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		Date Oct. 20, 1994
Project Title/Work Order Acceptance Test Report for 241-U-701 Compressed Air System and Heat Pump		EDT No. 607545
		ECN No.

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ET JAN 13 1995	STA 4	ENGINEERING DATA TRANSMITTAL	Page 1 of 1 1. EDT 607545
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1	1	Cog. Mgr. WW Jenkins		11/15/94	S2-24	JA Crawford			S0-09	3	-	
3		QA JJ Verderber			S1-57	JJ Klos			T4-07	3	-	
-	-	Safety	N/A									
-	-	Env.	N/A									
3		Facility Operations	DE Deaton		T4-01							
3		KE Carpenter			S2-24							

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RELEASE AUTHORIZATION

Document Number: WHC-SD-WM-ATR-066, REV.0

Document Title: Acceptance Test Report for 241-U Compressed Air System

Release Date: January 13, 1995

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

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz

January 13, 1995

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7. Abstract This Acceptance Test Report (ATR) documents the results of acceptance testing of a newly upgraded compressed air system at 241-U Farm. The system was installed and the test successfully performed under work package 2W-92-01027.		
8. RELEASE STAMP <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> OFFICIAL RELEASE BY WHC DATE JAN 13 1995 STA 4 </div>		

ACCEPTANCE TEST REPORT FOR THE 241-U COMPRESSED AIR SYSTEM

SUMMARY

Background

An acceptance test for the compressed air system at 241-U-701 was started on May 26, 1994 and completed May 31, 1994. The test was executed using the Acceptance Test Procedure (ATP), WHC-SD-WM-ATR-066 Rev. 2.

The system was upgraded per work package 2W-92-01027/K.

Purpose of Test

The scope and purpose of the acceptance test was to:

- verify that the system functioned within the design parameters,
- provide a basic functional test of components and controls,
- identify possible additional maintenance or work items required to operate the system, and
- collect a baseline of data on system performance and startup sequence.

Results

The upgraded compressed air system successfully performed within the limits specified by the ATP. Portions of the ATP were redlined and documented in the following pages of this ATR. The ATP was completed with six exceptions, which were resolved during the test. Each exception and resolution are summarized below:

1. One of the pipe supports was not installed per the design configuration. ECN 608782 was written and verified that the as built configuration met the original design requirements.
2. The distance piece pressure did not reach the required range of 25 to 30 psig. The Ingersoll-Rand technical representative at Pacific Fluid Systems assisted in the adjustments of the adjusting valve and pressure regulator to bring the distance piece pressure within the design parameters by a telephone conference call.
3. The ATP was not completed at the end of the shift. Exception # 3 is a clarification only, documenting that the Test Director had placed the system in the Safe Shutdown mode as per Section 1.4 in the ATP and stated at what point the ATP would be restarted.
4. Exception # 4 is a clarification only, documenting the adjustments to PRV-1. Design document specify a 21 psi setting for PRV-1. PRV-1

should have been preset at the factory. At step 2.13.14 the required flow rate was not achieved until the PRV-1 was adjusted to 21 psi and the ATP continued.

5. The ATP specified that there are to be no oil leaks at the end of the procedure. Slight oil leakage around the head gaskets was noted. A telephone conversation with the Ingersoll-Rand technical representative at Pacific Fluid Systems verified this was a normal startup condition.
6. Exception # 6 is a clarification only. Electrical breakers in MPC-1 were not installed in the same sequence as shown on the original design documents. The installed configuration does not affect system safety or operability. ECN 703744 was issued to document the acceptability of electrical breaker location in MPC-1.

Recommendations for Future Work

1. The pressure gauges that are supplied by the vendor and the two installed during construction are not calibrated gauges. The distance piece pressure is critical in the performance of the compressor. These gauges should be a better quality gauge and calibrated. A J-1 has been initiated to purchase and install glycol filled, vibration proof, calibrated gauges.

Conclusion

The ATP demonstrated that the system was installed per the design, that its components all function as required, and it is ready for operational testing. As noted on page 23 of the ATR, the Cognizant Engineering Manager has requested the completion of two safety items, prior to commencing the Operational Test Procedure. A personnel protection shield was installed on the after cooler tubing October 17, 1994 as shown on page 34. A step down transformer was installed in the control circuit October 29, 1994 by work package 2W-94-00540/M. This work package has been work completed, post reviewed, and archived. An information copy of the resolution (J-4,J-4a) and work change notice (J-7) is attached, see pages 35 thru 41.

TABLE OF CONTENTS

1.0	INSTRUCTION SECTION	3
1.1	PURPOSE AND SCOPE	3
1.2	REFERENCES	3
1.3	RESPONSIBILITIES	3
1.4	SAFETY	4
1.5	DESCRIPTION OF THE SYSTEM	4
1.6	ACCEPTANCE TEST	5
1.7	TEST DATA RECORDING INSTRUCTIONS	5
2.0	TEST EXECUTION SECTION	6
2.1	RECORDS REVIEW	6
2.2	EQUIPMENT REQUIRED	6
2.3	LOCK AND TAG	7
2.4	INSPECTION	8
2.5	POWER SUPPLY VERIFICATION	8
2.6	PREPARATION FOR HEAT PUMP START-UP TEST	10
2.7	POWER TESTS OF HEAT PUMP EQUIPMENT	10
2.8	HEAT PUMP START-UP, COOLING MODE	11
2.9	HEAT PUMP START-UP, HEATING MODE	11
2.10	PREPARATION FOR COMPRESSOR START-UP TEST	12
2.11	POWER TESTS OF EQUIPMENT	13
2.12	AIR COMPRESSOR TEST	14
2.13	AIR DRYER TEST	18
2.14	LOCK AND TAG	21
3.0	COMPRESSOR POST-TEST MAINTENANCE	22
3.1	MAINTENANCE ITEMS	22
4.0	SAFE SHUTDOWN FOR TEST STOP	22
5.0	ATP COMPLETION	23
6.0	TEST EXECUTION AND ACCEPTANCE SHEET	24
7.0	EXCEPTIONS TO ACCEPTANCE TEST SECTION	25
APPENDIX A:	241-U-701 INSTRUMENT AIR SYSTEM	26
APPENDIX B:	USQ DOCUMENTATION	27

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1.0 INSTRUCTION SECTION

1.1 PURPOSE AND SCOPE

This Acceptance Test Procedure (ATP) will provide verification that the 241-U-701 Building, air compressor, air dryer, heat pump and associated components were installed as specified in the design. This document was prepared in compliance with WHC-CM-6-1, Standard Engineering Practices, EP-4.2; Testing Practices. The ATP consists of a walkdown and an inspection to ensure that the new components and equipment have been correctly installed, initial start-up of the new equipment and a test of system controls.

1.2 REFERENCES

1.2.1 REFERENCE DRAWINGS:

H-2-36381 Sh.1 Rev.2

H-2-36380 Sh.1 Rev.2

H-2-73682 Sh.1 Rev.6

H-2-73692 Sh.1 Rev.2

H-2-73692 Sh.2 Rev.1

1.2.2 REFERENCE ENGINEERING CHANGE NOTICES (ECN)

198245

196668

198342 (Superseded by ECN 603448)

196637

198255 (Superseded by ECN 196637)

603448

1.2.3 REFERENCE SPECIFICATIONS

Ingersoll-Rand Type-30 Instruction Manual CVI File # 22526

Hankison DH-45 Operations Manual CVI File # 22526

Bard Heat Pump Model WH601-C15 Operations Manual CVI File # 22526

WHC-CM-6-1, Standard Engineering Practices, EP-4.2, Testing Practices

INSTRUMENT SOCIETY OF AMERICA (ISA) RP 7.3, 7.4, 7.7

1.3 RESPONSIBILITIES

The test shall be performed under the direction of an Operations representative who is a trained PIC and/or Shift Manager. Acceptance Inspection hold points shall be witnessed and signed off by KEH QC personnel (Acceptance Inspector), with the exception of the installation records review, which shall be performed by WHC QC. KEH personnel shall resolve any exceptions with the approval of WHC Air Systems Cognizant Engineer (Plant Engineering), WHC Facility Systems Engineer and WHC QA Engineering, and complete any needed repair/rework of the system.

The Operations representative performing the test is the Test Director. The Test Director is the single person in charge while testing is in progress and shall be the person who determines when this test is in progress. The Test Director shall be a person technically qualified and knowledgeable of the safety requirements associated with the testing. The Test Director is responsible for assuring that the test is performed in accordance with this document. The Test Director's duties include but are not limited to coordinating and overseeing the performance of the test, initialing the completion of each indicated step, and contacting the appropriate personnel to witness hold points, accept results, and to resolve exceptions.

