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Title/Desc:

TEST REPORT 241AN274 CAUSTIC PUMP CONTROL BLDG

SEP 29 1995

ENGINEERING DATA TRANSMITTAL

Page 1 of 1
1. EDT No 610899

2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) Test Engineering		4. Related EDT No.: 605634	
5. Proj./Prog./Dept./Div.: 107AN Caustic Addition Project		6. Cog. Engr.: R.S. Nicholson 373-2986		7. Purchase Order No.: N/A	
8. Originator Remarks: This Acceptance Test Report is for documenting the test results of test procedure WHC-SD-WM-ATP-135 "Acceptance Test Procedure for the 241-AN-274 Caustic Pump Control Building"				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: 241-AN	
				12. Major Assm. Dwg. No.: N/A	
11. Receiver Remarks:				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: 09/29/95	

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16. KEY			
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17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)										(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog.Eng. R. Nicholson	<i>[Signature]</i>	9/29/95	S5-05	R. Reed			R1-51	3	
1	1	Cog. Mgr. G. Hanson	<i>[Signature]</i>	9/29/95	S5-05	G. Leshikar			S2-24	3	
1	1	K. Carothers	<i>[Signature]</i>	9/27/95	S1-51						
1	1	G. Paintner	<i>[Signature]</i>	9-27-95	S4-43						
1	1	M. Harding	<i>[Signature]</i>	9-28-95	S7						
3		R. Parazin			R1-51						
3		D. Larsen			R1-51						

18. R.E. Parazin <i>[Signature]</i> Signature of EDT Originator 9-27-95 Date		19. <i>[Signature]</i> Authorized Representative for Receiving Organization 9/27/95 Date		20. G.N. Hanson <i>[Signature]</i> Cognizant Manager 9/29/95 Date		21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments	
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RELEASE AUTHORIZATION	
Document Number:	WHC-SD-WM-ATR-135, REV 0
Document Title:	Test Report - 241-AN-274 Caustic Pump Control Building
Release Date:	9/29/95
<p style="text-align: center;">This document was reviewed following the procedures described in WHC-CM-3-4 and is:</p> <p style="text-align: center;">APPROVED FOR PUBLIC RELEASE</p>	
WHC Information Release Administration Specialist:
Kara Broz	9/29/95

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SUPPORTING DOCUMENT		1. Total Pages 74
2. Title Test Report - 241-AN-274 Caustic Pump Control Building	3. Number WHC-SD-WM-ATR-135	4. Rev No. 0
5. Key Words AN-107 Caustic Addition 241-AN-274 Pump Control Building Mixer Pump	6. Author Name: R.E. Parazin <i>Raymond E. Parazin</i> Signature Organization/Charge Code 77640/N2L11	
7. Abstract This Acceptance Test Report documents the test results of test procedure WHC-SD-WM-ATP-135 "Acceptance Test Procedure for the 241-AN-274 Caustic Pump Control Building." The objective of the test was to verify that the 241-AN-274 Caustic Pump Control Building functions properly based on design specifications per applicable H-2-85573 drawings and associated ECN's. The objective of the test was met.		
8. RELEASE STAMP <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> OFFICIAL RELEASE 61 BY WHC DATE SEP 29 1995 <i>Sta 4</i> </div>		

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WHC-SD-WM-ATR-135 Rev. 0

TEST REPORT

241-AN-274 CAUSTIC PUMP CONTROL BUILDING

WHC-SD-WM-ATR-135 Revision:0

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1.0 INTRODUCTION

Complete pre-operational testing of the caustic addition pump control building (241-AN-274) was conducted during October and November of 1994 in the rotating equipment shop (Bldg 272E). During performance of that test the pump control building successfully met all of its design criteria (see WHC-SD-WM-TRP-222 for more information).

After completion of the pre-operational testing, modifications were made to the pump control building, primarily by work package 2E-95-00157 "Modification of AN Caustic Instrument Building". In order to ensure the pump control building functioned properly after being modified, additional testing was necessary. In addition to the pump control building modifications, the new test procedure included some equipment not available during the original pre-operational test.

The additional testing of the 241-AN-274 caustic pump control building was performed on July 24th and 25th of 1995 in accordance with WHC-SD-WM-ATP-135, Acceptance Test Procedure for the 241-AN-274 Caustic Pump Control Building. This test was performed as part of work package 2E-95-00157 by personnel from Westinghouse Hanford Company.

2.0 TEST DESCRIPTION

A copy of the work-completed test procedure (WHC-SD-WM-ATP-135), is included as appendix A of this document. A description of the caustic addition system, a description of the equipment involved in the test, the test set-up, and the procedural test steps are all contained in that test procedure.

3.0 TEST RESULTS

A copy of the work-completed test procedure with sign-offs is included in as appendix A of this document. The test was completed with no major difficulties and only one test exception noted (see page A-64). The one exception was of an administrative nature and did not affect the performance of the test or the tested equipment.

The primary objective of ensuring that the caustic pump control building functioned properly after being modified per NEC rework work package 2E-95-00157 was met.

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APPENDIX A

WHC-SD-WM-ATP-135
(Signed-Off Copy)

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JUN 30 1995 STA#3 ① ENGINEERING DATA TRANSMITTAL					Page 1 of 1 1. EDT 605634						
2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) Equipment Engineering		4. Related EDT No.: N/A							
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8. Originator Remarks: ETN-94-0069 This Acceptance Test Procedure is to test the 241-AN-274 Caustic Pump Control Building.				9. Equip./Component No.: N/A							
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1	1	Cog. Eng. R. Nicholson	<i>Robert R. Nicholson</i>	6/29/95	S5-05	M. Harding			S5-07	4	
1	1	Cog. Mgr. G. Hanson	<i>G. Hanson</i>	6/29/95	S5-05	G. Leshikar			S2-24	4	
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						OSTI (2)			A3-36		
18. Signature of EDT Originator <i>G. Paintner</i> 6-29-95		19. Authorized Representative for Receiving Organization <i>[Signature]</i> Date		20. Cognizant Manager <i>G.N. Hanson</i> 6/29/95		21. DOE APPROVAL (if required) Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments					

RELEASE AUTHORIZATION

Document Number: WHC-SD-WM-ATP-135, Rev. 0

Document Title: Acceptance Test Procedure for the 241-AN-274 Caustic Pump Control Building

Release Date: June 29, 1995

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

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WHC Information Release Administration Specialist:

T.L. Ontiveros

June 29, 1995

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5. Key Words AN-107 Caustic Addition 241-AN-274 Pump Control Building Mixer Pump	6. Author Name: G.F. Painter Signature Organization/Charge Code 74700/N2L11	
7. Abstract <p>This Acceptance Test Procedure (ATP) provides instructions to test specific sections of the 241-AN-274 Caustic Pump Control Building. The objective of this procedure is to verify that the 241-AN-274 Caustic Pump Control Building functions properly based on design specifications per applicable H-2-85573 drawings and associated ECN's.</p>		
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Revision 0

ACCEPTANCE TEST PROCEDURE
FOR THE 241-AN-274
CAUSTIC PUMP CONTROL BUILDING

May 25, 1995

Prepared by
G.P. Paintner
for

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

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ACCEPTANCE TEST PROCEDURE FOR
THE 241-AN-274 CAUSTIC PUMP CONTROL BUILDING

1.0 INTRODUCTION

1.1 SYSTEM DESCRIPTION

A caustic addition and entrainment system is to be installed at double-shell tank (DST) 241-AN-107 for the purpose of increasing the hydroxide ion concentration of the waste. The result will be to bring the waste into compliance with tank farm operating specifications. The caustic soda solution is to be 50% sodium hydroxide by weight. The system consists of three major parts which are the 75 HP mixer pump, 241-AN-274 caustic pump control building and the caustic injection skid. The primary focus of this ATP is the caustic pump control building and will be the only item referenced during this document. The caustic pump control building contains all of the necessary electrical, control and instrumentation hardware to operate the 75 HP mixer pump and caustic injection skid.

1.2 PURPOSE

The purpose of this document is to demonstrate that specific portions of the caustic pump control building function as intended by design.

1.3 SCOPE

The scope of this ATP will be limited to items that were impacted by the NEC rework package 2E-95-00157 and other portions of the caustic pump control building that engineering deem necessary. All other aspects of the caustic pump control building have been tested via "Test Report - Pumping System for Caustic Addition Project", WHC-SD-WM-TRP-222, revision 0. The caustic pump control building successfully met all of its design criteria during this test. Therefore, it is deemed unnecessary to perform additional testing on items that were not impacted by the above mentioned work package.

1.4 OBJECTIVE

The primary objective of this ATP is to ensure that the caustic pump control building functions properly after being upgraded per NEC rework work package 2E-95-00157.

1.5 BACKGROUND

The 75 HP Hazleton pump was purchased in 1987 as a mixer pump for the 241-AY Tank Farm and has been stored at 2101-M

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laydown yard since arriving onsite in January 1988. The pump is physically similar in design to the 150 HP Hazleton mixer pump that is currently installed at DST 241-AP-102 and the 150 HP Hazleton mixer pump that has been modified for use as the Hydrogen Mitigation Pump for DST 241-SY-101. A run-in test of the 75 HP mixer pump was performed in August 1993 to ensure satisfactory performance in view of the lengthy storage period and modifications made to the pump. For more information see "Test Report for Hazleton Rotating Submersible Mixer Pump S/N N-20801", WHC-SD-WM-TRP-149, revision 0.

The caustic pump control building is a Westinghouse Hanford Company designed piece of equipment that was fabricated during 1994 by Kaiser Fabrication Services at the 272-E rotating equipment shop. See drawing H-2-85573 sheets 1 thru 33 and related ECN's for the design of the caustic pump control building.

The caustic injection skid was purchased from Bran & Luebbe. The development of this piece of equipment was governed by "Tank 107-AN Caustic Addition Pump Skid Requirements", WHC-SD-WM-RD-031, revision 0. Bran & Luebbe performed the acceptance test for this piece of equipment and was verified by Westinghouse Hanford Company at the vendor location. The vendor drawings for this piece of equipment were converted to Westinghouse Hanford Company H-2 drawings. See drawings H-2-85351 sheets 1 thru 6 and H-2-85348 sheets 1 thru 3 for the electrical and mechanical details, respectively.

Acceptance, sub-system and integrated operational testing was performed on the 75 HP mixer pump, caustic pump control building and caustic injection skid per "Test Report - Pumping System for Caustic Addition Project", WHC-SD-WM-TRP-222, revision 0. The caustic system testing was successful based on the information obtained in the report mentioned above.

2.0 REFERENCES

Drawings: (Obtain ECN printouts and ECN's from document control for complete drawing information.)

