Sta 4. (2)

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	
				10. System/Bldg./Facility: N/A	
11. Receiver Remarks: 11A. Design Baseline Document? ☐ Yes ☒ No USA not required per HNF-IP-0842, VOL II, section 5.4, rev 11a. The ATPs in and of themselves are not work authorizing. The ATPs will be performed as a part of a JCS work package that will be USA reviewed prior to performance of the work. These ATPs are not a design or facility modification and are not expected to result in an exposure > 1 person-REM (whole body) or 710 person-REM (extremities) for the installation, maintenance and operation for the life of the ATPs. Per the requirements of HNF-PRD-1622, PRO-1623 and BUMC MO-10, the ALARA review will be accomplished as part of the normal Radiological Work Planning process. DEB 5-27-99				12. Major Assm. Dwg. No.: N/A	
				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: N/A	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	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 DEB 5/27/99	1	1	1
1	ATP-W314-002 HNF-4644		0	241-AN-B Valve Pit Manifold Valves & Position Indication ATP	ES Q DEB 5/27/99	1	1	1
1	ATP-W314-003 HNF-4646		0	241-AN-B Pit Leak Detection ANB-WT-LDSTA-231 ATP	ES Q DEB 5/27/99	1	1	1
1	ATP-W314-004 HNF-4648		0	241-AN-A Pit Leak Detection ANA-WT-LDSTA-331 ATP	ES Q DEB 5/27/99	1	1	1
1	ATP-W314-005 HNF-4650		0	SN-268 Encasement Leak Detection ANB-WT-LDSTA-335 ATP A DU 6-2-99	ES Q DEB 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	(L) Date	(M) MSIN
1	1	Design Agent	P.J. Bedell		G3-12	1	1	END TADilhoff		6/8/99	
1	1	Project Mgr.	M.A. Lane		G3-12	1	1	Safety OMSaka		6/11/99	
1	1	Eng. Mgr.	J.L. Gilbert		R3-25	1	1	Rad Eng RE Elder		5/27/99	
1	1	Startup Mgr.	J.S. Hammers		R3-25	1	1	Maint OR Douville		5/27/99	
1	1	QA	H.M. Chafin		R3-25						
1	1	Design Authority	D.E. Bowers		R3-25						
1	1	Operations	T.W. Bohan		R3-47						

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: 5/27/99		21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments	
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SN-268 Encasement Leak Detection ANA-WT-LDSTA-335 Acceptance Test Procedure

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U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 626838 UC: 2030
Org Code: LJH20000 Charge Code: 106065
B&R Code: EW3130010 Total Pages: 44

Key Words: Acceptance Test Procedure

Abstract: This document describes the method used to test design criteria for encasement leak detector system installed in 241-AN-A Encasement Line SN-268, located at 200E Tank Farms.

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Release Approval Date 6/9/99

Approved For Public Release

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Printed on: Jun 9, 99 9:42 am

TANK FARM ACCEPTANCE TEST PROCEDURE

AN FARM TESTING

**SN-268 ENCASEMENT LEAK DETECTION ANA-WT-LDSTA-335
ACCEPTANCE TEST PROCEDURE**

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TEST EXECUTION SHEET

DATE:		DOCUMENT NUMBER: HNF-4650	
DOCUMENT TITLE: SN-268 ENCASMENT LEAK DETECTION ANA-WT-LDSTA-335 ACCEPTANCE TEST PROCEDURE			
TEST PERSONNEL (PRINT NAMES)			
TEST DIRECTOR:		AUTHORIZED INSPECTOR:	
OPERATIONS ENGINEER:		RECORDER:	
TEST EXECUTION			
TEST DIRECTOR SIGNATURE/DATE:		FLUOR DANIEL NORTHWEST CONSTRUCTION ENGINEER: SIGNATURE/DATE:	
OPERATIONS ENGINEER SIGNATURE/DATE:		RECORDER SIGNATURE/DATE:	
APPROVAL AND ACCEPTANCE OF TEST RESULTS			
WITHOUT EXCEPTION _____ (✓)		WITH EXCEPTIONS RESOLVED WITH EXCEPTIONS REMAINING _____ (✓) _____ (✓)	
TEST DIRECTOR SIGNATURE/DATE:		W-314 PROJECT MANAGER SIGNATURE/DATE:	
FLUOR DANIEL NORTHWEST PROJECT MANAGER SIGNATURE/DATE:		FDNW QUALITY ASSURANCE SIGNATURE/DATE:	
LMHC QUALITY ASSURANCE SIGNATURE/DATE:		OPERATIONS ENGINEER SIGNATURE/DATE:	
AUTHORIZED INSPECTOR SIGNATURE/DATE:		DESIGN AUTHORITY SIGNATURE/DATE:	

1.0 PURPOSE AND SCOPE

1.1 PURPOSE

This procedure provides instructions for demonstrating 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-335 encasement 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

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

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

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
- 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.