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The Facility Systems Engineer (or designee) shall perform a walkdown of the system, review and approve exception resolutions, and accept the test results. In addition, the Facility Systems Engineer (or designee) shall issue the Acceptance Test Report. Facility Operations, Major Maintenance and Power Operators shall assist in performance of the test. WHC Quality Assurance shall review and approve exception resolutions, and shall review and accept the test results. KEH Quality Control (AQ) shall perform designated portions of the inspection.

The Air Systems Cognizant Engineer (Plant Engineering) will be responsible for review and approval of exception resolutions and acceptance of the test results.

1.4 SAFETY

Proper protection equipment, as specified in the Work Package, shall be used as necessary during the performance of this Acceptance Test. Hearing protection is required in the compressor building when the compressor is operating. Eye protection is required when venting compressed air and when operating breakers and disconnects.

Personnel not directly involved with the performance of this test shall remain outside of 241-U-701 when the test is being conducted.

The Test Director is responsible for ensuring that proper precautions are taken and that equipment is operated in a safe manner. If an unsafe condition is noted by any personnel, the Test Director shall be notified and the test suspended until the unsafe condition is remedied. It is the responsibility of the Test Director to ensure that, if the test is suspended, equipment is placed in the SAFE SHUTDOWN FOR TEST STOP condition.

1.5 DESCRIPTION OF THE SYSTEM

The air is compressed to a selected pressure and cooled to within a standard acceptable range of temperature. The air passes through an air dryer to drop the humidity ratio to an acceptable range. The air is also filtered per ISA standards. It is then passed on as instrument quality air. The compressor system includes the following components:

- 15 HP RECIPROCATING AIR COMPRESSOR (Ingersoll-Rand 10T3NLM-E15)
- AIR DRYER (Hankison DH-45)
- PARTICULATE FILTERS

The heat pump keeps the compressor room within a standard acceptable temperature range. The standard temperature range is needed for proper operation of the instrument air compressor system. A thermostat mounted on a wall measures the temperature and turns either heating or cooling on as the temperature dictates. The heat pump system includes the following components:

- Heat pump
- Thermostat

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1.6 ACCEPTANCE TEST

The Acceptance Test consists of the following:

- 1.6.1 Walkdown of the system by the Cognizant Engineer, Facility Systems Engineer and an inspection of selected characteristics by the Acceptance Inspector.
- 1.6.2 Initial start-up of new equipment.
- 1.6.3 Test of system controls.

1.7 TEST DATA RECORDING INSTRUCTIONS

Throughout the procedure, spaces are provided for the Test Director's initials and the date when the step was completed. Where required, additional spaces are provided for Facility Systems Engineer and Acceptance Inspector initials or signatures. A notation of AI HOLD in the left margin designates a Acceptance Inspector hold point; a FS notation designates a Facility Systems Engineer hold point. Facility Systems Engineer designees may initial or sign off on FS hold points. As used in this document, "Cognizant Engineer" shall be understood to include Facility Systems Engineer designees.

Any exceptions (deviations from design requirements or stated operational limits) that arise during the test will be recorded on an ATP Exception Sheet and the exception number shall be noted next to the procedure step involved. Exception Sheets are not needed for steps that are followed by rework or recovery instructions. Exception resolutions may include troubleshooting and repair instructions. The resolution for each exception is subject to approval by the Facility Systems Engineer. WHC Quality Assurance Engineering shall also review and approve each exception; this approval may be obtained at the time the resolution is written, or may be postponed until the QA Engineer reviews the test results, at the discretion of the Test Director. The Facility Systems Engineer shall decide whether to continue the test after the discovery of an exception. The test shall not continue without resolving and repairing an exception unless the Cognizant Engineer determines that the exception will not jeopardize personnel or equipment.

If the procedure requires modification due to test circumstances, the Test Director or representative may red-line the ATP Record Copy. Changes in the test sequence may be made using this method by the Cognizant Engineer. The initials of the person making the change, and the date, shall be recorded next to the red-line change. If necessary for clarity, the change may be described on an ATP Exception Sheet. QA approval is not needed on exception sheets that are used only to clarify red-line procedure changes.

After the test is complete, the ATP Execution and Acceptance Sheet shall be completed as follows.

- 1.7.1 Check the applicable space on the ATP Execution and Acceptance Sheet (attached) indicating whether the ATP has been performed with exception or without exception.

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- 1.7.2 The test performers shall sign and date the sheet in the spaces provided. Each persons printed name shall appear next to their signature.
- 1.7.3 After the ATP execution section is completed, and all the exceptions have been resolved, the ATP Acceptance signatures shall be obtained.
- 1.7.4 A copy of the completed test shall be forwarded to the Facility Systems Engineer. The master copy shall accompany the work package.

2.0 TEST EXECUTION SECTION

2.1 RECORDS REVIEW

This section may be performed prior to commencement of the active inspection and testing.

- WHC QC 2.1.1 Review the KEH Process Control Package and verify that all new or modified components have been properly pressure tested, according to ECN 198245 and ASME B31.3, and all leaks have been repaired.

* VERIFIED ALL TESTING SPECIFIED IN THE KEH POP WAS DOCUMENTED AS COMPLETE AND ACCEPTABLE. WHC QC 18.10.94

- WHC QC 2.1.2 Verify that all Compressed Air piping affected by ECN 198245 have been properly flushed. CLEAN PIPING IS VERY IMPORTANT TO MAINTAINING THE SYSTEM.

VERIFIED FLUSHING OF SYSTEM WAS DOCUMENTED AS COMPLETE AND ACCEPTABLE ON SUPPORTING DOCUMENT #4 TO POP 9892-01. WHC QC 18.10.94

- WHC QC 2.1.3 Review the KEH Process Control Package and verify that all inspections and hold points are complete and signed off.

WHC QC INSPECTOR

DATE 8.16.94

2.2 EQUIPMENT REQUIRED

The Contractor shall supply all test equipment unless otherwise noted. All test instruments shall have a valid calibration stamp attached that indicates a calibration traceable to the National Institute of Standards and Technology.

- 2.2.1 Volt-ohm meter, portable, (0 to 600V AC).

MAKE/MODEL: FLUKE 27 S/N: 950-45-08-017 CAL. DATE: 12-21-93 AI 15-26-94

- 2.2.2 Clamp-on Ammeter (0-100 Amp AC scale)

MAKE/MODEL: AMPROVE S/N: 950-45-02-040 CAL. DATE: 01-21-94 AI 15-26-94

- 2.2.3 Torque Wrench (0-100 Ft. Lbs. scale)

- 2.2.4 (3 qts min.) of 500 SSU, Lubricating oil
(Stores # 0012-1380-040).

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2.2.5 Hazardous Material Spill Kit for liquids.

2.2.6 Thermometer (0-100°F)

2.2.7 Personal protective equipment

a. Ear Plugs

b. Eye Protection

c. Gloves

2.3 LOCK AND TAG

Applicable crafts personnel will perform the following steps, and the Test Director shall initial and date the space provided. Additional spaces are provided where necessary for Facility Systems Engineer and Acceptance Inspector initials. Locks and tags shall be applied and/or removed in accordance with WHC-IP-0842 "Waste Tank Project Administration", Section 5.9 "Lockout/Tagout".

NOTE

ALL COMPONENT LABELS IN THIS PROCEDURE ARE CONTAINED IN (PARENTHESIS). IN THE FIELD ALL COMPONENT LABELS ARE PRECEDED BY 241-U-701-
eg. (PI-1) = 241-U-701-PI-1

2.3.1 Verify DANGER tag has been installed on the following breaker and it is placed in the "OFF" position.

a. Compartment C4 of "241-U-271 MCC # 1" labeled "241-U-701 COMPRESSOR BUILDING"

TRJ 15-26-94

2.3.2 Verify CAUTION tags "Equipment to be operated by test personnel only." have been installed on the following disconnect switches and they are placed in the "OFF" position.

a. Main Disconnect Switch (DS-1).

TRJ 15-26-94

b. Air Compressor Disconnect Switch (DS-3).

TRJ 15-26-94

c. Mini Power Center (MPC-1) main breaker.

TRJ 15-26-94

d. Heat Pump Disconnect Switch (DS-2).

TRJ 15-26-94

2.3.3 Set all equipment controls to the "OFF" position.

a. All the breakers in the Mini Power Center (MPC-1).

TRJ 15-26-94

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- b. Instrument Air Compressor Control Switch (HS-1).
- c. Instrument Air Dryer Control (HS-2).
- d. Heat pump thermostat controls.