- H-2-85573, sheets 1 thru 33
(Caustic Pump Control Building)
- * H-2-85301, sheets 5 and 6
(Electrical Panelboard Schedules)
- H-2-85351, sheets 1 thru 6
(Caustic Injection Skid - Electrical)

ECN's: • 621951
 • 621952
 • 621953
 • 621954

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- 621955
- 621956
- 621957
- * 621958
- 705751
- 705752

- CVI's: *
- 22528, Hazleton Bulletin 48,049, "Operation & Maintenance Manual for 5N-Hazleton Type SSB/Mixing Pump", Barrett, Haentjens & Co., Hazleton, PA 18201, 1/21/88.
 - 22570, Eaton Corp., Variable Frequency Drive Manual.
 - 22578, Bran & Luebbe, Caustic Addition Pump System Operation and Maintenance Manual, January 1994.

WHC Controlled Documentation:

- * WHC-SD-WM-ETP-021, Engineering Task Plan for 107-AN Mixer Pump Caustic Addition Project - ETN-94-0069, 12/08/93.
- WHC-SD-WM-WP-208, Tank 107-AN Caustic Addition Project Mechanical Systems Engineering Work Plan - ETN-94-0010, 12/16/93.
- WHC-SD-WM-TRP-149, Test Report for Hazleton Rotating Submersible Mixer Pump SN N-20801, 02/07/94.
- WHC-SD-WM-TRP-222, Test Report - Pumping System for Caustic Addition Project.
- WHC-SD-WM-RD-031, Tank 107AN Caustic Addition Pump Skid Requirements, 03/22/93.

3.0 RESPONSIBILITIES

Each organization participating in the execution of this ATP will designate personnel for 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 Recorder's copy of the Test Execution Sheet prior to the performance of any part of this ATP.

All 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 the environment. Managers shall assure the safety of all activities within their areas to prevent injury, property damage or interruption of operation. Performance of ATP activities shall always include safety and health aspects as delineated in WHC operations manuals. Any hazard identified during the performance of this ATP shall be reported to the Test Director.

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3.1 ORGANIZATIONAL RESPONSIBILITIES

3.1.1 PROJECT ENGINEER * *Greg Painter*

- Designate a Test Director from East Tank Farms Engineering.
- * Provide technical information during the test.
- Approve field changes to the ATP.
- * Sign/date Test Execution Sheet when ATP is approved and accepted.
- Take necessary actions to clear exceptions to the ATP.
- Sign/date Test Exception Sheet(s) when an exception has been resolved.
- Confirm that all equipment required for performing this test will be available for the test.
- * Obtain approval signatures and distribute the accepted ATP document.
- Prepare and obtain required signatures on the Acceptance Test Report prior to reproduction and distribution.

3.1.2 TEST DIRECTOR *D. J. Dyke*

- Witness testing.
- Coordinate all ATP activities.
- * Coordinate testing with facility management.
- Act as liaison between the participants in acceptance testing.
- Schedule and conduct a pre-ATP meeting with the participants prior to start of testing.
- Notify the persons performing and witnessing the test prior to the start of testing.
- Notify all concerned parties when a change is made in the testing schedule.
- Stop any testing that may cause personal injury and/or equipment damage.

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Revision 0

- * Overall responsibility and authority for the performance of this test and shall ensure that the test is performed in accordance with this document.
- * Ensure that housekeeping important to maintaining a safe work environment is performed.
- Ensure that only cognizant, qualified and essential personnel have access to the test area.
- Approve field changes to the ATP.
- If the test procedure is suspended, the test shall be restarted at a location in the procedure determined by the Test Director.
- * Obtain revisions to the ATP, as necessary, to comply with the authorized field changes or to accommodate existing field conditions.
- Evaluate recorded data, discrepancies and exceptions.
- * Obtain from the Project Engineer, any information or changes necessary to clear or resolve exceptions.
- Sign/date where indicated in the ATP after completion of the specified item.
- Sign/date the Test Execution Sheet when execution of the ATP has been completed.
- * Sign/date Test Exception Sheet(s) when acceptable retest has been performed.

3.1.3 SAFETY

- Review and approve the ATP document.

3.1.4 RECORDER *Bob Nicholson*

- Witness testing and perform all recording using black ink.
- Record names of all designated personnel on the Test Execution sheet on the Recorder's copy of the ATP prior to testing.
- Observe testing, record test data were required and maintain Test Log Sheet(s).
- Record test equipment data on the Test Equipment Log Sheet prior to usage.
- Sign/date the Test Execution Sheet and Test Exception Sheet(s) as the Recorder.

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- * Check off, initial and date every test step on the Recorder's copy as it is completed, next to the step number.
- * Record authorized field changes to the ATP.
- Record, on Test Exception Sheets, exceptions and test steps that are not performed. Additional Test Exception Sheets can be reproduced as needed.
- Notify the Test Director at the time an exception is made.
- * After ATP is completed assign page numbers to the Test Exception and Test Log sheets.
- Submit the completed ATP to the Project Engineer for approval signatures and distribution.

3.1.5 QUALITY *Ken Willybey*

- * Witness testing.
- Evaluate recorded data, discrepancies and exceptions.
- Approve field changes to the ATP.
- Sign/date where indicated in the ATP after completion of the specified item.
- Sign/date Test Execution Sheet when execution of the ATP is completed, approved and accepted.
- Sign/date Test Exception Sheet(s) when an exception is made and has been resolved.

3.1.6 MAINTENANCE *Dan Patrick - Randy Swift*

- * Provide an Electrician to support testing activities. This will include, but not limited to, opening panels, installing electrical jumpers, troubleshooting, measurements, etc..

4.0 SAFETY

Normal WHC safety requirements and safe practices followed by tank farm operations and field personnel shall be utilized during this test and shall be in effect at all times during the test. Because this is a test, it is expected that troubleshooting will be required at times. The Test Director has the authority to remove spectator personnel not essential to the test during troubleshooting and during performance of the test, if in his/her determination, their presence adds to the potential for injury.

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4.1 CAUTIONS AND WARNINGS

4.1.1 CAUTIONS

- Prior to starting the test all individuals involved with the test shall read and understand this ATP and be somewhat familiar with all referenced documentation associated with this document. This will enhance the test process and will help prevent personal injury and/or equipment damage.
- Before starting the test procedure the Test Director shall ensure that personnel conducting the test are familiar with the equipment and controls in order to prevent personal injury and/or equipment damage.
- Due to limited space available within the caustic pump control building, there shall be no more than six personnel within the building at any one time. This will allow the occupants to exit the building safely in the event of an emergency. The Test Director can adjust the occupancy level of the building as required, but not to exceed the above stated value.
- If an Electrician is required to perform work within the caustic pump control building, all personnel are to be removed from the building by the Test Director, except for the Electrician and Project Engineer. This will reduce the potential for injury to personnel.
- The system shall not be left unattended at any time while the test is in progress. This is to protect equipment in the event of hardware failure.
- There are several pieces of equipment located within the small confines of the caustic pump control building. It is extremely important that personnel within the building are constantly aware of their surroundings in order to prevent personal injury and/or accidental equipment operation.

4.1.2 WARNINGS

- * Only qualified Electricians are allowed to open, work on and/or test within an energized electrical panel or device. Failure to observe this warning could cause personal injury and/or equipment damage.

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- There will be live 120 and 480 volt circuits exposed within the caustic pump control building at certain times during the test. The Test Director shall ensure that personnel within the building are isolated from these live circuits. Failure to observe this warning could cause personal injury and/or equipment damage.
- The Eaton Corp. variable frequency drive has extremely high DC voltage inside of its cabinet, even when the drive is turned off. If for any reason entry into this cabinet is required extreme caution must be used by all individuals in order to prevent personal injury and/or equipment damage.

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5.0 DESCRIPTION

5.1 FACILITY DESCRIPTION

The 241-AN-274 caustic pump control building is a ten foot wide by sixteen foot long by ten foot high portable structure, which is anchored to a concrete slab. Power for the building is obtained from motor control center EDS-MCC-101 located in the 241-AN-271 instrument building. The building contains all of the power, control and instrumentation necessary to operate and monitor the 75 HP mixer pump and caustic injection skid. The building is located on the west side of 241-AN tank farm outside of the zone, approximately twenty feet south of the 241-AN-271 instrument building. See Figure 1 Partial Site Plan and Figures 2 thru 5 for building elevations. It is important to note here that these referenced figures and following referenced figures are from released drawings less ECN changes. Therefore, it is necessary to review applicable released ECN's in order to determine the exact configuration of the information being shown in the figures. For the purpose of this test procedure it is not feasible to update figure representations, instead applicable ECN number or numbers will be referenced if deemed necessary.

5.2 ELECTRICAL COMPONENT DESCRIPTIONS

The only electrical components of the caustic system that will be described below are the ones that are utilized by this test procedure.

5.2.1 241-AN-274 Disconnect Switch, EDS-DS-114

This Square D, Model H364DS, fusible disconnect switch is located on the south exterior wall of the 241-AN-271 instrument building, see Figure 6. The disconnect switch is fed from motor control center EDS-MCC-101 located in the 241-AN-271 instrument building via bus taps. Its output is connected to the 480 VAC distribution panelboard EDS-DP-108 located in the caustic pump control building after passing thru terminal box WST-TBX-113 located on the north exterior wall of the caustic pump control Building. 200 amp rated fuses are installed in this device. The purpose of this device is to supply 480 VAC power, protection and disconnecting means from the motor control center to the caustic pump control building.

5.2.2 480 VAC Distribution Panelboard, EDS-DP-108

This Square D, Model HCM, distribution panelboard is located on the north interior wall of the caustic pump control building, see Figure 7. The distribution panelboard is fed from disconnect switch EDS-DS-114 located on the south exterior wall of the 241-AN-271

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Figure 1. Partial Site Plan

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Figure 2. Caustic Pump Control Building, West Elevation

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Figure 3. Caustic Pump Control Building, East Elevation

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Figure 4. Caustic Pump Control Building, North Elevation

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Figure 5. Caustic Pump Control Building, South Elevation

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Figure 6. 241-AN-271 Instrument Building, Exterior South Wall

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Figure 7. Caustic Pump Control Building, Interior North Wall

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instrument building after passing through terminal box WST-TBX-113 located on the north exterior wall of the caustic pump control building. The distribution panelboard is rated for 480 VAC / 225A / 3 phase / 4 wire. The distribution panelboard breakers consist of the following: (1) 225A/3-P main breaker, (1) 125A/3-P breaker, (1) 15A/3-P breaker, (1) 40A/2-P breaker, (1) 7A/3-P MCP breaker and (1) 3A/3-P MCP breaker. These breakers are utilized for the following items: 225A/3-P, is the distribution panelboard main breaker; 125A/3-P, is for the 75 HP mixer pump motor; 15A/3-P, is a spare; 40A/2-P, is for the caustic pump control building 120/240 VAC transformer; 7A/3-P MCP, is for the caustic pump motor; 3A/3-P MCP, is for the mixer pump rotation motor. Refer to drawing H-2-85301 sheet 6 for the panelboard schedule.