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. CWP's, 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
- 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 TWRIS 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.

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 the 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-14-100942, "P & ID VALVE PIT 241-AN-A"
- H-14-100983, "INSTM LEAK DETECTION RELAY PNL, ASSY AND DETAILS"
- H-14-100984, "INSTM PLAN AN FARM 241-AN-A & 241-AN-B"
- H-14-100937, "ELECTRICAL PANELBOARD SCHEDULE"
- H-14-100988, "INSTM FIELD TERMINAL BOX INTERCONNECTION DIAGRAM"
- H-14-100978, "PIPING FLOOR DRAIN SEAL ASSEMBLY VALVE PITS 241-AN-A&B"
- H-14-100990, "INSTM ENCSO LOW PIT LEAK DET LDE-335 LOOP DIAGRAM"

2.5 GENERAL INFORMATION

- 2.5.1 All steps in this Acceptance Test Procedure are performed at the 241-AN-A Valve Pit, unless otherwise noted.
- 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 Test Procedures in Section 5.0 shall be performed sequentially, unless otherwise noted or as directed by the Test Director.
- Individual Test Procedures 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 Step 2.2.6, as each step is completed, the Recorder will check off 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.

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 Procedure, 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 on 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
- 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.

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. 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.

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.

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 Operations Representative and the Test Director.
- 3.1.4 A daily pre-job safety briefing will be held with all test participants and documented in the ATP Performance Log.
- 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 will be needed for performance of this procedure.

3.2 RADIATION AND CONTAMINATION CONTROL

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).

4.0 PREREQUISITES

4.1 SPECIAL TOOLS, EQUIPMENT, AND SUPPLIES

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 (17-20 inch lbs)
- 24 volt dc Power Supply.
- 0-10 volt adjustable voltage source
- Variable voltage source 0-5 VDC $\pm$ 5%
- Single pole, single throw switch rated (minimum) 5 amp 120 Vac
- 10 Gallon container (minimum) for 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

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

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.

Test Director Signature

Date

4.3.3 **VERIFY** 241-AN-A Valve Pit is isolated from all other transfer routes.

Test Director Signature

Date

4.3.4 **VERIFY** with Shift Manager NO transfers are occurring or planned during the performance of the test.

Test Director Signature

Date

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

Test Director Signature

Date

4.3.6 Test Director **VERIFY** section 4.0 has been COMPLETED.

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 AN241-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

CIRCUIT BREAKER RATINGS

- ___ 5.1.1 **LOCATE AND VERIFY** 120 Vac circuit breaker, circuit No. 29 in panelboard EDS-DP-105 has a trip rating of 20 Amps. (Reference Drawing H-14-100937, ELECTRICAL PANELBOARD SCHEDULE").

Test Director Initial

Date

VOLTAGE VERIFICATION

- ___ 5.1.2 **REMOVE** cover of electrical panelboard EDS-DP-105.

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

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

VOLTAGE _____

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

VOLTAGE _____

- ___ 5.1.5 **ENSURE** circuit breaker 29 in Panelboard EDS-DP-105 is in the CLOSED or ON position.

5.1 POWER REQUIREMENTS TEST (Cont.)

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

- ___ 5.1.6 **MEASURE AND RECORD** load side voltage of circuit No. 29 to ground.

VOLTAGE _____

- ___ 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.

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

- ___ 5.1.9 **ENSURE** panel ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335 is in the OPEN or OFF position, AND local strobe light alarm is deactivated.

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, circuit No.29 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-335.

- ___ 5.1.10 **MEASURE AND RECORD** voltage supplied to panel ANA-WT-LDSTA-335.

VOLTAGE _____

- ___ 5.1.11 **REPLACE** line shield removed on previous step, if necessary.

