ATTACHED IS A TEST REPORT FOR THE ACCEPTANCE TESTING OF PUMPING AND INSTRUMENTATION CONTROL SKID "K".

   NONE

15. DATA TRANSMITTED
   (A) Item No. | (B) Document/Drawing No. | (C) Sheet No. | (D) Rev. No. | (E) Title or Description of Data Transmitted |
   1 HNF-4277   | N/A                  | 0             | TEST REPORT FOR ACCEPTANCE TESTING OF PUMPING AND INSTRUMENTATION CONTROL SKID "K"

16. KEY

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)
   (G) Reason | (H) Disp. | (J) Name | (K) Signature | (L) Date | (M) MSIN | (O) Reason | (H) Disp. | (J) Name | (K) Signature | (L) Date | (M) MSIN
   1 1 Design Authority W.F. ZUROFF
   1 1 Design Agent B.R. JOHNS
   1 1 Cog. Eng. B.R. JOHNS
   1 1 Cog. Mgr. M.R. KOCH
   1 1 QA T.J. VOLKMAN
   1 1 Safety C.D. JACKSON
   Env. N/A

18. Signature of EDT Originator
    B.R. JOHNS  9/1/99

19. Authorized Representative for Receiving Organization
    M.R. KOCH  9/23/99

20. Design Authority/ Cognizant Manager
    W.F. ZUROFF  9/23/99

21. DOE APPROVAL (if required)
    Ctrl No. N/A
    ○ Approved
    ○ Approved w/comments
    ○ Disapproved w/comments
TEST REPORT FOR ACCEPTANCE TEST PROCEDURE FOR PUMPING AND INSTRUMENTATION CONTROL SKID "K"

B. R. JOHNS
COGEMA ENGINEERING CORPORATION
Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 626398  UC: Charge Code: 103361
Org Code: 74D00  Charge Code: 103361
B&R Code: EW3120071  Total Pages: 128

Key Words: PICS, SALT WELL, SKID, INTERIM STABILIZATION, TESTING

Abstract:
This is a Test Report for Acceptance Test Procedure (ATP) HNF-4276. This test report provides the results of the inspection and testing of the new Pumping and Instrumentation Control (PIC) skid designed as "K". The ATP was successfully completed. A copy of the completed ATP is in the Appendix of this document.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: Document Control Services, P.O. Box 950, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4988.

Approved For Public Release

A-6400-073.1 (10/97)
1.0 INTRODUCTION

This test report provides the results from the performance of Acceptance Test Procedure (ATP) HNF-4276, for Pumping and Instrumentation Control (PIC) skid “K”. The ATP verifies the proper construction of the PIC skid “K” by Site Fabrication Services along with proper programming of the Programmable Logic Controller (PLC) and the Operations Control Station (OCS) computer by engineering. New PIC skid “K” will be used for the pumping of tank U-103. A copy of the actual test results is in the Appendix.

2.0 DESCRIPTION OF TEST

The test was divided into two parts. Part I of the testing was performed at the Site Fabrication Services location. Part II was performed at the Interim Stabilization maintenance shop.

Part I of the ATP ensured the PIC skid was assembled and functioned as per the design drawings. Inputs to the skid were simulated to ensure proper equipment connections and wiring.

Part II of the ATP ensured the software programs and the interfaces to the equipment outside the PIC skid were correct. The PIC skid was connected to the jet pump, jumper and flush line assemblies. A Flammable Gas Monitor (FGM) and leak detector probes were connected to the PIC skid to ensure proper functioning of these items. Dilution tank connections were simulated since the tank and the controls were not available. The U-farm computer was connected to the PLC to ensure proper communication between the two devices.

The ATP document provided detailed instructions for each test step and space for recording the data and signoffs. A copy of all the test results including exceptions is in the Appendix.

3.0 TEST METHOD AND TEST EQUIPMENT

The ATP detailed the test methods and the test equipment to be used for testing. Test equipment identification and calibration dates are recorded on the ATP data sheets. Quality Control and Engineering witnessed the performance of the ATP.
4.0 TEST RESULTS

The ATP was successfully completed. Discrepancies in the test procedure were listed as exceptions. All the exceptions identified became part of the ATP and are in the Appendix along with the ATP results. All exceptions were reviewed, resolved and signed off as closed for this ATP.

A National Electrical Code (NEC) inspection was performed as part of the ATP. The NEC inspector accepted the electrical power portion of the skid and placed a blue acceptance sticker on the distribution panel. A Pressure Vessel inspector checked the water and air compressor tanks along with the associated relief valves. The installation of these tanks was acceptable. A copy of the NEC and Pressure Vessel inspection reports are in the Appendix of this document.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PIC skid is found to be ready for field operation. All exceptions were resolved. An Operational Test Procedure (OTP) will be performed after the skid is set up in the field.

6.0 REFERENCES


2H9903385, Site Fabrication Services work package.

7.0 APPENDIX

Copy of ATP, HNF-4276, revision 0-A.

NEC Inspection Report

Pressure Vessel Inspection Report
4.0 PREREQUISITES

NOTE - Equipment shall be available before the step associated with that piece of equipment.

4.1 DRAWING VERIFICATION

A check of the constructed skid is to be compared to either the red-lined drawings or the final unreleased skid drawings. Engineering and Quality Control shall verify the accuracy of the essential and support drawings. Engineering shall determine a resolution for all discrepancies by either correcting the drawings or changing the equipment.

The following areas on the drawings are to be verified:
- Wire terminations and labeling, H-14-103530, sheets 7 through 12, H-14-103533, sheet 5.
- Panel board arrangement, H-14-103536
- Correctness of flow diagram logic, H-14-103535 and H-14-103530, sheet 5.

Drawing verification completed and how all discrepancies will be resolved. *(Final drawing release is not required to continue with the ATP.)*

See Exception Log (page 22)

Cognizant Engineer: Bright 7/11/99

Quality Control: Date 7/21/99
4.2 THIRD PARTY INSPECTION

A third party inspection is required for the air compressor, the air receiver tank, and relief valves located in the air compressor cabinet. The inspection is to verify that the equipment meets National Codes for pressure vessels. This inspection will be performed by an outside certified inspector. (This needs to be completed prior to checking the air compressor and water systems.)

Third party inspection report received. (The ATP can continue before the report is received, but must be received prior to performing sections 5.6.)

![Signature]

Quality Control 7/21/99 Date

4.3 NATIONAL ELECTRICAL CODE (NEC) INSPECTION

- An NEC inspection shall be performed to verify compliance to NFPA 70, latest version.
- Areas in particular to be inspected are 480vac and 120vac wiring and grounding.
- An NEC inspection sticker is to be placed inside the panel board door upon the NEC inspector's acceptance of the electrical portion of the skid.

The NEC inspection performed and an NEC inspection sticker has been placed on the panel board door. (This needs to be completed prior to the Section 5 functional checks.)

![Signature]

Quality Control 7/21/99 Date

4.4 SUPPLIES

4.4.1 The following supplies shall be available at the work place:

- Volt/ohm meter (VOM): Portable, 0-600 volts ac, ± 2% accuracy.
  Calibration No. 819-45-08-018 Expiration Date 11/7/99 QC NE 7/26/99
- Transmation current (milliamp) simulator or equivalent
- Manometer - minimum range 0-500" water gauge. Must have a read out of variable test pressure.
  Calibration No. 820-35-40-004 Expiration Date 7/7/99 QC KZ 9/4/99
- Manometer - minimum range 0-62" water gauge. Must have a read out of variable
  test pressure. 
  Calibration No. B70-35-40-00
  Expiration Date 7/1/00 QC KW 9/18/99

- Jumper Test Assembly PI-2 (suction) pressure gauge (for Part II)
  Calibration No. S17-35-40-00
  Expiration Date 10-2-99 QC KW 9/16/99

- Jumper Test Assembly PI-1 (discharge) pressure gauge (for Part II)
  Calibration No. S17-35-40-00
  Expiration Date 1-5-00 QC KW 9/16/99

- Saltwell Jet pump Jumper (see H-14-100725 Sheet 18) (for Part II)

- Rotameter or Flowmeter with an accuracy of 0.05 gpm, a range at least of 0 to 4
  gpm (for Part II)
  Calibration No. C17-35-40-04
  Expiration Date 6/10 QC
  S8Y 9/14/99

- Jumper Test Assembly (for Part II)
- 480V 3 Phase Power Source
- Controlotron 995T Control and Display Unit
- Selector switch (2 each) with one NO and one NC contact

NOTE - Test sections may commence prior to assembly of all test equipment.
Engineer is responsible to assure all equipment necessary for a given
section is available.

4.4.2 The following conditions must be met prior to the performance of the test section
indicated:

4.4.2.1 The Jet Pump Jumper and Jumper assembly have been placed on the pump
recirculation apparatus prior to performing Part II.

4.4.2.2 The Pumping and Instrumentation Control Skid water tank and run-in tank
have been adequately filled for testing prior to performing section 5.6.

4.4.2.3 The Jet Pump Jumper AND Jumper Assembly have been electrically AND
pneumatically connected to the Pumping and Instrumentation Control Skid
prior to performing Part II. Reference H-14-103071. SEE EXCEPTION 21 05/23.

QC INSPECTION RECORD
4.4.2.4  A pre-job safety meeting has been held before performing each section of this procedure. 7/26/79 9:45 9:50 AM

4.4.2.5  The Pumping and Instrumentation Control Skid has been grounded in preparation for shop testing.

4.4.2.6  Test gauges AND rotameter have been installed in correct locations as indicated by the Engineer prior to performing sections requiring test gauges and rotameter.

4.4.2.7  Ensure the following Pumping and Instrumentation Control Skid Valves are OPEN prior to starting this ATP:

- SALW-V-6035K (equalizing)  SALW-V-6036K (equaling)

4.4.2.8  ENSURE the following Pumping and Instrumentation Control Skid valves are CLOSED prior to starting this Acceptance Test Procedure:

- SALW-V-6034K
- SALW-V-6004K
- SALW-V-6021K
- SALW-V-6036K (low)
- SALW-V-6035K (hi)
- SALW-V-6027K
- SALW-V-6031K
- SALW-V-6018K
- SALW-V-6015K
- SALW-V-6008K
- SALW-V-6006K
- SALW-V-6044K
- SALW-V-6048K

See exceptions.

RE 7/26/79
4.4.2.9 ENSURE the following Pumping and Instrumentation Control Skid circuit disconnects and breakers are OPEN (OFF) prior to starting this Acceptance Test Procedure. Refer to H-2-85327, Sheet 7 for circuit breakers.

\[ \sqrt{\text{SALW-DS-6002K}} \sqrt{\text{SALW-DS-6003K}} \sqrt{\text{SALW-DS-6004K}} \sqrt{\text{SALW-DS-6005K}} \]

NOTE - The following breakers are located in SALW-DP-6001K.

\[ \sqrt{\text{Breaker "MAIN"}} \sqrt{\text{Breaker 2}} \]
\[ \sqrt{\text{Breaker 1}} \sqrt{\text{Breaker 4}} \]
\[ \sqrt{\text{Breaker 3}} \sqrt{\text{Breaker 6}} \]
\[ \sqrt{\text{Breaker 5}} \sqrt{\text{Breaker 8}} \]
\[ \sqrt{\text{Breaker 7}} \sqrt{\text{Breaker 10}} \]
\[ \sqrt{\text{Breaker 9}} \sqrt{\text{Breaker 12}} \]
\[ \sqrt{\text{Breaker 11}} \sqrt{\text{Breaker 14}} \]

4.4.2.10 All personnel initialing or signing this procedure must also enter signature initials on the PROCEDURE PERFORMER SIGNATURE SHEET on the last page of this document.

QC INSPECTION RECORD

WORK ORDER 2H9903385 F PAGE A5

PAGE 135 OF
5.0 PROCEDURE

NOTE - All personnel performing this procedure, who will be initialing and signing the procedure, shall enter their printed name, signature and initials on the PROCEDURE PERFORMER SIGNATURE SHEET.

NOTE: Verify Prerequisites completed for Part I.

5.1 CONTINUITY CHECKS

Continuity checks shall be performed with a calibrated VOM. Perform the checks as identified below. Readings are to be less than 1 ohm. Record readings on the line provided. Out of tolerance readings must be corrected and retested before going to the next section.

5.1.1 Crouse-Hinds plug to line side of main disconnect switch (SALW-DS-6002K). Check all three phases and ground wire.

5.1.2 Load side of main disconnect switch (SALW-DS-6002K) to line side of transformer disconnect switch (SALW-DS-6003K).

5.1.3 Load side of main disconnect switch (SALW-DS-6002K) to line side of jet pump motor starter (SALW-DS-6005K).

5.1.4 Load side of main disconnect switch (SALW-DS-6002K) to line side of air compressor motor starter (SALW-DS-6004K).

5.1.5 Load side of transformer disconnect switch (SALW-DS-6003K) to primary side of transformer.

5.1.6 Secondary side of transformer to panel board (SALW-DS-6001K) main breaker.

5.1.7 Circuit #3 in panel board to TB10 in the instrument enclosure (SALW-PNL-6002K).

5.1.8 Circuit #5 in panel board to TB13 in the instrument enclosure (SALW-PNL-6005K).

5.1.9 Circuit #12 in panel board to TB13 in the instrument enclosure (SALW-PNL-6005K).

5.1.10 Circuit #6 in panel board to safe side TB in the intrinsic safe panel (SALW-PNL-6006K).
5.1.11 Circuit #1 in panel board to TB in the FGM power junction box.

5.1.12 Circuit #11 in panel board to TB in the FGM power junction box.

5.1.13 Circuit #13 in panel board to TB in the FGM power junction box.

5.1.14 Circuit #14 in panel board to TB in the FGM power junction box.

5.1.15 Circuit #10 in panel board to TB in the FGM heat trace splice box.

5.1.16 Circuit #2 in panel board to TB in the FGM heat trace splice box.

5.1.17 Circuit #7 in panel board to receptacles in the WFIE cabinet (SALW-PNL-6002K).

5.1.18 Circuit #9 in panel board to receptacle below panel board.

5.1.19 Circuit #4 in panel board to air compressor cabinet (SALW-PNL-6001K).

5.1.20 Circuit #8 in panel board to water cabinet (SALW-PNL-6003K).

Section 5.1 completed and all readings within tolerance.

Quality Control 7/26/99

(REF. EXCEPTIONS #3 & #4)
5.2 MEGGERING OF POWER WIRES

The power wires shall be checked for resistance to ground and phase to phase. A 500 volt megger shall be used for this check. Minimum acceptable readings are greater than 1 megohm. Test the circuits listed below. Record readings on the lines provided. Out of tolerance readings must be corrected and retested before going to the next section.  

Exception 5 (Added megohm)

5.2.1 Each of the three phases on the main power plug to ground and phase to phase. (Main disconnect switch (SALW-DS-6002K) is opened.)
A-GND % B-GND % C-GND % D-A-B % A-C % B-C %

5.2.2 Each of the three phases on the load side of the main disconnect switch (SALW-DS-6002K) to ground and phase to phase. (The transformer disconnect switch (SALW-DS-6003K) and the two motor starters (SALW-DS-6004K) (SALW-DS-6005K) are opened.)
A-GND % B-GND % C-GND % A-B % A-C % B-C %

5.2.3 Each of the two phases on the load side of the transformer disconnect switch (SALW-DS-6003K) to ground.
A-GND % B-GND % A-B %

5.2.4 Each of the two hot wires on the line side of the 100 ampere main breaker in the panel board (SALW-DP-6001K) to ground. (The 100 ampere main breaker to be opened.)
A-GND % B-GND % A-B %

5.2.5 Each of the three phases on the load side of the air compressor motor starter (SALW-DS-6004K) to ground.
A-GND % B-GND % C-GND % A-B % A-C % B-C %

5.2.6 Each of the 14 circuits in the panel board to ground on the line side of each breaker. The breakers are to be opened and the hot wire disconnected from the ground fault type breakers and receptacles (This is to prevent damage to the ground fault sensor in the breakers.) Disconnect all loads on each circuit by removing a downstream fuse or lifting the hot wire.

1-GND % 2-GND % 3-GND % 4-GND % 5-GND % 6-GND % 7-GND % 8-GND % 9-GND % 10-GND % 11-GND % 12-GND % 13-GND % 14-GND %

5.2.7 Reconnect all wires and reinstall fuses.

Section 5.2 completed and all readings within tolerance.

Quality Control
(REF. EXCEPTIONS #6, #6, #7, #8)
5.3 ELECTRICAL POWER CHECKS

The voltage checks are to verify proper voltages throughout the skid at specific termination points. Voltages checked are 480vac, 3 phase; 120vac, single phase; and 24vdc. Out of tolerance readings must be corrected when found before going to the next step in this section.

5.3.1 Visually verify that all electrical connections are completed. Wires lifted during the megger checks are to be reconnected.

5.3.2 Open all switches and breakers and pull the fuses in the instrument cabinet (SALW-PNL-6005K).

5.3.3 Visually verify that all the fuses are in the two safety switches (SALW-DS-6002K) (SALW-DS-6003K) and motor starters (SALW-DS-6004K) (SALW-DS-6005K) including the control transformers.

5.3.4 Connect the main power plug on the skid to a three phase, 480vac power source. Source to be protected by no greater than 30 amperes over current protection.

5.3.5 Turn ON the power source to the skid.

5.3.6 Verify 480vac on the line side of the main disconnect switch (SALW-DS-6002K). Record the voltage. 480 A-B 480vac +10vac/-20vac.

5.3.7 Close the main disconnect switch (SALW-DS-6002K).

5.3.8 Check for 480vac +10vac/-20vac at the following three locations (entries 5.3.9, 5.3.10 and 5.3.11). Record voltage reading on the line provided.

5.3.9 Line side of the transformer disconnect switch (SALW-DS-6002K).

5.3.10 Line side of the pump motor starter (SALW-DS-6005K).

5.3.11 Line side of the air compressor motor starter (SALW-DS-6004K).

5.3.12 Remove the dead front on the panel board (SALW-DP-6001K) for access to the main breaker for a voltage measurement.
5.3.13 Close the transformer disconnect switch (SALW-DS-6003K).

5.3.14 Check for 240vac +10/-20 at the line side of the main breaker. Record voltage. 242 vac

5.3.15 Open the transformer disconnect switch (SALW-DS-6003K).

5.3.16 Replace the dead front on the panel board (SALW-DP-6001K).

5.3.17 Close the transformer disconnect switch (SALW-DS-6003K).

5.3.18 Close the 100 ampere main breaker in the panel board (SALW-DP-6001K).

5.3.19 Check for 120vac +/-10vac at the following locations (entries 5.3.20 through 5.3.45). Record the voltage reading on the line provided.

5.3.20 Close breaker #1. Measure voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K). 121 vac

5.3.21 Open breaker #1. Measure zero voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K). 0 vac

5.3.22 Close breaker #2. Measure voltage at the terminal board in the FGM splice box on the outside of the WFIE cabinet (SALW-PNL-6002K). 121 vac

5.3.23 Open breaker #2. Measure zero voltage at the terminal board in the FGM splice box on the outside of the WFIE cabinet (SALW-PNL-6002K). 0 vac

5.3.24 Close breaker #10. Measure voltage at the terminal board in the FGM splice box on the outside of the WFIE cabinet (SALW-PNL-6002K). 121 vac

5.3.25 Open breaker #10. Measure zero voltage at the terminal board in the FGM splice box on the outside of the WFIE cabinet (SALW-PNL-6002K). 0 vac

5.3.26 Close breaker #11. Measure voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K). 121 vac
5.3.27 Open breaker #11. Measure zero voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K).  