5.2.3 120/240 VAC Distribution Panelboard, EDS-DP-109

This Square D, Model NQOD, distribution panelboard is located on the north interior wall of the caustic pump control building, see Figure 7. The distribution panelboard is fed from transformer WST-XFMR-107 located in the caustic pump control building. The distribution panelboard is rated for 120/240 VAC / 100A / 1 phase / 3 wire. The distribution panelboard breakers consist of the following: (1) 100A/2-P main breaker, (13) 20A/1-P breakers, (1) 30A/2-P breaker, (1) 40A/1-P breaker and (2) 40A/2-P breakers. These breakers are utilized for the following items: 100A/2-P, is the distribution panelboard main breaker; 20A/1-P, 11 of these are used for mixer pump instrumentation cabinet TB-1A, 1 HP position controller cabinet TB-2A, caustic skid instrument cabinet TB-3A, annunciator panels ANN-008 & ANN-009, caustic skid field, camera equipment in building 241-AN-274, building 241-AN-274 indoor receptacles, camera equipment in the field, building 241-AN-274 GFI outdoor receptacle, camera equipment rack GFI receptacle, building 241-AN-274 lights and the remaining 2 are spares; 30A/2-P, is for the caustic pump control building HVAC unit; 40A/1-P, is a spare; 40A/2-P, one is for the field caustic line heat trace controller #1 and the other is for field caustic line heat trace controller #2. Refer to drawing H-2-85301 sheet 5 for the panelboard schedule.

5.2.4 Transformer, WST-XFMR-107

This General Electric, Model QMS, dry type transformer is located on the north interior wall of the caustic pump control building, see Figure 7. The transformer input is 480 VAC / 1 phase and its output is 120/240 VAC / 1 phase. The transformer is rated for 15 KVA. The transformer input is fed from distribution

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panelboard EDS-DP-108 circuit #8 and its output feeds distribution panelboard EDS-DP-109.

5.2.5 75 HP Variable Frequency Drive, WST-VFD-107

The variable frequency drive is an Eaton Corp., Model AF 5000+, adjustable frequency AC drive, 75 HP nominal, 460 volt / 101.0 amp rated output and 480 VAC / 3 phase / 60 Hz rated input. The drive is located on the north interior wall of the caustic pump control building, see Figure 7. The drive is capable of operating the 75 HP pump motor over its entire speed range. Control of the drive is achieved through a front panel mounted softtouch operator panel (S.T.O.P.), Model A-100. The S.T.O.P. is used for entering and viewing input characteristic parameters and for monitoring drive output operating parameters. The drives software is organized into seven different modes which can be programmed to configure the drive for various operating characteristics. The seven modes are as follows: (1) User mode, contains functions most likely to be needed by the user while operating the drive; (2) Setup mode 1, contains the primary setup and adjustment functions; (3) Setup mode 2, contains additional setup and adjustment functions. These are the primary functions that are related to optional features; (4) Setup mode 3, contains additional setup and adjustment functions similar to setup mode 2; (5) Command mode, contains the commands to unlock and lock the keypad, change the password, store and recall adjustment batches and perform operator control functions; (6) Display mode, contains functions which display data for troubleshooting, etc.; (7) Factory mode, can be used by the user to verify factory setup functions, but the functions can only be changed using factory programming equipment. This unit has non-volatile memory which means with no power applied to the unit the contents programmed into its operating memory will not be lost. Parameters that can be monitored during operation include, but are not limited to the following; motor speed, DC bus power, motor amps and motor volts. The drive is interlocked with pump motor cavity moisture, motor temperature, pump vibration, pump column unbalanced load (tension and compression), rotation overtravel, tank 107AN high pressure and pit 07A leak. If any one of these interlocks is activated the drive will decel and stop. The drive has a "drive running" interlock output which is being used to enable both the rotational drive system and the caustic injection skid variable frequency drive. This will prevent both the rotation system and caustic pump from operating if the 75 HP mixer pump is not operating. Due to the extensive amount of information that is required for setup and control of this drive, refer to CVI file

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#22570 for further information. Input power for the drive is obtained from distribution panelboard EDS-DP-108 circuit #1 located in the caustic pump control building. The output of the drive is connected to the 75 HP pump motor after passing through terminal box WST-TBX-114 located in the caustic pump control building and disconnect switch WST-DS-116 located in the field.

5.2.6 Terminal Box, WST-TBX-114

This Hoffman, NEMA 4, 24 H x 24 W x 8 D enclosure is used as an interface point for all field power wiring that exits the caustic pump control building and is routed to the safety switch rack located by central pump pit 241-AN-07A. This enclosure is located on the north interior wall of the caustic pump control building, see Figure 7.

5.2.7 Mixer Pump Instrumentation Cabinet, TB-1A

The mixer pump instrumentation cabinet TB-1A is located on the south interior wall of the caustic pump control building, see Figure 8. This enclosure contains components which are used for monitoring and/or controlling the following parts of the caustic system: mixer pump vibration, mixer pump motor cavity moisture, mixer pump motor temperature, mixer pump column strain (tension and compression). Refer to drawing H-2-85573 for detailed information for this enclosure.

5.2.8 1 HP Position Controller Cabinet, TB-2A

The 1 HP position controller cabinet TB-2A is located on the south interior wall of the caustic pump control building, see Figure 8. This enclosure contains components which are used for monitoring and/or controlling the following parts of the caustic system: mixer pump rotational drive, Tank 107AN high pressure, and pit 07A leak. Refer to drawing H-2-85573 for detailed information for this enclosure.

5.2.9 Annunciator Panels, ANN-008 & ANN-009

The annunciator panels ANN-008 and ANN-009 are Beta Products, Model 10B; 10 point annunciator panels located on the south interior wall of the caustic pump control building, see Figure 8. Annunciator ANN-008 has the following alarm windows: 75 HP motor moisture, 75 HP motor temperature, 75 HP motor compression, 75 HP motor tension, 75 HP motor vibration, Tank 107AN high pressure and pit 07A leak. See drawing H-2-85573 for more detailed information. Annunciator ANN-009 is a spare.

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Figure 8. Caustic Pump Control Building, Interior South Wall

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5.2.10 Terminal Box, TBX-AN-2C

This Hoffman, NEMA 4, 24 H x 12 W x 6 D enclosure is used as an interface point for all field control and instrumentation wiring that either enters or exits the caustic pump control building. The control and instrumentation wiring is routed to either the 241-AN-271 instrument building, central pump pit 241-AN-07A or the safety switch rack located by the central pump pit 241-AN-07A. This enclosure is located on the south interior wall of the caustic pump control building, see Figure 8.

5.2.11 2 HP Motor Disconnect Switch, CHEMB-DS-117

This Square D, Model HU361DS, non-fusible disconnect switch is located on the south interior wall of the caustic pump control building, see Figure 8. The disconnect switch is fed from distribution panelboard EDS-DP-108 circuit #7 and its output is connected to the caustic pump skid variable frequency drive CHEMB-VFD-101. This device allows the 2 HP caustic pump motor to be isolated from the source if desired.

5.2.12 Caustic Pump Skid Variable Frequency Drive, CHEMB-VFD-101

This Allen-Bradley, Model 1333-YAB, variable frequency drive is located on the south interior wall of the caustic pump control building, see Figure 8. This drive is for controlling the speed of the 2 HP motor on the caustic injection skid. The drive is rated for 2 HP and requires 460 VAC / 3 phase / 60 Hz input power. This drive does not require any operator actions for its operation. The drive is controlled by an external speed pot located at the caustic skid instrument cabinet TB-3A located in the caustic pump control building. For more information on this drive see H-2-85351 and CVI #22578.

5.2.13 Caustic Skid Instrument Cabinet, TB-3A

The caustic skid instrument cabinet TB-3A is located on the south interior wall of the caustic pump control building, see Figure 8. This cabinet contains all of the caustic pump skid monitoring and control hardware. See drawing H-2-85351 and CVI #22578 for complete information on this cabinet.

5.2.14 Terminal Box, WST-TBX-113

This Hoffman, NEMA 4, 24 H x 24 W x 8 D enclosure is used for the main service interface to the caustic pump control building. This enclosure is located on the

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north exterior wall of the caustic pump control building, see Figure 4.

5.2.15 Emergency Stops, WST-VFD-107

The caustic pump control building emergency stops for the 75 HP variable frequency drive WST-VFD-107 are located on the front panel of the 75 HP drive and on the west exterior wall of the building, see Figures 2 and 7. When either of these pushbuttons is depressed the 75 HP variable frequency drive will stop immediately. This drive is interlocked to the caustic skid variable frequency drive and the rotation system, therefore when it shuts off these other systems will also shut off.

5.2.16 Floodlights

A Crouse-Hinds, Model FMV, 250 watt floodlight is mounted on the caustic pump control building south wall, see Figure 5, and is to provide light for the personnel operating the caustic injection skid. A Hubbell, Model QL-505, 500 watt floodlight is mounted on the caustic pump control building west wall above the door, see Figure 2, for entry lighting. The control switch for these lights is located on the west interior wall of the building.

5.2.17 Interior Lights

The caustic pump control building has two Crouse-Hinds, Model FMR, fluorescent light fixtures for interior lighting of the building. The control switch for these lights is located on the west interior wall of the building.

5.2.18 HVAC Unit

The manually controlled HVAC unit is a Carrier, Model Weathermaker XH, which can provide either heating or cooling. The cooling capacity of the unit is 17,100 BTUH and the heating capacity is 16,300 BTUH. The unit is located on the east wall of the caustic pump control building, see Figure 3.

5.2.19 Interior Receptacles

There are two interior receptacles in the caustic pump control building. One is located on the north wall and the other is on the south wall. These receptacles are rated for 125 VAC / 15 amp and are for general purpose power within the building.

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5.2.20 Exterior Receptacle

There is one exterior GFI receptacle on the south wall of the caustic pump control building, see Figure 5. This receptacle is rated for 125 VAC / 15 amp and is for general purpose power.

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6.0 REQUIREMENTS

Below are the requirements that need to be met in order to have a successful test and fulfill the test objective as stated in this document.

Verify that the following items operate properly. Not all features on some of the items listed below will be tested, due to incomplete system integration:

- * Disconnect switch, EDS-DS-114
- Distribution panelboard, EDS-DP-108
- * Distribution panelboard, EDS-DP-109
- Transformer, WST-XFMR-107
- * 75 HP variable frequency drive, WST-VFD-107
- Mixer pump instrumentation cabinet, TB-1A
- 1 HP position controller cabinet, TB-2A
- Annunciator panels, ANN-008 & ANN-009
- 2 HP motor disconnect switch, CHEMB-DS-117
- Caustic pump skid variable frequency drive, CHEMB-VFD-101
- Caustic skid instrument cabinet, TB-3A
- Emergency stops, WST-VFD-107
- Floodlights
- Interior lights
- * HVAC unit
- * Interior receptacles
- * Exterior receptacle

There are other items that are directly and indirectly tested which are not listed above, such as terminal boxes. If the above items and other directly tested items pass their acceptance test then the indirectly tested items will be considered as acceptable hardware.