- ___ 5.1.12 **ENSURE** disconnect switch ANA-WT-DS-335 for ANA-WT-LDSTA-335 is left in the CLOSED or ON position.

- 5.1.13 **VERIFY** Test 5.1 is COMPLETE by.

Test Director Signature

Date

Operations Signature

Date

5.2 SETTING THE MTL TRIP AMPLIFIER

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

Test Director Initial _____ Date _____

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

- ___ 5.2.2 **DEENERGIZE** leak detection relay panel ANA-WT-LDSTA-335 and open front door.

- ___ 5.2.3 **DISCONNECT AND ISOLATE** electrically, probe circuit wire ANA-WT-LDE-335B-2(-) at terminal block ANA-WT-TB-335-12.

- ___ 5.2.4 **QC RECORD** lifted wire data on Lift/Land table below.

- ___ 5.2.5 **DISCONNECT AND ISOLATE** electrically, circuit wires ANA-WT-LD-335-2 at relay ANA-WT-K-335C. (2 wires) Ref. Dwg. H-14-100990.

- ___ 5.2.6 **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-335B-2(-)	5.2.3			5.2.13		
ANA-WT-LD-335-2	5.2.5			5.2.15		
ANA-WT-LD-335-2	5.2.5			5.2.15		

5.2 SETTING THE MTL TRIP AMPLIFIER (Cont.)

- ___ 5.2.7 **ENERGIZE** leak detection relay panel ANA-WT-LDSTA-335. **AND** **ACTIVATE** "Alarm Reset" switch ANA-WT-PB-335C.
- ___ 5.2.8 **VERIFY AND RECORD** on TABLE 1, initial state of each output set of contacts (Terminal No.'s 10 & 11 and 13 & 14, Drawing No.H-14-100990) as OPEN or CLOSED with use of volt/ohm meter.
- ___ 5.2.9 **APPLY** 1.5 volts dc using 0-10 volt dc adjustable source to (Item No. 22, Drawing No. H-14-100983) terminals 1 and 4.
- ___ 5.2.10 **ADJUST** 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.
- ___ 5.2.11 **VERIFY AND RECORD** on TABLE 1, the state of each set of contacts after adjusting the set point potentiometer. Each contact verified in Step 5.2.8 should have changed state.

TABLE 1

Contact Term #	Initial State (5.2.8)		Energized State (5.2.11)	
	OPEN ✓	CLOSED ✓	OPEN ✓	CLOSED ✓
#10 and #11				
#13 and #14				

Test Director Initial

Date

5.2 SETTING THE MTL TRIP AMPLIFIER (Cont.)

- ___ 5.2.12 **DEENERGIZE** leak detection relay cabinet **AND REMOVE** adjustable voltage source.
- ___ 5.2.13 **REPLACE** probe circuit wire ANA-WT-LDE-335B-2(-) at terminal block ANA-WT-TB-335-12 **AND TORQUE** termination screw to 7 inch/lbs.

- ___ 5.2.14 **QC RECORD** landed wire data on Lift/Land table.
- ___ 5.2.15 **REPLACE BOTH** circuit wires ANA-WT-LD-335-2 at relay ANA-WT-K-335C **AND TORQUE** termination screw to 7 inch/lbs.

- ___ 5.2.16 **QC RECORD** landed wire data on Lift/Land table.
- ___ 5.2.17 **CLOSE** panel door.
- 5.2.18 **VERIFY** Test 5.2 is **COMPLETE** by.

Test Director Signature

Date

Operations Signature

Date

5.3 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

- ___ 5.3.1 **LOCATE & ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335 (Drawing No. H-14-100990) is in the CLOSED or ON position AND local strobe light alarm is DEACTIVATED.
- ___ 5.3.2 **ROTATE** the selector switch ANA-WT-SS-335 to the "PROBE TEST" position, THEN RELEASE allowing spring return to the "Operate" position.
- ___ 5.3.3 **VERIFY** local strobe light alarm ANA-WT-LDA-335A located on ANA-WT-LDSTA-335 is activated.

Test Director Initial

Date

- ___ 5.3.4 **ROTATE AND HOLD** selector switch ANA-WT-SS-335 to the "PROBE TEST" position.
- ___ 5.3.5 **MEASURE AND RECORD** the voltage BETWEEN Terminal TB-DC2-67 AND Terminal TB-DC2-66 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE _____

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

- ___ 5.3.6 **VERIFY** the voltage recorded in Step 5.3.5 is at a nominal range of "0" Volts dc.