5.3.28 Close breaker #13. Measure voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K).  

5.3.29 Open breaker #13. Measure zero voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K).  

5.3.30 Close breaker #14. Measure voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K).  

5.3.31 Open breaker #14. Measure zero voltage at the terminal board in the FGM junction box on the outside of the WFIE cabinet (SALW-PNL-6002K).  

5.3.32 Close breaker #3. Measure voltage at the terminal board TB10 in the instrument cabinet (SALW-PNL-6005K).  

5.3.33 Open breaker #3. Measure zero voltage at the terminal board TB10 in the instrument cabinet (SALW-PNL-6005K).  

5.3.34 Close breaker #5. Measure voltage at the terminal board TB13 in the instrument cabinet (SALW-PNL-6005K).  

5.3.35 Open breaker #5. Measure zero voltage at the terminal board TB13 in the instrument cabinet (SALW-PNL-6005K).  

5.3.36 Close breaker #12. Measure voltage at the terminal board in the instrument cabinet (SALW-PNL-6005K).  

5.3.37 Open breaker #12. Measure zero voltage at the terminal board in the instrument cabinet (SALW-PNL-6005K).  

5.3.38 Close breaker #4. Measure voltage at the receptacle in the instrument air cabinet (SALW-PNL-6001K).  

5.3.39 Open breaker #4. Measure zero voltage at the receptacle in the instrument air cabinet (SALW-PNL-6001K).  

5.3.40 Close breaker #6. Measure voltage at the terminal board in the intrinsic safe panel (SALW-PNL-6006K).  

5.3.41 Open breaker #6. Measure zero voltage at the terminal board in the intrinsic safe panel (SALW-PNL-6006K).
5.3.41 Open breaker #6. Measure zero voltage at the terminal board in the intrinsic safe panel (SALW-PNL-6006K).

5.3.42 Close breaker #7. Measure voltage at the receptacle in the WFIE cabinet (SALW-PNL-6002K).

5.3.43 Open breaker #7. Measure zero voltage at the receptacle in the WFIE cabinet (SALW-PNL-6002K).

5.3.44 Close breaker #8. Measure voltage at the receptacle in the water cabinet (SALW-PNL-6003K).

5.3.45 Open breaker #8. Measure zero voltage at the receptacle in the water cabinet (SALW-PNL-6003K).

Exception 10 Check 24 VDC supply outputs (see below)

5.3.46 Open the 100 ampere main breaker in the panel board (SALW-DP-6001K).

5.3.47 Open the transformer disconnect switch (SALW-DS-6003K).

5.3.48 Open the main disconnect switch (SALW-DS-6002K).

Voltage checks completed satisfactorily.

PL Cunradi  (REF. EXCEPTIONS #9 & #10)  7.26.99

Quality Control

Date

Exception 10  24 VDC check.
Verify steps 5.3.1 to 5.3.5.  
Do steps 5.3.17 and 5.3.18.

Open 5.3.47 and 5.3.48.
Install fuses FD+FC.
Check for 120VAC ±10VAC at 24VDC power supplies 120.2.
Check for 3VDC ±2VDC at 24VDC power supplies 24.19.
Open fuses FD and FC.
Open CK at 5.
Do steps 5.3.46 and 5.3.47.

KE 7.26.99
5.4 CALIBRATIONS

Instrumentation equipment on the skid requires calibration prior to the functional testing. Lockheed Martin procedures will be used for this calibration. The table below identifies the equipment requiring calibration and the procedure for performing the calibration.

<table>
<thead>
<tr>
<th>INSTRUMENT</th>
<th>LOCATION</th>
<th>PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALW-PS-6004K</td>
<td>INSTRU. AIR CAB.</td>
<td>6-PCD-508</td>
</tr>
<tr>
<td>SALW-WFT-6002K</td>
<td>WFIE CABINET</td>
<td>6-PCD-361</td>
</tr>
<tr>
<td>SALW-LT-6003K</td>
<td>WATER CABINET</td>
<td>6-PCD-361</td>
</tr>
<tr>
<td>SALW-SGT-6001K</td>
<td>WFIE CABINET</td>
<td>6-PCD-361</td>
</tr>
<tr>
<td>SALW-CONV-6001K</td>
<td>WFIE CABINET</td>
<td>6-TF-365</td>
</tr>
<tr>
<td>SALW-FQIT-6001K</td>
<td>INSTRUMENT CAB.</td>
<td>Data sheet &amp; Vendor Man. X</td>
</tr>
<tr>
<td>SALW-PI-6006K</td>
<td>AIR COMPRS. CABINET</td>
<td>6-TF-509</td>
</tr>
<tr>
<td>SALW-PI-6001K</td>
<td>WFIE CABINET</td>
<td>6-TF-509</td>
</tr>
<tr>
<td>SALW-PI-6005K</td>
<td>WFIE CABINET</td>
<td>6-TF-509</td>
</tr>
<tr>
<td>SALW-PI-6002K</td>
<td>WFIE CABINET</td>
<td>6-TF-509</td>
</tr>
<tr>
<td>SALW-PI-6003K</td>
<td>WFIE CABINET</td>
<td>6-TF-509</td>
</tr>
<tr>
<td>SALW-PI-6004K</td>
<td>WFIE CABINET</td>
<td>6-TF-509</td>
</tr>
<tr>
<td>SALW-PI-6007K</td>
<td>AIR COMPRS. CABINET</td>
<td>6-TF-509</td>
</tr>
<tr>
<td>SALW-FI-6001K</td>
<td>WATER CABINET</td>
<td>VENDOR MANUAL X</td>
</tr>
<tr>
<td>SALW-PI-6008K</td>
<td>WATER CABINET</td>
<td>6-TF-509</td>
</tr>
</tbody>
</table>

Calibrations completed. * will be done under Part II. Bfg 8/10/99

BE Johns  8/10/99  Engineer  Date

5.5 PLC PROGRAMMING

This section is where the program for the PLC will be entered into the SLC 500 and the DTAM programmed. Power will be required at the instrument cabinet to power up the PLC and the receptacle (provides power for the laptop computer). Lockheed Martin Interim Stabilization engineering will perform the programming of the PLC. The final software programs shall be documented as required by HNF-3828, section 3.4. This documentation is not part of this ATP, but will be tracked by the Acceptance for Beneficial Use (ABU) document.

PLC programmed.

BE Johns  8/9/99  Engineer  Date
5.6 PUMPING AND INSTRUMENTATION CONTROL SKID ELECTRICAL AND PROCESS AIR POWER-UP

5.6.1 ENSURE the skid and remote equipment are connected before proceeding with the functional testing.

5.6.2 ENERGIZE the Pumping and Instrumentation Control Skid by CLOSING the following DISCONNECT SWITCHES in the order found below:

<table>
<thead>
<tr>
<th>DISCONNECT SWITCH</th>
<th>ENERGIZED (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALW-DS-6002K</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>SALW-DS-6003K</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>SALW-DS-6004K</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>SALW-DS-6005K</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>
NOTE - The following circuit breakers are located in SALW-DP-6001K "SALW SKID DIST PNL".

5.6.3 **ENERGIZE** the Pumping and Instrumentation Control Skid by **CLOSING** the following Circuit Breakers in the order found below:

<table>
<thead>
<tr>
<th>DISCONNECT SWITCH</th>
<th>ENERGIZED (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;MAIN&quot;</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>7, (WEIGHT FACTOR INSTRUMENT ENCLOSURE RECEPTACLES)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>3, (LEAK DETECTION/HEAT TRACE)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>8, (WATER TANK CABINET HEATER)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>5, (INSTRUMENT ENCLOSURE [PLC])</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>4, (AIR COMPRESSOR CABINET HEATER &amp; RECEPTACLE)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>9, (RECEPTACLE)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>11, (FGM AND HEATER)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>6, (INTRINSICALLY SAFE PANEL)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>12, (INSTRUMENT CABINET HTR &amp; A/C)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>13, (FGM HEAT TRACE POWER)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>14, (FGM HEAT TRACE POWER)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>1, (FGM AND HEATER)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>2, (FGM HEAT TRACE IA LINE)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>10, (HEAT TRACE FOR DIPTUBES AND IA LINE)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>
5.6.4 ACKNOWLEDGE any initial skid or FGM alarms.

5.6.5 OPEN valve SALW-V-6034K (located in the Air COMP Cabinet).

5.6.6 START air compressor SALW-CMP-6001K "SALW SKID IA COMP" by POSITIONING switch on the SALW-DS-6004K to the ON position.

5.6.7 VERIFY that Air Compressor starts and builds up pressure AND shuts off at 86 to 94 psig, as indicated by pressure gauge SALW-PI-6006K (AIR DRYER INLET PRESS).

5.6.8 CHECK the tubing in the instrument air cabinet using a soap and water test to visually identify any air leaks. Repair as necessary. Deenergize the compressor motor and bleed off air as necessary to make repairs.

5.6.9 BLEED off air by slowly opening valve SALW-V-6025K until the compressor restarts, then close valve.

5.6.10 VERIFY the air compressor restarts upon low pressure of 58 to 62 psig.

5.6.11 VALVE in air to the Pumping and Instrumentation Control Skid Water Tank by SLOWLY PERFORMING the following (Refer to H-14-103535 Sheet 1):

5.6.10 CHECK for air leaks as each remaining step in this section is performed. Make repairs as necessary. Deenergize compressor motor and bleed off air pressure if necessary to make the repairs.

5.6.11 SLOWLY OPEN valve SALW-V-6025K (located in the air compressor cabinet).

5.6.12 SLOWLY OPEN valve SALW-V-6027K (located near the water tank).

5.6.13 SLOWLY OPEN valve SALW-V-6028K (located near the water tank).
5.6.14 ADJUST Pressure Regulator Valve SALW-PCV-6006K to 30 psi (± 3 psig) as indicated by pressure gauge SALW-PI-6008K (WTR TK PRESS).

5.6.15 VALVE IN air to SALW-PNL-6002K (WFIE Cabinet) by PERFORMING the following (Refer to H-14-103535 Sheet 1):

5.6.16 SLOWLY OPEN valve SALW-V-6026K (located in the Air Compressor Cabinet).

5.6.17 SLOWLY OPEN valve SALW-V-6001K, located in the bottom of SALW-PNL-6002K (WFIE Cabinet).

5.6.18 ADJUST pressure control valve SALW-PCV-6001K in SALW-PNL-6002K (WFIE Cabinet) to 20 psi (± 2.5 psi) as indicated by the pressure gauge located on the face of the valve.

5.6.19 SLOWLY OPEN valve SALW-V-6004K, located in the middle of SALW-PNL-6002K (WFIE Cabinet).

5.6.20 SLOWLY OPEN valve SALW-V-6003K, located in the middle of SALW-PNL-6002K (WFIE Cabinet).

CAUTION: The next three steps cause air to flow from ports on outside of WFIE cabinet.

5.6.21 SLOWLY OPEN valve SALW-V-6005K, located in the bottom left of SALW-PNL-6002K (WFIE Cabinet).

5.6.22 SLOWLY OPEN valve SALW-V-6006K, located in the bottom left of SALW-PNL-6002K (WFIE Cabinet).

5.6.23 SLOWLY OPEN valve SALW-V-6007K, located in the bottom left of SALW-PNL-6002K (WFIE Cabinet).

5.6.24 SLOWLY OPEN valve SALW-V-6020K, located in the middle left of SALW-PNL-6002K (WFIE Cabinet).
5.6.25 SLOWLY OPEN valve SALW-V-6021K, located in the middle left of SALW-PNL-6002K (WFIE Cabinet).

5.6.26 SLOWLY OPEN valve SALW-V-6019K, located in the middle left of SALW-PNL-6002K (WFIE Cabinet).

5.6.27 ADJUST the air flow through the diptubes by PERFORMING the following:

5.6.28 ADJUST flow to dip tubes to 1.5 CFH (± 0.5 CFH) as indicated by SALW-FIV-6002K.

<table>
<thead>
<tr>
<th>Flow</th>
<th>Engineer/Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>John</td>
<td>8/10/99</td>
</tr>
</tbody>
</table>

5.6.30 ADJUST flow to dip tubes to 1.5 CFH (± 0.5 CFH) as indicated by SALW-FIV-6003K.

<table>
<thead>
<tr>
<th>Flow</th>
<th>Engineer/Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>John</td>
<td>8/10/99</td>
</tr>
</tbody>
</table>

5.6.31 ADJUST flow to dip tubes to 1.5 CFH (± 0.5 CFH) as indicated by SALW-FIV-6004K.

<table>
<thead>
<tr>
<th>Flow</th>
<th>Engineer/Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>John</td>
<td>8/10/99</td>
</tr>
</tbody>
</table>

5.6.32 ENSURE flows obtained in steps are all within 0.25 cfm of each other.

<table>
<thead>
<tr>
<th>Diff. 28 &amp; 30</th>
<th>Diff. 29 &amp; 31</th>
<th>Diff. 30 &amp; 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 CFH</td>
<td>0 CFH</td>
<td>0 CFH</td>
</tr>
</tbody>
</table>

5.6.33 VALVE IN SALW-WFT-6002K AND SALW-SGT-6001K by PERFORMING the following:

5.6.34 ENSURE the LOW side AND HIGH side isolation valves, located on SALW-V-6036K in cabinet SALW-PNL-6002K (WFIE Cabinet) are OPEN.

5.6.35 ENSURE SALW-WFT-6002K EQUALIZING valve on valve manifold SALW-V-6036K in cabinet SALW-PNL-6002K (WFIE Cabinet) is CLOSED.

5.6.36 ENSURE the LOW side AND the HIGH side isolation valves, located on SALW-V-6035K in cabinet SALW-PNL-6002K (WFIE Cabinet) are OPEN.
5.6.37 ENSURE SALW-SGT-6001K equalizing valve on valve manifold SALW-V-6035K in cabinet SALW-PNL-6002K (WFIE Cabinet) is CLOSED.

5.6.38 CONFIRM that a signal is present between SALW-PNL-6002K (WFIE Cabinet) Instruments and the Programmable Logic Controller by PERFORMING the following:

5.6.39 VERIFY Weight Factor is approximately 0.0" (±0.5") Water Gauge as indicated by Data Table Access Module. If DTAM displays "<<<" indicating less than zero, verify continuity between the transmitter and the Programmable Logic Controller and proceed with the test.

5.6.40 VERIFY Specific Gravity is approximately 0.0" (±0.5") Water Gauge as indicated by Data Table Access Module. If DTAM displays "<<<" indicating less than zero, verify continuity between the transmitter and the Programmable Logic Controller and proceed with the test.

5.6.41 OPEN valve SALW-V-6035K. (Equalizing)

5.6.42 CLOSE valves SALW-V-6035K HI and LO.

5.6.43 OPEN valve SALW-V-6036K. (Equalizing)

5.6.44 CLOSE valves SALW-V-6036K HI and LO.

5.6.45 CLOSE valves SALW-V-6019K, SALW-V-6021K and SALW-V-6020K.

5.6.46 VERIFY all air leaks repaired.
5.6.47 Engineer VERIFY that section 5.6 is complete by SIGNING below.

[Signature]

Engineer Signature  8/10/99  Date

5.6.48 Quality Control Inspector VERIFY that section 5.6 is complete by signing below.

[Signature]

Quality Control Inspector Signature  8/10/75  Date
5.7 PUMPING AND INSTRUMENTATION CONTROL SKID WATER DRIP SYSTEM

5.7.1 ATTACH temporary portable hose from dip tube outlet to high and medium dip tubes from the bottom of the weight factor enclosure, (from valves SALW-V-6005K and SALW-V-6007K). If need, bucket used to catch water, 8/10/99

- ROUTE the flexible hose to a suitable drain AND SECURE.

5.7.2 ACTUATE the Dip Tube Drip system by SLOWLY OPENING the following valves:

<table>
<thead>
<tr>
<th>VALVES</th>
<th>OPEN (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALW-V-6018K located in the bottom right of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6016K located in the middle of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6013K located in the middle of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6008K located in the middle of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.3 CAREFULLY ADJUST Pressure Regulator SALW-PCV-6005K, located in the bottom of SALW-PNL-6002K (WFIE Cabinet) to 20 psig (± 2 psig) as indicated by SALW-PI-6001K in the middle of SALW-PNL-6002K (WFIE Cabinet).

5.7.4 ADJUST valve SALW-V-6014K to allow APPROXIMATELY 2 drops/second as indicated by sight glass SALW-FG-6001K (±1 drop/second).

5.7.5 ADJUST valve SALW-V-6015K to allow APPROXIMATELY 2 drops/second as indicated by sight glass SALW-FG-6002K (±1 drop/second).
5.7.6 VALVE OUT the dip tube drip water by SLOWLY CLOSING the following:

<table>
<thead>
<tr>
<th>VALVE</th>
<th>CLOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALW-V-6015K located in the middle of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6014K located in the middle of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6008K located in the middle of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6013K located in the middle of SALW-PNL-6002K (WFIE Cabinet)</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.7 OPEN equalizing valve SALW-V-6035.

5.7.8 CLOSE HI and LO isolation valves on SALW-V-6035.

5.7.9 OPEN equalizing valve SALW-V-6036.

5.7.10 CLOSE HI and LO isolation valves on SALW-V-6036.

5.7.11 CLOSE the following valves in the order listed: SALW-V-6019, SALW-V-6021, SALW-V-6020, SALW-V-6007, SALW-V-6006, and SALW-V-6005.

5.7.12 SLOWLY open valve SALW-V-6044K in the SALW-PNL-6002K (Air Compressor Cabinet).

5.7.13 ADJUST pressure regulator SALW-PCV-6007K outside SALW-PNL-6002K (Air Compressor Cabinet) to 75 +/- 10 psig.

5.7.14 CLOSE valve SALW-V-6044K in the SALW-PNL-6002K (Air Compressor Cabinet).

5.7.15 SLOWLY open valve SALW-V-6048K in the SALW-PNL-6002K (Air Compressor Cabinet).

5.7.16 ADJUST pressure regulator SALW-PCV-6008K outside SALW-PNL-6002K (Air Compressor Cabinet) to 75 +/- 10 psig.
5.7.17 CLOSE valve SALW-V-6048K in the SALW-PNL-6002K (Air Compressor Cabinet).

5.7.18 SLOWLY crack open valve SALW-V-6046K in the SALW-PNL-6002K (Air Compressor Cabinet) to VERIFY air flow at the fitting for the AOV. Then close valve SALW-V-6046K.

5.7.19 SLOWLY crack open valve SALW-V-6047K (with SALW-V-6046K still cracked open) in the SALW-PNL-6002K (Air Compressor Cabinet) to VERIFY air flow at the drain line.

5.7.20 CLOSE valve SALW-V-6047K in the SALW-PNL-6002K (Air Compressor Cabinet).

5.7.21 SLOWLY crack open valve SALW-V-6043K in the SALW-PNL-6002K (Air Compressor Cabinet) to VERIFY air flow at the tank drain line.

5.7.22 CLOSE valve SALW-V-6043K in the SALW-PNL-6002K (Air Compressor Cabinet).

5.7.23 Engineer VERIFY that section 5.7 is complete by SIGNING below.

Exception 12 for steps 5.7.13 to 5.7.17. To be performed in Part II.

5.7.24 Quality Control Inspector VERIFY that section 5.7 is complete by signing below.

GC INSPECTION RECORD

WORK ORDER 2H9903385F  PAGE A22  PAGE 156 OF
5.8 VERIFY DATA TABLE ACCESS MODULE AND OPERATOR CONTROL STATION ANALOG INPUT SIGNALS

Water Tank Level Transmitter

5.8.1 PREPARE the Water Tank Level Transmitter SALW-LT-6003K for test signals by PERFORMING the following:

5.8.2 ENSURE valve SALW-V-6029K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL), is CLOSED.

5.8.3 ENSURE valve SALW-V-6031K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL), is CLOSED.

5.8.4 CONNECT 0-62" test Manometer pressure source to the HIGH PRESSURE vent/test port of the level transmitter SALW-LT-6003K.