TRZ 15-26-94
TRZ 15-26-94
TRZ 15-26-94

2.4 INSPECTION

AI, FS & OPERATIONS HOLD

2.4.1 Acceptance Inspector, Facility Systems Engineer and WHC Power Operator walk down system and inspect for conformance with design media. Record any nonconformances which are not immediately followed by repair/rework on Exception Sheets. Specific characteristics to be inspected include but are not limited to labeling of valves, instruments, and other components per ECN's, workmanship, piping configuration, and electrical system configuration and continuity. The following items shall be inspected specifically for conformance with the design media:

- a. Verify disconnect switches, breakers, fuses, wire size, and labeling conforms to the design media. TRZ 15-25-94
- b. Verify the filters are installed correctly and are the correct type. TRZ 15-25-94
- c. Verify the flowmeter (FI-1) is installed correctly. TRZ 15-25-94
- d. Verify the flow direction labels are attached and indicating the correct flow direction. TRZ 15-25-94
- e. Verify the pipe supports are installed, painted, and the pipes have been attached to the supports correctly. 1
- f. Verify all of the pressure relief valves on the compressed air system and components are rated as specified in the design. TRZ 15-25-94

EXLP, #1

Acceptance Inspector Shirley M. Smith Date 5-26-94
 Facility Systems Engr. Rich Freeman Date 5/26/94
 WHC Power Operator AL Seale Date 5/26/94

2.5 POWER SUPPLY VERIFICATION

This section supplies power to the 241-U-701 Compressor Building from "241-U-271 MCC # 1" located in the 241-U-271 Control Room.

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- 2.5.1 Request Operations to remove the "DANGER" tag from "241-U-701 COMPRESSOR BUILDING" breaker located in compartment C4 of 241-U-271 MCC # 1. TRJ 15-26-94
- 2.5.2 Ensure Operations has removed the "DANGER" tag from "241-U-701 COMPRESSOR BUILDING" breaker located in compartment C4 of 241-U-271 MCC # 1. TRJ 15-26-94
- 2.5.3 Set the "241-U-701 COMPRESSOR BUILDING" breaker located in compartment C4 of 241-U-271 MCC # 1 to the "ON" position. TRJ 15-26-94

WARNING
THE NEXT STEP IS PERFORMED ON ENERGIZED EQUIPMENT.

- 2.5.4 Verify 480 volt power is supplied to the 241-U-701 Compressor Building at the Main Disconnect Switch (DS-1) with the Volt-Ohm meter (phase to phase). TRJ 15-26-94
- 2.5.5 Set Main Disconnect Switch (DS-1) to the "ON" position. TRJ 15-26-94
- 2.5.6 Set Mini Power Center (MPC-1) Main breaker to the "ON" position. TRJ 15-26-94

WARNING
THE NEXT STEP IS PERFORMED ON ENERGIZED EQUIPMENT.

- 2.5.6A *Set Secondary Main to 'ON' Position in MPC-1* TRJ 15-26-94
- *Exception #6 2.5.7 Set Mini Power Center (MPC-1) breaker # 3 "RCPTCLS" to the "ON" position and verify 120 volt power at ALL of the receptacles with the volt-ohm meter. TRJ 15-26-94
- *Exception #6 2.5.8 Set Mini Power Center (MPC-1) breaker # 5 "LIGHTING OUTSIDE" to the "ON" position and verify outdoor lights work by switching them "ON" then "OFF". TRJ 15-26-94
- *Exception #6 2.5.9 Set Mini Power Center (MPC-1) breaker # 4 "LIGHTING" to the "ON" position and verify indoor lights work by switching them "ON". TRJ 15-26-94

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2.6 PREPARATION FOR HEAT PUMP START-UP TEST

This section prepares the heat pump for start-up and operation.

- 2.6.1 Apply KEH lock and tag to Heat Pump Disconnect Switch (DS-2) in the "OFF" position. TRJ 15-26-94
- 2.6.2 Verify zero energy at Heat Pump (AHU-1). TRJ 15-26-94
- 2.6.3 Check the heat pump (AHU-1) thoroughly to assure that there are no loose parts and the machine has not been tampered with since it was installed. TRJ 15-26-94
- 2.6.4 Verify that the Heat Pump air filter is clean and in place. TRJ 15-26-94
- 2.6.5 Verify that condenser fan and indoor blower turn free without rubbing and that they are tight on the shafts. TRJ 15-26-94
- 2.6.6 Remove KEH lock and tag from Heat Pump Disconnect Switch (DS-2). TRJ 15-26-94

2.7 POWER TESTS OF HEAT PUMP EQUIPMENT

The following steps verify the proper power supply to the Heat Pump.

- 2.7.1 Verify that Heat Pump Thermostat controls are "OFF". TRJ 15-26-94
- 2.7.2 Set Heat Pump Disconnect Switch (DS-2) to the "ON" position. TRJ 15-26-94
- 2.7.3 Verify correct phase for operation of the heat pump by setting the Thermostat fan control to "ON". Determine if the indoor blower is blowing air into the building. TRJ 15-26-94
- 2.7.4 If fan rotation is not correct, have a craftsman repair according to the following directions else put NA in the spaces provided.
 - a. Switch the Thermostat fan control to the "OFF" position. N/A 17RL 5-26-94
 - b. Turn "OFF" Heat Pump Disconnect Switch (DS-2), apply KEH lock and tag. N/A 17RL 5-26-94
 - c. Verify zero energy at Heat Pump (AHU-1). N/A 17RL 5-26-94
 - d. Interchange two of the three leads at the Heat Pump (AHU-1) and correct the phase markings. N/A 17RL 5-26-94
 - e. Remove KEH lock and tag and switch "ON" Heat Pump Disconnect Switch (DS-2). N/A 17RL 5-26-94

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- f. Switch the Heat Pump Thermostat fan control to the "ON" position to verify the indoor blower rotation is correct then switch the fan control "OFF".

N/A

2.8 HEAT PUMP START-UP, COOLING MODE

The following steps verify the Heat Pump will operate in the cooling mode.

- 2.8.1 Place Test Thermometer near the center of the room and record the ambient temperature. 73 °F TRJ 15-26-94
- 2.8.2 Set Thermostat (TS-3) controls to "COOL" position. TRJ 15-26-94
- 2.8.3 Set Thermostat (TS-3) to a setting below room temperature. TRJ 15-26-94
- 2.8.4 Verify that the Heat Pump is cooling the room, and from the test thermometer, record the ambient temperature. 64 °F. 1
- 2.8.5 Verify that the Heat Pump Condenser Fan is operating. TRJ 15-26-94
- 2.8.6 Verify that the Heat Pump Compressor is operating. TRJ 15-26-94
- 2.8.7 Verify that the Heat Pump Indoor Blower is operating. TRJ 15-26-94

CAUTION

THE NEXT STEP IS PERFORMED ON ENERGIZED EQUIPMENT.

- AI HOLD 2.8.8 Measure and record Heat Pump compressor motor amperage at the unit (all three phases) while motor is running. Compare with range shown on nameplate.

Measured		Nameplate	
PHASE A	<u>6.9</u> amps	PHASE A	<u>8.6</u> amps
PHASE B	<u>9.0</u> amps	PHASE B	<u>8.6</u> amps
PHASE C	<u>6.9</u> amps	PHASE C	<u>8.6</u> amps

Per Vendor
telecon

AI TRJ 15-26-94

- 2.8.9 Set Heat Pump Thermostat controls to the "OFF" position. TRJ 15-26-94

2.9 HEAT PUMP START-UP, HEATING MODE

The following steps verify the Heat Pump will operate in the heating mode.

- 2.9.1 Set the Thermostat to a setting above room temperature. TRJ 15-26-94

"WORKING SAFELY IS JOB #1!"

- 2.9.2 Set the Thermostat controls to "HEAT" position. TRL 15-26-94
- 2.9.3 Verify that the Heat Pump is heating the room, and from the test thermometer, record the ambient temperature. 68 °F. TRL 15-26-94
- 2.9.4 Set the Thermostat controls to the "OFF" position. TRL 15-26-94
- 2.9.5 Set Heat Pump Disconnect Switch (DS-2) to the "OFF" position. TRL 15-26-94
- 2.9.6 Verify that all grilles, louvers and access doors of the heat pump are closed. TRL 15-26-94

FS HOLD

- 2.9.7 At the discretion of the FS Engineer, the Heat Pump may be left operational to prevent the equipment from being damaged by extreme temperatures. Otherwise N/A the following steps: 2.9.7.a, 2.9.7.b, 2.9.7.c.

- a. Set the Heat Pump Thermostat to 65°F. N/A TRL 15-26-94
- b. Set the Thermostat controls to "HEAT" position. N/A TRL 15-26-94
- c. Notify Operations that the Heat Pump is operating and N/A steps 4.1.4, 4.1.8. N/A TRL 15-26-94

SHIFT MANAGER Print/Initial N/A TRL 15-26-94 DATE _____

2.10 PREPARATION FOR COMPRESSOR START-UP TEST

- 2.10.1 Verify the Air Compressor Disconnect switch (DS-3) is in the "OFF" position, apply KEH Lock and Tag and perform zero energy check. TRL 15-26-94
- 2.10.2 Verify cleanliness of the compressor building and equipment to ensure that there is no debris or excessive dust which will affect operation of the equipment. TRL 15-26-94
- 2.10.3 Open valve (V-1), then slowly open valve (V-2) to relieve any pressure which may be in the compressed air system. OPEN VALVE (V-3) TO RELIEVE ANY PRESSURE N/A TRL 15-26-94
- 2.10.4 Check the compressor thoroughly to assure that there are no loose parts and the machine has not been tampered with since it was installed. TRL 15-26-94

- 2.10.5 Verify, in the work package, that the air compressor Low Oil Level Switch (LSL-1) was checked during the installation. If it was not checked, refer to Instruction Manual, Section II, Step 8 for testing procedure. Use only Air Compressor Machine Oil, 500 SSU, (Stores # 0012-1380-040).