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7.0 TEST CONDITIONS & EQUIPMENT REQUIRED

7.1 TEST CONDITIONS

The testing of the caustic pump control building will be performed at 241-AN tank farm. No unique chemical, fire, release of energy or criticality safety hazards are involved with performing or supporting these tests. There is a 10 lb A-B-C rated dry chemical fire extinguisher mounted on the west interior wall of the caustic pump control building. All equipment shall be operated as designed. Test equipment damaged during testing, if any, will be repaired or replaced.

7.2 EQUIPMENT REQUIRED

The Project Engineer shall assure that all test equipment is available unless otherwise noted. The following list is provided as an aid and is not intended to be an exhaustive list.

- * 3 1/2 digit multi-meter with current valid calibration
- * Assorted electrician hand tools

8.0 ACCEPTANCE TEST SETUP

Step checkoff and Data Entries

Spaces for check marks are provided to the left of the step numbers. Recorder shall check, initial and date each space as the step is completed. Data entries are to be made where required.

8.1 PRELIMINARY CONDITIONS

- 7/24/95
ATN ✓ 8.1.1 Verify that work package 2E-95-00157, which covers the NEC CR 3550 rework items, has been completed, except for this ATP.
- 7/24/95
ATN ✓ 8.1.2 Verify that NEC CR 3550 has been cleared by an NEC interpretive authority (Chuck Monasmith or equal). Package 2E-95-157 J-4a step 7.5
- 7/24/95
ATN 8.1.3 Verify that work package 2E-94-01202 has been completed. This work package interfaces power from the 241-AN-271 instrument building to the 241-AN-274 caustic pump control building.
Exception 1
- 7/24/95
ATN 8.1.4 Perform an informal workmanship and compliance inspection of the 241-AN-274 building. Package 2E-95-157 J-4a step 7.5

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- 7/24/95
Asn. ✓
- 8.1.5 Test instruments requiring calibration have a currently valid calibration stamp attached, which is traceable to the National Institute of Standards and Testing. Record test instrument data on the Test Equipment Log Sheet, Appendix D.
- 7/24/95
Asn. ✓
- 8.1.6 Continuity and megger tests have been performed on portions of the electrical system being tested. Project Engineer to determine items tested. Package 2E-94-1202 J-4a
- 7/24/95
Asn. ✓
- 8.1.7 The pre-ATP meeting with test participants has been held and the personnel responsible for directing and witnessing the performance of the tests described in this ATP have read and understand their roles.
- 7/24/95
Asn. ✓
- 8.1.8 All other items not called out specifically for testing in this ATP have been tested per WHC-SD-WM-TRP-222 to insure their proper function.
- 7/24/95
Asn. ✓
- 8.1.9 All nameplates have been attached per H-2-85573. 94-1202, 95-157, 95-196, 94-1561
- 7/24/95
Asn. ✓
- 8.1.10 Equipment has been informally checked to ensure that it is in general working order.
- 7/24/95
Asn. ✓
- 8.1.11 Ensure that all tools, extra hardware, ect. have been removed from the 241-AN-274 building.
- 7/24/95
Asn. ✓
- 8.1.12 All components and equipment are de-energized.
- 7/24/95
Asn. ✓
- 8.1.13 Verify that there is no^v field wiring connected inside of terminal box WST-TBX-114 and TBX-AN-2C. If there is, disconnect and stow field wires until this test is completed.
- 7/24/95
Asn. ✓
- 8.1.14 Verify that there is no^v field wiring connected inside of the caustic skid instrument cabinet TB-3A. If there is, disconnect and stow field wires until this test is completed.
- 7/24/95
Asn. ✓
- 8.1.15 Verify that there is no field wiring connected inside of the caustic pump skid variable frequency drive CHEMB-VFD-101.

Voided (not needed) by 8.1.14 Asn. 7/24/95

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If there is, disconnect and stow field wires until this test is completed.

- 7/24/95
AKN. ✓
- 8.1.16 Verify that the WST-VFD-107 EMERGENCY STOP pushbutton on the 75 HP variable frequency drive WST-VFD-107 front panel is pulled out.
- 7/24/95
AKN. ✓
- 8.1.17 Verify that the WST-VFD-107 EMERGENCY STOP pushbutton on the west exterior wall of the 241-AN-274 building is pulled out.
- 7/24/95
AKN. ✓
- 8.1.18 Verify that the caustic skid instrument cabinet TB-3A EMERGENCY STOP pushbutton on the cabinet front panel is pulled out.
- 7/24/95
AKN. ✓
- 8.1.19 Verify that the 75 HP variable frequency drive WST-VFD-107 (VFD) TB2-TA is connected to terminal box WST-TBX-114 right-hand terminal block terminal T1.
- 7/24/95
AKN. ✓
- 8.1.20 Verify that the VFD TB2-TB is connected to terminal box WST-TBX-114 right-hand terminal block terminal T2.
- 7/24/95
AKN. ✓
- 8.1.21 Verify that the VFD TB2-TC is connected to terminal box WST-TBX-114 right-hand terminal block terminal T3.
- 7/24/95
AKN. ✓
- 8.1.22 Verify that the VFD GND is connected to terminal box WST-TBX-114 right-hand lower terminal block terminal GND.
- 7/24/95
AKN. ✓
- 8.1.23 Verify that TB-2A TB3-T1 is connected to terminal box WST-TBX-114 left-hand terminal block terminal T1.
- 7/24/95
AKN. ✓
- 8.1.24 Verify that TB-2A TB3-T2 is connected to terminal box WST-TBX-114 left-hand terminal block terminal T2.
- 7/24/95
AKN. ✓
- 8.1.25 Verify that TB-2A TB3-T3 is connected to terminal box WST-TBX-114 left-hand terminal block terminal T3.
- 7/24/95
AKN. ✓
- 8.1.26 Verify that TB-2A GND from distribution panelboard EDS-DP-108 is connected to terminal box WST-TBX-114 left-hand terminal block terminal GND.

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9.0 ACCEPTANCE TEST

The following steps verify the 75 HP mixer pump motor interlock circuit. Wire continuity checks made with an ohm meter from point to point will require either end of the wire to be lifted. Return wire after check has been made. If possible, visual checks can be performed.

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<u>Adh</u></p>	9.1 Verify continuity between WST-VFD-107 TB1 terminal 18 and TB-1A TB1-3, wire number I1. 9.2 Verify continuity between TB-1A TB1-3 and Moisture Induction Relay K6-6. 9.3 Verify continuity between Moisture Induction Relay K6-5 and TB-1A TB1-4. 9.4 Verify continuity between TB-1A TB1-4 and TB-1A TB6-50. 9.5 Verify continuity between TB-1A TB6-50 and Temperature Relay K3-1. 9.6 Verify continuity between Temperature Relay K3-7 and TB-1A TB6-51. 9.7 Verify continuity between TB-1A TB6-51 and TB-1A TB4-30. 9.8 Verify continuity between TB-1A TB4-30 and Vibration Relay K7-7. 9.9 Verify continuity between Vibration Relay K7-1 and TB-1A TB4-31. 9.10 Verify continuity between TB-1A TB4-31 and TB-1A TB6-54. 9.11 Verify continuity between TB-1A TB6-54 and Tension Relay K5-1. 9.12 Verify continuity between Tension Relay K5-7 and TB-1A TB6-55. 9.13 Verify continuity between TB-1A TB6-55 and TB-1A TB6-58. 9.14 Verify continuity between TB-1A TB6-58 and Compression Relay K4-1. 9.15 Verify continuity between Compression Relay K4-7 and TB-1A TB6-59.

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- Adm. ✓ 7/24/95 9.16 Verify continuity between TB-1A TB6-59 and TB-2A TB1-6, wire number I3.
- Adm. ✓ 7/24/95 9.17 Verify continuity between TB-2A TB1-6 and Tank 107AN High Pressure Relay K11-4.

The next two steps reference the Tank Farm AN Area Radiation Relay. This relay is being deleted from the system, but still exists in the 1 HP position controller cabinet TB-2A because the field work is not complete. This relay has a contact in the 75 HP mixer pump motor interlock circuit. The wiring is being checked here so that the configuration of the entire interlock loop at the time of the test can be verified. This is the only place in the document that this relay or Tank Farm AN Area Radiation is mentioned.

- Adm. ✓ 7/24/95 9.18 Verify continuity between Tank 107AN High Pressure Relay K11-7 and Tank Farm AN Area Radiation Relay K12-4.
- Adm. ✓ 7/24/95 9.19 Verify continuity between Tank Farm AN Area Radiation Relay K12-7 and Pit 07A Leak Relay K13-5.
- Adm. ✓ 7/24/95 9.20 Verify continuity between Pit 07A Leak Relay K13-6 and Control Relay K2-4.
- Adm. ✓ 7/24/95 9.21 Verify continuity between Control Relay K2-7 and TB-2A TB1-5.
- Adm. ✓ 7/24/95 9.22 Verify continuity between TB-2A TB1-5 and WST-VFD-107 heat sink N.C. thermal switch, wire number I2.
- Adm. ✓ 7/24/95 9.23 Verify continuity between WST-VFD-107 heat sink N.C. thermal switch and WST-VFD-107 DC bus voltage inrush contactor N.C. contact, wire number 19A.
- Adm. ✓ 7/24/95 9.24 Verify continuity between WST-VFD-107 DC bus voltage inrush contactor N.C. contact and WST-VFD-107 TB1 terminal 19, wire number 19.

The following step installs a jumper to bypass the 75 HP mixer pump interlock circuit. This is required because a portion of the system is not field work complete at this time. Therefore, the interlock contacts are not operating. This will allow the 75 HP variable frequency drive WST-VFD-107 to be started.

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✓ 7/24/95

- Adm. 9.25 Install a jumper between WST-VFD-107 TB1 terminals 18 and 19.

The following step installs a jumper to complete the 75 HP variable frequency drive WST-VFD-107 emergency stop loop. This needs to be performed because the field E-Stop will be unavailable for this test.

✓ 7/24/95

- Adm. 9.26 Install a jumper between TBX-AN-2C terminals TB6-18 and TB6-31B.

The following step installs a jumper to complete the rotation overtravel loop. This need to be performed because the field overtravel limit switches will be unavailable for this test.

✓ 7/24/95

- Adm. 9.27 Install a jumper between TBX-AN-2C TB6-X1 and TB6-4.

Warning: The following steps supply power to the 241-AN-274 caustic pump control building.