Test Director Initial

Date

- ___ 5.3.7 **RELEASE** the selector switch ANA-WT-SS-335 from the "PROBE TEST" position. (Switch should return to "OPERATE" position).

- ___ 5.3.8 **LOCATE AND ACTIVATE** "ALARM RESET" Switch ANA-WT-PB-335C.

- ___ 5.3.9 **VERIFY** local strobe light alarm in Step 5.3.3 is **NOT** operating.

Test Director Initial

Date

- ___ 5.3.10 **MEASURE AND RECORD** voltage BETWEEN Terminal TB-DC2-67 AND Terminal TB-DC2-66 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE _____

- ___ 5.3.11 **VERIFY** voltage recorded in Step 5.3.10. is at a nominal range of "24" Volts dc.

Test Director Initial

Date

- 5.3.12 **VERIFY** Test 5.3 is **COMPLETE**.

Test Director Signature

Date

Operations Signature

Date

5.4 LAMP TEST

NOTE - The "LAMP TEST" push-button ANA-WT-PB-335E is designed to test the strobe light alarm 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

- ___ 5.4.1 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, drawing reference No. H-14-100990, is in the CLOSED or ON position AND local strobe light alarm is DEACTIVATED.
- ___ 5.4.2 **DEPRESS** "LAMP TEST" PUSH BUTTON switch ANA-WT-PB-335E, Drawing No. H-14-100990, and hold.
- ___ 5.4.3 **VERIFY** local strobe light alarm ANA-WT-LDA-335A, Drawing No. H-14-100990, is activated.

Test Director Initial_____
Date

- ___ 5.4.4 **RELEASE** "LAMP TEST" PUSH BUTTON switch ANA-WT-PB-335E.
- ___ 5.4.5 **VERIFY** local strobe light alarm ANA-WT-LDA-335A is NOT activated.

Test Director Initial_____
Date

- 5.4.6 **VERIFY** Test 5.4 is COMPLETE.

Test Director Signature_____
Date_____
Operations Signature_____
Date

5.5 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 "TEST RISER". Adding water to the "TEST RISER" will be detected by the probe circuit and local alarms and remote signals will be generated. Use of camera will be required to perform visual verification during this test. (Reference procedure TO-020-265).

ELECTRICAL TEST EQUIPMENT DATA TABLE

TOOL NAME	ID. NUMBER	CAL DUE DATE	INITIAL/DATE

___ 5.5.1 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, Drawing No. H-14-100990, is in the CLOSED or ON position AND local strobe light alarm is DEACTIVATED.

___ 5.5.2 **VERIFY** valve WT-V-404 is in the "OPERATE" position.

Test Director Initial

Date

___ 5.5.3 **LOCATE** "TEST RISER" associated with ANA-WT-LDE-335 at valve pit 241-AN-A. (Reference Drawing H-14-100984).

___ 5.5.4 **REMOVE** cap from "TEST RISER".

___ 5.5.5 **POUR** "RAW WATER" in "TEST RISER" SLOWLY until alarm activates or water runs out of the "OPERATE PORT" of valve WT-V-404.

___ 5.5.6 **VERIFY** local strobe light alarm ANA-WT-LDA-335A located on ANA-WT-LDSTA-335 is activated.

Test Director Initial

Date

___ 5.5.7 **LOCATE AND ACTIVATE** "ALARM RESET" Switch ANA-WT-PB-335C located on ANA-WT-LDSTA-335.

___ 5.5.8 **VERIFY** local strobe light alarm remains activated.

Test Director Initial

Date

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

5.5.9 MEASURE AND RECORD voltage BETWEEN Terminal TB-DC2-67 AND Terminal TB-DC2-66 in Terminal Box AN241-WT-TBX-101.

VOLTAGE

5.5.10 VERIFY voltage recorded in Step 5.5.9 is at a nominal range of "0" Volts dc.

Test Director Initial

Date

5.5.11 POSITION valve WT-V-404 in the "DRAIN" position.

5.5.12 LOCATE AND ACTIVATE "ALARM RESET" Switch ANA-WT-PB-335C.

5.5.13 VERIFY local strobe light alarm is Deactivated.

Test Director Initial

Date

5.5.14 MEASURE AND RECORD voltage BETWEEN Terminal TB-DC2-67 AND Terminal TB-DC2-66 in Field Terminal Box AN241-WT-TBX-101.