5.8.5 VERIFY the LOW PRESSURE vent/test port of the level transmitter SALW-LT-6003K is OPEN to atmosphere.

5.8.6 ADJUST the test Manometer on the SALW-LT-6003K to a pressure of 31" Water Gauge (± 1").

5.8.7 RECORD the following: (screen 20 on DTAM)

<table>
<thead>
<tr>
<th>DATA TABLE ACCESS MODULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER TANK LEVEL</td>
</tr>
<tr>
<td>(RANGE: 28.5 TO 33.5 Inches)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>31.1</td>
</tr>
</tbody>
</table>

NOTE - In the next step, the alarm should annunciate between 11.75" and 12.75" Water Gauge.

5.8.8 VERY SLOWLY DECREASE the Level Transmitter test Manometer pressure UNTIL the Data Table Access Module "PIC WATER LOW" alarm (alarm 9, screen 109) annunciates.
5.8.9 **ACKNOWLEDGE** the Water Tank Low Level alarm at the Data Table Access Module.

5.8.10 **OBSERVE** the Data Table Access Module AND **RECORD** the water tank level readings below (screen 20 on DTAM)

<table>
<thead>
<tr>
<th>DATA TABLE ACCESS MODULE WATER TANK LEVEL (RANGE 11.75 to 12.75 Inches Water Gauge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.2</td>
</tr>
</tbody>
</table>

5.8.11 **SLOWLY INCREASE** the Level Transmitter test Manometer pressure to 15.5" Water Gauge.

5.8.12 **OBSERVE** the Data Table Access Module AND **RECORD** the water tank level readings below: (screen 20 on DTAM)

<table>
<thead>
<tr>
<th>DATA TABLE ACCESS MODULE WATER TANK LEVEL (RANGE 14.5 to 16.5 inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.5</td>
</tr>
</tbody>
</table>

5.8.13 **REMOVE** the test manometer from the SALW-LT-6003K high pressure vent/test port, AND **RE-INSTALL** vent plugs.

5.8.16 **RESTORE** the Water Tank Level Transmitter SALW-LT-6003K by **PERFORMING** the following:

5.8.17 **OPEN** valve SALW-V-6029K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL).
5.8.18 OPEN valve SALW-V-6031K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL).

5.8.19 VERIFY that NO Programmable Logic Controller input signals are FORCED and that the forcing function is DISABLED.

5.8.20 CONNECT the 0-500" Water Gauge test Manometer pressure source to the HIGH PRESSURE dip tube on the side of the "WFIE Cabinet."

5.8.21 ENSURE SALW-V-6001K is CLOSED.

5.8.22 ENSURE SALW-V-6005K is OPEN.

5.8.23 ENSURE SALW-V-6006K is OPEN.

5.8.24 ENSURE adjustment valves on SALW-FIV-6002K, SALW-FIV-6003K, SALW-FIV-6004K are CLOSED.

5.8.25 ENSURE SALW-WFT-6002K EQUALIZING valve located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet) is CLOSED.

5.8.26 ENSURE the LOW side and HIGH side isolation valves, located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet) are OPEN.

5.8.27 SET the test Manometer to 125" Water Gauge.
5.8.28 **OBSERVE** Data Table Access Module (screen 24) AND **RECORD** the Weight Factor on the table below.

<table>
<thead>
<tr>
<th>DATA TABLE ACCESS MODULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT FACTOR READING</td>
</tr>
<tr>
<td>(RANGE 120 to 130 inches)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>125.3</td>
</tr>
</tbody>
</table>

5.8.29 **BLEED** off pressure from the manometer.

5.8.30 **DISCONNECT** the 0-500" test Manometer pressure source.

5.8.31 **CLOSE** SALW-V-6006K.

5.8.32 **OPEN** SALW-WFT-6002K equalizing valve, located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet).

5.8.33 **CLOSE** the LOW side and HIGH side isolation valves, located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet).

**SPECIFIC GRAVITY TEST**

**NOTE** - A mock signal to the specific gravity transmitter is required to keep a low saltwell level alarm from preventing testing of other instrumentation.

5.8.34 **CONNECT** the 0-50" Water Gauge test Manometer pressure source to the HIGH PRESSURE dip tube.

5.8.35 **ENSURE** SALW-V-6007K is OPEN.

5.8.36 **ENSURE** SALW-V-6005K is OPEN.

5.8.37 **ENSURE** the LOW side and the HIGH side isolation valves, located on SALW-V-6035K in cabinet SALW-PNL-6002K (WFIE Cabinet) are OPEN.

**QC INSPECTION RECORD**
5.8.38 **CLOSE** the Specific Gravity Transmitter equalizing valve located on SALW-V-6035K in cabinet SALW-PNL-6002K (WFIE Cabinet).

5.8.39 SET the test Manometer to 5" Water Gauge (± .3").

5.8.40 **OBSERVE** Data Table Access Module (screen 24) AND **RECORD** the Specific Gravity reading on the table below.

<table>
<thead>
<tr>
<th>DATA TABLE ACCESS MODULE</th>
<th>SPECIFIC GRAVITY READING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(RANGE 4.65 to 5.35 inches)</td>
</tr>
<tr>
<td></td>
<td>4.9</td>
</tr>
</tbody>
</table>

*Exception: Remove manometer from High Pressure DIP tube, Bleed pressure off first.

FLOW METER TEST  Open Equalizing valve SALW-V-6035K Close Low and High side values on SALW-V-6035K.*

5.8.41 IF necessary to configure the flowmeter, **UNPLUG** the power cord to the SALW-FQIT-6001K (SUPERNATANT FLOW XMIT), located in cabinet SALW-PNL-6005K (Instrument Cabinet).

5.8.42 **ENSURE** SALW-FQIT-6001K is powered and configured for simulated flow signals.

5.8.43 **SIMULATE** a flow signal of 2.0 gpm (50% span) with the hand held calibrator, or from flowmeter face plate.

5.8.44 **VERIFY** the SALW-FQIT-6001K transmitter is operating properly by **RECORDING** the following: (screen 24 on DTAM)

<table>
<thead>
<tr>
<th>DATA TABLE ACCESS MODULE</th>
<th>SUPERNATANT FLOW XMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPERNATANT FLOW</td>
<td>SUPERNATANT FLOW</td>
</tr>
<tr>
<td>(RANGE: 1.8 TO 2.2 GPM)</td>
<td>(RANGE: 1.8 TO 2.2 GPM)</td>
</tr>
<tr>
<td>2.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>
5.8.45 **RESTORE** the SALW-FQIT-6001K (SUPERNATANT FLOW TRANSMITTER) to its original configuration.

**SUCTION AND DISCHARGE PRESSURE SIGNAL**

5.8.46 **CONNECT** a current source to PSPT+ and PSPT- at the intrinsic side terminal board in the Intrinsic Safe panel.

5.8.47 **SET** the current to 4mA and record the suction pressure on SALW-PI-6012K in the table below. Reading is to be approximately zero.

5.8.48 **SET** the current source to 10mA and record the suction pressure in the table below. Reading is to be greater than zero.

5.8.49 **DISCONNECT** the current source.

5.8.50 **CONNECT** a current source to PSPT+ and PDPT- at the intrinsic side terminal board in the Intrinsic Safe panel.

5.8.51 **SET** the current to 4mA and record the discharge pressures on SALW-PI-6011K and on the DTÅM in the table below. Readings are to be approximately zero.

5.8.52 **SET** the current source to 20mA and record the discharge pressures in the table below. Readings are to be greater than zero.

5.8.53 **DISCONNECT** the current source.
5.8.54 RECORD the following pressures on the table below:(screen 26 on DTAM)

<table>
<thead>
<tr>
<th>SALW-PI-6012K JET PUMP SUCTION PRESSURE</th>
<th>DTAM DISCHARGE PRESSURE</th>
<th>SALW-PI-6011K JET PUMP DISCHARGE PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>At 4mA</td>
<td>0.4</td>
</tr>
<tr>
<td>100.1</td>
<td>At 20mA</td>
<td>300</td>
</tr>
</tbody>
</table>

PIT FLAMMABLE GAS MONITOR ANALOG SIGNAL TO PLC

5.8.55 CONNECT a current source to terminal board TB1 in the PICS Instrument Enclosure, points FGM O(+) and FGM 0(-).

5.8.56 SET current source to 4 mA (±.25 mA).

5.8.57 RECORD the Data Table Access Module Flammable Gas DISPLAY on the "Pit FGM Input/Output Table" below.

5.8.58 SET current source to 10 mA (±.25 mA).

5.8.59 RECORD the Data Table Access Module Flammable Gas display on the "Pit FGM Input/Output Table" below.

5.8.60 SET current source to 20 mA (±.25 mA).
5.8.61 RECORD the Data Table Access Module Flammable Gas display on the "Pit FGM Input/Output Table" below. (screen 28 on DTAM)

<table>
<thead>
<tr>
<th>Input (mA)</th>
<th>Output (as displayed on Data Table Access Module)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>11.3</td>
</tr>
<tr>
<td>20</td>
<td>30.0</td>
</tr>
</tbody>
</table>

5.8.62 DISCONNECT the current source.

DOME SPACE FLAMMABLE GAS MONITOR ANALOG SIGNAL TO PLC

5.8.63 CONNECT a current source to terminal board TB1 in the PICS Instrument Enclosure, points FGM 1(+) and FGM 1(-).

5.8.64 SET current source to 4 mA (±.25 mA).

5.8.65 SET current source to 10 mA (±.25 mA).

5.8.66 RECORD the Data Table Access Module Flammable Gas display on the "Dome Space FGM Input/Output Table" below.

5.8.67 SET current source to 20 mA (±.25 mA).

5.8.68 RECORD the Data Table Access Module Flammable Gas display on the "Dome Space FGM Input/Output Table" below. (screen 28 on DTAM)

QC INSPECTION RECORD
5.8.69 DISCONNECT the current source.

THERMOCOUPLE INPUTS TO PLC

5.8.70 WARM thermocouple SALW-TE-6004K, located in the Instrument Enclosure.

5.8.71 VERIFY Data Table Access Module (screen 25) displays a changed temperature.

5.8.72 ALLOW SALW-TE-6004K to return to ambient temperature.

5.8.73 WARM thermocouple SALW-TE-6004K, located in SALW-PNL-6001K INSTRUMENT AIR ENCLOSURE.

5.8.74 VERIFY Data Table Access Module (screen 25) displays a changed temperature.

5.8.75 ALLOW SALW-TE-6003K to return to ambient temperature.
5.8.76 CONNECT a thermocouple probe to the intrinsic side of top thermocouple module (MTL 3081) in the Intrinsic Safe Panel. (This will simulate pump temperature.)

5.8.77 WARM the connected thermocouple probe.
5.8.78 VERIFY Data Table Access Module (screen 25) displays a changed temperature.

5.8.79 ALLOW the connected probe to return to ambient temperature.

5.8.80 CONNECT a thermocouple probe to the second thermocouple module in the Intrinsic Safe panel. (This will simulate jumper temperature.)
5.8.81 WARM the thermocouple probe.
5.8.82 VERIFY Data Table Access Module (screen 25) displays a changed temperature.

5.8.83 ALLOW SALW-TE-6002K to return to ambient temperature.

RECECIRCULATION FLUSH PRESSURE SIGNAL TO PLC
5.8.84 CONNECT a current source to points RFPT+ and RFPT- at the intrinsic side terminal board in the Intrinsic Safe panel.
5.8.85 SET the current source to 20mA.
5.8.86 VERIFY an alarm on the DTAM for High Recirc. Flush Pressure (alarm & screen 139) and strobe flashes.
5.8.87 ACKNOWLEDGE alarm.
5.8.88 SET the current source to 4mA.
5.8.89 VERIFY the High Recirc. Flush Pressure alarm clears on the DTAM.

5.8.90 DISCONNECT the current source.

JUMPER FLUSH PRESSURE SIGNAL TO PLC

5.8.91 CONNECT a current source to points JFPT+ and JFPT- at the intrinsic side terminal board in the Intrinsic Safe panel.

5.8.92 SET the current source to 12.5mA.

5.8.93 VERIFY an alarm on the DTAM for High Flush Pressure(alarm 3, screen 103) and strobe flashes and the BLUE light on the instrument panel is ON.

5.8.94 ACKNOWLEDGE alarm.

5.8.95 SET the current source to 4mA.

5.8.96 VERIFY the High Flush Pressure alarm clears on the DTAM and the BLUE light turns OFF.

5.8.97 DISCONNECT the current source.

5.8.98 Engineer VERIFY that section 5.8 is complete by SIGNING below.

* See exceptions 13 and 14. Eng.

[Signature] 8/13/99
Engineer Signature   Date

5.8.99 Quality Control Inspector VERIFY that section 5.8 is complete by signing below.

* [Signature] 8/16/99
Quality Control Inspector Signature   Date
5.9 VERIFY DATA TABLE ACCESS MODULE DISCRETE SIGNAL INPUTS.

5.9.1 CONNECT a normally closed switch across the LS-2+ and LS-2- and a normally open switch across the LS-1+ AND LS-1- points on the intrinsic safe terminal board in the Intrinsic Safe panel.

5.9.2 VERIFY the JR-1 valve indicates "norm" at the Data Table Access Module (screen 42).

5.9.3 CLOSE the LS-1 switch installed in the above step.

5.9.4 VERIFY the JR-1 valve indicates "NON-PROCESS" at the Data Table Access Module.

5.9.5 OPEN the LS-2 switch.

5.9.6 VERIFY the JR-1 valve still indicates "NON-PROCESS" at the Data Table Access Module.

5.9.7 CLOSE the LS-2 switch and OPEN the LS-1 switch.

5.9.8 VERIFY the JR-1 valve indicates "norm" at the Data Table Access Module.

5.9.9 REMOVE the switches.

LOW PRESSURE INTERLOCK (PS-1) INPUT

5.9.10 CONNECT a normally closed switch across points PS-1-NO and PS-1-1(H) at the intrinsic safe terminal board in the Intrinsic Safe panel and a normally open switch across MR-1 and 120vac 15A in the pump motor starter.

5.9.11 VERIFY the GREEN light on the instrument panel is ON.

5.9.12 CLOSE the MR-1 switch.
5.9.13 **VERIFY** the RED light on the instrument panel is ON and the GREEN light is OFF.

5.9.14 OPEN the PS-1 switch.

5.9.15 **VERIFY** that the amber light on the instrument panel turns ON 30 seconds after the switch is opened and a "XFR Pressure LOW" alarm (alarm 1, screen 101) occurs at the DTAM.

5.9.16 **ACKNOWLEDGE** alarms at Data Table Access Module.

5.9.17 CLOSE the PS-1 switch to clear the alarm and turn OFF amber light.

5.9.18 **REMOVE** the two switches.

**HIGH PRESSURE INTERLOCK (PS-1-1) INPUT**

5.9.19 **CONNECT** a normally closed switch at points PS-1-NC and PS-1-1(H) at the intrinsic safe terminal board in the Intrinsic Safe panel.

5.9.20 OPEN the switch across the PS-1-1 points.

5.9.21 **VERIFY** a "XFR Pressure HIGH" alarm (alarm 2, screen 102) at the DTAM after a 3 second delay.

5.9.22 **ACKNOWLEDGE** the alarm.

5.9.23 **DISCONNECT** the switch.

**RECIRCULATION FLOWMETER TEST INPUT**

5.9.24 **PLACE** a force (rung 5:28) on the motor permissive if necessary to ensure a true logic.

5.9.25 **ENSURE** the Controlotron in the Water Cabinet is programmed.

5.9.26 **CONFIGURE** SALW-FI-6001K (PMP RECIRC FLOW) to receive signals from a control and display unit.
5.9.27 **CONFIGURE** the control and display unit to simulate flow signals using the Installation, Diagnostics, Test/Control Mode, AN CAL function.

5.9.28 **APPLY** power to the Controlotron.

5.9.29 **SIMULATE** a flow signal of 0.6 gpm with the control and display unit.

5.9.30 **VERIFY** no "RECIRCULATION FAILURE" alarm (alarm 21, screen 121).

5.9.31 **SIMULATE** a flow signal of 0.4 gpm with the control and display unit.

5.9.32 **VERIFY** Jet Pump recirculation line low flow alarm K21, "RECIRCULATION FAILURE" annunciates at the Data Table Access Module after a 30 seconds delay.

5.9.33 **RESTORE** SALW-FI-6001K to its original configuration.

5.9.34 **REMOVE** any forces on the software logic.

**DILUTION TANK LOW LEVEL INPUT**

5.9.35 **PLACE** a normally closed switch across terminal points DIL-L and CKT5H-A on terminal board TB4 in the Instrument Cabinet.

5.9.36 **VERIFY** no dilution tank low level alarm on the DTAM (alarm 35, screen 135).

5.9.37 **OPEN** the switch at TB4.

5.9.38 **VERIFY** a dilution tank low level alarm on the DTAM.

5.9.39 **ACKNOWLEDGE** the alarm.

5.9.40 **CLOSE** the switch.
5.9.41 VERIFY alarm clears.

5.9.42 DISCONNECT the switch.

**FLAMMABLE GAS MONITOR INPUT**

5.9.43 CONNECT a normally closed switch to points FGM and CKT5H-A on terminal board TB 4 in the instrument cabinet.

5.9.44 VERIFY no FGM interlock alarm on the DTAM (alarm 22, screen 122).

5.9.45 OPEN the switch.

5.9.46 VERIFY an FGM alarm on the DTAM.

5.9.47 ACKNOWLEDGE the alarm.

5.9.48 CLOSE the switch.

5.9.49 VERIFY the FGM alarm clears.

5.9.50 LEAVE the switch connected for the Heat Trace check.

**HEAT TRACE CONTROL FOR PUMP AND JUMPER**

5.9.51 VERIFY that heat trace relays HT-1 and HT-2 are deenergized by checking for zero voltage across points 2 and 7 at each relay.

5.9.52 VERIFY zero voltage at TB12 between HT-1 and CKT3-N.

5.9.53 FORCE software to actuate relays HT-1 and HT-2.

5.9.54 CHECK for 120vac at TB-12, points HT-1 and CKT3-N.

5.9.55 OPEN the FGM switch.
5.9.56 VERIFY 0vac at TB-12, points HT-1 and CKT3-N.

5.9.57 REMOVE the software forces.

5.9.58 REMOVE the switch.

5.9.59 Engineer VERIFY that section 5.9 is complete by SIGNING below.

* See exceptions 16 and 17, BGR

[Signature] 8/13/99
Engineer Signature  Date

5.9.60 Quality Control Inspector VERIFY that section 5.9 is complete by signing below.

* [Signature] 8/16/99
Quality Control Inspector Signature  Date
5.10 CHECK HEATERS AND AIR CONDITIONER

5.10.1 TURN the heater ON in the air compressor cabinet. Set the thermostat high enough to allow the unit to operate.

5.10.2 RESET the thermostat to approximately 40 degrees F to allow the unit to turn OFF.

5.10.3 TURN the fan thermostat switch low to allow the fan in the air compressor cabinet to run.

5.10.4 RESET the fan switch to approximately 90 degrees.

5.10.5 TURN the heater ON in the WFE cabinet. Set the thermostat high enough to allow the unit to operate.

5.10.6 RESET the thermostat to approximately 40 degrees F to allow the heater to turn OFF.

5.10.7 TURN the heater ON in the Water cabinet. Set the thermostat high enough to allow the unit to operate.

5.10.8 RESET the thermostat to approximately 40 degrees F to allow the heater to turn OFF.

5.10.9 TURN the heater ON in the Instrument cabinet. Set the thermostat high enough to allow the unit to operate.

5.10.10 RESET the thermostat to approximately 40 degrees F to allow the heater to turn OFF.

5.10.11 TURN ON the air conditioner in the Instrument cabinet. If necessary, remove the front grill on the unit and adjust the temperature setting lower to get the unit to operate.