✓ 7/24/95

- Adm. 9.28 Verify that all wires removed for the purpose of this test are stowed properly and that all enclosures are closed.

Disconnect Switch EDS-DS-114 ATP

✓ 7/24/95

- Adm. 9.29 Close disconnect switch EDS-DS-114, located on the south exterior wall of the 241-AN-271 instrument building. ~~Lock and tag to be performed in accordance with the appropriate procedure. (No lock and tag to remove)~~ Adm. 7/24/95
- Adm. 9.30 Measure the incoming line voltage at terminal box WST-TBX-113, if weather permits. If not, then measure inside of the 480 VAC distribution panelboard EDS-DP-108. G.P. 7/24/95

Expected value between 414 and 506 VAC.

Measured value:

A-B	486
A-C	491
B-C	491

Kan Wilby
Quality

7/24/95
Date

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Distribution Panelboard EDS-DP-108 ATP

- Ann. 7/24/95 9.31 Verify that the main breaker in the 480 VAC distribution panelboard EDS-DP-108 can be closed.
- Ann. 7/25/95 9.32 Verify that the following breakers in the 480 VAC distribution panelboard EDS-DP-108 can be closed:
- ✓ * CKT #1: WST-VFD-107 Variable Frequency Drive 75 HP Motor.
 - ✓ * CKT #2: WST-M-107 Rotation 1 HP Motor.
 - ✓ * CKT #7: CHEMB-VFD-101 Variable Frequency Drive Caustic Pump Skid 2 HP Motor.
 - ✓ * CKT #8: WST-XFMR-107 15 KVA Transformer.

Transformer WST-XFMR-107 ATP

- Ann. 7/25/95 9.33 Measure the incoming line voltage at the 120/240 VAC distribution panelboard EDS-DP-109.
- Expected 120 VAC value between 108 and 132 VAC.
- Measured value: 122
- Expected 240 VAC value between 216 and 264 VAC.
- Measured value: 244
- Ken Walbridge 7/25/95
Quality Date

120/240 VAC Distribution Panelboard EDS-DP-109 ATP

- Ann. 7/25/95 9.34 Verify that the main breaker in the 120/240 VAC distribution panelboard EDS-DP-109 can be closed.
- Ann. 7/25/95 9.35 Verify that the following breakers in the 120/240 VAC distribution panelboard EDS-DP-109 can be closed:
- * CKT #1: Mixer Pump Instrumentation Cabinet TB-1A.
 - * CKT #2: 1 HP Position Controller Cabinet TB-2A.
 - * CKT #3: Caustic Skid Instrument Cabinet TB-3A.
 - * CKT #4: Annunciator Panels, ANN-008 & ANN-009.
 - * CKT #6: Camera Equipment, Building 241-AN-274.
 - * CKT #7: Building 241-AN-274 Indoor Receptacles.

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- CKT #9: Building 241-AN-274 GFI Outdoor Receptacle.
- * CKT #11: Building 241-AN-274 Lights.
- CKT #12: Air Conditioner (240 VAC, 1 phase) Cool (7.9A) / Heat (22.7A)

The following step clears the audible alarm on annunciator ANN-008 in the 241-AN-274 building. Some of the alarms on this panel will be activated due to incomplete field work. Clear annunciator ANN-008 audible alarm as required throughout this test.

- Ann. 7/25/95 9.36 Press the ACK pushbutton on annunciator panel ANN-008 if its audible alarm is activated. Verify that the audible alarm is off.

Interior Lights ATP

- Ann. 7/25/95 9.37 Turn on the 241-AN-274 building interior lights. The light switch is located on the west interior wall of the building. Verify that the two ceiling mounted fluorescent lights are on.

Floodlights ATP

- Ann. 7/25/95 9.38 Turn on the two 241-AN-274 building exterior floodlights. The light switch is located on the west interior wall of the building. Verify that the floodlights located on the west and south walls are on.

- Ann. 7/25/95 9.39 Turn off the floodlights. Verify that the floodlights are off.

Interior Receptacles ATP

- Ann. 7/25/95 9.40 Verify that the two interior receptacles have power present.

North wall receptacle:

Expected value between 108 and 132 VAC.

Measured Value: 122

Ken Willoughby
Quality

7/25/95
Date

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Revision 0

South wall receptacle:

Expected value between 108 and 132 VAC.

Measured Value: 122

Kon Wilberg 7/25/95
Quality Date

Exterior Receptacle ATP

7/25/95
Am. 9.41 Verify that the exterior GFI receptacle has power present, see Figure 5 for location.

South wall GFI receptacle:

Expected value between 108 and 132 VAC.

Measured Value: 122

Kon Wilberg 7/25/95
Quality Date

HVAC Unit ATP

If the HVAC unit is turned off, allow two minutes before turning unit back on.

7/25/95
Am. 9.42 Set the HVAC unit control panel to the following settings:

MODE: OFF
TEMPERATURE: 12
EXHAUST: CLOSED
ENERGY SAVER: OFF
AIRFLOW: AS DESIRED

7/25/95
Am. 9.43 Turn the MODE switch to FAN and verify that air is circulated within the building.

7/25/95
Am. 9.44 Turn the MODE switch to LOW COOL and verify that the temperature of the recirculated air decreases.

7/25/95
Am. 9.45 Turn MODE switch to MED COOL and verify that the flow rate of the recirculated air increases.

7/25/95
Am. 9.46 Turn MODE switch to HIGH COOL and verify that the flow rate of the recirculated air increases.

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- 7/25/95
ASN ✓ 9.47 Turn MODE switch to FAN.
- 7/25/95
ASN ✓ 9.48 Turn TEMPERATURE dial to setting 4.
- 7/25/95
ASN ✓ 9.49 Turn MODE switch to LOW HEAT and verify that the temperature of the recirculated air increases.
- 7/25/95
ASN ✓ 9.50 Turn MODE switch to HIGH HEAT and verify that the flow rate of the recirculated air increases.
- 7/25/95
ASN ✓ 9.51 Turn MODE switch to OFF and verify that the unit stops operating.

75 HP Variable Frequency Drive WST-VFD-107 ATP

- 7/25/95
ASN ✓ 9.52 Verify that the emergency stop WST-VFD-107 pushbuttons located on the 75 HP variable frequency drive WST-VFD-107 front panel and on the west exterior wall of the 241-AN-274 building are pulled out.
- 7/25/95
ASN ✓ 9.53 Press and release the 75 HP variable frequency drive WST-VFD-107 (VFD) S.T.O.P. OFF pushbutton.
- 7/25/95
ASN ✓ 9.54 Verify the VFD S.T.O.P. screen indicates "S.P. 000.00", which corresponds to percent motor speed.
- 7/25/95
ASN ✓ 9.55 Press the VFD S.T.O.P. SET SPEED pushbutton.
- 7/25/95
ASN ✓ 9.56 Press and release the VFD S.T.O.P. 10S pushbutton.
- 7/25/95
ASN ✓ 9.57 Press and hold the VFD S.T.O.P. UP ARROW pushbutton until the VFD S.T.O.P. screen indicates "S.T. 100.00".
- 7/25/95
ASN ✓ 9.58 Press and release the VFD S.T.O.P. SPEED pushbutton and verify that the VFD S.T.O.P. screen indicates "S.P. 000.00".
- 7/25/95
ASN ✓ 9.59 Verify that the VFD S.T.O.P. LED's are all off.
- 7/25/95
ASN ✓ 9.60 Press and release the VFD S.T.O.P. HAND pushbutton and verify that the VFD S.T.O.P. screen value increases from "S.P. 000.00" to "S.P. 100.00".
- 7/25/95
ASN ✓ 9.61 Verify that the VFD S.T.O.P. RUN LED is illuminated.

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7/25/95
Asn

- 9.62 Press and release the VFD S.T.O.P. OFF pushbutton and verify that the VFD S.T.O.P. screen value decreases from "S.P. 100.00" to "S.P. 000.00". Also, verify that the VFD S.T.O.P. STOPPING LED begins blinking when the VFD S.T.O.P. OFF pushbutton is pressed and turns off when the VFD S.T.O.P. screen indicates "S.P. 000.00".

Emergency Stops WST-VFD-107 ATP

7/25/95
Asn

- 9.63 Press and release the VFD S.T.O.P. HAND pushbutton and verify that the VFD S.T.O.P. screen indicates "S.P. 100.00".

7/25/95
Asn

- 9.64 Verify that the VFD S.T.O.P. RUN LED is illuminated.

7/25/95
Asn

- 9.65 Push in the emergency stop push-pull operator located on the VFD front panel.

7/25/95
Asn

- 9.66 Verify that the VFD S.T.O.P. screen indicates "S.P. 000.00".

7/25/95
Asn

- 9.67 Verify that the VFD S.T.O.P. RUN LED is off.

7/25/95
Asn

- 9.68 ~~Verify that the VFD S.T.O.P. FAULT LED is on.~~ (didn't come on)

Asn 7/25/95
G.P. 7/25/95

7/25/95
Asn

- 9.69 Pull out the emergency stop push-pull operator located on the VFD front panel.

7/25/95
Asn

- 9.70 Press and release the VFD S.T.O.P. OFF pushbutton.

7/25/95
Asn

- 9.71 ~~Verify that the VFD S.T.O.P. FAULT LED is off.~~ (Was never on) N/A See 4.C.8

Asn 7/25/95
G.P. 7/25/95

7/25/95
Asn

- 9.72 Press and release the VFD S.T.O.P. HAND pushbutton and verify that the VFD S.T.O.P. screen indicates "S.P. 100.00".

7/25/95
Asn

- 9.73 Verify that the VFD S.T.O.P. RUN LED is illuminated.

7/25/95
Asn

- 9.74 Push in the emergency stop push-pull operator located on the west exterior wall of the 241-AN-274 building.

7/25/95
Asn

- 9.75 Verify that the VFD S.T.O.P. screen indicates "S.P. 000.00".

7/25/95
Asn

- 9.76 Verify that the VFD S.T.O.P. RUN LED is off.

7/25/95
Asn

- 9.77 ~~Verify that the VFD S.T.O.P. FAULT LED is on.~~ (It didn't come on)

Asn 7/25/95
G.P. 7/25/95

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7/25/95
ASN 9.78 Pull out the emergency stop push-pull operator located on the west exterior wall of the 241-AN-274 building.

7/25/95
ASN 9.79 Press and release the VFD S.T.O.P. OFF pushbutton.

9.80 ~~Verify that the VFD S.T.O.P. FAULT LED is off.~~ ASN 7/25/95
(not on so it didn't turn off) G.P. 7/25/95

Mixer Pump Instrumentation Cabinet TB-1A ATP

7/25/95
ASN 9.81 Verify that there is 120 VAC power at TB-1A between terminals TB1-X1 and TB1-X2.

Expected value between 108 and 132 VAC.