MOVE STEP

2.10.5 FORWARD

TO 2.12.6

TRL 15-26-94TRL 15-26-94

- 2.10.6 Read the Instruction Manual, Section IV, pg 11, about checking the oil and ensure the level of the lubricating oil in the air compressor crankcase is within the indicated limits on the dipstick. Use only Air Compressor Machine Oil, 500 SSU, (Stores # 0012-1380-040). TRJ 15-26-94

- AI HOLD 2.10.7 Ensure that both of the air intake filters (F-1, F-2) are properly installed and free of excessive debris and dust. Clean if necessary. Verify that all protective packing has been removed. (Cleanliness of the intake Air is crucial for maintaining the operability of the compressor.) AI TRJ 15-26-94

- 2.10.8 Remove the belt guard and Turn the Compressor over BY HAND (two revolutions minimum) in the direction of the arrow on the belt guard to verify that everything is clear. TRJ 15-26-94

- 2.10.9 Check the "V" belt for proper tension according to the Instruction Manual, Section VI and make adjustments as necessary. TRJ 15-26-94

- 2.10.10 Re-attach the belt guard and fasten securely. TRJ 15-26-94

2.11 POWER TESTS OF EQUIPMENT

The following steps verify the proper power supply to the Air Compressor and Air Dryer.

- 2.11.1 Remove the cover to switch (HS-1). TRJ 15-26-94

- 2.11.2 Remove KEH Lock and Tag and switch Air Compressor Disconnect switch (DS-3) to the "ON" position. TRJ 15-26-94

WARNING
THE NEXT STEP IS PERFORMED ON ENERGIZED EQUIPMENT.

- 2.11.3 Verify 480 volts of power is supplied to the Air Compressor (CMP-1) inside the compressor control panel with the Volt-Ohm meter (phase to phase). TRJ 15-26-94

- 2.11.4 Replace the cover to switch (HS-1). TRJ 15-26-94

- 2.11.5 BUMP power control (HS-1) for the Air Compressor (1-2 seconds max.) and verify the motor rotation is correct. (Motor rotation should be counter-clock-wise when facing the drive pulley.) TRJ 15-26-94

- 2.11.6 If motor rotation is not correct, have a craftsman repair according to the following directions otherwise put N/A in the spaces provided.

"WORKING SAFELY IS JOB #1!"

- a. Set Air Compressor Disconnect Switch (DS-3) to the "OFF" position and apply KEH Lock and Tag.

N/A 17RZ 5-26-94

- b. Remove the cover for switch (HS-1) and verify Zero Energy inside cover.

N/A 17RZ 5-26-94

- c. Interchange two of the three leads to the three phase motor at the compressor control panel, correct phase markings, and replace the cover.

N/A 17RZ 5-26-94

- d. Remove KEH lock and tag and switch Air Compressor Disconnect switch (DS-3) to the "ON" position.

N/A 17RZ 5-26-94

- e. BUMP power control (HS-1) for the Air Compressor (1-2 seconds max.) and verify the motor rotation is correct. (Motor rotation should be counter-clock-wise when facing the drive pulley.)

N/A 17RZ 5-26-94

2.12 AIR COMPRESSOR TEST

This section verifies the Air Compressor controls operate properly and that the air compressor functions.

- 2.12.1 Set the valves according to the lineup shown in the following table. This will isolate the Air Compressor and receiving tank from the rest of the system so the Air Compressor can be tested. The other valves are of no concern for this portion of the test. (Refer to drawing H-2-36381 Sh. 1, ECN 198245).

VALVE LINEUP	
CLOSED	CHECK(✓)
V-16	✓
V-6	✓
V-7	✓
V-9	✓
OPEN	CHECK(✓)
V-1	✓
V-2	✓

17RZ
Test Director

5-26-94
Date

"WORKING SAFELY IS JOB #1!"

2.12.2 Read the Instruction Manual, Section VII, pg 23, about priming the condensate trap and its proper operation. Prime compressor condensate trap (TRAP-1) located at the receiver tank outlet according to the following directions.

- a. Close valve, (V-16), installed in bottom side of pipe tee attached to the condensate trap.

TRJ 15-26-94

- b. Remove pipe plug installed in top of pipe tee and pour water into top opening of pipe tee until trap and pipe tee are filled with water.

TRJ 15-26-94

- c. Open valve (V-16) releasing water in pipe tee into air receiver.

TRJ 15-26-94

- d. Re-install pipe plug using pipe thread lubricant and tighten.

TRJ 15-26-94

2.12.3 Turn the lockout knob of the Auxiliary Valve clockwise as far as possible by hand to place the compressor in AUTO-STOP/START mode, (refer to CVI 22526 Section III).

TRJ 15-26-94

2.12.4 Open valve (V-2) to vent all the compressed air outside of the building.

TRJ 15-26-94

2.12.5 Set the Air Compressor Disconnect Switch (DS-3) to the "ON" position.

TRJ 15-26-94

2.12.6 Turn "ON" the Air Compressor with switch (HS-1).

TRJ 15-26-94

ALLOW COMPRESSOR TO RUN FOR 1 MINUTE AND TURN
'OFF' COMPRESSOR SWITCH (HS-1) - INSERT STEP 2.10.5

TRJ 15-26-94

TRJ 15-26-94

NOTE

Never leave the compressor operating unattended until the
Cog. Engineers are satisfied all controls are operating
properly.

2.12.7 Warm up the compressor, without applying a load, for approximately 5 minutes by allowing the air to be vented outside. Record any abnormal vibrations during compressor operation as an exception.

TRJ 15-26-94

2.12.8 Partially close valve (V-2) until pressure begins to build in the receiver tank. Verify the Distance Piece Pressure (PI-2) is 25-30 psig when the compressor is operating under load and the receiver pressure at (PI-3) is 80-110 psig.

*CHANGE (PI-2) TO READ 'DISTANCE PIECE
PRESSURE' (PI-1) TO CONFORM TO PRINT.
5-26-94

TRJ 15-26-94

TRJ 15-26-94

TRJ 15-26-94

"WORKING SAFELY IS JOB #1!"

ADJUST PRESSURE REGULATOR, PER INSTRUCTION MANUAL TO ACHIEVE
THE REQUIRED DISTANCE PIECE PRESSURE.

2.12.9 Verify that the pressure in the receiving tank builds to 110 ± 5 psig at (PI-3) before the compressor stops and drops to 65 ± 5 psig before restart. Adjust pressure switch (PS-1) as necessary per SECTION III of Instruction Manual.

TRZ 15-26-94

2.12.10 Turn the lockout knob of the Auxiliary Valve counterclockwise as far as possible by hand to place the compressor in CONSTANT SPEED mode, (refer to Instruction Manual, Section III).

TRZ 15-27-94

2.12.11 Verify that the pressure in the receiving tank builds to 100 ± 5 psig at (PI-3) before the compressor unloads and drops to 70 ± 5 psig before the compressor reloads. Adjust unloader auxiliary valve as necessary per SECTION III of the Instruction Manual. (Unloading means that the compressor keeps running but no air is compressed.)

TRZ 15-27-94

2.12.12 Remove the cover to switch (HS-1) to expose the wiring for amperage measurements. *FOR SAFETY + CONVENIENCE, AMP. MEASUREMENTS WILL BE TAKEN ON LOAD SIDE OF (DS-3)*

TRZ 15-27-94

WARNING
THE NEXT STEP IS PERFORMED ON ENERGIZED EQUIPMENT.

AI HOLD 2.12.13 Measure and record Air Compressor motor amperage (all three phases) while motor is running loaded and unloaded. (Normal 18 to 22 amps loaded, 8 to 12 unloaded)

Loaded:	Unloaded:
PHASE A <u>21.0</u> amps	PHASE A <u>12.0</u> amps
PHASE B <u>22.0</u> amps	PHASE B <u>13.5</u> amps
PHASE C <u>21</u> amps	PHASE C <u>12.6</u> amps

AI TRZ 15-27-94

2.12.14 Turn "OFF" the Air Compressor with switch (HS-1).

TRZ 15-27-94

2.12.15 Replace the cover to switch (HS-1).

N/A TRZ 15-27-94

2.12.16 Open valve (V-2) to relieve the pressure from the receiver tank until the pressure at (PI-3) is 5-20 psig, then close the valve.