5.10.12 RESET the temperature setting to approximately 90 to 95 degrees.
5.10.13 Engineer VERIFY that section 5.10 is complete by SIGNING below.

[Signature] 8/12/99
Engineer Signature  Date

5.10.14 Quality Control Inspector VERIFY that section 5.10 is complete by signing below.

[Signature] 8/12/79
Quality Control Inspector Signature  Date
5.11 LEAK DETECTION INTERLOCK CHECK (Complete Leak Detector CGI Forms during this section.)

5.11.1 Set up two buckets for leak detector testing.

NOTE
- A supply of water needs to be available to pour into the buckets during testing.
- Pump operation will be simulated during the remainder of the ATP.

WARNING
Energized circuits and leads are contained inside the cabinet. Observe appropriate electrical. Comply with WHC-CM-1-10, WKS-15, ELECTRICAL WORK SAFETY to avoid personnel electrical shock hazards.

5.11.2 PERFORM or VERIFY performed the CGI dedication for the leak detector relays per HNF-4275 and WTF-1-17 and WTF-30-15.

5.11.3 CONNECT a leak detector probe to the primary leak detector terminals at TB11 in the Instrument Cabinet, points SD-1A, SD-1B, SA-1A, and SA-1B.

5.11.4 VERIFY no primary leak detector alarms at the DTAM (alarms 6 and 7, screens 106 and 107).

5.11.5 PLACE the leak detector assembly in a bucket of water.

5.11.6 VERIFY a leak detector leak and trouble alarm for the primary leak detector is received at the DTAM (alarm 6) after a 3 second delay.

5.11.7 ACKNOWLEDGE the Leak Detector Alarm at the Data Table Access Module.

5.11.8 REMOVE the leak detector assembly from the bucket and allow the water to drain off the assembly into the bucket.
5.11.9 VERIFY the leak detector alarms clear at the DTAM.

5.11.10 DISCONNECT one of the "SD" wires going to the probe.

5.11.11 VERIFY trouble alarm 7 occurs.

5.11.12 ACKNOWLEDGE the alarm.

5.11.13 DISCONNECT the probe. Reconnect wire, verify trouble alarm clears.

5.11.14 CONNECT a leak detector probe to leak detector #1 terminals at TB11 in the Instrument Cabinet, points SD-2A, SD-2B, SA-2A, and SA-2B.

5.11.15 VERIFY no leak detector #1 alarms at the DTAM (alarms 18 and 19, screens 118 and 119).

5.11.16 PLACE the leak detector assembly in a bucket of water.

5.11.17 VERIFY a leak detector leak and trouble alarm for leak detector #1 is received at the DTAM.

5.11.18 ACKNOWLEDGE the Leak Detector Alarm at the Data Table Access Module.

5.11.19 REMOVE the leak detector assembly from the bucket and allow the water to drain off the assembly into the bucket.

5.11.20 VERIFY the leak detector alarms clear at the DTAM.

5.11.21 DISCONNECT one of the "SD" wires going to the probe.

5.11.22 VERIFY trouble alarm 19 occurs.

5.11.23 ACKNOWLEDGE the alarm.
5.11.24 DISCONNECT the probe. Reconnect wire. Verify alarm clears.

5.11.25 DISCONNECT the leak detector assembly form TB11.

5.11.26 Engineer VERIFY that section 5.11 is complete by SIGNING below.
See exception 28

[Signature] 9/11/99
Engineer Signature Date

5.11.27 Quality Control Inspector VERIFY that section 5.11 is complete by signing below.

[Signature] 9/11/99
Quality Control Inspector Signature Date

Exception #28 9/16/99
#19
5.12 PLC OUTPUTS

JET PUMP START AND DILUTION OUTPUTS

5.12.1 CONNECT a voltmeter across terminals MS-1 and 120vac COM at the terminal block in the jet pump motor starter and across terminals DIL-P and 120N at TB4 in the Instrument Cabinet.

5.12.2 FORCE software for an output (rung 7:0) on O:11/2 (address N60:31/2).

5.12.3 VERIFY 120vac on both voltmeters.

5.12.4 REMOVE the software force and VERIFY zero volts on both voltmeters.

5.12.5 DISCONNECT the voltmeters.

STROBE, BUZZER AND LIGHT OUTPUTS

5.12.6 USE software forces to verify the strobe, buzzer on pump shut down.

5.12.7 PLACE a force at subroutine 18, rung 11 to turn ON the strobe and buzzer.

5.12.8 ACKNOWLEDGE the alarms.

5.12.9 REMOVE the software force.

5.12.10 SECURE the skid per sections 4.4.2.7, 4.4.2.8 and 4.4.2.9 for moving to the maintenance shop.

5.12.11 Engineer VERIFY that section 5.12 is complete by SIGNING below.

B. Johns
Engineer Signature

8/12/99
Date

5.12.12 Quality Control Inspector VERIFY that section 5.12 is complete by signing below.

K. Wallack
Quality Control Inspector Signature

8/16/99
Date

WORK ORDER SHEET

PAGE 44 OF 44
PART II

NOTE: This part of the ATP will be performed when the PIC skid is in the Interim Stabilization maintenance shop. Verify prerequisites are completed before proceeding, which includes connection of the jumper and pump assembly. A computer is set up and connected to the skid to simulate the OCS for "U" farm. Perform the following for Part II set up.

SKID AND PUMP SET UP:

- Set up skid "K" and connect to pump, jumper and recirculation assembly including all the wiring to the switches and transducers. Test gauges are to be installed on the jumper assembly for suction and discharge pressure verification. Actual piping, tubing or wiring to be used in the field need not be used for the hookups if not available. Reference H-14-103530 for connections to the skid.
- Provide an FGM for skid "K" and connect just the air line and interlock wiring. Actual tubing and wiring to be used in the field need not be used for this test set up if not available.
- Connect two leak detector probes to the skid. If the actual leak detector probes to be used in the field are not available, then any similar type probes can be used.
- Connect the computer to the skid PLC for the Operator Control Station (OCS).

5.13.1 PREPARE the Water Tank Level Transmitter SALW-LT-6003K for test signals by PERFORMING the following:

5.13.2 ENSURE valve SALW-V-6029K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL), is CLOSED.

5.13.3 ENSURE valve SALW-V-6031K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL), is CLOSED.

5.13.4 CONNECT 0-50" test Manometer pressure source to the HIGH PRESSURE vent/test port of the level transmitter SALW-LT-6003K.

5.13.5 VERIFY the LOW PRESSURE vent/test port of the level transmitter SALW-LT-6003K is OPEN to atmosphere.

5.13.6 ADJUST the test Manometer on the SALW-LT-6003K to a pressure of 31" Water Gauge (± 1").

PAGE A45
5.13.7 RECORD the following:

<table>
<thead>
<tr>
<th>OPERATOR CONTROL STATION WATER TANK LEVEL (RANGE: 28.5 TO 33.5 Inches)</th>
<th>DATA TABLE ACCESS MODULE WATER TANK LEVEL (RANGE: 28.5 TO 33.5 Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.2 inches</td>
<td>31.1 inches</td>
</tr>
</tbody>
</table>

NOTE - Alarm should annunciate between 11.75" and 12.75" Water Gauge.

5.13.8 VERY SLOWLY DECREASE the Level Transmitter test Manometer pressure UNTIL the Data Table Access Module "PIC WATER LOW" alarm (alarm 9) annunciates.

5.13.9 VERIFY that the Water Tank Low Level alarm is displayed at the Operator Control Station.

5.13.10 ACKNOWLEDGE the Water Tank Low Level alarm at the Operator Control Station and at the Data Table Access Module.

5.13.11 OBSERVE the Operator Control Station and Data Table Access Module AND RECORD the water tank level readings below:

<table>
<thead>
<tr>
<th>OPERATOR CONTROL STATION WATER TANK LEVEL (RANGE 11.75 to 12.75 inches Water Gauge)</th>
<th>DATA TABLE ACCESS MODULE WATER TANK LEVEL (RANGE 11.75 to 12.75 inches Water Gauge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1 inches</td>
<td>12.1 inches</td>
</tr>
</tbody>
</table>

5.13.12 SLOWLY INCREASE the Level Transmitter test Manometer pressure to 15.5" Water Gauge.

5.13.13 OBSERVE the Operator Control Station and Data Table Access Module AND RECORD the water tank level readings below:
5.13.14 VERIFY that the Water Tank Low Level alarm CLEARS at the Operator Control Station.

5.13.15 REMOVE the test manometer from the SALW-LT-6003K high pressure vent/test port, AND RE-INSTALL vent plugs.

5.13.16 RESTORE the Water Tank Level Transmitter SALW-LT-6003K by PERFORMING the following:

5.13.17 OPEN valve SALW-V-6029K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL).

5.13.18 OPEN valve SALW-V-6031K, located in the bottom of SALW-PNL-6003K (WATER TANK ENCL).

WEIGHT FACTOR TEST

5.13.19 VERIFY that NO Programmable Logic Controller input signals are FORCED and that the forcing function is DISABLED.

5.13.20 CONNECT the 0-500" Water Gauge test Manometer pressure source to the HIGH PRESSURE dip tube on the side of the "WFIE Cabinet".

5.13.21 ENSURE SALW-V-6001K is CLOSED.

5.13.22 ENSURE SALW-V-6005K is OPEN.
5.13.23 **ENSURE** SALW-V-6006K is OPEN.

5.13.24 **ENSURE** adjustment valves on SALW-FIV-6002K, SALW-FIV-6003K, SALW-FIV-6004K are CLOSED.

5.13.25 **ENSURE** SALW-WFT-6002K EQUALIZING valve located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet) is CLOSED.

5.13.26 **ENSURE** the LOW side and HIGH side isolation valves, located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet) are OPEN.

5.13.27 **SET** the test Manometer to 125" Water Gauge.

5.13.28 **OBSERVE** Operator Control Station and Data Table Access Module AND **RECORD** the Weight Factor on the table below.

<table>
<thead>
<tr>
<th>OPERATOR CONTROL STATION</th>
<th>DATA TABLE ACCESS MODULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT FACTOR READING</td>
<td>WEIGHT FACTOR READING</td>
</tr>
<tr>
<td>(RANGE 120 to 130 inches)</td>
<td>(RANGE 120 to 130 inches)</td>
</tr>
<tr>
<td>125.4 inches</td>
<td>125.4 inches</td>
</tr>
</tbody>
</table>

5.13.29 **BLEED** off pressure from the manometer.

5.13.30 **DISCONNECT** the 0-500" test Manometer pressure source.

5.13.31 **CLOSE** SALW-V-6006K.

5.13.32 **OPEN** SALW-WFT-6002K equalizing valve, located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet).

5.13.33 **CLOSE** the LOW side and HIGH side isolation valves, located on SALW-V-6036K 3-Valve Manifold in cabinet SALW-PNL-6002K (WFIE Cabinet).
DISCHARGE PRESSURE TEST

5.13.34 ENSURE Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump jumper.

5.13.35 PLACE JR-1 valve in the PROCESS position.

5.13.36 At the discretion of the Engineer, INSTALL temporary interlock jumpers, OR INITIATE a software force on pump permissive interlocks for equipment not installed or out of service.

5.13.37 USING the Data Table Access Module, START the Jet Pump.

5.13.38 RECORD the following pressures on the table below:

<table>
<thead>
<tr>
<th>SALW-PI-6012K JET PUMP SUCTION PRESSURE</th>
<th>TEST GAUGE PI-1</th>
<th>DTAM DISCHARGE PRESSURE</th>
<th>SALW-PI-6011K JET PUMP DISCHARGE PRESSURE</th>
<th>TEST GAUGE PI-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.9 psi</td>
<td>45.0 psi</td>
<td>79 psi</td>
<td>20.2 psi</td>
<td>20.3 psi</td>
</tr>
</tbody>
</table>

5.13.39 Using the Data Table Access Module, STOP the Jet Pump.

THERMOCOUPLE TEST

5.13.68 WARM thermocouple SALW-TE-6004K, located in the Instrument Enclosure.

5.13.69 VERIFY Data Table Access Module and Operator Control Station display a changed temperature (Operator Control Station and Data Table Access Module should match ±2° F).


Date
5.13.70 **ALLOW** SALW-TE-6004K to return to ambient temperature.

5.13.71 **WARM** thermocouple SALW-TE-6003K, located in SALW-PNL-6001K INSTRUMENT AIR ENCLOSURE.

5.13.72 **VERIFY** Data Table Access Module and Operator Control Station **DISPLAY** a changed temperature. (Operator Control Station and Data Table Access Module should match ±2° F).

5.13.73 **ALLOW** SALW-TE-6004K to return to ambient temperature.

5.13.74 **WARM** thermocouple SALW-TE-6003K, located on the Jet Pump.

5.13.75 **VERIFY** Data Table Access Module and Operator Control Station **DISPLAY** a changed temperature. (Operator Control Station and Data Table Access Module should match ±2° F).

5.13.76 **ALLOW** SALW-TE-6004K to return to ambient temperature.

5.13.77 **WARM** thermocouple SALW-TE-6003K (Jet Pump over temperature thermocouple located on the saltwell Jet Pump jumper).

5.13.78 **VERIFY** Data Table Access Module and Operator Control Station **DISPLAY** a changed temperature (Operator Control Station and Data Table Access Module should match ±2° F).

5.13.79 **ALLOW** SALW-TE-6004K to return to ambient temperature.
5.13.80 REMOVE any jumpers or forces NOT required for the next test section.

5.13.81 Engineer VERIFY that section 5.13 is complete by SIGNING below.

[Signature]
Engineer Signature
9/8/99
Date

5.13.82 Quality Assurance Inspector VERIFY that section 5.13 is complete by signing below.

[Signature]
Quality Assurance Inspector Signature
9/8/99
Date

* See exception #23
9/8/99
5.14 VERIFY DATA TABLE ACCESS MODULE AND OPERATOR CONTROL STATION
DISCRETE SIGNAL INPUTS

Connect the lap top computer to the PLC to monitor the logic as necessary.

**VALVE POSITION TEST**

5.14.1 **ENSURE** the JR-1 valve is in the PROCESS position.

5.14.2 **VERIFY** the JR-1 valve indicates "norm" at the Data Table Access Module AND "PROCESS" position at the Operator Control Station.

   **NOTE:** The DIP switches on the Pepperl-Fuchs module in the Intrinsic Safe panel may require changing to get the "norm" indication.

5.14.3 **PLACE** the JR-1 valve in the FLUSH position.

5.14.4 **VERIFY** the JR-1 valve indicates "NON-PROCESS" at the Data Table Access Module AND "FLUSH" position at the Operator Control Station.

5.14.5 **PLACE** the JR-1 valve in the PRIME position.

5.14.6 **VERIFY** the JR-1 valve indicates "NON-PROCESS" at the Data Table Access Module AND "PRIME" position at the Operator Control Station.

**FLUSH LINE PRESSURE TEST**

5.14.7 **PLACE** the JR-1 valve in the PROCESS position.

5.14.8 **VERIFY** a water supply is connected to the jumper flush hose.

5.14.9 **ENSURE** Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump jumper.

5.14.10 At the discretion of the Engineer, **ENSURE** temporary interlock jumpers, **OR** software forces have been installed on pump permissive interlocks for equipment not installed or out of service.

5.14.11 **USING** the Data Table Access Module, **START** the Jet Pump.
5.14.12 VERIFY the Jet Pump OPERATION at the Operator Control Station.

5.14.13 ACTUATE pressure transducer SALW-PT-6014K (old name "PS-2") by PRESSURIZING the flush line with water.

5.14.14 VERIFY the Jet Pump IMMEDIATELY shuts down at the Data Table Access Module and Operator Control Station.

5.14.15 VERIFY flush line high pressure alarm *3, "Flush Pressure Hi" annunciates at the Data Table Access Module and Operator Control Station.

5.14.16 SHUT OFF the water supply to the flush line.

5.14.17 CYCLE the JR-1 valve to CLEAR the flush line high pressure alarm.

5.14.18 REMOVE wire to pressure transducer to verify that a loss of signal alarm occurs (alarm 16). On the DTAM.

5.14.19 ACKNOWLEDGE the alarm.

5.14.20 RECONNECT the wire.

LOW PRESSURE INTERLOCK

5.14.21 PLACE the JR-1 valve in the PROCESS position.

5.14.22 ENSURE ALL alarms have been acknowledged at Data Table Access Module and Operator Control Station.

5.14.23 ENSURE the pump is NOT primed.

5.14.24 ENSURE the Diaphragm Operated Valve is CLOSED.

5.14.25 USING the Data Table Access Module, START the Jet Pump.
5.14.26 VERIFY the Jet Pump shuts down in approximately thirty (30) seconds (±5 seconds).

5.14.27 VERIFY transfer line low pressure alarm #1 "XFR Pressure LOW" annunciates at the Data Table Access Module and Operator Control Station.

5.14.28 ACKNOWLEDGE alarms at Data Table Access Module and Operator Control Station.

NOTE - This test section is performed with jet pump jumper and pump physically mated in the shop on the run-in stand.

HIGH PRESSURE INTERLOCK

5.14.29 PLACE the JR-1 valve in the PRIME position.

5.14.30 IF a water ram will be used, using skill of the craft CONNECT a water ram to the jet pump jumper AND SLOWLY PRESSURIZE the pump and jumper to 140 psi using water.

5.14.28 IF pump will develop 140 psi, START jet pump with JR-2, BYPASS valve and DOV closed.

5.14.29 VERIFY that the "XFR Pressure HIGH" alarms at Data Table Access Module (Alarm *2) and Operator Control Station when pressure reaches 140 psi (±10 psi).

5.14.30 ACKNOWLEDGE alarms at Data Table Access Module and Operator Control Station.

RECIRCULATION FLOWMETER TEST

NOTE: Perform steps 5.9.25 to 5.9.34 in conjunction with the following steps. Step 5.9.24 can be N/A since the Controlotron is connected to the recirc line.

5.14.31 PLACE the JR-1 valve in the PROCESS position.

5.14.32 ENSURE Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump jumper.
5.14.33 **CONFIGURE** SALW-FI-6001K (PMP RECIRC FLOW) to receive signals from a control and display unit.

5.14.34 **CONFIGURE** the control and display unit to simulate flow signals using the Installation, Diagnostics, Test/Control Mode, AN CAL function.

5.14.35 **SIMULATE** a flow signal of 0.6 gpm with the control and display unit.

5.14.36 At the discretion of the Engineer, **ENSURE** temporary interlock jumpers OR software forces have been installed on pump permissive interlocks for equipment not installed or out of service.

5.14.37 **USING** the Data Table Access Module, **START** the Jet Pump.

5.14.38 **VERIFY** the Jet Pump OPERATION at the Operator Control Station.

5.14.39 **SIMULATE** a flow signal of 0.4 gpm with the control and display unit.

5.14.40 **VERIFY** the Jet Pump shuts down (after 30 ± 5 sec.) at the Data Table Access Module and Operator Control Station.

5.14.41 **VERIFY** Jet Pump recirculation line low flow alarm "21, "RECIRCULATION FAILURE" annunciates at the Data Table Access Module and Operator Control Station.

5.14.42 **RESTORE** SALW-FI-6001K to its original configuration.