VOLTAGE

5.5.15 VERIFY voltage recorded in Step 5.5.14 is at a nominal range of "24" Volts dc.

Test Director Initial

Date

5.5.16 RETURN valve WT-V-404 to the "OPERATE" position after all water has drained.

5.5.17 REPLACE cap on "TEST RISER" AND ENSURE cap is secured tightly.

5.5.18 RETRACT pit drain seal assembly for valve pit 241-AN-A. (Reference Drawing H-14-100978).

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

____ 5.5.19 **VERIFY** visually NO standing water remains in valve pit
241-AN-A.

____ Test Director Initial

____ Date

____ 5.5.20 **RESET** valve pit 241-AN-A drain seal assembly.

5.5.21 **VERIFY** Test 5.5 is COMPLETE.

____ Test Director Signature

____ Date

____ Operations Signature

____ Date

5.6 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

- ___ 5.6.1 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, reference drawing No. H-14-100990, is in the CLOSED or ON position AND local strobe light alarm is DEACTIVATED.
- ___ 5.6.2 **ROTATE** selector switch ANA-WT-SS-335 to "FAIL RELAY TEST" position, THEN **RELEASE** allowing spring return to the "OPERATE" position.
- ___ 5.6.3 **VERIFY** local strobe light alarm ANA-WT-LDA-335A, reference No. H-14-100990, is activated.

Test Director Initial

Date

- ___ 5.6.4 **LOCATE**, Field Terminal Box AN241-WT-TBX-101. (Reference Drawing H-14-100988).
- ___ 5.6.5 **ROTATE AND HOLD** selector switch ANA-WT-SS-335 in "FAIL RELAY TEST" position.
- ___ 5.6.6 **MEASURE AND RECORD** voltage BETWEEN Terminal TB-DC2-67 AND Terminal TB-DC2-68 in Field Terminal Box AN241-WT-TBX-101.
- ___ 5.6.7 **VERIFY** voltage recorded in Step 5.6.6 is at a nominal range of "0" Volts dc.

Test Director Initial

Date

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for the original page.

5.7 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

5.7.1

ENSURE ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, reference drawing No. H-14-100990, is in the CLOSED or ON position AND local strobe light alarm is DEACTIVATED.

5.7.2

LOCATE AND REMOVE wire LDE-335-1(-) at TB-335 Terminal 12. (Reference Drawing H-14-100990).

5.7.3

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
LDE-335-1(-)	5.7.2			5.7.10		

5.7.4

VERIFY local strobe light alarm ANA-WT-LDA-335A, reference drawing No. H-14-100990, is activated.

Test Director Initial

Date

5.7.5

LOCATE AND ACTIVATE "ALARM RESET" Switch ANA-WT-PB-335C, reference drawing No. H-14-100990.

5.7 MTL FAIL SAFE RELAY SIMULATION TEST (Cont.)

5.7.6 _____ VERIFY local strobe light alarm remains activated.

5.7.7 _____ LOCATE, field Terminal Box AN241-WT-TBX-101.

(Reference Drawing H-14-100988).

MEASURE AND RECORD voltage BETWEEN Terminal TB-DC2-67 AND Terminal TB-DC2-68 in field Terminal Box AN241-WT-TBX-101.

VOLTAGE

5.7.9 _____ VERIFY voltage recorded in Step 5.7.8 is at a nominal range of "0" Volts dc.

5.7.10 _____ RECONNECT wire LDE-335A-1 (-) on Terminal 12.

5.7.11 _____ QC RECORD latched wire data on Lift/Land table.

5.7.12 _____ VERIFY wire IS TERMINATED correctly.

5.7.13 _____ LOCATE AND ACTIVATE "ALARM RESET" Switch ANA-WT-PB-335C,

drawing reference No. H-14-100990.

5.7.14 _____ VERIFY local and strobe light alarm is NOT operating.

5.7.15 _____ MEASURE AND RECORD voltage BETWEEN Terminal TB-DC2-67 AND Terminal TB-DC2-68 in Terminal Box AN241-WT-TBX-101.