TRZ 15-27-94

"WORKING SAFELY IS JOB #1!"

- 2.12.17 Set the valves to the line up shown in the following table. (Refer to drawing H-2-36381, ECN 198245). This configuration is for safe shutdown. (The system is not vented at this time to prevent debris or contamination from entering the system.)

VALVE LINEUP							
CLOSED	CHECK(✓)	CLOSED	CHECK(✓)	OPEN	CHECK(✓)	OPEN	CHECK(✓)
V-2	✓	V-17	✓	V-1	✓	V-18	✓
V-3	✓	V-19	✓	V-7	✓	V-20	✓
V-4	✓	V-23	✓	V-8	✓	V-21	✓
V-5	✓	V-24	✓	V-11	✓	V-22	✓
V-6	✓	V-25	✓	V-15	✓	V-27	✓
V-9	✓	V-28	✓	V-16	✓	V-29	✓
V-10	✓	V-30	✓	*****	*****	*****	*****
V-12	✓	*****	*****	*****	*****	*****	*****

T.R. Law T.R. LAW
Test Director

5-27-94
Date

"WORKING SAFELY IS JOB #1!"

2.13 AIR DRYER TEST

This section verifies that the Air Dryer functions as installed.

- 2.13.1 Set the valves to the line up shown in the following table. (Refer to drawing H-2-36381, ECN 198245) Only the valves necessary to conduct this portion of the test are positioned.

VALVE LINEUP							
CLOSED	CHECK(✓)	CLOSED	CHECK(✓)	OPEN	CHECK(✓)	OPEN	CHECK(✓)
V-2	✓	V-17	✓	V-1	✓	V-18	✓
V-3	✓	V-19	✓	V-7	✓	V-20	✓
V-4	✓	V-23	✓	V-8	✓	V-21	✓
V-5	✓	V-24	✓	V-11	✓	V-22	✓
V-6	✓	V-25	✓	V-15	✓	V-27	✓
V-9	✓	V-28	✓	V-16	✓	V-29	✓
V-10	✓	V-30	✓	*****	*****	*****	*****
V-12	✓	*****	*****	*****	*****	*****	*****

T.R. Law T.R. LAW 5-27-94
Test Director

5-27-94
Date

- 2.13.2 Set the following drain timers on the Condensate Drain Valves to 1 min. OFF, 0.5 sec. ON (OFF = Closed).

- a. (EV-14) TRJ 15-27-94
(EV-13) TRJ 15-27-94
(EV-26) TRJ 15-28-94

- 2.13.3 Turn "ON" the Air Compressor with switch (HS-1). TRJ 15-27-94

- * ~~NOTE~~ 2.13.4 Allow the system to come to pressure of 100 psi at (PI-3). TRJ 15-27-94

ALSO SEE
EXL. #4

- 2.13.5 SLOWLY open valve (V-17) to pressurize the Air Dryer. TRJ 15-27-94

- 2.13.6 Open valve (V-19) and close valve (V-18) to direct the compressed air flow through the Air Dryer. TRJ 15-27-94

* ~~Exception #6~~

- 2.13.7 Set Mini Power Center (MPC-1) breaker #1 "AIR DRYER & DRAINS" to the "ON" position. TRJ 15-27-94

* ~~To Allow system to come to pressure, this step must be moved to AFTER step 2.13.6. BECAUSE SRV-2 IS SET AT 25 P.S.I. TRJ 5-27-94 TRJ 6-6-94~~
"WORKING SAFELY IS JOB #1!"

2.13.8 Switch the Air Dryer power switch (HS-2) to the "ON" position.

TRJ 15-27-94

2.13.9 Verify that the SWITCHING FAILURE ALARM light, located on the Air Dryer console, is not illuminated.

TRJ 15-27-94

2.13.10 Depress and hold the CYCLE SELECTOR SWITCH, until the TEST MODE LIGHT illuminates, placing the air dryer in manual control. (The switch and light are located on the Air Dryer console.) NOTE: The manual control change will not be acknowledged by the air dryer controller until its current cycle is completed. There may be a few seconds of delay.

TRJ 15-27-94

2.13.11 Step the air dryer through the cycle by depressing and releasing the ALARM RESET SWITCH. The dryer status at each step should conform to the table below. Initial the space provided at each step to confirm dryer status (as indicated by the operating lights).

AIR DRYER DIAGNOSTIC SIGNALS

	LEFT		RIGHT		INITIAL
	DRYING	REGENERATION	DRYING	REGENERATION	
START	ON	OFF	ON	OFF	<u>TRJ</u>
STEP 1	ON	OFF	OFF	OFF	<u>TRJ</u>
STEP 2	ON	OFF	OFF	ON	<u>TRJ</u>
STEP 3	ON	OFF	OFF	ON	<u>TRJ</u>
STEP 4	ON	OFF	OFF	OFF	<u>TRJ</u>
STEP 5	ON	OFF	ON	OFF	<u>TRJ</u>
STEP 6	OFF	OFF	ON	OFF	<u>TRJ</u>
STEP 7	OFF	ON	ON	OFF	<u>TRJ</u>
STEP 8	OFF	ON	ON	OFF	<u>TRJ</u>
STEP 9	OFF	OFF	ON	OFF	<u>TRJ</u>
The test is now complete. The Air Dryer is re-initialized.					

The above table was taken from the Hankison Operation Manual, Section 4.5

2.13.12 If table is correct with no exceptions the Test Director shall sign and date below. Otherwise note the exception on the Acceptance Test Exception sheet.

TEST DIRECTOR: TRJ Lau DATE: 5-27-94

"WORKING SAFELY IS JOB #1!"

SEE EXC. #3

2.13.13

Depress and hold the CYCLE SELECTOR SWITCH, until the 4 MINUTES light illuminates, placing the air dryer in automatic mode. Use the RESET switch to manually step the dryer through its operating sequence until the left tower DRYING light is illuminated and the reset switch cannot be used to step through the cycle.

* DUE TO INABILITY TO PERFORM TO ATP PROCEDURE, MOVE TO STEP 2.13.24 - SAFE SHUT DOWN.

2.13.14

SLOWLY open valve (V-5) until the flow rate through the air dryer is 35 scfm. This can be read on the flowmeter (FI-1).

SEE EXC. #4

2.13.15

Adjust the Purge Air Pressure, indicated on (PI-7), to 44-46 psi with needle valve (V-35) when either dryer tower is purging, air is exhausting through the muffler, and the system pressure as indicated on (PI-3) is less than 75 psi.

2.13.16

Continue to operate at this condition until both towers have cycled and dewpoint is at or below -20°F.

2.13.17

Verify the air dryer has cycled and that both towers are depressurized, (PI-4) and (PI-5) indicate 0 psi, and switch it "OFF" with (HS-1). (It may take several minutes for the dryer to depressurize.)

2.13.18

Verify the following Condensate Drain Valves operate properly, open and close on the set cycle. (1 min. closed, 0.5 sec. open).

a.

(EV-14) 7RZ 15-31-94
(EV-13) 7RZ 15-31-94
(EV-26) 7RZ 15-31-94

2.13.19

Set the following drain timers on the Condensate Drain Valves to 45 min. OFF, 0.5 sec. ON (OFF=Closed).

a.

(EV-14) 7RZ 15-31-94
(EV-13) 7RZ 15-31-94
(EV-26) 7RZ 15-31-94

* Exception #6

2.13.20

Set Mini Power Center (MPC-1) breaker # 1 "AIR DRYER & DRAINS" to the "OFF" position.

2.13.21

Turn the Air Compressor "OFF" with switch (HS-1).

2.13.22

Fully open valve (V-5) to relieve the system of pressure then close the valve.

2.13.23

Open valve (V-18) and close valves (V-17) and (V-19).

"WORKING SAFELY IS JOB #1!"

- 2.13.24 Set the valves to the line up shown in the following table. (Refer to drawing H-2-36381, ECN 198245). This configuration is for safe shutdown. (The system is not vented at this time to prevent debris or contamination from entering the system.)

VALVE LINEUP							
CLOSED	CHECK(✓)	CLOSED	CHECK(✓)	OPEN	CHECK(✓)	OPEN	CHECK(✓)
V-2	✓✓	V-17	✓✓	V-1	✓✓	V-18	✓✓
V-3	✓✓	V-19	✓✓	V-7	✓✓	V-20	✓✓
V-4	✓✓	V-23	✓✓	V-8	✓✓	V-21	✓✓
V-5	✓✓	V-24	✓✓	V-11	✓✓	V-22	✓✓
V-6	✓✓	V-25	✓✓	V-15	✓✓	V-27	✓✓
V-9	✓✓	V-28	✓✓	V-16	✓✓	V-29	✓✓
V-10	✓✓	V-30	✓✓	*****	*****	*****	*****
V-12	✓✓	*****	*****	*****	*****	*****	*****

TR Law
Test Director TR Law 5-31-94

5-27-94
Date

2.14 LOCK AND TAG

- 2.14.1 Verify all equipment controls are in the "OFF" position.

