time 5.6.7	Leak Detector Activation Time 5.6.8	Amount Of Liquid Used At Time Of Activation 5.6.9
1052 PM		

5.6.8 RECORD, On TABLE 2 the time the leak detector activates.

5.6.9 RECORD, On TABLE 2 the amount of salt water solution required to activate the leak detector.

5.6.10 VERIFY the amount of salt water solution required to activate the leak detector is less than or equal to 10 gallons.

N/A
Test Director Initial _____ Date _____

5.6.11 VERIFY that the local strobe light alarm ANA-WT-LDA-331A located on ANA-WT-LDSTA-331 is activated.

N/A
Test Director Initial _____ Date _____

NOTE - The MPS is jumpered out and MPS system should NOT receive a shutdown signal.

5.6.12. ADD remaining liquid using caution not splash solution on jumpers and devices in pit.

5.6.13 RECORD on ALARM RESET DATA TABLE, the time liquid addition is complete.

5.6.14 INSTALL shield plug removed in step 5.6.4.

5.6.15 LOCATE AND ACTIVATE the "ALARM RESET" Switch ANA-WT-PB-331C located on ANA-WT-LDSTA-331.

5.6.16 VERIFY the local strobe light alarm remains operational.

N/A
Test Director Initial _____ Date _____

5.6.17 MEASURE AND RECORD the voltage BETWEEN Terminal TB-DC2-58 and TB-DC2-59 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE N/A

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ENGINEERING CHANGE NOTICE

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1. ECN 654959

Proj.
ECN **W314-4C-12**

2. ECN Category (mark one) Supplemental ☒ Direct Revision ☐ Change ECN ☐ Temporary ☐ Standby ☐ Supersedure ☐ Cancel/Void ☐	3. Originator's Name, Organization, MSIN, and Telephone No. Carol Cloud, TWRS, G3-12, 376-7361		4. USQ Required? ☒ Yes ☐ No TF-99-0525	5. Date 7-1-99
	6. Project Title/No./Work Order No. W-314, Tank Farm Restoration and Safe Operations		7. Bldg./Sys./Fac. No. 241-AN	8. Approval Designator SC/SQ E
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) See block 13a		10. Related ECN No(s). NONE	11. Related PO No. N/A
	12a. Modification Work ☐ Yes (fill out Blk. 12b) ☒ No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. N/A	12c. Modification Work Completed N/A Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECNs only) N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change
Affected documents:H-14-100985, SH. 1, REV. 1
H-14-100986, SH. 1, REV. 113b. Design Baseline Document? ☒ Yes ☐ NoDescription of change:H-14-100985, SH. 1, REV. 1
Revise per what is shown in clouded area on page 4.H-14-100986, SH. 1, REV. 1
Revise per what is shown in clouded area on page 5.

Background changes for this drawing, not identified by a revision bubble, are reflected in related ECN's.

14a. Justification (mark one) Criteria Change ☐ Design Improvement ☐ Environmental ☐ Facility Deactivation ☐ As-Found ☒ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	14b. Justification Details This ECN lowers the probe height on the Pit Leak Detectors for Valve Pits 241-AN-A and 241-AN-B. This was necessary to aid the field during Construction Testing. The lower probe height meets all requirements in the PDS, HNF-SD-W314-003 and takes into account the original nominal pit Construction tolerances. This modification will not change collective dose since it has no impact on radiological sources, contamination control, or shielding. This ECN does not affect AN RVR or STEPS for AN-A or AN-B. The design verification method for SC components is by independent review as documented on the attached record of the review.
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15. Distribution (include name, MSIN, and no. of copies)
See attached Distribution Sheet 3

RELEASE STAMP

DATE: JUL 01 1999	STA: A	HANFORD RELEASE	ID: 2
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For changes in Distribution, please contact Tammy
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Ref Dwg	Sh	Rev	Prepared By	Checked By	ECN No	Page
H-14-100985	1	1	CL CLOUD	<i>BT Carratt</i>	W314-4C-124	4/6

GENERAL NOTES

REVISED

1. FOR VALVE POSITION INDICATOR LOCATIONS AND ORIENTATION, SEE DRAWING H-14-100975, SHEET 1.

2. USING AN IN-PIT VIDEO CAMERA, ADJUST PROBES BY LOWERING UNTIL THE INSULATOR JUST TOUCHES THE PIT FLOOR. THEN RAISE APPROXIMATELY 1/16" AS MEASURED ON THE SENSOR WIRES AT THE ELECTRODE HOLDER ON THE COVER BLOCK. THIS WILL PLACE THE TIP OF THE ELECTRODE AT A NOMINAL HEIGHT OF 3/4" OFF THE LOWEST POINT OF THE PIT FLOOR.

3. SEE ASSOCIATED ASSEMBLY DRAWINGS H-14-100980 AND H-14-100981 FOR ADDITIONAL NAMEPLATE INFORMATION.

4. ALL COMPONENTS IN THIS SYSTEM, WITH EXCEPTION OF BOXES AND CONNECTORS, SHALL BE LABELED PER THE FOLLOWING IDENTIFICATION NUMBER (EIN) EXAMPLE:

ANA-WT-LDE-335

D

A-61

HNF-4649
RWO

Ref Dwg	Sh	Rev	Prepared By	Checked By	ECN No	Page
H-14-100986	1	1	CL CLOUD	<i>HT Canalt</i>	W314-4C-124	5/6

GENERAL NOTES

REVISED

1. FOR VALVE POSITION INDICATOR LOCATIONS AND ORIENTATION, SEE DRAWING H-14-100975, SHEET 1.

2. USING AN IN-PIT VIDEO CAMERA, ADJUST PROBES BY LOWERING UNTIL THE INSULATOR JUST TOUCHES THE PIT FLOOR. THEN RAISE APPROXIMATELY 1/16" AS MEASURED ON THE SENSOR WIRES AT THE ELECTRODE HOLDER ON THE COVER BLOCK. THIS WILL PLACE THE TIP OF THE ELECTRODE AT A NOMINAL HEIGHT OF 3/4" OFF THE LOWEST POINT OF THE PIT FLOOR.

3. SEE ASSOCIATED ASSEMBLY DRAWINGS H-14-100980 AND H-14-100981 FOR ADDITIONAL NAMEPLATE INFORMATION.

4. ALL COMPONENTS IN THIS SYSTEM, WITH EXCEPTION OF BOXES AND CONNECTORS, SHALL BE LABELED PER THE FOLLOWING IDENTIFICATION NUMBER (EIN) EXAMPLE:

ANA-WT-LDE-335

HNF-4649
RWO

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PROJECT W-314, TANK FARM RESTORATION AND SAFE OPERATIONS
DOCUMENTATION OF INDEPENDENT REVIEW

ECN NUMBER W314-4C-124

Guidelines for review:

- Meets functional requirements
- Proper design inputs used
- Reasonable assumptions made
- Methods of calculation correct
- Structural integrity adequate
- Interfaces correct
- Tolerances reasonable
- Materials and sizes standard (readily available)

Independent reviewer's name C. C. Scariot III

Design verification method used _____

Design inputs _____

RCRs generated None - no comments

Independent reviewer's signature/date C. C. Scariot III 7-1-99

Cognizant manager's signature/date _____

Attach this form to the applicable ECN after completion of review.

A-63

HNF-4649
RWO

PROCEDURE SIGNATURE SHEET

PRINT NAME

SIGNATURE

INITIALS

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DW

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JA

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PROCEDURE HISTORY SIGNATURE SHEET

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