Measured Value: 122

K. Wilby 7/25/95
Quality Date

7/25/95 ASN 9.82 Open circuit breaker #1, mixer pump instrumentation cabinet TB-1A, in the 120/240 VAC distribution panelboard EDS-DP-109.

The following steps set up the strain DI-1, vibration DI-2 and temperature DI-3 digital indicators located in TB-1A. Each step must be performed for each digital indicator unless noted otherwise.

<u>7/25/95</u> <u>ASN</u>	☒	☒	☒	9.83 Pull out the digital indicator internal unit from its chassis.
<u>7/25/95</u> <u>ASN</u>	☒	☒	☒	9.84 Set the digital indicator rotary switch to the "F" input range code position.
<u>7/25/95</u> <u>ASN</u>	☒	☒	☒	9.85 Set digital indicator dip switch #1 to the ON position.
<u>7/25/95</u> <u>ASN</u>	☒	☒	☒	9.86 Set digital indicator dip switch #2 to the OFF position.
<u>7/25/95</u> <u>ASN</u>	☒	☒	☒	9.87 Return the digital indicator internal unit to its chassis.
<u>7/25/95</u> <u>ASN</u>	☒	☒	☒	9.88 Close circuit breaker #1, mixer pump instrumentation cabinet TB-1A, in the 120/240 VAC distribution panelboard EDS-DP-109.
<u>7/25/95</u> <u>ASN</u>	☒	☒	☒	9.89 Press (for less than 3 seconds) and release repeatedly the set/ent key until "AL 1" is shown

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in the upper display, if it is not currently being displayed.

Adm. 7/25/95 9.90 Strain Digital Indicator DI-1.

Press and release repeatedly either the ▼ or ▲ key until "12" is shown in the lower display, if it is not currently being displayed.

Press (for less than 3 seconds) and release the set/ent key.

Adm. 7/25/95 9.91 Vibration Digital Indicator DI-2.

Press and release repeatedly either the ▼ or ▲ key until "11" is shown in the lower display, if it is not currently being displayed.

Press (for less than 3 seconds) and release the set/ent key.

Adm. 7/25/95 9.92 Temperature Digital Indicator DI-3.

Press and release repeatedly either the ▼ or ▲ key until "12" is shown in the lower display, if it is not currently being displayed.

Press (for less than 3 seconds) and release the set/ent key.

Adm. 7/25/95 9.93 Press (for less than 3 seconds) and release repeatedly the set/ent key until "AL 2" is shown in the upper display, if it is not currently being displayed.

Adm. 7/25/95 9.94 Press and release repeatedly either the ▼ or ▲ key until "11" is shown in the lower display, if it is not currently being displayed.

Adm. 7/25/95 9.95 Press (for less than 3 seconds) and release the set/ent key.

Adm. 7/25/95 9.96 Press (for less than 3 seconds) and release repeatedly the set/ent key until "PD" is shown in the upper display, if it is not currently being displayed.

Adm. 7/25/95 9.97 Strain Digital Indicator DI-1.

Press and release repeatedly either the ▼ or ▲ key until "0" is shown in the lower display.

Press (for less than 3 seconds) and release the set/ent key.

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- Ann ✓ 7/25/95 9.98 Vibration Digital Indicator DI-2.
Press and release repeatedly either the ▼ or ▲ key until "2" is shown in the lower display.
Press (for less than 3 seconds) and release the set/ent key.
- Ann ✓ 7/25/95 9.99 Temperature Digital Indicator DI-3.
Press and release repeatedly either the ▼ or ▲ key until "1" is shown in the lower display.
Press (for less than 3 seconds) and release the set/ent key.
- Ann ✓ 7/25/95 9.100 Press (for less than 3 seconds) and release repeatedly the set/ent key until "RH" is shown in the upper display, if it is not currently being displayed.
- Ann ✓ 7/25/95 9.101 Strain Digital Indicator DI-1.
Press and release either the ▼ or ▲ key until "2000" is shown in the lower display.
Press (for less than 3 seconds) and release the set/ent key.
- Ann ✓ 7/25/95 9.102 Vibration Digital Indicator DI-2.
Press and release either the ▼ or ▲ key until "1.00" is shown in the lower display.
Press (for less than 3 seconds) and release the set/ent key.
- Ann ✓ 7/25/95 9.103 Temperature Digital Indicator DI-3.
Press and release either the ▼ or ▲ key until "392.0" is shown in the lower display.
Press (for less than 3 seconds) and release the set/ent key.
- Ann ✓ 7/25/95 9.104 Press (for less than 3 seconds) and release repeatedly the set/ent key until "RL" is shown in the upper display, if it is not currently being displayed.
- Ann ✓ 7/25/95 9.105 Strain Digital Indicator, DI-1.
Press and release either the ▼ or ▲ key until "-1999" is shown in the lower display.

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Press (for less than 3 seconds) and release the set/ent key.

7/25/95
ASH

9.106 Vibration Digital Indicator DI-2.

Press and release either the ▼ or ▲ key until "0.00" is shown in the lower display.

Press (for less than 3 seconds) and release the set/ent key.

7/25/95
ASH

9.107 Temperature Digital Indicator DI-3.

Press and release either the ▼ or ▲ key until "32.0" is shown in the lower display.

Press (for less than 3 seconds) and release the set/ent key.

7/25/95
ASH

9.108 Press (for less than 3 seconds) and release repeatedly the set/ent key until "FL" is shown in the upper display, if it is not currently being displayed.

7/25/95
ASH

9.109 Press and release either the ▼ or ▲ key until "OFF" is shown in the lower display.

7/25/95
ASH

9.110 Press (for less than 3 seconds) and release the set/ent key.

7/25/95
ASH

9.111 Press (for less than 3 seconds) and release repeatedly the set/ent key until "HY 1" is shown in the upper display, if it is not currently being displayed.

7/25/95
ASH

9.112 Strain Digital Indicator DI-1.

Press and release either the ▼ or ▲ key until "10" is shown in the lower display.

Press (for less than 3 seconds) and release the set/ent key.

7/25/95
ASH

9.113 Vibration Digital Indicator DI-2.

Press and release either the ▼ or ▲ key until "0.05" is shown in the lower display.

Press (for less than 3 seconds) and release the set/ent key.

7/25/95
ASH

9.114 Temperature Digital Indicator DI-3.

Press and release either the ▼ or ▲ key until "10.0" is shown in the lower display.

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Press (for less than 3 seconds) and release the set/ent key.

7/25/95
Am ✓ 9.115

Press (for less than 3 seconds) and release repeatedly the set/ent key until "HY 2" is shown in the upper display, if it is not currently being displayed.

7/25/95
Am ✓ 9.116

Strain Digital Indicator DI-1.

Press and release either the v or ^ key until "10" is shown in the lower display.

7/25/95
Am ✓ 9.117

Press (for less than 3 seconds) and release the set/ent key.

Vibration Digital Indicator DI-2.

Press and release either the v or ^ key until "0.05" is shown in the lower display.

7/25/95
Am ✓ 9.118

Press (for less than 3 seconds) and release the set/ent key.

Temperature Digital Indicator DI-3.

Press and release either the v or ^ key until "10.0" is shown in the lower display.

Press (for less than 3 seconds) and release the set/ent key.

7/25/95
Am ✓ 9.119

Open circuit breaker #1, mixer pump instrumentation cabinet TB-1A, in the 120/240 VAC distribution panelboard EDS-DP-109.

7/25/95
Am ✓ 9.120

Pull out the digital indicator internal unit from its chassis.

7/25/95
Am ✓ 9.121

Set digital indicator dip switch #2 to the ON position.

7/25/95
Am ✓ 9.122

Return the digital indicator internal unit to its chassis.

7/25/95
Am ✓ 9.123

Close circuit breaker #1, mixer pump instrumentation cabinet TB-1A, in the 120/240 VAC distribution panelboard EDS-DP-109.

7/25/95
Am ✓ 9.124

Press (for longer than 3 seconds) and release the set/ent key.

7/25/95
Am ✓ 9.125

Press (for less than 3 seconds) and release repeatedly the set/ent key until "A1" is shown in the upper display.

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- 7/25/95
Asn ✓ 9.126 Strain Digital Indicator DI-1.
- Press and release the ▼ or ▲ key until "-100" is shown in the lower display.
- Press (for less than 3 seconds) and release the set/ent key.
- 7/25/95
Asn ✓ 9.127 Vibration Digital Indicator DI-2.
- Press and release the ▼ or ▲ key until "0.65" is shown in the lower display.
- Press (for less than 3 seconds) and release the set/ent key.
- 7/25/95
Asn ✓ 9.128 Temperature Digital Indicator DI-3.
- Press and release the ▼ or ▲ key until "50.0" is shown in the lower display.
- Press (for less than 3 seconds) and release the set/ent key.
- 7/25/95
Asn ✓ 9.129 Press (for less than 3 seconds) and release repeatedly the set/ent key until "A2" is shown in the upper display.
- 7/25/95
Asn ✓ 9.130 Strain Digital Indicator DI-1.
- Press and release the ▼ or ▲ key until "100" is shown in the lower display.
- Press (for less than 3 seconds) and release the set/ent key.
- 7/25/95
Asn ✓ 9.131 Vibration Digital Indicator DI-2.
- Press and release the ▼ or ▲ key until "0.65" is shown in the lower display.
- Press (for less than 3 seconds) and release the set/ent key.
- 7/25/95
Asn ✓ 9.132 Temperature Digital Indicator DI-3.
- Press and release the ▼ or ▲ key until "200.0" is shown in the lower display.
- Press (for less than 3 seconds) and release the set/ent key.
- 7/25/95
Asn ✓ 9.133 Press (for less than 3 seconds) and release repeatedly the set/ent key until "BS" is shown in the upper display.

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- 7/25/95
Ann ✓ 9.134 Press and release the v or ^ key until "0.0" is shown in the lower display.
- 7/25/95
Ann ✓ 9.135 Press (for less than 3 seconds) and release the set/ent key.
- 7/25/95
Ann ✓ 9.136 Open circuit breaker #1, mixer pump instrumentation cabinet TB-1A, in the 120/240 VAC distribution panelboard EDS-DP-109.
- 7/25/95
Ann ✓ 9.137 Pull out the digital indicator internal unit from its chassis.
- 7/25/95
Ann ✓ 9.138 Set digital indicator dip switch #1 to the OFF position.
- 7/25/95
Ann ✓ 9.139 Return the digital indicator internal unit to its chassis.
- 7/25/95
Ann ✓ 9.140 Close circuit breaker #1, mixer pump instrumentation cabinet TB-1A, in the 120/240 VAC distribution panelboard EDS-DP-109.

The following steps test the moisture induction relay K6 and moisture relay K8.

Warning: The next step installs a jumper on terminals with 220 VAC potential between them.