- Instrument Air Compressor Control Switch (HS-1).
- Instrument Air Dryer Control (HS-2).

- 2.14.2 Place KEH Lock and Tag on the Air Compressor Disconnect Switch (DS-3) in the "OFF" position and perform zero energy check.

TR Law 5-27-94 / 5-31-94
TR Law 5-27-94 / 5-31-94
TR Law 5-27-94 / 5-31-94

"WORKING SAFELY IS JOB #1!"

3.0 COMPRESSOR POST-TEST MAINTENANCE

Applicable crafts personnel shall perform the following maintenance.

WARNING
ENSURE THAT THE AIR SYSTEM IS RELIEVED OF PRESSURE PRIOR TO PERFORMING ANY WORK ON THE SYSTEM.

3.1 MAINTENANCE ITEMS

- 3.1.1 Set the valves to the line up shown in the following table. (Refer to drawing H-2-36381, ECN 198245). This configuration is for safe compressor maintenance. (The system is vented to remove compressed air from the compressor receiver tank.) The remaining valves are of no consequence to the maintenance activity.

VALVE LINEUP	
CLOSED	CHECK(✓)
V-16	✓
V-6	✓
V-7	✓
V-9	✓
OPEN	CHECK(✓)
V-1	✓
V-2	✓

TR Law
Test Director

5-31-94
Date

- 3.1.2 Check the belt tension on the air compressor. Refer to Instruction Manual, Section VI.

TR 15-31-94

- 3.1.3 Check and tighten all exterior nuts and bolts on the compressor. Refer to Instruction Manual, Section VI for torque values.

TR 15-31-94

- SEE #5
Etc. 3.1.4 Verify there are no oil leaks evident on the compressor.
SLIGHT LEAKS ON LOWER CYLINDER GASKETS CROSSHEAD GUIDES

TR 15-31-94

- 3.1.5 Check crank case lubricating oil level and add oil if necessary.
Record amount of oil added 0.

TR 15-31-94

4.0 SAFE SHUTDOWN FOR TEST STOP

- 4.1 Ensure all the equipment controls and switches are in the "OFF" position.

"WORKING SAFELY IS JOB #1!"

4.1.1 All the breakers in the Mini Power Center (MPC-1).

TRJ 15-31-94

4.1.2 Instrument Air Compressor Control Switch (HS-1).

TRJ 15-31-94

4.1.3 Instrument Air Dryer Control (HS-2).

TRJ 15-31-94

4.1.4 Heat pump thermostat controls.

N/A 17R 5-26-94

4.1.5 Main Disconnect Switch (DS-1).

TRJ 15-26-94

4.1.6 Air Compressor Disconnect Switch (DS-3).

TRJ 15-26-94

4.1.7 Mini Power Center (MPC-1) main breaker.

TRJ 15-26-94

4.1.8 Heat Pump Disconnect Switch (DS-2).

N/A 17R 5-26-94

4.2 Set the valves to the line up shown in the following table. (Refer to drawing H-2-36381, ECN 198245). This configuration is for safe shutdown. (The system is not vented at this time to prevent debris or contamination from entering the system.)

VALVE LINEUP							
CLOSED	CHECK(✓)	CLOSED	CHECK(✓)	OPEN	CHECK(✓)	OPEN	CHECK(✓)
V-2	✓	V-17	✓	V-1	✓	V-18	✓
V-3	✓	V-19	✓	V-7	✓	V-20	✓
V-4	✓	V-23	✓	V-8	✓	V-21	✓
V-5	✓	V-24	✓	V-11	✓	V-22	✓
V-6	✓	V-25	✓	V-15	✓	V-27	✓
V-9	✓	V-28	✓	V-16	✓	V-29	✓
V-10	✓	V-30	✓	*****	*****	*****	*****
V-12		*****	*****	*****	*****	*****	*****

TRJ
Test Director

5-31-94
Date

5.0 ATP COMPLETION

5.1.3

The ATP is complete, all steps of this test have been completed, initialed and dated, and all modifications made for the sole purpose of the ATP are restored to the design configuration. (Proceed to section 6.0 of this ATP and obtain signatures.)

5.1 CHANGE OIL

5.2 CHANGE AIR INTAKE FILTERS (F-1, F-2)
"WORKING SAFELY IS JOB #1!"

TRJ 7/11/94

TRJ 15-31-94
TRJ 15-31-94

TRJ 15-31-94
TRJ 15-31-94

6.0 TEST EXECUTION AND ACCEPTANCE SHEET

Appropriate personnel shall print their name, sign and date as listed below.

Test Completed: With Exceptions ☒ Without Exceptions ☐

Test Performed By

Timothy R. Law - Timothy R. LAW
Test Director

5-31-94
Date

T.J. Mitzlaff
Air Inspector

5-31-94
Date

Rick Freeman RICK FREEMAN
Facility Systems Engineer

6-1-94
Date

AG Steffen AG STEFFEN
WHC Operations "Power Operator"

6-6-94
Date

David A. Berg
Major Maintenance

6-7-94
Date

Cognizant Engineering and Quality Assurance Acceptance

The test has been completed and the results have been reviewed. Any exceptions discovered during the test have been satisfactorily resolved. The 241-U-701 compressed air system is accepted by the undersigned as conforming to the design media.

Warren G. Brown
Air Systems Cognizant Engineer

7/28/94
Date

Stephen L. Smith
U Tank Farm System Cognizant Engineer

7/13/94
Date

Rick Freeman
Facility Systems Engineer

6/7/94
Date

Mazen G. Shamin
Electrical Systems Cognizant Engineer

9/23/94
Date

John V. Veda
Quality Assurance Engineer

6-15-94
Date

David A. Berg
WHC Operations, Facility Representative

7-28-94
Date

Rick Freeman for W. A. Jenkins
FACILITY SYSTEMS MGR. "WORKING SAFELY IS JOB #1!"

9-23-94
DATE

PENDING WORK COMPLETE OF 2W-94-540 AND J-7010
OF THIS PACKAGE.

RJ
6/9/94

7.0 EXCEPTIONS TO ACCEPTANCE TEST SECTION

Make copies of this EXCEPTION SHEET as necessary.

Exception No. 1 Clarification Only: Yes No ✓

Procedure Step: 2.4.1 e.

Description of Problem:

PIPE SUPPORT DOES NOT MATCH DESIGN
CONFIGURATION.

Test Director YR Law 5-26-94

Exception Resolution:

ISSUE ECN WITH OPTIONAL CONFIGURATION.
608782

Date Exception Resolved: 5-26-94

Facility Systems Engineer

Rick Freeman 5/26/94

Air Systems Cognizant Engineer

Rick Freeman 7/11/94

WHC Quality Assurance Engineer

John Vade 7/13/94
(NA for Clarifications)

7.0 EXCEPTIONS TO ACCEPTANCE TEST SECTION

Make copies of this EXCEPTION SHEET as necessary.

Exception No. 2 Clarification Only: Yes No ✓

Procedure Step: 2.12.8

Description of Problem:

DISTANCE PIECE PRESSURE READING SHOULD BE
BETWEEN 25-30 PSIG.
NOT ABLE TO GET A READING ABOVE 20 PSIG.

Test Director Y R Law 5-26-94

Exception Resolution:

ADJUST PRESSURE REGULATOR TO BRING THE
DISTANCE PIECE PRESSURE INTO THE 25-30 PSI
RANGES PER TELECON WITH MFG. REP.

Date Exception Resolved: 5-26-94

Facility Systems Engineer Rich Freeman 5/26/94

Air Systems Cognizant Engineer Rich Freeman 7/11/94

WHC Quality Assurance Engineer JD Vahl 7/13/94
(NA for Clarifications)

Westinghouse
Hanford Company

Westinghouse Hanford Company
A subsidiary of Westinghouse Electric
Corporation
P.O. Box 1970 Richland, WA 99362

TELEPHONE CONFERENCE

WHC-SD-WM-ATR-066
Revision 0
Page 26

☐ INCOMING

☒ OUTGOING

DATE 5-26-94

TIME 08:45

WITH CHUCK KROLL

OF PACIFIC FLUID SYSTEMS

PHONE 1-800-234-8165

WITH CHUCK POSTELS

OF PACIFIC FLUID SYSTEMS

PHONE 1-800-234-8765

COPIES TO: N.W. JENKINS

SUBJECT:

J-COMPRESSOR ACCEPTANCE TEST PROCEDURE
EXCEPTION #2 ZUL-92-1027

FACILITY SYSTEMS
DEPARTMENT

Rich Freeman
SIGNATURE

373-3311
TELEPHONE NUMBER

SUMMARY OF CONFERENCE

CONCERN :

DISTANCE PIECE PRESSURE READINGS NOT WITH-IN
ALLOWABLE TEST PROCEDURE STEP 2.12.8

RESOLUTION :

CONVERSION WITH THE COMPRESSOR TECHNICIAN AT
PACIFIC FLUIDS WALKED US THROUGH THE ADJUSTMENTS
ON THE ADJUSTING VALVE TO BRING THE PRESSURE
TO WITHIN LIMITS.