VOLTAGE

5.7 MTL FAIL SAFE RELAY SIMULATION TEST (Cont.)

____ 5.7.16 **VERIFY** voltage recorded in Step 5.7.15 is at a nominal range of "24" Volts dc.

Test Director Initial

Date

5.7.17 **VERIFY** Test 5.7 is COMPLETE.

Test Director Signature

Date

Operations Signature

Date

5.8 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 ATP, a signal will be generated from Field Terminal Box AN241-WT-TBX-101 to 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

____ 5.8.1 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, reference drawing No. H-14-100990, is in the Open or OFF position, AND local strobe light alarm is deactivated.

____ 5.8.2 **WIRE** a temporary switch, S-1, BETWEEN Terminal TB-DC4-51 AND TB-DC2-63 in Terminal Box AN241-WT-TBX-101.

____ 5.8.3 **QC VERIFY** temporary switch installed.

____ QC Initial

____ Date

____ 5.8.4 **VERIFY AND ENSURE** temporary switch is in the OPEN or OFF position

____ Test Director Initial

____ Date

____ 5.8.5 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, is in the CLOSED or ON position. (Reference drawing No. H-14-100990) AND local strobe light alarm is DEACTIVATED.

____ 5.8.6 **ROTATE** selector switch ANA-WT-SS-335 to the "PROBE TEST" position, THEN **RELEASE** allowing spring return to the "OPERATE" position.

____ 5.8.7 **VERIFY** local strobe light alarm ANA-WT-LDA-335A, reference drawing No. H-14-100990, is activated.

____ Test Director Initial

____ Date

5.8 REMOTE RESET TEST Cont.)

___ 5.8.8 **MEASURE AND RECORD** voltage BETWEEN Terminal TB-DC4-51 AND Terminal TB-DC2-63 in Terminal Box AN241-WT-TBX-101.

VOLTAGE _____

___ 5.8.9 **VERIFY** voltage recorded in Step 5.8.8 is at a nominal range of "24" Volts dc.

Test Director Initial

Date

___ 5.8.10 Momentarily **CLOSE** then **OPEN** temporary switch, S-1, installed in Step 5.8.2.

___ 5.8.11 **VERIFY** local strobe light alarm ANA-WT-LDA-335A, reference drawing No. H-14-100990, is deactivated.

Test Director Initial

Date

___ 5.8.12 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, is in the Open or OFF position, AND local strobe light alarm is deactivated.

___ 5.8.13 **REMOVE** temporary switch, S-1, BETWEEN Terminal TB-DC4-51 AND TB-DC2-63 in Terminal Box AN241-WT-TBX-101.

___ 5.8.14 **QC VERIFY** temporary switch removed.

QC Initial

Date

5.8.15 **VERIFY** Test 5.8 is COMPLETE.

Test Director Signature

Date

Operations Signature

Date

5.9 REMOTE TRIP AMPLIFIER/VOLTAGE RELAY TEST

NOTE - The remote leak detection relay test is a function that allows the operator to test the trip amplifier voltage relay from the HMI display. For the purposes of this ATP, a signal will be generated from the Field Terminal Box AN241-WT-TBX-101. 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

___ 5.9.1 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, reference drawing No. H-14-100990, is in the OPEN or OFF position, AND local strobe light alarm is deactivated.

___ 5.9.2 **WIRE** a temporary switch, S-1, BETWEEN Terminal TB-DC4-51 AND TB-DC2-65 in Terminal Box AN241-WT-TBX-101.

___ 5.9.3 **QC VERIFY** temporary switch installed.

QC Initial

Date

___ 5.9.4 **VERIFY** temporary switch is in the OPEN or OFF position.

Test Director Initial

Date

___ 5.9.5 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, reference drawing No. H-14-100990, is in the CLOSED or ON position AND local strobe light alarm is DEACTIVATED.

___ 5.9.6 **MEASURE AND RECORD** voltage BETWEEN Terminal TB-DC4-51 AND Terminal TB-DC2-65 in Terminal Box AN241-WT-TBX-101.

VOLTAGE _____

___ 5.9.7 **VERIFY** voltage recorded in Step 5.9.6 is at a nominal range of "24" Volts dc.

Test Director Initial

Date

5.9 REMOTE TRIP AMPLIFIER\VOLTAGE RELAY TEST

- ___ 5.9.8 Momentarily **CLOSE THEN OPEN** temporary switch, S-1, installed in Step 5.9.2.
- ___ 5.9.9 **VERIFY** local strobe light alarm ANA-WT-LDA-335A, reference drawing No. H-14-100990, is activated.