- 7/25/95
Ann ✓ 9.141 Install a jumper between TBX-AN-2C terminals TB1-5 and TB1-6.
- 7/25/95
Ann ✓ 9.142 Verify that annunciator panel ANN-008 alarm point "75 HP Motor Moisture" LED is on and flashing.
- 7/25/95
Ann ✓ 9.143 Verify that annunciator panel ANN-008 audible alarm is on.
- 7/25/95
Ann ✓ 9.144 Press the ACK pushbutton on annunciator panel ANN-008.
- 7/25/95
Ann ✓ 9.145 Verify that annunciator panel ANN-008 audible alarm is off.
- 7/25/95
Ann ✓ 9.146 Press the RST pushbutton on annunciator panel ANN-008.
- 7/25/95
Ann ✓ 9.147 Verify that annunciator panel ANN-008 alarm point "75 HP Motor Moisture" LED is on and steady.

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- 7/25/95
Adm ✓ 9.148 Remove the jumper installed between TBX-AN-2C terminals TB1-5 and TB1-6.
- 7/25/95
Adm ✓ 9.149 Verify that annunciator panel ANN-008 alarm point "75 HP Motor Moisture" LED is off.

1 HP Position Controller Cabinet TB-2A ATP

- 7/25/95
Adm ✓ 9.150 Verify that there is 120 VAC power at TB-2A between terminals TB1-X1 and TB1-X2.
- Expected value between 108 and 132 VAC.
- Measured Value: 122
Ln Wilkoff 7/25/95
Quality Date
- 7/25/95
Adm ✓ 9.151 Set the Autotech Corp. reverse single preset module, RSPM, value to +00700.
- 7/25/95
Adm ✓ 9.152 Set the Autotech Corp. forward single preset module, FSPM, value to +17300.
- 7/25/95
Adm ✓ 9.153 Press the Autotech Corp. position controller (M1890) SELECT FUNCTION pushbutton repeatedly until LED bar graph lit LED is by Scale Factor: Whole Part.
- 7/25/95
Adm ✓ 9.154 Press and release the M1890 PROGRAM pushbutton.
- 7/25/95
Adm ✓ 9.155 Use the M1890 INCREASE VALUE and DECREASE VALUE pushbuttons to set the display value to "43".
- 7/25/95
Adm ✓ 9.156 Press and release the M1890 PROGRAM pushbutton.
- 7/25/95
Adm ✓ 9.157 Press the M1890 SELECT FUNCTION pushbutton repeatedly until LED bar graph lit LED is by Scale Factor: Fractional.
- 7/25/95
Adm ✓ 9.158 Press and release the M1890 PROGRAM pushbutton.
- 7/25/95
Adm ✓ 9.159 Use the M1890 INCREASE VALUE and DECREASE VALUE pushbuttons to set the display value to "875". Adm 7/25/95
- 7/25/95
Adm ✓ 9.160 Press and release the M1890 PROGRAM pushbutton.
- 7/25/95
Adm ✓ 9.161 Press the M1890 SELECT FUNCTION pushbutton repeatedly until LED bar graph lit LED is by Preset Number.
- 7/25/95
Adm ✓ 9.162 Press and release the M1890 PROGRAM pushbutton.

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- 7/25/75
ASN ✓ 9.163 Use the M1890 INCREASE VALUE and DECREASE VALUE pushbuttons to set the display value to "90".
- 7/25/75
ASN ✓ 9.164 Press and release the M1890 PROGRAM pushbutton.
- 7/25/75
ASN ✓ 9.165 Press the M1890 SELECT FUNCTION pushbutton repeatedly until LED bar graph lit LED is by Decimal Point.
- 7/25/75
ASN ✓ 9.166 Press and release the M1890 PROGRAM pushbutton.
- 7/25/75
ASN ✓ 9.167 Use the M1890 INCREASE VALUE and DECREASE VALUE pushbuttons to set the decimal point position so that there are two places to the right of the decimal point.
- 7/25/75
ASN ✓ 9.168 Press and release the M1890 PROGRAM pushbutton.
- 7/25/75
ASN ✓ 9.169 Press the M1890 SELECT FUNCTION pushbutton repeatedly until LED bar graph lit LED is by All Segments Lit.
- 7/25/75
ASN ✓ 9.170 Verify that all of the LED bar graph LED's are lit.
- 7/25/75
ASN ✓ 9.171 Press the M1890 SELECT FUNCTION pushbutton repeatedly until LED bar graph lit LED is by Options.
- 7/25/75
ASN ✓ 9.172 Press and release the M1890 PROGRAM pushbutton.
- 7/25/75
ASN ✓ 9.173 Use the M1890 INCREASE VALUE and DECREASE VALUE pushbuttons to set the display value to "241".
- 7/25/75
ASN ✓ 9.174 Press and release the M1890 PROGRAM pushbutton.
- 7/25/75
ASN ✓ 9.175 Press the M1890 SELECT FUNCTION pushbutton repeatedly until LED bar graph lit LED is by Position: Actual.
- 7/25/75
ASN ✓ 9.176 Press and release the M1890 PRESET pushbutton.
- 7/25/75
ASN ✓ 9.177 Verify that the M1890 display indicates "90.00".
- 7/25/75
ASN ✓ 9.178 Verify that TB-2A WST-M-107 STOPPED IL2 light is on.
- 7/25/75
ASN ✓ 9.179 Verify that TB-2A WST-M-107 RUNNING IL1 light is off.
- 7/25/75
ASN ✓ 9.180 Press and release TB-2A WST-M-107 START SW2 pushbutton.
- 7/25/75
ASN ✓ 9.181 Verify that TB-2A WST-M-107 STOPPED IL2 light is on.

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7/25/95
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7/25/75
Adm.

7/25/95
Adm -

7/25/75
Dor ✓

7/25/93

 1/100

7/25/95
Don
125/95

pen ✓

- 9.182 Verify that TB-2A WST-M-107 RUNNING IL1 light is off.
- 9.183 Press and release the WST-VFD-107 S.T.O.P. HAND pushbutton and verify that the WST-VFD-107 S.T.O.P. screen indicates "S.P. 100.00".
- 9.184 Verify that the WST-VFD-107 S.T.O.P. RUN LED is illuminated.
- 9.185 Press and release TB-2A WST-M-107 START SW2 pushbutton.
- 9.186 Verify that TB-2A WST-M-107 STOPPED IL2 light is off.
- 9.187 Verify that TB-2A WST-M-107 RUNNING IL1 light is on.
- 9.188 Verify that TB-2A reversing starter WST-M-107 reverse contactor is energized.
- 9.189 Measure the voltage at terminal box WST-TBX-114 between terminals T1 and T2 on the left terminal block.

Expected value between 414 and 506 VAC.

Measured value: 488

Kon Wilke 7/25/95

 Quality Date

7/25/95
mm.

7/25/95
Ann. ✓

7/25/95
Aly ✓

2/25/75
pm.

7/25/91
Adm ✓

7/25/7.

- 9.190 Press and release TB-2A WST-M-107 STOP SW2 pushbutton.
- 9.191 Verify that TB-2A WST-M-107 STOPPED IL2 light is on.
- 9.192 Verify that TB-2A WST-M-107 RUNNING IL1 light is off.
- 9.193 Verify that TB-2A reversing starter WST-M-107 reverse contactor is de-energized.
- 9.194 Turn and hold TB-2A jog switch SW1 to the reverse position and verify that reversing starter WST-M-107 reverse contactor is energized. Release jog switch SW1.
- 9.195 Turn and hold TB-2A jog switch SW1 to the forward position and verify that reversing starter WST-M-107 forward contactor is energized. Release jog switch SW1.

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- 7/25/95
Attn ✓ 9.196 Press and release the WST-VFD-107 S.T.O.P. OFF pushbutton and verify that the S.T.O.P. screen value decreases from "S.P. 100.00" to "S.P. 000.00". Also, verify that the S.T.O.P. STOPPING LED begins blinking when the S.T.O.P. OFF pushbutton is pressed and turns off when the S.T.O.P. screen indicates "S.P. 000.00".

Annunciator Enclosure, ANN-008 & ANN-009 ATP

- 7/25/95
Attn ✓ 9.197 Press ANN-008 TEST pushbutton and verify that all of the alarm point LED's are illuminated.
- 7/25/95
Attn ✓ 9.198 Press ANN-009 TEST pushbutton and verify that all of the alarm point LED's are illuminated.

2 HP Motor Disconnect Switch CHEMB-DS-117 ATP

- 7/25/95
Attn ✓ 9.199 Close 2 HP motor disconnect switch CHEMB-DS-117.
- 7/25/95
Attn ✓ 9.200 Push in then pull out the caustic skid instrument cabinet TB-3A EMERGENCY STOP pushbutton.
- 7/25/95
Attn ✓ 9.201 Verify that the caustic pump skid variable frequency drive CHEMB-VFD-101 main display indicates "AU" and the mode display indicates "EE".
"000" Attn. 7/25/95
G.P. 7/25/95

Caustic Pump Skid Variable Frequency Drive CHEMB-VFD-101 ATP

- 7/25/95
Attn ✓ 9.202 Turn the caustic skid instrument cabinet TB-3A SPEED POT potentiometer to 100 percent.
- 7/25/95
Attn ✓ 9.203 Push in then pull out TB-3A EMERGENCY STOP pushbutton.
- 7/25/95
Attn ✓ 9.204 Press and release TB-3A PUMP START pushbutton.
- 7/25/95
Attn ✓ 9.205 Verify that the caustic pump skid variable frequency Drive CHEMB-VFD-101 main display indicates "AU" and the mode display indicates "EE".
- 7/25/95
Attn ✓ 9.206 Press and release the WST-VFD-107 S.T.O.P. HAND pushbutton and verify that the S.T.O.P. screen indicates "S.P. 100.00".

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- 7/25/95
Adm ✓ 9.207 Verify that the WST-VFD-107 S.T.O.P. RUN LED is illuminated.
- 7/25/95
Adm ✓ 9.208 Push in then pull out TB-3A EMERGENCY STOP pushbutton.
- 7/25/95
Adm ✓ 9.209 Verify that CHEMB-VFD-101 main display indicates "00.00 Hz" and the mode display indicates "EE".
- 7/25/95
Adm ✓ 9.210 Press and release TB-3A PUMP START pushbutton.
- 7/25/95
Adm ✓ 9.211 Verify that CHEMB-VFD-101 main display indicates "60.00 Hz" and the mode display indicates "EE".
- 7/25/95
Adm ✓ 9.212 Push in TB-3A EMERGENCY STOP push-pull operator.
- 7/25/95
Adm ✓ 9.213 Verify that CHEMB-VFD-101 main display indicates "OP" and the mode display indicates "EE".
"0000" 7/25/95
C.P. 7/25/95

Caustic Skid Instrument Cabinet TB-3A ATP

- 7/25/95
Adm ✓ 9.214 Close circuit breaker CB1 in the caustic skid instrument cabinet TB-3A.