5.14.43 **CYCLE** the JR-1 valve to **CLEAR** the Jet Pump recirculation line low flow alarm.
5.14.44 PLACE the JR-1 valve in the PROCESS position.

5.14.45 VERIFY a water supply is connected to the recirculation flush line.

5.14.46 ENSURE Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump jumper.

5.14.47 At the discretion of the Engineer, ENSURE temporary interlock jumpers OR software forces have been installed on pump permissive interlocks for equipment not installed or out of service.

5.14.48 USING the Data Table Access Module, START the Jet Pump.

5.14.49 VERIFY the Jet Pump OPERATION at the Operator Control Station.

5.14.50 ACTUATE pressure transducer SALW-PT-6013K (RECIRC FLUSH PRESS) by PRESSURIZING the recirculation flush line with water.

5.14.51 VERIFY the Jet Pump IMMEDIATELY shuts down at the Data Table Access Module and Operator Control Station.

5.14.52 VERIFY recirculation flush line high pressure alarm "RECIRC FLUSH PRESS HI" annunciates at the Data Table Access Module and Operator Control Station.

5.14.53 SHUT OFF the water supply to the recirculation flush line.

5.14.54 CYCLE the JR-1 valve to CLEAR the recirculation flush line high pressure alarm.
5.14.55 REMOVE any jumpers or forces NOT required for the next test section.

5.14.56 REMOVE a wire to the pressure transducer on the flush line to verify a loss of signal alarm (alarm 14) on the DTAM.

5.14.57 ACKNOWLEDGE the alarm.

5.14.58 RECONNECT the wire.

5.14.59 VERIFY the alarm clears.

5.14.60 Engineer VERIFY that section 5.14 is complete by SIGNING below.

See exceptions 24 and 37

Engineer Signature: [Signature] 7/10/99

Date: 7/10/99

5.14.61 Quality Assurance Inspector VERIFY that section 5.14 is complete by signing below.

Quality Assurance Inspector Signature: [Signature] 7/10/99

Date: 7/10/99

Ext 272
5.15 VERIFY DATA TABLE ACCESS MODULE AND OPERATOR CONTROL STATION MONITOR/ALARM FUNCTIONS

5.15.1 At the discretion of the Engineer, ENSURE temporary interlock jumpers, OR software forces are in place for uninstalled equipment.

5.15.2 SET the test manometer on the specific gravity transmitter to 13" Water Gauge.

5.15.3 ENSURE the following valves are OPEN:

<table>
<thead>
<tr>
<th>Valve Number</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALW-V-6034K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6026K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6001K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6004K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6002K</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.15.4 ENSURE Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump.

5.15.5 START the Jet Pump using the Data Table Access Module, AND PLACE the system in automatic.

5.15.6 VERIFY the DIAPHRAGM OPERATED VALVE moves OPEN.

5.15.7 OBSERVE the Operator Control Station and Data Table Access Module AND RECORD the specific gravity readings below:

<table>
<thead>
<tr>
<th>OPERATOR CONTROL STATION SPECIFIC GRAVITY READING (RANGE 12.6 to 13.4 inches)</th>
<th>DATA TABLE ACCESS MODULE SPECIFIC GRAVITY READING (RANGE 12.65 to 13.35 inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.1 inches</td>
<td>13.12 inches</td>
</tr>
</tbody>
</table>
5.15.8 VERY SLOWLY DECREASE the test manometer pressure until the Data Table Access Module “SGT LOW” alarm (alarm *13) annunciates.

NOTE, - SALW-PI-6005K pressure is to be recorded in the table below when DOV position indicates fully closed.

5.15.9 VERIFY AND ACKNOWLEDGE the Specific Gravity Low Alarm (Saltwell LOW Level) at the Data Table Access Module and Operator Control Station.

5.15.10 RECORD the following:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>READING</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATOR CONTROL STATION SPECIFIC GRAVITY</td>
<td>3.5</td>
</tr>
<tr>
<td>(RANGE 3 to 4)</td>
<td></td>
</tr>
<tr>
<td>DATA TABLE ACCESS MODULE SPECIFIC GRAVITY</td>
<td>3.47</td>
</tr>
<tr>
<td>(RANGE 3 to 4)</td>
<td></td>
</tr>
<tr>
<td>SPECIFIC GRAVITY MANOMETER READING</td>
<td>3.39</td>
</tr>
<tr>
<td>(RANGE 3 to 4 inches Water Gauge)</td>
<td></td>
</tr>
<tr>
<td>DOV POSITION (% OPEN)</td>
<td>0%</td>
</tr>
<tr>
<td>[RANGE - FULLY CLOSED]</td>
<td></td>
</tr>
<tr>
<td>SALW-PI-6005K PRESSURE (RANGE 2 to 4 psig)</td>
<td>0 psi</td>
</tr>
<tr>
<td>LEVEL) at the Data Table Access Module and</td>
<td></td>
</tr>
<tr>
<td>Operator Control Station.</td>
<td></td>
</tr>
</tbody>
</table>

5.15.11 VERY SLOWLY INCREASE the test manometer pressure to 10 inches Water Gauge.

5.15.12 OBSERVE the Operator Control Station and Data Table Access Module AND RECORD the specific gravity readings below:

| OPERATOR CONTROL STATION SPECIFIC GRAVITY     | DATA TABLE ACCESS MODULE SPECIFIC GRAVITY |
| (RANGE 9 to 11 inches)                        | (RANGE 9 to 11 inches)                    |
| 10.0                                          | 10.11                                      |
5.15.13 VERIFY that the Specific Gravity Low Alarm CLEARS at the Operator Control Station and at the Data Table Access Module.

5.15.14 VERIFY the Diaphragm Operated Valve moves OPEN.

5.15.15 REMOVE any jumpers or forces NOT required for the next test section.

5.15.16 SHUT OFF the jet pump using the Data Table Access Module.

5.15.17 Engineer VERIFY that section 5.15 is complete by SIGNING below.

See exception 25.

[Signature] 7/19/99
Engineer Signature Date

5.15.18 Quality Assurance Inspector VERIFY that section 5.15 is complete by signing below.

[Signature] 9/1/99
Quality Assurance Inspector Signature Date

See exception #25

[b]PAGE A80[/b]
5.16 REMOTE SETPOINT CHANGE USING THE OPERATOR CONTROL STATION

5.16.1 PLACE the saltwell jumper JR-1 valve in the PROCESS position.

5.16.2 ENSURE pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump.

5.16.3 START the Jet Pump using the Data Table Access Module.

5.16.4 SET the "DOV" Specific Gravity setpoint to 8 inches at the Operator Control Station.

5.16.5 VERIFY that the "DOV" Specific Gravity setpoint is 8 inches at the Data Table Access Module AND the Operator Control Station.

5.16.6 SET the "DOV" Specific Gravity setpoint to 6 inches at the Data Table Access Module.

5.16.7 VERIFY that the "DOV" Specific Gravity setpoint is 6 inches at the Operator Control Station.

5.16.8 USING Data Table Access Module, STOP the Jet Pump.

5.16.9 Engineer VERIFY that section 5.16 is complete by SIGNING below.

5.16.10 Quality Assurance Inspector VERIFY that section 5.16 is complete by signing below.
5.17 DATA TABLE ACCESS MODULE AND OPERATOR CONTROL STATION

NOTE - This system is a Proportional Integral Derivative controller for controlling the liquid level in the saltwell screen. The Specific Gravity Transmitter reads unadjusted liquid level once the middle diptube leg is uncovered by declining liquid levels.

The system uses the signal from the Specific Gravity Transmitter as the Process Variable. The controller compares the process variable to the setpoint and adjusts the Diaphragm Operated Valve position accordingly (manipulated variable).

The purpose of this test section is to verify that the Diaphragm Operated Valve trend is toward achieving the setpoint while different process variables are simulated.

DATA TABLE ACCESS MODULE (AUTOMATIC)

5.17.1 ENSURE the Saltwell Pump and Jumper Assembly, AND the Pumping and Instrumentation Control Skid are configured for AUTOMATIC Diaphragm Operated Valve level control by PERFORMING the following:

5.17.2 SET the test manometer on the Specific Gravity Transmitter to a pressure of 0" Water Gauge.

5.17.3 ENSURE the following valves are OPEN:

<table>
<thead>
<tr>
<th>Valve Number</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALW-V-6034K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6026K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6001K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6004K</td>
<td>✓</td>
</tr>
<tr>
<td>SALW-V-6002K</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.17.3 PLACE the saltwell jumper JR-1 valve in the PROCESS position.

5.17.4 At the discretion of the Engineer, ENSURE temporary interlock jumpers, OR software forces have been installed on pump permissive interlocks for equipment not installed or out of service.
5.17.5 ENSURE that only alarms "JET PUMP SHUTDOWN" (Alarm 12) and "SGT LOW" (Alarm 13) on the Data Table Access Module are displayed.

5.17.6 ENSURE pump recirculation apparatus is filled with water AND CONFIGURED to circulate water through the saltwell Jet Pump.

5.17.7 START the Jet Pump using the Data Table Access Module.

5.17.8 SET DIAPHRAGM OPERATED VALVE Specific Gravity Controller to AUTO with setpoint of seven (7) inches USING the Data Table Access Module.

5.17.9 SET the test manometer to a pressure of 14" Water Gauge.

5.17.10 VERIFY that the Diaphragm Operated Valve moves to a more OPEN position.

5.17.11 SET the test manometer to a pressure of 6" Water Gauge.

5.17.12 VERIFY that the Diaphragm Operated Valve moves to a more CLOSED position.

DATA TABLE ACCESS MODULE (MANUAL)

5.17.13 VERIFY that the MANUAL CONTROL of the Diaphragm Operated Valve is operational by PERFORMING the following steps:

5.17.14 SET the test manometer on the Specific Gravity Transmitter to a pressure of 15" (± 1") Water Gauge.

5.17.16 SET "DOV" Specific Gravity Controller to MANUAL CONTROL USING the Data Table Access Module.

5.17.17 SET the Diaphragm Operated Valve to 0% Open USING the manual control on the Data Table Access Module.
NOTE - DIAPHRAGM OPERATED VALVE position is read from a metal pointer mounted on the valve stem. Indication is approximate valve position only, and is NOT intended to be readable to a high degree of precision.

5.17.18 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE - FULLY CLOSED (0 - 10% on needle graduations)]</th>
<th>SALW-PI-6005K PRESSURE (RANGE 2 to 4 psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>3 psi</td>
</tr>
</tbody>
</table>

5.17.19 SET the Diaphragm Operated Valve to 25% OPEN USING the manual control on the Data Table Access Module.

5.17.20 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE: 15% to 35%]</th>
<th>SALW-PI-6005K PRESSURE (RANGE: 5 to 7 psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>6 psi</td>
</tr>
</tbody>
</table>

5.17.21 SET the Diaphragm Operated Valve to 75% OPEN USING the manual control on the Data Table Access Module.

5.17.22 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE: 65% to 85%]</th>
<th>SALW-PI-6005K PRESSURE (RANGE: 11 to 13 psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75%</td>
<td>11.5 psi</td>
</tr>
</tbody>
</table>
5.17.23 SET the Diaphragm Operated Valve to 100% OPEN using the manual control on the Data Table Access Module.

5.17.24 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE: 90% to 110%]</th>
<th>SALW-PI-6005K PRESSURE RANGE: 14 to 16 psig</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 %</td>
<td>14.5 psig</td>
</tr>
</tbody>
</table>

5.17.25 VERY SLOWLY DECREASE the test manometer pressure while OBSERVING the Diaphragm Operated Valve.

5.17.26 VERIFY that the Diaphragm Operated Valve remains FULLY OPEN while the test manometer is DECREASED until the "SGT LOW" alarm (Data Table Access Module alarm K13) annunciates.

5.17.27 VERIFY that the Diaphragm Operated Valve IMMEDIATELY CLOSES when the "SGT LOW" alarm (Data Table Access Module alarm K13) annunciates.

5.17.28 SHUT DOWN the Jet Pump with the DTAM AND ACKNOWLEDGE the shutdown alarms.

OPERATOR CONTROL STATION (AUTO)

5.17.29 ENSURE the Saltwell Pump and Jumper Assembly AND Pumping and Instrumentation Control Skid are CONFIGURED for AUTOMATIC Diaphragm Operated Valve level control by PERFORMING the following:

5.17.30 SET the test manometer to a pressure of 0" Water Gauge.
5.17.31 **ENSURE** the following valves are OPEN:

<table>
<thead>
<tr>
<th>Valve Number</th>
<th>✔</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALW-V-6034K</td>
<td></td>
</tr>
<tr>
<td>SALW-V-6026K</td>
<td>✔</td>
</tr>
<tr>
<td>SALW-V-6001K</td>
<td>✔</td>
</tr>
<tr>
<td>SALW-V-6004K</td>
<td>✔</td>
</tr>
<tr>
<td>SALW-V-6002K</td>
<td>✔</td>
</tr>
</tbody>
</table>

5.17.32 **ENSURE** the saltwell jumper JR-1 valve is in the PROCESS position.

5.17.33 At the discretion of the Engineer, **ENSURE** temporary interlock jumpers, OR software forces have been installed on pump permissive interlocks for equipment not installed or out of service.

5.17.34 **ENSURE** that only alarms "JET PUMP SHUTDOWN" and "SGT LOW" are displayed on the Operator Control Station.

5.17.35 **ENSURE** pump recirculation apparatus is filled with water AND CONFIGURED to circulate water through the saltwell Jet Pump.

5.17.36 **START** the Jet Pump **USING** the Data Table Access Module.

5.17.37 **SET** the Specific Gravity Controller to AUTO with setpoint of 7.0 inches **USING** the Operator Control Station.

5.17.38 **SET** the test manometer to a pressure of 14" Water Gauge (± 1").

5.17.39 **VERIFY** that the Diaphragm Operated Valve moves to a more OPEN position.

5.17.40 **SET** the test manometer to a pressure of 6" Water Gauge.

5.17.41 **VERIFY** that the Diaphragm Operated Valve moves to a more CLOSED position.
5.17.42 VERIFY that the MANUAL CONTROL of the Diaphragm Operated Valve is operational by PERFORMING the following steps:

5.17.43 SET the test manometer to a pressure of 15" Water Gauge (± 1").

5.17.44 SET the "DOV" Specific Gravity Controller to MANUAL CONTROL USING the Operator Control Station.

5.17.45 SET the Diaphragm Operated Valve to 0% Open USING the manual control on the Operator Control Station.

5.17.46 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE - FULLY CLOSED (0-10% OPEN)]</th>
<th>SALW-PI-6005K PRESSURE (RANGE 2 to 4 psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 %</td>
<td>3.5 psig</td>
</tr>
</tbody>
</table>

5.17.47 SET the Diaphragm Operated Valve to 25% OPEN using the manual control on the Operator Control Station.

5.17.48 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE: 15% to 35%]</th>
<th>SALW-PI-6005K PRESSURE (RANGE: 5 to 7 psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 %</td>
<td>7 psig</td>
</tr>
</tbody>
</table>

5.17.49 SET the Diaphragm Operated Valve to 75% OPEN using the manual control on the Operator Control Station.
5.17.50 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE: 65% to 85%]</th>
<th>SALW-PI-6005K PRESSURE (RANGE: 11 to 13 psig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75%</td>
<td>12.75 psi</td>
</tr>
</tbody>
</table>

5.17.51 SET the Diaphragm Operated Valve to 100% OPEN using the manual control on the Operator Control Station.

5.17.52 RECORD the following:

<table>
<thead>
<tr>
<th>DIAPHRAGM OPERATED VALVE POSITION (% OPEN) [RANGE: 90% to 110%]</th>
<th>SALW-PI-6005K PRESSURE RANGE: 14 to 16 psig</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>15 psi</td>
</tr>
</tbody>
</table>

5.17.53 VERY SLOWLY DECREASE the test manometer pressure while OBSERVING the Diaphragm Operated Valve.

5.17.54 VERIFY that the Diaphragm Operated Valve remains FULLY OPEN while the test manometer is DECREASED UNTIL the Operator Control Station “SGT LOW” annunciates.

5.17.55 VERIFY that the Diaphragm Operated Valve IMMEDIATELY CLOSES when the Operator Control Station “SGT LOW” annunciates.

5.17.56 SHUTDOWN the Jet Pump with the Operator Control Station.

5.17.57 VERIFY the Jet Pump SHUT DOWN at the Operator Control Station.
5.17.58 REMOVE any jumpers or forces NOT required for the next test section.

5.17.59 Engineer VERIFY that section 5.17 is complete by SIGNING below.

[Signature] 9/10/99
Engineer Signature Date

5.17.60 Quality Assurance Inspector VERIFY that section 5.17 is complete by signing below.

[Signature] 9/10/99
Quality Assurance Inspector Signature Date
5.18 JET PUMP FLOWMETER OPERATION

NOTE: The CGI dedication will be performed for the flow meter and flow head during this section of the ATP. Completion of this section will verify flow meter accuracy as required for CGI dedication.

5.18.1 ENSURE that the Saltwell Jumper Flow Element is communicating properly with the FQIT SALW-FQIT-6001K (SUPERNATANT FLOW XMIT) and Data Table Access Module by PERFORMING the following:

5.18.2 PLACE the saltwell jumper JR-1 valve in the PROCESS position.

5.18.3 ENSURE Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump.

5.18.4 ENSURE the 0 - 50 inch test manometer is still attached to the high pressure dip tube AND set to 15" Water Gauge (± 1").

5.18.5 ENSURE a rotameter has been installed in series with the jumper flow element.

5.18.6 ENSURE that both the Data Table Access Module and Operator Control Station are configured for MANUAL CONTROL.

5.18.7 At the discretion of the Engineer, ENSURE temporary interlock jumpers, OR software forces are in place for uninstalled equipment.

5.18.8 SET the Diaphragm Operated Valve to 0% OPEN using the manual control on the Data Table Access Module.

5.18.9 ADJUST Jet Pump Jumper Valve JR-2 as directed by the Engineer to achieve the required flow rates in the following steps.

5.18.10 START the Jet Pump using the Data Table Access Module.

5.18.11 VERIFY the start of the Jet Pump at the Operator Control Station.
5.18.12 RECORD initial readings, and the time reading were taken.

<table>
<thead>
<tr>
<th>DATA TABLE ACCESS MODULE TOTALIZER (Gallons)</th>
<th>FQIT TOTALIZER GALLONS</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,73</td>
<td>1,73</td>
<td>2:36 PM</td>
</tr>
</tbody>
</table>

5.18.13 SET the Diaphragm Operated Valve Controller to MANUAL AND ADJUST Controller at the Data Table Access Module to obtain a flowrate of APPROXIMATELY 1.0 GPM (±0.05 gpm) through the jumper.

5.18.14 RECORD the following:

<table>
<thead>
<tr>
<th>DTAM MANUAL CONTROL DOV POSITION (%)</th>
<th>OCS MANUAL CONTROL DOV POSITION (%)</th>
<th>DOV POSITION (% OPEN)</th>
<th>TEST ROTAMETER FLOWRATE (GPM)</th>
<th>(INSTR) FQIT FLOWRATE (GPM)</th>
<th>DTAM FLOWRATE (GPM)</th>
<th>OCS FLOWRATE (GPM)</th>
<th>DTAM TOTALIZER (GALLONS)</th>
<th>FQIT TOTALIZER (GALLONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>45</td>
<td>35</td>
<td>1.2</td>
<td>1.14</td>
<td>1.147</td>
<td>7785</td>
<td>297</td>
<td>7793</td>
</tr>
</tbody>
</table>

5.18.15 VERIFY that Test Rotameter flowrate, FQIT SALW-FQIT-6001K flowrate, Data Table Access Module flowrate, AND Operator Control Station flowrate are within ±0.1 gpm.