Test Director Initial_____
Date

- ___ 5.9.10 **LOCATE AND ACTIVATE** "ALARM RESET" Switch ANA-WT-PB-335C, reference drawing No. H-14-100990.

- ___ 5.9.11 **VERIFY** local strobe light alarm ANA-WT-LDA-335A is deactivated.

Test Director Initial_____
Date

- ___ 5.9.12 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, reference drawing No. H-14-100990, is in the OPEN or OFF position, AND local strobe light alarm is deactivated.

- ___ 5.9.13 **REMOVE** temporary switch, S-1, BETWEEN Terminal TB-DC4-51 AND TB-DC2-65 in Terminal Box AN241-WT-TBX-101.

- ___ 5.9.14 QC **VERIFY** temporary switch removed.

QC Initial_____
Date

- 5.9.15 **VERIFY** Test 5.9 is COMPLETE.

Test Director Signature_____
Date_____
Operations Signature_____
Date

5.10 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 test the leak detection relay from the HMI display. For the purposes of this ATP, a signal will be generated from the Field Terminal Box AN241-WT-TBX-101. 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

___ 5.10.1 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, is in the OPEN or OFF position, AND local strobe light alarm is deactivated.(Reference drawing No. H-14-100990).

___ 5.10.2 **WIRE** a temporary switch, S-1, BETWEEN Terminal TB-DC4-51 AND TB-DC2-64 in Terminal Box AN241-WT-TBX-101.

___ 5.10.3 **QC VERIFY** temporary switch installed.

QC Initial Date

___ 5.10.4 **VERIFY** temporary switch is in the OPEN or OFF position.

Test Director Initial Date

___ 5.10.5 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, reference drawing No. H-14-100990, is in the CLOSED or ON position AND local strobe light alarm is DEACTIVATED.

___ 5.10.6 **MEASURE AND RECORD** voltage BETWEEN Terminal TB-DC4-51 AND Terminal TB-DC2-64 in Terminal Box AN241-WT-TBX-101.

VOLTAGE _____

___ 5.10.7 **VERIFY** voltage recorded in Step 5.10.6 is at a nominal range of "24" Volts dc.

Test Director Initial Date

5.10 REMOTE LEAK DETECTION RELAY TEST (Cont.)

___ 5.10.8 Momentarily **CLOSE THEN OPEN** temporary switch, S-1, installed in Step 5.10.2.

___ 5.10.9 **VERIFY** local strobe light alarm ANA-WT-LDA-335A, reference drawing No. H-14-100990, is activated.

Test Director Initial

Date

___ 5.10.10 **LOCATE AND ACTIVATE** "ALARM RESET" Switch ANA-WT-PB-335C. (Reference drawing No. H-14-100990).

___ 5.10.11 **VERIFY** local strobe light alarm ANA-WT-LDA-335A is deactivated.

Test Director Initial

Date

___ 5.10.12 **ENSURE** ANA-WT-LDSTA-335 disconnect switch ANA-WT-DS-335, is in the OPEN or OFF position, AND local strobe light alarm is deactivated. (Reference drawing No. H-14-100990).

___ 5.10.13 **REMOVE** temporary switch, S-1, BETWEEN Terminal TB-DC4-51 AND TB-DC2-64 in Terminal Box AN241-WT-TBX-101.

___ 5.10.14 QC **VERIFY** temporary switch removed.

QC Initial

Date

5.10.15 **VERIFY** Test 5.10 is COMPLETE.

Test Director Signature

Date

Operations Signature

Date

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ATP EXCEPTION RECORD

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ATP STEP NUMBER:	ATP EXCEPTION Log#:
DESCRIPTION OF EXCEPTION:	
NAME / ORGANIZATION OF INITIATOR:	
DATE OF EXCEPTION:	
RESOLUTION OF EXCEPTION:	
DATE OF RESOLUTION:	
TEST DIRECTOR SIGNATURE:	DATE:
PROJECT ENGINEER SIGNATURE:	DATE:
QUALITY ASSURANCE SIGNATURE:	DATE:

PRINT NAME

SIGNATURE

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PROCEDURE HISTORY SIGNATURE SHEET

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