7.0 EXCEPTIONS TO ACCEPTANCE TEST SECTION

Make copies of this EXCEPTION SHEET as necessary.

Exception No. 3 Clarification Only: Yes ☒ No ☐

Procedure Step: 2.13.13

Description of Problem:

AT END OF SHIFT, PLACED SYSTEM IN CONFIGURATION
FOR SAFE SHUT-DOWN BY MOVING AHEAD TO STEP 2.13.24
THRU 2.14.2

Test Director YR Law 5-27-94

Exception Resolution:

AT CONTINUATION OF TEST, STEP BACK TO STEP
2.13-AIR DRYER TEST, AND CONTINUE FROM THERE FOR
PROPER MECH.-ELECT LINE-UP

Date Exception Resolved: 5-27-94

Facility Systems Engineer Rich Freeman 5/27/94

Air Systems Cognizant Engineer Rich Freeman 7/11/94

WHC Quality Assurance Engineer NA
(NA for Clarifications)

"WORKING SAFELY IS JOB #1!"

7.0 EXCEPTIONS TO ACCEPTANCE TEST SECTION

Make copies of this EXCEPTION SHEET as necessary.

Exception No. 4 Clarification Only: Yes ☒ No ☐

Procedure Step: 2.13.14

Description of Problem:

DISCOVERED PRV-1 SET AT 30 PSI, THIS WILL NOT ALLOW
A 35 SCFM READING AT FI-1. PRV-1 SHOULD BE SET
AT 21 PSI. FOR TEST CONTINUATION, PRV-1 WAS RESET TO
21 PSI BY USING PI-6.

Test Director Y K Law 5-31-94

Exception Resolution:

PRV-1 MUST BE SET @ MATE CALIBRATED GAUGE AT
LOCATION OF PI-6

6-1-94 CALIBRATED GAUGES WERE USED TO SET PRV-1.
Rich Freeman

Date Exception Resolved: 5-31-94

Facility Systems Engineer Rich Freeman 6/1/94

Air Systems Cognizant Engineer Rich Freeman 7/11/94

WHC Quality Assurance Engineer NA
(NA for Clarifications)

7.0 EXCEPTIONS TO ACCEPTANCE TEST SECTION

Make copies of this EXCEPTION SHEET as necessary.

Exception No. 5 Clarification Only: Yes No ✓

Procedure Step: 3.1.4

Description of Problem:

VERY SLIGHT OIL SEEPAGE AT GASKET
BETWEEN COMPRESSOR FRAME & CROSSHEAD
GUIDE (L) & (R)

Test Director TR Law 5-31-94

Exception Resolution:

CONVERSATION WITH PACIFIC FLUID SYSTEMS,
CONFIRMED THIS IS NORMAL CONDITION, DURING
THE INITIAL START-UP, UNTIL THE GASKETS SEAL.
CONTINUE TO MONITOR.

Date Exception Resolved: 6-1-94

Facility Systems Engineer Rich Freeman 6/1/94

Air Systems Cognizant Engineer Rich Freeman 7/4/94

WHC Quality Assurance Engineer John Vard 7/15/94
(NA for Clarifications)

Westinghouse
Hanford Company

Westinghouse Hanford Company
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Corporation
P.O. Box 1970 Richland, WA 99352

TELEPHONE CONFERENCE

WHC-SD-WM-ATR-066

Revision 0

Page 30

☐ INCOMING

☒ OUTGOING

DATE 6-1-94

TIME 09:15

WITH CHUCK KROLL

OF PACIFIC FLUID SYSTEMS

PHONE 1-800-234-8765

WITH CHUCK POSTELS

OF PACIFIC FLUID SYSTEMS

PHONE _____

COPIES TO: W.W. JENKINS

SUBJECT: U-COMPRESSOR ACCEPTANCE TEST PROCEDURE
EXCEPTION #5 24-92-1027

FACILITY SYSTEMS
DEPARTMENT

Rich Freeman
SIGNATURE

373-3311
TELEPHONE NUMBER

SUMMARY OF CONFERENCE

CONCERN:

SLIGHT OIL LEAKAGE AT GASKET ON COMPRESSOR FRAME.

RESOLUTION:

COMPRESSOR TECHNICIAN IDENTIFIED THIS AS A NORMAL
CONDITION DURING NEW START-UP AND BREAK-IN.

7.0 EXCEPTIONS TO ACCEPTANCE TEST SECTION

Make copies of this EXCEPTION SHEET as necessary.

Exception No. 6 Clarification Only: Yes ☒ No ☐Procedure Step: 2.5.7, 2.5.8, 2.5.9, 2.13.7, & 2.13.20**Description of Problem:**

Breakers in panel MPC-1 were not in correct
slots according to ECU # 196668.

Test Director Tim Law**Exception Resolution:**

See ECU # 703744 for As-built configuration
of breakers. Breaker configuration has no impact
on compressor system operability.

Date Exception Resolved: 9/22/94Facility Systems Engineer St. Sunny for Rick FreemanAir Systems Cognizant Engineer Warren G. BrownWHC Quality Assurance Engineer N/A

(NA for Clarifications)

"WORKING SAFELY IS JOB #1!"

APPENDIX A: 241-U-701 INSTRUMENT AIR SYSTEM

"WORKING SAFELY IS JOB #1!"

APPENDIX B: USQ DOCUMENTATION

"WORKING SAFELY IS JOB #1!"

J-5		CRAFT/RESOURCE USAGE LOG AND MAINTENANCE RECORD		[2][W]-[9][2]-[0][1][0][2][7]/[K]	
Date	Turnover, Problem Description, Action Taken	Name	Craft/ Resource Type	Hours	
9-30-94	TEST RUN COMPLETE 0800 THIS MORNING. COMP. ALLOWED TO CONTINUE TO RUN, AIR LEAK AT FIC ON TANK- U-110 FIXED, DUTY CYCLE DROPPED TO ABOUT 25%				
10-03-94	Shut down COMPRESSOR 0900				
10-3-94	Personal Locking Device authorized for step 3.4.3, to check belt tension. And step 3.4.4 to check bolt tightness. Maintenance Spvr. Mike Donlin Shift Operations mgr. DVM				
10-3-94	Completed steps 3.4.3 thru 3.4.5 of OTP-151. No problems noted. Belts were tensioned. No waste generated. Mike Donlin	McGhan Anderson	23 24	2 1	
10/7/94	ICF KH FABRICATING PERSONNEL PROTECTION PER ECN C11403.	CB Wallgren			
10/12/94	COMPLETED P.P. FABRICATION & PAINTING	CB Wallgren			
10/13/94	PROCURING EXTENDED 4 BOLT CLAMPS	CB Wallgren			
10/17/94	INSTALLED PERSONNEL PROTECTION ON AFTER COOLER TUBING PER ECN- C11403. ICF KH ACTIVITIES COMPLETE.	CB Wallgren			
Summary by Craft/Resource Type --					
Craft/Resource Type	Total Hours	Craft/Resource Type	Total Hours		

*** INFORMATION ONLY ***

=====J-4 RESOLUTION/RETEST (W140)=====

Page: 1

11:19

1. Document Number 2W-94-00540/M MODIFICATION
Work Item Title 241-U INSTALL HOUR METER ON AIR COMP.AT 701-U

2. Essential Systems TES

3. Resolution

SEE J4-A FOR RESOLUTION

4. Approval Designators -Q

5. Tech Spec/OSR Requirements/Reference

6. Reference Documents	Type
H-2-73682 SH 1 REV 7	DWG
612553	ECN
196668 PG 9	ECN
614540	ECN
701111	ECN
704607	ECN

7. Comments

8. Retest Requirement

9. Mode

10. Retest

SEE STEP 8 OF RESOLUTION

11. QC Involvement in Retest NONE

12. PIC DRAKULICH,KE

13. PIC Org. 7C345

	Signature	Date
14. Resolution By	X BENOIT,CP	07/20/94

15. Plant Forces Work Review Required N Number

16. Approvals	Signature	Date
Cognizant Engineer	X HOBBS,GK	08/04/94
Cognizant Manager	X KISON,PF	08/16/94
Environmental Assurance	_____	_____
Health/Safety Assurance	_____	_____
Quality Assurance	X TIPPS,MC	08/16/94
Additional Approvals	_____	_____

17. Resources Required

=====J-4 RESOLUTION/RETEST (W140)=====

*** INFORMATION ONLY ***

*** INFORMATION ONLY ***

=====J-4 RESOLUTION/RETEST (W140)=====

Page: 2

1. Document Number 2W-94-00540/M MODIFICATION
Work Item Title 241-U INSTALL HOUR METER ON AIR COMP.AT 701-U

Res Code	Description	No.	Est Hrs	Act Hrs
22	Electrician	2	32	36
04	Operations Personnel	1	2	2

	Signature	Date
18. Field Work Complete	_____	_____
19. Retest Satisfactory	_____	_____
20. QC Verify Retest (If Required)	_____	_____

=====J-4 RESOLUTION/RETEST (W140)=====

*** INFORMATION ONLY ***

*** INFORMATION ONLY ***

-----J-4a RESOLUTION/RETEST (W145)-----

Page: 1

(Cont.)