[Signature] 9/10/99
Engineer Signature Date

5.18.16 SUBTRACT totalizer INITIAL reading for Data Table Access Module from the current totalizer reading for Data Table Access Module.

RECORD result: 5 gallons

5.18.17 SUBTRACT INITIAL totalizer reading for FQIT from the current totalizer reading for the FQIT.

RECORD result: 4 gallons

5.18.18 VERIFY results from the above two steps are within ±5.0 gallons.

PAGE A71
5.18.19 ADJUST the Diaphragm Operated Valve Controller to obtain a flowrate of APPROXIMATELY 2.5 GPM (±0.125 gpm) through the jumper.

5.18.20 RECORD the following:

<table>
<thead>
<tr>
<th>DTAM MANUAL CONTROL DOV POSITION (%)</th>
<th>OCS MANUAL CONTROL DOV POSITION (%)</th>
<th>DOV POSITION (% OPEN)</th>
<th>TEST ROTAMETER FLOWRATE (GPM)</th>
<th>(INSTR) FQIT FLOWRATE (GPM)</th>
<th>DTAM FLOWRATE (GPM)</th>
<th>OCS FLOWRATE (GPM)</th>
<th>DTAM TOTALIZER (GALLONS)</th>
<th>FQIT TOTALIZER (GALLONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>85</td>
<td>50</td>
<td>2.65</td>
<td>2.70</td>
<td>2.698</td>
<td>7802</td>
<td>315</td>
<td></td>
</tr>
</tbody>
</table>

5.18.21 VERIFY that Test Rotameter flowrate, FQIT SALW-FQIT-6001K flowrate, Data Table Access Module flowrate, AND Operator Control Station flowrate are within ±0.25 gpm.

5.18.22 SUBTRACT totalizer INITIAL reading for Data Table Access Module from the current totalizer reading for Data Table Access Module.

RECORD result: 14 gallons

5.18.23 SUBTRACT INITIAL totalizer reading for FQIT from the current totalizer reading for the FQIT.

RECORD result: 14 gallons

5.18.24 VERIFY results from the above two steps are within ± 5.0 gallons.

5.18.25 ADJUST the Diaphragm Operated Valve Controller to obtain a flowrate of APPROXIMATELY 3.0 GPM (±0.15 gpm) through the jumper.
5.18.26 RECORD the following:

<table>
<thead>
<tr>
<th>DTAM MANUAL CONTROL DOV POSITION (%)</th>
<th>OCS MANUAL CONTROL DOV POSITION (%)</th>
<th>DOV POSITION (% OPEN)</th>
<th>TEST ROTAMETER FLOWRATE (GPM)</th>
<th>(INSTR) FQIT FLOWRATE (GPM)</th>
<th>DTAM FLOWRATE (GPM)</th>
<th>OCS FLOWRATE (GPM)</th>
<th>DTAM TOTALIZER (GALLONS)</th>
<th>FQIT TOTALIZER (GALLONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>85</td>
<td>50</td>
<td>3.15</td>
<td>3.20</td>
<td>3.21</td>
<td>3.26</td>
<td>7810</td>
<td>323</td>
</tr>
</tbody>
</table>

5.18.27 VERIFY that Test Rotameter flowrate, FQIT SALW-FQIT-6001K flowrate, Data Table Access Module flowrate, AND Operator Control Station flowrate are within ±0.3 gpm.

[Signature] 9/10/99

5.18.28 SUBTRACT totalizer INITIAL reading for Data Table Access Module from the current totalizer reading for Data Table Access Module.

RECORD result: 22 gallons

5.18.29 SUBTRACT INITIAL totalizer reading for FQIT from the current totalizer reading for the FQIT.

RECORD result: 22 gallons

5.18.30 VERIFY results from the above two steps are within ± 5.0 gallons.

5.18.31 CLOSE the Diaphragm Operated Valve (to 0%) using the manual Diaphragm Operated Valve control.

5.18.32 VERIFY JR-2 is CLOSED.
5.18.33 RECORD the following:

<table>
<thead>
<tr>
<th>DTAM MANUAL CONTROL DOV POSITION (%)</th>
<th>OCS MANUAL CONTROL DOV POSITION (%)</th>
<th>DOV POSITION (%) OPEN</th>
<th>TEST ROTAMETER FLOWRATE (GPM)</th>
<th>(INSTR) FQIT FLOWRATE (GPM)</th>
<th>DTAM FLOWRATE (GPM)</th>
<th>OCS FLOWRATE (GPM)</th>
<th>DTAM TOTALIZER (GALLONS)</th>
<th>FQIT TOTALIZER (GALLONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7817</td>
<td>330</td>
</tr>
</tbody>
</table>

5.18.34 VERIFY that Test Rotameter flowrate, FQIT SALW-FQIT-6001K flowrate, Data Table Access Module flowrate, AND Operator Control Station flowrate all indicate 0.0 gpm (±0.1 gpm).

[Signature]  
Engineer Signature  
9/1/79  
Date

5.18.35 SUBTRACT totalizer INITIAL reading for Data Table Access Module from the current totalizer reading for Data Table Access Module.

RECORD result: 29 gallons

5.18.36 SUBTRACT INITIAL totalizer reading for FQIT from the current totalizer reading for the FQIT.

RECORD result: 29 gallons

5.18.37 VERIFY results from the above two steps are within ± 5.0 gallons.

5.18.38 USING the Data Table Access Module, STOP the Jet Pump.

5.18.39 REMOVE the test manometer.

5.18.40 ISOLATE the Specific Gravity Transmitter from the system.

NOTE - All three valves are located on the Specific Gravity Transmitter three valve manifold SALW-V-6035K.

5.18.41 OPEN the equalization valve for the Specific Gravity Transmitter.
5.18.42 CLOSE the two (2) isolation valves.

5.18.43 REMOVE any jumpers or forces NOT required for the next test section.

5.18.44 Engineer VERIFY that section 5.18 is complete by SIGNING below.

\[\text{Engineer Signature} \quad 7/10/99\]

5.18.45 Quality Assurance Inspector VERIFY that section 5.18 is complete by signing below.

\[\text{Quality Assurance Inspector Signature} \quad 7/10/99\]
5.19 JET PUMP VALVING INTERLOCK FOR THE JET PUMP

5.19.1 ENSURE Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump.

5.19.2 ENSURE all alarms have been acknowledged at the Data Table Access Module and Operator Control Station.

5.19.3 At the discretion of the Engineer, ENSURE temporary interlock jumpers, OR software forces have been installed on pump permissive interlocks for equipment not installed or out of service.

5.19.4 USING the Data Table Access Module, START the Jet Pump.

5.19.5 VERIFY Jet Pump operation at the Operator Control Station.

5.19.6 PLACE the JR-1 Valve, on the Jet Pump jumper, in the FLUSH position.

5.19.7 VERIFY the following:

- Jet Pump IMMEDIATELY shuts down.

- "JR-1 NON-PROCESS" is displayed at Data Table Access Module AND "NOT PROCESS" is displayed operator control Station.

- "Jet Pump SHUTDOWN" is displayed at Data Table Access Module and Operator Control Station.

NOTE - "Flush Pressure HI" may be received.

5.19.8 VERIFY the Jet Pump can not be re-started with the JR-1 valve in the FLUSH position.
5.19.9 **PLACE** the JR-1 Valve in the **PROCESS** position.

5.19.10 **ENSURE** all alarms have been **acknowledged** at the Data Table Access Module and Operator Control Station.

5.19.11 **RESTART** the Jet Pump using the Data Table Access Module.

5.19.12 **VERIFY** Jet Pump operation at the **Operator Control Station**.

5.19.13 **PLACE** the JR-1 Valve in the **PRIME** position.

5.19.14 **VERIFY** the following:

- Jet Pump IMMEDIATELY shuts down.

- "JR-1 NON-PROCESS" is displayed at Data Table Access Module **AND** Operator Control Station (ALARM K6).

- "Jet Pump SHUTDOWN" is displayed at Data Table Access Module and Operator Control Station (ALARM K12).

**NOTE** - "FLUSH Pressure HI" may be received. Clean high flush pressure prior to performing. 5.19.15 AREA 7/1/99

5.19.15 **VERIFY** the Jet Pump can not be re-started with the JR-1 valve in the PRIME position.

5.19.16 **ENSURE** all alarms have been **acknowledged** at the Data Table Access Module and Operator Control Station.

5.19.17 **REMOVE** any jumpers or forces **NOT** required for the next test section.
5.19.18 Engineer VERIFY that section 5.19 is complete by SIGNING below.

[Signature]
Engineer Signature

[Date]
Date

5.19.19 Quality Assurance Inspector VERIFY that section 5.19 is complete by signing below.

[Signature]
Quality Assurance Inspector Signature

[Date]
Date
5.20 OPERATOR CONTROL STATION JET PUMP SHUTDOWN TEST

5.20.1 PLACE the Jet Pump JR-1 valve in the PROCESS position.

5.20.2 ENSURE Pump recirculation apparatus is filled with water AND configured to circulate water through the saltwell Jet Pump.

5.20.3 ENSURE no interlocks are present that will prevent pump operation.
   • At the discretion of the Engineer, jumper or force interlocks if necessary.

5.20.4 Using the Data Table Access Module, START the Jet Pump.

5.20.5 VERIFY Jet Pump operation at the Operator Control Station.

5.20.6 Using the Operator Control Station, SHUT DOWN the Jet Pump.

5.20.7 VERIFY the JET PUmp SHUTDOWN alarm at the Operator Control Station.

5.20.8 Engineer VERIFY that section 5.20 is complete by SIGNING below.

[Signature]
Engineer Signature 9/11/99

5.20.9 Quality Assurance Inspector VERIFY that section 5.20 is complete by signing below.

[Signature] 9/11/99
Quality Assurance Inspector Signature Date
5.21 LEAK DETECTION INTERLOCK CHECK

NOTE: Perform section 5.11 simultaneously with this section. N/A step 5.11.2 since the CGI’s are completed.

5.21.1 Set up two buckets for leak detector testing.

NOTE - A supply of water needs to be available to pour into the buckets during testing.
- Pump operation will be simulated during the remainder of the ATP.
- There are two leak detection circuits on the skid. Each circuit will be tested separately as the primary and leak detector 1.

5.21.2 IF REQUIRED, ENSURE the Pump Instrument and Control Skid is configured and ready to receive leak detector signal.

5.21.3 MONITOR the status of the Pump Starter to VERIFY pump status.

5.21.4 ENSURE no interlocks are present that will prevent pump operation.

- At the discretion of the Engineer, force or jumper unused interlocks.

5.21.5 Using Data Table Access Module, START the Jet Pump.

NOTE - Programmer may need to force limit switches and pressure switches to simulate recirculate flow.
Energized circuits and leads are contained inside the cabinet. Observe appropriate electrical. Comply with WHC-CM-1-10, WKS-15, ELECTRICAL WORK SAFETY to avoid personnel electrical shock hazards.

**PRIMARY LEAK DETECTOR:**

5.21.6 TEST leak detector by emerging probe, as required. VERIFY and ACKNOWLEDGE the following:

- IMMEDIATE Jet Pump shutdown.
- "JET PUMP SHUTDOWN" is annunciating at the Data Table Access Module (ALARM #12).
- A Leak Detection Alarm is annunciating at the Data Table Access Module.

5.21.7 ACKNOWLEDGE the Leak Detector Alarm at the Data Table Access Module and OCS.

5.21.8 VERIFY that the Jet Pump CAN NOT be re-started at the Data Table Access Module when the alarm is ACTIVE.

5.21.9 RETURN the leak detector to a condition of operation by PERFORMING the following:

- REMOVE the probe from the bucket.
- VERIFY the Leak Detection Alarm at the Data Table Access Module and OCS resets.
LEAK DETECTOR 2 shy

Repeat step 5.21.2 to 5.21.5 shy

5.21.10 TEST leak detector by emerging probe, as required. VERIFY and ACKNOWLEDGE the following:

- **IMMEDIATE Jet Pump shutdown.**
- "JET PUMP SHUTDOWN" is annunciating at the Data Table Access Module (ALARM #12).
- A Leak Detection Alarm is annunciating at the Data Table Access Module.

5.21.11 ACKNOWLEDGE the Leak Detector Alarm at the Data Table Access Module and OCS.

5.21.12 VERIFY that the Jet Pump **CANNOT** be re-started at the Data Table Access Module when the alarm is ACTIVE.

5.21.13 RETURN the leak detector to a condition of operation by **PERFORMING** the following:

- **REMOVE** the probe from the bucket.
- **VERIFY** the Leak Detection Alarm at the Data Table Access Module and OCS resets.
NOTE - It is the intent of this section to test all transfer system and FGM interlocks not previously tested in the leak detector section. Included would be dilution tank low level alarms and FGM alarms not previously tested.

5.21.14 The table below identifies the interlocks to be tested.

<table>
<thead>
<tr>
<th>RELAY/DEVICE DESIGNATION</th>
<th>JET PUMP SHUTDOWN (✓)</th>
<th>ALARM MESSAGE RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) FGM interlock</td>
<td>✓</td>
<td>DTAM Alarm 12 Jet Pump Shutdown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OCS Flammable Gas High</td>
</tr>
<tr>
<td>2) Dilution tank low level</td>
<td>✓</td>
<td>DTAM Alarm 35 Dilution Tank Water Level Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OCS Diluent Low Level Shutdown</td>
</tr>
</tbody>
</table>

**WARNING**

Energized circuits and leads are contained inside the cabinet. Observe appropriate electrical. Comply with WHC-CM-1-10, WKS-15, ELECTRICAL WORK SAFETY to avoid personnel electrical shock hazards.

5.21.15 For each relay listed in the Table above, PERFORM the following:

5.21.16 Using the Data Table Access Module, START the Jet Pump, AND OBSERVE that the pump run light is ON.

5.21.17 DEACTIVATE the relay to simulate an alarm condition.

NOTE - Craft will determine a safe method of deactivating each device. Test pushbuttons, mock input signals, shorting across secondary of induction relay coils, lifting coil leads, or pulling device from socket may be used.

5.21.24 VERIFY Data Table Access Module and Operator Control Station display "JET PUMP SHUTDOWN" AND an interlock message.
5.21.25 RECORD a check mark in the Table if Jet Pump shutdown occurs.

5.21.26 RECORD the interlock alarm messages received at Data Table Access Module and Operator Control Station in the Table.

5.21.27 VERIFY that the Jet Pump CAN NOT be re-started at the Data Table Access Module when the alarm is ACTIVE.

5.21.28 RESTORE the circuit (remove simulated alarm condition).

5.21.29 ACKNOWLEDGE the alarms at Data Table Access Module and Operator Control Station.

5.21.30 REMOVE any jumpers or forces.

5.21.31 ATTACH a copy of the PLC and DTAM programs to this ATP.

5.21.32 SECURE the skid per sections 4.4.2.7, 4.4.2.8 and 4.4.2.9 for moving the skid to the field.

5.21.33 Engineer VERIFY that section 5.21 is complete by SIGNING below.

[Signature]
Engineer Signature 9-11-99 Date

5.21.33 Quality Assurance Inspector VERIFY that section 5.21 is complete by signing below.

[Signature] 9-11-99
Quality Assurance Inspector Signature Date

QC VERIFIED 5.21 ALL BUT 5.21.33
(4.9.2.9) 9-11-99
<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Johns</td>
<td>7/26/99</td>
<td>Step 5.2.6. LST1 specified in future ATPS all the items to be disconnected including header, air conditioner and IES panel power. SER</td>
</tr>
<tr>
<td>B. Johns</td>
<td>7/26/99</td>
<td>Completed sections 5.1 to 5.3 of the ATP. Need Inst. Tech. to do calcs. next. SER</td>
</tr>
<tr>
<td>B. Johns</td>
<td>8/10/99</td>
<td>Completed sections 5.4 to 5.7. Completed section 5.8 up to flow meter. SER</td>
</tr>
<tr>
<td>B. Johns</td>
<td>8/12/99</td>
<td>Completed ATP through 5.12 with exceptions. SER</td>
</tr>
<tr>
<td>B. Johns</td>
<td>9/6/99</td>
<td>Corrected typo on page 9 of 100, Rotometer accuracy is 0.1 not 0.05 gpm. SER</td>
</tr>
<tr>
<td>B. Johns</td>
<td>9/8/99</td>
<td>Added &quot;minimum range&quot; to clarify step 5.13.4.</td>
</tr>
<tr>
<td>B. Johns</td>
<td>9/8/99</td>
<td>Added &quot;minimum range&quot; to clarify step 5.13.20</td>
</tr>
<tr>
<td>B. Johns</td>
<td>9/13/99</td>
<td>During the performance of sections 5.18 to the end, it was noted that the controller flow meter registered a flow reading on the digital display.</td>
</tr>
</tbody>
</table>
## ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

This page may be reproduced as necessary

<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1      | 7/21/99| Section 4.1 Drug Verification  
H-14-103530 sht 7: Drafting to fit wire labels per redline markups. Fix SFP+3 locations, grind new location.  
H-14-103530 sht 8: Drafting to fix shld location on T81, 24VDC label T83, Ckt 91-13 label T85, and grid wire arrangement T86 per redline markups.  
Drafting to fix HT-5 wire label per redline markup.  
H-14-103530, sht P11. Drafting to fix wire run to indicators.  
ground location on CTL-600K; and add labels to indicator per redline markups.  
H-14-103530, sht 5. Drafting to add wire numbers and colors to heat trace box per redline markups.  
H-14-103535, sht 1. Drafting to add Dryer Draw valve and panel labels per redline markups. Add field labels per temperature probes and heater.  
H-14-103530, sht 5. Drafting to add potentiometer panel and level in shunt panel and valve cabinet per redline markups.  
BG Johns 7/21/99 |
<p>| 2      | 7/26/99| Step 4.4.28 Added valve 5A8W-U-6043K which was omitted from the valve list.                                                                                                                                 |
| 3      | 7/26/99| Step 5.1.5 Continuity was measured at load side of transformer through primary coil since access to transformer wires was not practical.                                                                       |
| 4      | 7/26/99| Step 5.1.6 Continuity was measured at panel board through secondary coil of transformer since access to secondary wires was not practical. Neutral wire was lifted to verify no short to ground of the two hot wires and neutral wire. |</p>
<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>7/26/99</td>
<td>Step 4.4.1. Added megohm to list of equipment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Calibration No. 681-45-45-001 8/6/99 call due date.</td>
</tr>
<tr>
<td>6</td>
<td>7/26/99</td>
<td>Steps 5.2.3 + 5.2.4. Can not measure phase to phase between each other since</td>
</tr>
<tr>
<td></td>
<td></td>
<td>not connected to transformers.</td>
</tr>
<tr>
<td>7</td>
<td>7/26/99</td>
<td>Step 5.2.5. Can not measure phase to phase with motor connected.</td>
</tr>
<tr>
<td>8</td>
<td>7/26/99</td>
<td>Step 5.2.6. In first sentence, change “line” to “load” side.</td>
</tr>
<tr>
<td>9</td>
<td>7/26/99</td>
<td>Step 5.2.2. Change “four” to “six” for number of fuses in Inst. End.</td>
</tr>
<tr>
<td>10</td>
<td>7/26/99</td>
<td>Added 24 Vdc power supply check after step 5.3.45.</td>
</tr>
<tr>
<td>11</td>
<td>8/10/99</td>
<td>5.6.9. Corrected value number should be 6043K not 6047.</td>
</tr>
<tr>
<td>12</td>
<td>8/10/99</td>
<td>5.7.13 to 5.7.17. Step can not be performed until FG is connected. Will be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>performed in Part II.</td>
</tr>
<tr>
<td>13</td>
<td>8/10/99</td>
<td>Steps 5.8.4 to 5.8.6. Changed to use vacuum on low side.</td>
</tr>
<tr>
<td>14</td>
<td>8/10/99</td>
<td>Step 5.8.10. Added removal of manometer and resetting values on SGT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flow meter test 5.8.41 to 5.8.45.</td>
</tr>
<tr>
<td>15</td>
<td>8/10/99</td>
<td>Moving to Part II.</td>
</tr>
<tr>
<td>16</td>
<td>8/11/99</td>
<td>Amber light illuminates immediately.</td>
</tr>
<tr>
<td>17</td>
<td>8/11/99</td>
<td>Recirc flow to be moved to Part II.</td>
</tr>
</tbody>
</table>
## ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>8/11/99</td>
<td>Steps 5.9.1 to 5.9.7 switch positions worked opposite as listed.</td>
</tr>
<tr>
<td>19</td>
<td>8/12/99</td>
<td>Section 5.11 not performed. Move to Part II.</td>
</tr>
<tr>
<td>20</td>
<td>8/12/99</td>
<td>Step 5.12.10. Added instructions to bleed off air pressure.</td>
</tr>
<tr>
<td>21</td>
<td>8/30/99</td>
<td>Step 4.4.23. Add drawing to H-14-10054284 and any ECP's, and drawing H-14-103530 steps 7 and 8, 9, 11 and 13.</td>
</tr>
<tr>
<td>23</td>
<td>9/8/99</td>
<td>Step 5.13.34. PS-1 switch failed.</td>
</tr>
<tr>
<td>25</td>
<td>9/9/99</td>
<td>Step 5.15.10. SALW-V-6005K goes to zero after alarm occurs.</td>
</tr>
<tr>
<td>26</td>
<td>9/9/99</td>
<td>Step 5.16.1 Remove manometer from SGT.</td>
</tr>
<tr>
<td>27</td>
<td>9/9/99</td>
<td>Step 5.14.41 Need to acknowledge alarm.</td>
</tr>
<tr>
<td>28</td>
<td>9/11/99</td>
<td>Steps 5.11.13, 5.11.24, 5.11.25 Need to verify trouble alarm clears.</td>
</tr>
</tbody>
</table>

---

### QC INSPECTION RECORD

**WORK ORDER** 2H9903385F

**PAGE A88**

**PAGE 23** OF [Blank]
# ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number: 4.1</th>
<th>ATP Exception Log Number: 1</th>
</tr>
</thead>
</table>

**Description of Exception:** See details in exception log for item 1.

**Resolution of Exception:** Update drawings identified in item 1 and add labels identified in item 1. BFG. Drawing changes are to match field wiring (alternative wire routing) and drawing improvements to make drawing information clearer. BFG.