The following step clears the audible alarm on the caustic skid instrument cabinet TB-3A alarm panel. Some of the alarms on this panel will be activated due to incomplete field work.

- 7/25/95
Adm ✓ 9.215 Press the ALARM SILENCE pushbutton on TB-3A if its audible alarm is activated. Verify that the audible alarm is off.
- 7/25/95
Adm ✓ 9.216 Verify that there is 120 VAC power at TB-3A between terminals TB1-L1 and TB1-L2.

Expected value between 108 and 132 VAC.

Measured Value:

122
Kon Wilbrey 7/25/95
Quality Date

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7/25/95
AM 9.217 Verify that the TB-3A GFI receptacle has power present.

TB-3A GFI Receptacle:

Expected value between 108 and 132 VAC.

Measured Value: 122

K. W. Wilby 7/25/95
Quality Date

7/25/95
AM 9.218 Verify that the amber colored strobe light on the top of the 241-AN-274 building is flashing.

10.0 ACCEPTANCE TEST CLOSURE

7/25/95
AM 10.1 Turn off the 241-AN-274 building interior light switch located on the west interior wall.

7/25/95
AM 10.2 Turn off the 241-AN-274 building exterior floodlight switch located on the west interior wall.

7/25/95
AM 10.3 Set the HVAC unit control panel to the following settings:

MODE: OFF
TEMPERATURE: 12
EXHAUST: CLOSED
ENERGY SAVER: OFF
AIRFLOW: AS DESIRED

7/25/95
AM 10.4 Open all of the circuit breakers in distribution panelboard EDS-DP-109.

7/25/95
AM 10.5 Open all of the circuit breakers in distribution panelboard EDS-DP-108.

7/25/95
AM 10.6 Remove the jumper installed between WST-VFD-107 TB1 terminals 18 and 19.

7/25/95
AM 10.7 Remove the jumper installed between TBX-AN-2C terminals TB6-18 and TB6-31B.

7/25/95
AM 10.8 Remove the jumper installed between TBX-AN-2C TB6-X1 and TB6-4.

7/25/95
AM 10.9 Verify that the emergency stop WST-VFD-107 pushbuttons located on the 75 HP variable frequency drive WST-VFD-107 front panel and on the west exterior wall of the 241-AN-274 building are pushed in.

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- Revision 0

 - 7/25/75
/ Ann. 10.10 Open the 2 HP Motor disconnect switch
CHEMB-DS-117.
 - 7/25/75
/ Ann. 10.11 Open disconnect switch EDS-DS-114, located on
the south exterior wall of the 241-AN-271
instrument building. ~~Lock-and-tag-to-be~~
~~performed-in accordance-with-the appropriate~~
procedure. *Ann. 7/25/75*
 - 7/25/75
/ Ann. 10.12 Turn the caustic skid instrument cabinet TB-3A
SPEED POT potentiometer to 0 percent.
G.P. 7/25/75
 - 7/25/75
/ Ann. 10.13 Open circuit breaker CB1 in the caustic skid
instrument cabinet TB-3A.
 - 7/25/75
/ Ann. 10.14 Connect the field wiring that was disconnected
inside of terminal box WST-TBX-114 and TBX-AN-2C
in order to perform the test, if any.
 - 7/25/75
/ Ann. 10.15 Connect the field wiring that was disconnected
inside of the caustic skid instrument cabinet
TB-3A in order to perform the test, if any.
 - 7/25/75
/ Ann. 10.16 Connect the field wiring that was disconnected
inside of the ~~caustic-pump-skid variable~~ *G.P. 7/24/75*
~~frequency drive CHEMB-VFD-101~~ in order to
perform this test, if any. *CHEMB-TBY-101 Ann. 7/25/75*
 - 7/25/75
/ Ann. 10.17 Close all equipment and enclosure doors.
 - 7/25/75
/ Ann. 10.18 Remove any miscellaneous items from the
241-AN-274 building that were used for testing.
 - 7/25/75
/ Ann. 10.19 Return test equipment to responsible individual.
 - 7/25/75
/ Ann. 10.20 Lock the 241-AN-274 building.
 - 7/25/75
/ Ann. 10.21 Return the 241-AN-274 building keys to the
responsible individual.
 - 7/25/75
/ Ann. 10.22 Complete necessary paperwork.

11.0 TEST LOG SHEET

Test Log Sheets are used to document test start and stop times and to document any other notes concerning the execution of the ATP. A Test Log Sheet is included in Appendix B.

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12.0 CHANGE CONTROL AND EXCEPTIONS TO ACCEPTANCE TEST SECTION

12.1 ACCEPTANCE TEST PROCEDURE CHANGE CONTROL

Acceptance testing is to be conducted in accordance with the steps in this procedure. Any required field changes must be approved by the Project Engineer, Test Director and Quality. Field changes shall also be recorded as an exception.

12.2 TEST EXECUTION

The acceptance test procedures detailed in this document shall be performed in sequential order. The Recorder will check off, initial and date every step in the space provided on the Recorders copy of the ATP as each step is completed. Record any data values in the spaces provided.

12.2.1 WITHOUT EXCEPTION

12.2.1.1 Check applicable space on the Test Execution Sheet (Appendix C) to show that the ATP has been performed and no exceptions have been recorded.

12.2.1.2 Sign and date the Test Execution Sheet in the spaces provided.

12.2.1.3 Distribute requisite copies of ATP.

12.2.2 WITH EXCEPTION RESOLVED

12.2.2.1 Check applicable space on the Test Execution Sheet to show that the ATP has been performed with exceptions recorded and resolved.

12.2.2.2 Sign and date the Test Execution Sheet to show that the ATP has been performed with exceptions recorded and resolved.

12.2.2.3 Distribute requisite copies of ATP.

12.2.3 WITH EXCEPTION OUTSTANDING

12.2.3.1 Check applicable space on the Test Execution Sheet to show that the ATP has been performed with exceptions recorded, part or all of which are presently outstanding, unresolved.

12.2.3.2 Sign and date the Test Execution Sheet in the spaces provided.

12.2.3.3 Distribute requisite copies of ATP.

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13.0 RECORDING AND RESOLVING EXCEPTIONS

13.1 GENERAL

Exceptions to the ATP are to be sequentially numbered and recorded on individual Exception Sheets, one exception per exception sheet. This enables case-by-case resolution, recording, approval and distribution of each sheet.

13.2 RECORDING

13.2.1 Number each exception sequentially and record each exception on an individual Exception Sheet, as the exceptions occur.

13.2.2 Enter planned action to resolve each exception when determined.

13.3 RETEST/RESOLUTION

13.3.1 Record the action taken to resolve each exception on the Test Exception Sheet.

13.3.2 When action results in an acceptable retest, sign and date Acceptable Retest section of the Test Exception Sheet.

13.3.3 When action taken does not involve an acceptable retest, mark the N/A block. Resolve exception per 13.4.

13.4 APPROVAL AND ACCEPTANCE

13.4.1 The Project Engineer provides final approval and acceptance of the exception by checking one of the following on the Test Exception Sheet:

- * Retest Approved and Accepted: Applicable when retest and acceptance have been completed.
- * Exception Accepted As-Is: Requires detailed explanation.
- * Other: Requires detailed explanation.

13.4.2 The Project Engineer signs and dates the Test Exception Sheet and obtains other internal approval, if required.

13.5 DISTRIBUTION

Distribute requisite copies of completed Test Exception Sheets to the ATP participants.

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APPENDIX A - TEST EXCEPTION SHEET
(Copy as needed)

WHC-SD-WM-ATP-135
Revision 0

TEST EXCEPTION SHEET

1 OF 1

TEST TITLE: WHC-SD-WM-ATP-135, REV 0			
RECORDER: <i>Robert Nicholson</i>		DATE: 7/24/95	
PROCEDURE STEP NUMBER: 8.1.3			
DESCRIPTION: <u>THE WORK PACKAGE WAS NOT DONE</u> <u>YET, BUT THE UNFINISHED WORK DIDN'T</u> <u>EFFECT THIS JOB.</u>			
<i>[Signature]</i> PROJECT ENGINEER		7/24/95 DATE	<i>[Signature]</i> QUALITY
			7/24/95 DATE

ACCEPTABLE RETEST PERFORMED: YES ☒ NO ☒ N/A ☒

N/A ☒ DATE ☒ 7-25-95
 QUALITY DATE TEST DIRECTOR DATE

RETEST APPROVED AND ACCEPTED ☒ EXCEPTION ACCEPTED AS-IS ☒

OTHER ☐

EXPLANATION REMAINING WORK WITHIN WORK PACKAGE 2E-94-01202
THREE SETS OF
INVOLVED TO TWO ALARM WIRES. THESE WILL BE CHECKED
DURING THE OTP.

EXCEPTION RESOLVED: *[Signature]* 7/26/95
 PROJECT ENGINEER DATE
[Signature] 7/26/95
 QUALITY DATE

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Revision 0

APPENDIX B - TEST LOG SHEET
(Copy as needed)

WHC-SD-WM-ATP-135
Revision 0

TEST LOG SHEET

1 of 1

[illegible]

WHC-SD-WM-ATP-135
Revision 0

APPENDIX C - TEST EXECUTION SHEET

WHC-SD-WM-ATP-135
Revision 0

TEST EXECUTION SHEET

DATE: 7/24/95 DOCUMENT NUMBER: WHC-SD-WM-ATP-135, REV 0			
TEST PERSONNEL			
PROJECT ENGINEER(S) <u>Gregory P. Painter</u>		TEST DIRECTOR(S) <u>[Signature]</u> 7-24-95	
RECORDER(S) <u>R. S. Nicholson</u> <u>Robert Nicholson 7/24/95</u>		QUALITY <u>Ken Willoughby 7-24-95</u>	
TEST EXECUTION			
TEST DIRECTOR	7-25-95	RECORDER	7/24/95
		* Ken Willoughby	7/25/95
		QUALITY	DATE
		* SEE EXCEPTION #1	
TEST APPROVAL AND ACCEPTANCE			
WITHOUT EXCEPTION		WITH EXCEPTION	
☒		☐	
PROJECT ENGINEER		QUALITY	
<u>Gregory P. Painter</u>	<u>7/26/95</u>	<u>[Signature]</u>	<u>7/26/95</u>
DATE		DATE	
GREGORY PAINTER		J. VERDERBER	

WHC-SD-WM-ATP-135
Revision 0

APPENDIX D - TEST EQUIPMENT LOG SHEET

WHC-SD-WM-ATP-135
Revision 0

TEST EQUIPMENT LOG SHEET

DOCUMENT NUMBER: WHC-SD-WM-ATP-135, REV 0				
RECORDER/DATE: RS Nicholson / 7/24/95				
DESC.	MANU.	MODEL	S/N	CAL. EXP. DATE
Multimeter	Fluke	27	817-45-08-053	11/16/95

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