**Date of Resolution:** 7/21/99  7/21/99

**Cognizant Engineer signature:** BR Johns

**Quality Assurance signature:**

**Design Authority:** H. Bürkle

**RESOLUTION COMPLETED:** (date) 8/16/99

**Quality Control:** Ken Walka  8/16/99

**Cognizant Engineer:** BR Johns

---

**QC INSPECTION RECORD**

**WORK ORDER** 9903385F  PAGE A89  PAGE 225 OF__
**Valve 3**

**Description of Exception:**

Valve SALW-V-6043K was missing from valve list.

**Resolution of Exception:**

Added valve SALW-V-6043K to list of valves to be closed. This valve is the air compressor tank drain valve.

**Date of Resolution:** 7/26/99

**Cognizant Engineer signature:** BR Johns

**Quality Assurance signature:** LR Volkening 7/26/99

**Design Authority:** LR Bund 7/26/99

**RESOLUTION COMPLETED:** (date) 7/26/99

**Quality Control:** PJ Flumond 8/16/99

**Cognizant Engineer:** BR Johns
<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>ATP Exception Log Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.5</td>
<td>3</td>
</tr>
</tbody>
</table>

**Description of Exception:** Clarification of step to measure continuity of primary side wires to 10 kVA transformer.

**Resolution of Exception:** Measure continuity for the transformer primary side wires by measuring between the two phases at the line side of the transformer disconnect switch. This will check continuity through the wires, and connections and transformer primary coil.

**Date of Resolution:** 7/26/99

**Cognizant Engineer signature:** [Signature]

**Quality Assurance signature:** [Signature] 7/27/99

**Design Authority:** [Signature] 7/27/99

**RESOLUTION COMPLETED:** 7/26/99

**Quality Control:** [Signature] 8/16/99

**Cognizant Engineer:** [Signature]
## ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.1.6</th>
<th>ATP Exception Log Number</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description of Exception:</strong></td>
<td>Clarification of step to measure continuity of secondary side wires between the 10 kva transformer and panelboard.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resolution of Exception:</th>
<th>Measure continuity at the panelboard by measuring between the two wires at the panelboard bus. This will check continuity through the two wires going to the transformer secondary, connections and transformer secondary coil. Lift the neutral lead and verify no short to ground between the hot leads and ground.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of Resolution:</strong></td>
<td>7/26/99</td>
</tr>
<tr>
<td><strong>Cognizant Engineer signature:</strong></td>
<td>BR John</td>
</tr>
<tr>
<td><strong>Quality Assurance signature:</strong></td>
<td>W. L. Washington 7/27/99</td>
</tr>
<tr>
<td><strong>Design Authority:</strong></td>
<td>N. F. Van 7/27/99</td>
</tr>
<tr>
<td><strong>RESOLUTION COMPLETED: (date)</strong></td>
<td>7/26/99</td>
</tr>
<tr>
<td><strong>Quality Control:</strong></td>
<td>P. D. Chambers 8/16/99</td>
</tr>
<tr>
<td><strong>Cognizant Engineer:</strong></td>
<td>BR John</td>
</tr>
</tbody>
</table>

**WORK ORDER** 2H9903385F  PAGE A92
<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>4.4.1</th>
<th>ATP Exception Log Number</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Exception:</td>
<td>Megohm meter not called out on equipment list.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution of Exception:</td>
<td>Added megohm meter to equipment list. Record calibration no. and expiration date of calibration. Cal. no. 681-45-45-001 Expiration 8/6/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of Resolution:</td>
<td>7/26/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BR Johns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td>7/26/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td>7/26/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>7/26/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Control:</td>
<td>BR Johns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BR Johns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number: 5.2.3 + 5.2.4</th>
<th>ATP Exception Log Number</th>
<th>6</th>
</tr>
</thead>
</table>

### Description of Exception:
Can not megger the A and B phases between each other since connected to the transformer.

### Resolution of Exception:
Delete the megger check to going between phases A and B since it will be a short due to connection to transformer. It is not practical to untape and break connections at transformer. There is no value added by performing this step.

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>7/26/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BR Johns</td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td>JV Williams 7/26/98</td>
</tr>
<tr>
<td>Design Authority:</td>
<td>KF Zuv/M 7/27/98</td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>7/26/99</td>
</tr>
<tr>
<td>Quality Control:</td>
<td>PJ Chisum 6/16/99</td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BR Johns</td>
</tr>
</tbody>
</table>
# ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.2.5</th>
<th>ATP Exception Log Number</th>
<th>7</th>
</tr>
</thead>
</table>

## Description of Exception:

Can not megger between phases with motor connected.

## Resolution of Exception:

Delete this portion of the step.

Meggering between phases when connected to the motor is a short. It is not practical and no value added by untaaping and breaking connections to perform this part of the step. Megger check between phases and ground is sufficient.

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>7/26/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BD John</td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td>MF Willman 7/27/99</td>
</tr>
<tr>
<td>Design Authority:</td>
<td>7/27/99</td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>7/26/99</td>
</tr>
<tr>
<td>Quality Control:</td>
<td>PJ Fleming 8/16/99</td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BD John</td>
</tr>
</tbody>
</table>

---

**QC INSPECTION RECORD**

**WORK ORDER 2 H99 033 85 F**

**PAGE 239 OF**
# ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5, 26</th>
<th>ATP Exception Log Number</th>
<th>8</th>
</tr>
</thead>
</table>

**Description of Exception:** Incorrect word in first sentence. "Line" should be "load."

**Resolution of Exception:** Change the word "line" to "load" since the "line side" is the bus bar in the panel. The "load" side was intended as the point to check from.

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>7/26/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizant Engineer signature:</td>
<td>B. Jons</td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>7/24/99</td>
</tr>
<tr>
<td>Quality Control:</td>
<td>B. Elamend</td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>B. Jons</td>
</tr>
</tbody>
</table>
### ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.3.2</th>
<th>ATP Exception Log Number</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Exception:</td>
<td>Incorrect number of fuses called out. Should be &quot;six&quot; instead of &quot;four&quot;.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution of Exception:</td>
<td>Changed &quot;four&quot; to &quot;six&quot; for number of fuses to be opened. This includes the two fuses for the heat trace and leak detection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of Resolution:</td>
<td>7/26/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer signature:</td>
<td>B.Johns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td>R.F. 7/26/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>7/26/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Control:</td>
<td>P. Fimmelwurf 8/16/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>B.Johns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.3.45</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATP Exception Log Number</td>
<td>10</td>
</tr>
</tbody>
</table>

Description of Exception: Check 24vdc power supplies.

Resolution of Exception: Added steps to check the input voltage to the 24vdc power supplies of 120Vac ±10vac; check the output voltage of the power supplies of 24Vdc ± 2Vdc. This ensure proper power to the instruments needing 24vdc.

Date of Resolution: 7/26/99

Cognizant Engineer signature: [Signature]

Quality Assurance signature: [Signature] 7/27/99

Design Authority: [Signature] 7/27/99

RESOLUTION COMPLETED: (date) 7/26/99

Quality Control: [Signature] 8/10/99

Cognizant Engineer: [Signature]
# ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.6.9</th>
<th>ATP Exception Log Number</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Exception:</td>
<td>Valve SALW-V-6047Knot correct.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution of Exception:</td>
<td>Change valve to SALW-V-6043K. Valve SALW-V-6047K not valved into system at this point. Can only use SALW-V-6043K to bleed air off system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of Resolution:</td>
<td>8/10/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BRJohnson</td>
<td>8/11/99</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>8/14/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Control:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BRJohnson</td>
<td>8/13/99</td>
<td></td>
</tr>
</tbody>
</table>
## ATP Exception Log Number: 12

### Description of Exception:
Unable to perform steps 5.7.13 to 5.7.17 due to FGMI's not connected. There is no resistance to air flow to allow pressure control valve adjustment.

### Resolution of Exception:
These steps 5.7.13 to 5.7.17 will be performed during part II when an FGMI can be connected to provide resistance to the air flow.

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>8/16/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BR Johns</td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td>G Veerman 3/13/99</td>
</tr>
<tr>
<td>Design Authority:</td>
<td>F Zilber</td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>9/4/99</td>
</tr>
<tr>
<td>Quality Control:</td>
<td>K Wiberg 9/4/99</td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BR Johns</td>
</tr>
</tbody>
</table>
**ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD**

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number: 5.8.4 to 5.8.6 and 5.8.13</th>
<th>ATP Exception Log Number 13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description of Exception:</strong></td>
<td></td>
</tr>
<tr>
<td>Unable to connect manometer</td>
<td></td>
</tr>
<tr>
<td>to high side pressure port.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Resolution of Exception:</strong></td>
<td></td>
</tr>
<tr>
<td>Connect manometer to low side port,</td>
<td></td>
</tr>
<tr>
<td>open high side to atmosphere. Place</td>
<td></td>
</tr>
<tr>
<td>vacuum on low side to create pressure</td>
<td></td>
</tr>
<tr>
<td>on high side. Manometer is calibrated</td>
<td></td>
</tr>
<tr>
<td>for vacuum. See attached calibration</td>
<td></td>
</tr>
<tr>
<td>report. Vacuum pressure required for</td>
<td></td>
</tr>
<tr>
<td>this test was 62&quot; of water max</td>
<td></td>
</tr>
<tr>
<td>or 2.24 PSI. Vacuum cal on last page of</td>
<td></td>
</tr>
<tr>
<td>report.</td>
<td></td>
</tr>
<tr>
<td><strong>Date of Resolution:</strong> 8/12/99</td>
<td>BR Johns</td>
</tr>
<tr>
<td><strong>Cognizant Engineer signature:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Quality Assurance signature:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Design Authority:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RESOLUTION COMPLETED:</strong> (date)</td>
<td>8/16/99</td>
</tr>
<tr>
<td><strong>Quality Control:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cognizant Engineer:</strong></td>
<td></td>
</tr>
</tbody>
</table>
HANFORD STANDARDS LABORATORY CALIBRATION REPORT

CUSTODIAN/ADDRESS 
HALL JC
S7-20

INSTRUMENT 
PRESSURE INDICATOR
DRUCK DPI610
0-300 PSIG

PROPERTY NUMBER 
N/A

RECALL STATUS 
ACTIVE

RECALL CYCLE 
360

DATE RECEIVED 
990106

BILLED: STD CAL HOURS
2.2

REPAIR HOURS

MATERIALS

TOTAL CHARGE = ($200 x SUM OF HOURS) + MATERIALS

DATE CALIBRATED
7-7-99

DATE DUE
7-7-99

AMBENT TEMPERATURE = 67°F

PAGE A102

QC INSPECTION RECORD

APPROVED BY

CALIBRATED BY

PROJECT MANAGER
Project Hanford Management
Contractor for the United States Department of Energy
Richland, WA 99352

DYNOPC TRI-CITIES SERVICES, INC
P.O. Box 1400
Richland, WA 99352

PAGE 1 OF 5
Date: March 31, 1999
TO: HSL Customers, File
From: J.R. Emery, Mgr., HSL
Subject: HSL Calibration Reports

On June 18, 1998, the performance of M&TE calibrations by the HSL was suspended. On that same date, off-site calibration facilities began the calibration of HSL customer M&TE via Purchase Order or Contract Requisition.

When returned to the site after calibration, the M&TE is accompanied by a vendor calibration certification. The vendor certification includes pertinent information relating to each respective calibration. This includes the following: traceability, compliance to ANSI/NCSL Z540-1-1994 or other national calibration or quality standards, calibration ratio, as-found and as-left data (as applicable), range(s), tolerance(s), date calibrated, calibration frequency, date due for recalibration, person performing the calibration, out-of-tolerance data and limiting conditions of use (as applicable), and any other information relative to the calibration.

When the vendor certification is received, the HSL attaches an HSL Calibration Report to the vendor documentation. The HSL Calibration Report primarily serves as the device for updating the HSL SLIC Database for future recall of the M&TE for calibration.

As of this date, the following information will be annotated on the HSL Calibration Report: vendor compliance to 4:1 calibration ratio, M&TE status (Active, Suspended, Rejected, etc.), date of the calibration, date M&TE is due for recalibration, tolerance as received, calibration history (up to the last four calibrations), and the signature, date and stamp of the HSL engineer who performed the review. All other information relative to the calibration is contained in the vendor's certification. All pages of the completed report will be paginated.

A copy of this letter will be incorporated into each HSL Calibration Report.
Certificate of Calibration

Tag 820-35-40-004  Model DPI610  Manufacturer Druck
Instrument Pressure Indicator  Serial No 6100987903

Calibration traceable to the National Institute of Standards and Technology in accordance with ANSI-Z540.1 has been accomplished on the above-named instrument by comparison with standards maintained by Belhaven. The accuracy and stability of all standards maintained by Belhaven are traceable to national standards maintained by the National Institute of Standards and Technology in Washington, D.C. and Boulder, Colorado.

Temperature at Calibration: 68F
Accuracy of Instrument See Report
Calibrated Range: See Report
Calibration Report No. BEL99-620

Date Due 7/7/2000
Test Equipment
Paroscientific Pressure Standard S/N 224
Prema Multi-Function Meter S/N10012

Calibrated by: ________________________________
Certified by: ________________________________
Quality Assurance Manager
Druck Pressure Indicator (DPI 610) Calibration Form

Calibration Report Number: BEL99-620

Client: Dyncorp
Purchase Order Number: 3914
Tag ID Number: 820-35-40-004
Serial Number: 6100987903
Test Equipment Used: Paroscientific Pressure Standard, S/N: 224
Prema Multi-Function Meter, S/N: 10012

| Voltage Input Calibration (0-50 VDC): (Accuracy = +/- 0.05% RDG +/- 0.004% FS) |
|---|---|---|---|---|
| Applied Voltage (V) | Lower Limit (V) | As found (V) | As Left (V) | Upper Limit (V) |
| 10.0000 | 9.993 | 9.999 | 9.999 | 10.007 |
| 29.9960 | 29.982 | 29.995 | 29.995 | 30.016 |
| 49.9980 | 49.972 | 49.992 | 49.992 | 50.026 |

| Voltage Output Calibration: (Accuracy = 24 V +/- 5%, 10 V +/- 0.1%) |
|---|---|---|---|---|
| Output Voltage (V) | Lower Limit (V) | As found (V) | As Left (V) | Upper Limit (V) |
| 10 | 9.99 | 9.9912 | 9.9912 | 10.01 |
| 24 | 22.80 | 24.0035 | 24.0035 | 25.20 |

| Current Input Calibration (0-55 mA): (Accuracy = +/- 0.05% RDG +/- 0.004% FS) |
|---|---|---|---|---|
| Applied Current (mA) | Lower Limit (mA) | As found (mA) | As Left (mA) | Upper Limit (mA) |
| 11.0018 | 10.994 | 11.000 | 11.000 | 11.009 |
| 22.0010 | 21.987 | 22.000 | 22.000 | 22.014 |
| 33.0009 | 32.982 | 33.000 | 33.000 | 33.019 |
| 44.0008 | 43.976 | 44.000 | 44.000 | 44.025 |
| 55.0011 | 54.971 | 55.001 | 55.001 | 55.030 |

| Pressure Calibration: (Accuracy = +/- 0.025% FS) |
|---|---|---|---|---|
| Applied Pressure (PSI) | Lower Limit (PSI) | As found (PSI) | As Left (PSI) | Upper Limit (PSI) |
| 59.9950 | 59.92 | 60.03 | 60.03 | 60.07 |
| 119.9968 | 119.92 | 120.02 | 120.02 | 120.07 |
| 180.0244 | 179.94 | 180.08 | 180.08 | 180.09 |
| 240.0162 | 239.94 | 240.06 | 240.06 | 240.09 |
| 299.0876 | 299.01 | 299.14 | 299.14 | 299.16 |

NOTE: The other two pressure scales and linearity error should automatically be within specification according to the factory user manual KA049 Issue 7, pg. 13.
Vacuum Calibration:  (Accuracy = +/- 0.025% FS)

<table>
<thead>
<tr>
<th>Applied Pressure (PSI)</th>
<th>Lower Limit (PSI)</th>
<th>As found (PSI)</th>
<th>As Left (PSI)</th>
<th>Upper Limit (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2.0444</td>
<td>-1.969</td>
<td>-2.05</td>
<td>-2.05</td>
<td>-2.119</td>
</tr>
<tr>
<td>-3.9915</td>
<td>-3.916</td>
<td>-4.00</td>
<td>-4.00</td>
<td>-4.066</td>
</tr>
<tr>
<td>-6.0505</td>
<td>-5.975</td>
<td>-6.03</td>
<td>-6.03</td>
<td>-6.125</td>
</tr>
<tr>
<td>-8.0085</td>
<td>-7.933</td>
<td>-8.00</td>
<td>-8.00</td>
<td>-8.083</td>
</tr>
<tr>
<td>-10.0385</td>
<td>-9.963</td>
<td>-10.04</td>
<td>-10.04</td>
<td>-10.113</td>
</tr>
</tbody>
</table>

Calibration Performed By: Jeff Cadick

Date: 7-2-99
**ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD**

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number: 5.8.40</th>
<th>ATP Exception Log Number</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Exception: Steps to remove test manometer and reset values are missing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution of Exception: Added steps to: bleed pressure off manometer, disconnect manometer from High Side DIP tube port; open equalizing valve SALW-V-6035K; close High and Low side valves SALW-V-6035K.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of Resolution:</td>
<td>8/10/99</td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BR Johnson</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td>PD Stump 8/13/99</td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td>PD Stump 8/13/99</td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>8/16/99</td>
<td></td>
</tr>
<tr>
<td>Quality Control:</td>
<td>K. Edgell 8/16/99</td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BR Johnson 8/13/99</td>
<td></td>
</tr>
</tbody>
</table>

**QC INSPECTION RECORD**

**WORK ORDER 2H9903385F**
# ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.9.15</th>
<th>ATP Exception Log Number:</th>
<th>16</th>
</tr>
</thead>
</table>

**Description of Exception:**
Amber light came on immediately. Alarm only was 30 second delay.

**Resolution of Exception:**
Corrected step to read that amber light comes ON immediately. Rechecked software logic and compared to other skid logic and the amber light logic is correct. Only the alarm has the 30 second delay.

**Date of Resolution:**
8/12/99

**Cognizant Engineer signature:**
B. Johns

**Quality Assurance signature:**
Z. Williams 7/13/99

**Design Authority:**
Z. Williams 8/13/99

**RESOLUTION COMPLETED:** (date)
8/16/99

**Quality Control:**
K. Elliott 8/16/99

**Cognizant Engineer:**
B. Johns 8/13/99

---

**NOTE:**
This page may be reproduced as necessary.
## ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number: 5.9.24 to 5.9.34</th>
<th>ATP Exception Log Number 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Exception:</td>
<td>Recirculation Flowmeter test not performed.</td>
</tr>
<tr>
<td>Resolution of Exception:</td>
<td>Moving this test to Part II to be performed when information on the flow transducer is available along with the flush line.</td>
</tr>
</tbody>
</table>

<p>| Date of Resolution:              | 8/12/99 |
| Cognizant Engineer signature:    | BRJohns |
| Quality Assurance signature:     |         |
| Design Authority:                |         |
| RESOLUTION COMPLETED: (date)     | 9/11/99 |
| Quality Control:                 |         |
| Cognizant Engineer:              | BRJohns |</p>
<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>Section 5.11</th>
<th>ATP Exception Log Number</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Exception:</td>
<td>Leak detection not performed.</td>
<td>Resolution of Exception:</td>
<td>Leak detection CGI was performed under procedure, HNF-4275, and was completed and witnessed by QC. This section 5.11 will now be performed during Part II when the skid is set up in a field condition mode.</td>
</tr>
<tr>
<td>Date of Resolution:</td>
<td>8/12/99</td>
<td>Cognizant Engineer signature:</td>
<td>B.D. Johnson</td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>B.D. Johnson</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.12.10</th>
<th>ATP Exception Log Number</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Exception:</td>
<td>Added instructions to bleed air pressure off air compressor tank and water tank.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution of Exception:</td>
<td>Vent valve on the water tank, SALW-V-6037K is to be opened to bleed pressure off the water tank. Drain valve SALW-V-6043K is to be opened to bleed pressure off of the air compressor tank. This is done to put the skid in a safe mode for transporting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of Resolution:</td>
<td>8/12/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BR Johns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td>R. J. Miller 8/13/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>8/16/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Control:</td>
<td>K. D. 8/16/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BR Johns 8/13/99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>ATP Exception Log Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part II Skid and Pump Setup</td>
<td>22</td>
</tr>
</tbody>
</table>

### Description of Exception:

Need steps to power up and setup valving to start ATP.

### Resolution of Exception:

Add another bullet to the "Skid and Pump Set Up" to perform steps 5.6.1 through 5.6.6 and steps 5.6.11 through 5.6.40 as part of prerequisites for part II of ATP. The stopping points during these steps shall be at the discretion of the test director and/or PIC.

### Date of Resolution:

9/8/99

### Cognizant Engineer signature:

BR Johns

### Quality Assurance signature:

KA Willis 9/8/99

### Design Authority:

8/10/99

### RESOLUTION COMPLETED: (date)

9/10/99

### Quality Assurance:

KA Willis 9/10/99

### Cognizant Engineer:

BR Johns
### ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>ATP Exception Log Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.13.34</td>
<td>23</td>
</tr>
</tbody>
</table>

**Description of Exception:**
PS-1 pressure switch not functioning properly, low pressure switch closed when should be open. High pressure tripping at 120psig instead of 140 psig.

**Resolution of Exception:**
Recalibrate or replace and calibrate replacement pressure switch. Step 5.13.3.6 allows software forces at discretion of engineer. Force out pressure switch inputs to allow pump to start. Set caution to operators to shutdown pump if pressure gets to 130psig, for pump protection. Steps 5.14.21 to 5.14.30 check pressure switch functioning.

**Date of Resolution:**
9/8/99

<table>
<thead>
<tr>
<th>Cognizant Engineer signature:</th>
<th>B.Johns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Assurance signature:</td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>9/10/99</td>
</tr>
<tr>
<td>Quality Assurance:</td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td></td>
</tr>
</tbody>
</table>
## ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.14.51</th>
<th>ATP Exception Log Number</th>
<th>24</th>
</tr>
</thead>
</table>

### Description of Exception:
Need alarm acknowledge step to see alarm 39. The alarm 39 window is preceded by the alarm 12 window for pump shutdown.

### Resolution of Exception:
Add step immediately after step 5.14.51 to acknowledge alarms. This will allow window 39 alarm to be seen during the acknowledging process.

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>9/8/99</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cognizant Engineer signature:</th>
<th>BR John</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Quality Assurance signature:</th>
<th>9/1/99</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Design Authority:</th>
<th>9/1/99</th>
</tr>
</thead>
</table>

**RESOLUTION COMPLETED: (date)**

| 9/10/99 |

<table>
<thead>
<tr>
<th>Quality Assurance:</th>
<th>9/11/99</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cognizant Engineer:</th>
<th>BR John</th>
</tr>
</thead>
</table>
## ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number: 5.15.10</th>
<th>ATP Exception Log Number 25</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description of Exception:</strong></td>
<td><strong>SALW-PI-6005K</strong> goes to zero after alarm occurs. On second time through, <strong>SALW-PI-6005K</strong> read 3 psig just immediately to the alarm trip.</td>
</tr>
</tbody>
</table>

| **Resolution of Exception:** | After discussion with the design authority, Bill Zuehl, the gauge needs to be read at the instance the trip occurs in order to see the 2 to 4 psig reading required. (Note: future ATP’s may need to clarify this step to note the pressure on **SALW-PI-6005K** immediately as the trip occurs.) |

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>9/1/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BR Johns</td>
</tr>
<tr>
<td>Design Authority:</td>
<td>JF Burk 9/3/99</td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>9/3/99</td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BR Johnson</td>
</tr>
</tbody>
</table>
## ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>ATP Exception Log Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.16.1</td>
<td>26</td>
</tr>
</tbody>
</table>

### Description of Exception:

Need to remove test manometer from specific gravity transmitter prior to starting section 5.16.

### Resolution of Exception:

Added step prior to step 5.16.1 to remove manometer from specific gravity transmitter.

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>9/9/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizant Engineer signature:</td>
<td>B.R. Jones</td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td>KH</td>
</tr>
<tr>
<td>Design Authority:</td>
<td>D. E. Doe</td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>9/13/99</td>
</tr>
<tr>
<td>Quality Assurance:</td>
<td>KH</td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>B.R. Jones</td>
</tr>
</tbody>
</table>
### ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.14.41, 43</th>
<th>ATP Exception Log Number</th>
<th>27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Resolution:</td>
<td>9/10/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer signature:</td>
<td>B. Johns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td>L. Johnson 9/10/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td>X. Smith 9/13/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>9/13/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Assurance:</td>
<td>K. Walthall 9/14/99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>B. Johns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ACCEPTANCE TEST PROCEDURE EXCEPTION RECORD

This page may be reproduced as necessary.

<table>
<thead>
<tr>
<th>ATP step number:</th>
<th>5.11.13</th>
<th>ATP Exception Log Number: 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.11.24, 5.11.25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Description of Exception:

Need to verify trouble alarm clears on each leak detector probe.

#### Resolution of Exception:

Since section 5.11 is being performed during Part II, leak detector probes do not need to be disconnected. Changed steps 5.11.13 and 5.11.24 to "Reconnect wire and verify trouble alarm clears." N/A step 5.11.25 to disconnect probes.

<table>
<thead>
<tr>
<th>Date of Resolution:</th>
<th>9/11/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizant Engineer signature:</td>
<td>BR John</td>
</tr>
<tr>
<td>Quality Assurance signature:</td>
<td></td>
</tr>
<tr>
<td>Design Authority:</td>
<td></td>
</tr>
<tr>
<td>RESOLUTION COMPLETED: (date)</td>
<td>9/13/99</td>
</tr>
<tr>
<td>Quality Assurance:</td>
<td></td>
</tr>
<tr>
<td>Cognizant Engineer:</td>
<td>BR John</td>
</tr>
</tbody>
</table>
# PROCEDURE PERFORMER SIGNATURE SHEET

All personnel who will be performing, initialing and signing the procedure shall enter their printed name, signature and initials below.

<table>
<thead>
<tr>
<th>NAME (PRINT)</th>
<th>SIGNATURE</th>
<th>INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. J. Elzendorf</td>
<td>PJ Elzendorf</td>
<td>RE</td>
</tr>
<tr>
<td>B. D. Foreman</td>
<td>BD</td>
<td>DF</td>
</tr>
<tr>
<td>O. Cruz</td>
<td>O</td>
<td>GRC</td>
</tr>
<tr>
<td>J. R. Harris</td>
<td>JR Harris</td>
<td></td>
</tr>
<tr>
<td>B. R. Johns</td>
<td>BR Johns</td>
<td>RGJ</td>
</tr>
<tr>
<td>K. Willoughby</td>
<td>K.</td>
<td>RG</td>
</tr>
<tr>
<td>B. Hueman</td>
<td>B.</td>
<td></td>
</tr>
<tr>
<td>M. D. Johnson</td>
<td>MD Johnson</td>
<td>HP</td>
</tr>
<tr>
<td>M. R. Koch</td>
<td></td>
<td>MRC</td>
</tr>
</tbody>
</table>
ACCEPTANCE TEST PROCEDURE ACCEPTANCE RECORD

This Acceptance Test Procedure has been completed and the results, including red-line changes, exceptions, and exception resolutions, have been reviewed for compliance with the intent of the Purpose (Section 1.0). The test results are accepted by the undersigned:

B.R. Johns  
Cognizant Engineer (Signature)  
(Print Name)  
Date

Bruce R. Johns  9/13/99

Ken Willoughby (Print Name)
Quality Control (Signature)  
Date  
9/14/99
Project/W.O. No. 2H-99-03385/F
Building No. 277-W
Project No. 5931


Condition Found: ☒ Acceptable ☐ Unacceptable (see description below)

Inspector Signature: DO Wallace

Original Inspection Date: Jun. 23, 1999
Closure Date: Jun. 23, 1999

Description of NEC Violation

<table>
<thead>
<tr>
<th>Cause Code</th>
<th>Days to Correct</th>
<th>Violation Corrected</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrical service will be discontinued for the equipment or facility identified if violations are not corrected within time allowed by the "Days to Correct" column. "Days to Correct" starts with the original inspection date. For concerns regarding this, call the Chief Electrical Engineer at 376-6347.

PAGE A121
HNF-4277
REVISION 0
UNFIRED PRESSURE VESSEL - REPORT OF INSPECTION (Form NB-7)
THE HARTFORD STEAM BOILER INSPECTION AND INSURANCE COMPANY, HARTFORD, CT

TPI WO NO: WT-99-______ (1 Hrs)

<table>
<thead>
<tr>
<th>1</th>
<th>Date Inspected</th>
<th>Cert Exp</th>
<th>Cert. Posted</th>
<th>Owner No</th>
<th>Jurisdiction No</th>
<th>National Board / Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6/22/1999</td>
<td>06/2001</td>
<td>[X]Yes</td>
<td>SKID-K</td>
<td>TPI-WT-135</td>
<td>NB-37811L</td>
</tr>
</tbody>
</table>

| 2 | Owner: DEPARTMENT OF ENERGY (RL) | Owner Address: HANFORD, RICHLAND, WA 99352 | Kind of Inspection | Certificate Inspection |
|   | [ ] Int'l [X]Ext | | [] Int'l [X]Ext | |

| 3 | User Name: (LMHC) LOCKHEED MARTIN HANFORD CORP. | User Location: 200-W | Specific Location: | |
|   | | | SALT WELL U-103 | |

<table>
<thead>
<tr>
<th>4</th>
<th>Type</th>
<th>Heat</th>
<th>Year Built</th>
<th>Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[X]WATER TANK</td>
<td>[X]Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>Use: Storage</th>
<th>Size:</th>
<th>Inspection opening size:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[X]Receiver</td>
<td>14&quot; X 20&quot;</td>
<td>2&quot; PLUGS</td>
</tr>
<tr>
<td></td>
<td>[X]Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[X]Exchange</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[X]Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Pressure Gauge Tested</th>
<th>Hydro Test</th>
<th>Safety-Relief Valve</th>
<th>Valve</th>
<th>How Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ ]Yes</td>
<td>[X]No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pressure Allowed (MAWP)</td>
<td></td>
<td>Stamped PSI:</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This Inspection: 200 PSIG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 7 | Certificate may be issued? | [X] Yes | [ ] No (If No, explain fully under conditions) |

<table>
<thead>
<tr>
<th>7a. INSPECTION STATUS</th>
<th>[X] Passed</th>
<th>[ ] Failed</th>
<th>[ ] Passed with Discrepancy</th>
<th>[ ] Reinspect</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>7b. VESSEL STATUS</th>
<th>[X] Active</th>
<th>[ ] Inactive</th>
<th>[X] New</th>
<th>[ ] Exempt</th>
<th>[ ] Removed</th>
</tr>
</thead>
</table>

| 8 | CONDITIONS: Small Horizontal Air Accumulator for salt well support skid K. |

Inspected at 277-W Fabrication Shop during final assembly. Scheduled to be located at Tank U-103.

8a: Internal Inspection not done or required this inspection.

8b: External Inspection shows no dents, damage, leakage, corrosion or excess vibration. Pressure gauge: Installed & Proper. Bottom drain: Installed & Suitable. Safety-Relief Valve Seal was intact with no evidence of damage or tampering.

9 | REQUIREMENTS/RECOMMENDATIONS: The following items are to be corrected:

1. None this inspection

10 | Name of Facility Contact to whom requirements were explained: Bruce Johns Tel: 373-3429 S7-24
 Copies to: David Saueressig Tel: 373-0183 S7-20, Mike Koch Tel: 373-2699 S7-24

I hereby certify this is a true report of my inspection
Signature of Inspector

Commission No | Employed By: The Hartford Steam Boiler Inspection and Insurance Co.
---|---
NB-8032W | |

TPI-WT-135.doc
### UNFIRED PRESSURE VESSEL - REPORT OF INSPECTION (Form NB-7)

**THE HARTFORD STEAM BOILER INSPECTION AND INSURANCE COMPANY, HARTFORD, CT**

<table>
<thead>
<tr>
<th>TPI WO NO: WT-99-_____</th>
<th>(1 Hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Inspected</td>
<td>6/22/1999</td>
</tr>
<tr>
<td>Cert Exp</td>
<td>06/2001</td>
</tr>
<tr>
<td>Cert. Posted</td>
<td>[X] Yes [ ] No</td>
</tr>
<tr>
<td>Owner No</td>
<td>[X] Yes [ ] No</td>
</tr>
<tr>
<td>Jurisdiction No</td>
<td>TPI-WT-136</td>
</tr>
<tr>
<td>National Board / Other</td>
<td>NB-105860</td>
</tr>
<tr>
<td>Owner: DEPARTMENT OF ENERGY (RL)</td>
<td></td>
</tr>
<tr>
<td>Owner Address: HANFORD, RICHLAND, WA 99352</td>
<td></td>
</tr>
<tr>
<td>Kind of Inspection</td>
<td>[ ] Int'l [X] Ext</td>
</tr>
<tr>
<td>Certificate Inspection</td>
<td>[X] Yes [ ] No</td>
</tr>
<tr>
<td>User Name: (LMHC)</td>
<td>LOCKHEED MARTIN HANFORD CORP.</td>
</tr>
<tr>
<td>User Location:</td>
<td>200-W</td>
</tr>
<tr>
<td>Will be at:</td>
<td>U FARM</td>
</tr>
<tr>
<td>Specific Location:</td>
<td>SALT WELL U-103</td>
</tr>
<tr>
<td>Type</td>
<td>[X] WATER TANK [ ] Other</td>
</tr>
<tr>
<td>Use</td>
<td>[X] Storage [ ] Process [ ] Exchange [ ] Other</td>
</tr>
<tr>
<td>Year Built</td>
<td>1998</td>
</tr>
<tr>
<td>Inspected at</td>
<td>277-W Fabrication Shop during final assembly. Scheduled to be located at Tank U-103.</td>
</tr>
<tr>
<td>Inspected at</td>
<td>277-W Fabrication Shop during final assembly. Scheduled to be located at Tank U-103.</td>
</tr>
<tr>
<td>Pressure Gauge Tested</td>
<td>[X] Yes [ ] No</td>
</tr>
<tr>
<td>Pressure Allowed (MAWP)</td>
<td>125 PSIG</td>
</tr>
<tr>
<td>This Inspection</td>
<td>125 PSIG</td>
</tr>
<tr>
<td>Safety-Relief Valve</td>
<td>Installed &amp; Proper</td>
</tr>
<tr>
<td>Valve</td>
<td>VALW-PRV-6005K</td>
</tr>
<tr>
<td>Stamped PSI</td>
<td>60</td>
</tr>
<tr>
<td>Valve Test</td>
<td>1/2 in, 158 CFM</td>
</tr>
<tr>
<td>Hydro Test</td>
<td>[X] Yes [ ] No</td>
</tr>
<tr>
<td>Certificate may be issued?</td>
<td>[X] Yes [ ] No</td>
</tr>
<tr>
<td>(If No, explain fully under conditions)</td>
<td></td>
</tr>
<tr>
<td>INSPECTION STATUS</td>
<td>[X] Passed [ ] Failed [ ] Passed with Discrepancy [ ] Reinspect</td>
</tr>
<tr>
<td>VESSEL STATUS</td>
<td>[X] Active [ ] Inactive [X] New [ ] Exempt [ ] Removed</td>
</tr>
</tbody>
</table>

8a: Internal Inspection not done or required this inspection.

8b: External Inspection shows no dents, damage, leakage, corrosion or excess vibration.

Pressure gauge: Installed & Proper
Bottom drain: Installed & Suitable
Safety-Relief Valve Seal was intact with no evidence of damage or tampering

### REQUIREMENTS/RECOMMENDATIONS:
The following items are to be corrected:

1. None this inspection

Name of Facility Contact to whom requirements were explained: Bruce Johns Tel: 373-3429 S7-24
Copies to: David Saueressig Tel: 373-0183 S7-20, Mike Koch Tel: 373-2699 S7-24

I hereby certify this is a true report of my inspection
Signature of Inspector

[Signature]

372-0003

Commission No

Employed By: The Hartford Steam Boiler Inspection and Insurance Co.

NB-8032W

TPI-WT-136.doc