1. Document Number 2W-94-00540/M MODIFICATION
Work Item Title 241-U INSTALL HOUR METER ON AIR COMP.AT 701-U

=====

3. Resolution

1.0 SCOPE:

- 1.1 INSTALL A NON-RESETTABLE HOUR METER ON THE INSTRUMENT AIR COMPRESSOR MOTOR STARTER TO SHOW TOTAL COMBINED HOURS THE COMPRESSOR HAS BEEN RUNNING, BOTH LOADED AND UNLOADED.

2.0 DESCRIPTION:

- 2.1 ADD HOUR METER, CONTROL TRANSFORMER/FUSE, CHANGE EXISTING 480 VOLT RELAY COIL IN MOTOR STARTER TO 120 VOLT RELAY COIL. UTILIZE AUXILIARY CONTACTS IN MOTOR STARTER TO RUN HOUR METER.

3.0 REFERENCED DOCUMENTS:

- 3.1 H-2-73682 SH.1 REV7
3.2 ECN 612553
3.3 ECN 196668 SH.9
3.4 ECN 614540

4.0 PERMITS AND SPECIAL PROCEDURES:

- 4.1 N/A

5.0 MATERIALS AND EQUIPMENT REQUIRED:

- 5.1 N/A

6.0 PREREQUISITES:

- 6.1 IF REQUIRED CONDUCT A PRE-JOB SAFETY MEETING USING THE PRE-JOB SAFETY MEETING FORM, INCLUDE A HANFORD JOB HAZARD ANALYSIS IF NEEDED.
- 6.2 THE WASTE PLANNING CHECKLIST HAS BEEN PROVIDED AND THE CORRECT WASTE CONTAINERS ARE AVAILABLE TO PERFORM THE WORK ACTIVITIES.

PIC/CRAFT MANAGER_____
DATE

-----J-4a RESOLUTION/RETEST (W145)-----

*** INFORMATION ONLY ***

*** INFORMATION ONLY ***

=====J-4a RESOLUTION/RETEST (W145)=====

Page: 2

(Cont.)

1. Document Number 2W-94-00540/M MODIFICATION
Work Item Title 241-U INSTALL HOUR METER ON AIR COMP.AT 701-U

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6.3 LOCK AND TAG ELECTRICAL EQUIPMENT.

7.0 SPECIFIC WORK INSTRUCTIONS:

NOTE: REFER TO SH. 9 OF ECN 196668 FOR DWG. H-2-73682,
SH. 1 REV. 6 INFO.

- 7.1 VERIFY ZERO VOLTAGE IS PRESENT IN CONTROL PANEL PRIOR TO BEGINNING WORK.
- 7.2 CUT BLANK COVER OF 8" X 8" X 4" BOX TO FIT MOUNTING SIZE OF HOUR METER AND INSTALL HOUR METER AS DESCRIBED/SHOWN ON PAGES 1 AND 5 OF ECN.
- 7.3 INSTALL NEW 1A FUSE AND FUSE CLIP IN HOUR METER ENCLOSURE FOR SECONDARY TRANSFORMER AS DESCRIBED/SHOWN ON PAGES 1,4 AND 5 OF ECN.
- 7.4 INSTALL CONTROL TRANSFORMER IN HOUR METER ENCLOSURE AS DESCRIBED/SHOWN ON PAGES 1,4 AND 5 OF ECN.
- 7.5 INSCRIBE NAMEPLATE AS "HM-1 FOR CMP-1" AND INSTALL ON HOUR METER BOX AS SHOWN/DESCRIBED ON PAGES 5 AND 6 OF ECN.
- 7.6 REPLACE/EXTEND UNISTRUT AS REQUIRED AND SHOWN ON PAGE 5 OF ECN.
- 7.7 INSTALL HOUR METER ENCLOSURE AS SHOWN ON PAGE 5 OF ECN.
- 7.8 REMOVE 480V COIL FROM CONTROL PANEL 271-U-701-HS-1 AS DESCRIBED/SHOWN ON PAGES 1 AND 5 OF ECN.
- 7.9 INSTALL 120V COIL IN CONTROL PANEL 271-U-701-HS-1 AS DESCRIBED/SHOWN ON PAGES 1 AND 5 OF ECN.
- 7.10 INSTALL 1/2" FLEX METAL CONDUIT /FITTINGS (LENGTH AS REQUIRED) FROM 271-U-701-HS-1 TO HOUR METER ENCLOSURE AS SHOWN ON PAGE 5 OF ECN.
- 7.11 INSTALL #14 SIS CONDUCTORS AND CONNECT AS DESCRIBED/SHOWN ON PAGES 1,4 AND 5 OF ECN.
- 7.12 PIC/SUPERVISOR RECORD ON THE J-5 THAT JOB SITE HAS BEEN CLEANED AND ALL WASTE PROPERLY CONTAINERIZED

=====J-4a RESOLUTION/RETEST (W145)=====

*** INFORMATION ONLY ***

*** INFORMATION ONLY ***

=====J-4a RESOLUTION/RETEST (W145)=====

Page: 3

(Cont.)

1. Document Number 2W-94-00540/M MODIFICATION
Work Item Title 241-U INSTALL HOUR METER ON AIR COMP.AT 701-U

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PER TO-100-052 (RADIOACTIVE/CONTAMINATED)/WHC-IP-0842, SECT 16.1 (NON-RADIOACTIVE), AS APPLICABLE.

8.0 RESTORATION ACTIONS

- 8.1 REQUEST OPS TO REMOVE LOCK/TAG FROM DISCONNECT SWITCH.
- 8.2 VERIFY PROPER OPERATION OF AIR COMPRESSOR AND HOUR METER.

9.0 POST-MAINTENANCE TESTING:

- 9.1 DOCUMENT WORK PERFORMED AND ANY PROBLEMS ENCOUNTERED ON J-5.

10.0 OPERATIONAL FUNCTIONAL TESTS

- 10.1 N/A
- =====

=====J-4a RESOLUTION/RETEST (W145)=====

*** INFORMATION ONLY ***

*** INFORMATION ONLY ***

=====J-7 WORK CHANGE NOTICE - Detail (W17:=====

Page: 1

1. Document Number 2W-94-00540/M MODIFICATION
Work Item Title 241-U INSTALL HOUR METER ON AIR COMP.AT 701-U

=====

	Signature	Date	Telephone No.
2. Originator	X WINEY,HL	09/20/94	372-3788

3. WCN Number 01 Non-ADP WCN Number

4. Change Instructions
Page	Step/Para	Description
2 OF J4-A	7.2	CHANGE THE DIMINSIONS OF THE BOX TO 8 X 8 X 6
PER ECN 701111.

5. Reason for Change
THE DIMINSIONS OF THE BOX WERE NOT CORRECT. THE DIMINSIONS OF
THE ORIGINAL BOX WAS TOO SMALL.

6. Approval Designators -NA

7. Approval Signatures	Signature	Date
Cognizant Engineer	X HOBBS,GK	09/20/94
Cognizant Manager	X KISON,PF	09/21/94
Environmental Assurance	N/A	_____
Health/Safety Assurance	N/A	_____
Quality Assurance	N/A	_____
Operations	X PERHAM,JE	09/21/94
PIC	X DRAKULICH,KE	09/20/94
Other	_____	_____

	Signature	Date	Telephone No.
8. Incorporated By	X PERHAM,JE	09/21/94	372-2388
- =====

=====J-7 WORK CHANGE NOTICE - Detail (W175)=====

*** INFORMATION ONLY ***

*** INFORMATION ONLY ***

=====J-7 WORK CHANGE NOTICE - Detail (W17

Page: 1

1. Document Number 2W-94-00540/M MODIFICATION
Work Item Title 241-U INSTALL HOUR METER ON AIR COMP.AT 701-U

=====

	Signature	Date	Telephone No.
2. Originator	X BENOIT,CP	10/24/94	2-2116

3. WCN Number 02 Non-ADP WCN Number N/A

4. Change Instructions

Page	Step/Para	Description
2 OF J4-A	7.2	CHANGE THE DIMENSIONS OF THE BOX TO 8" X 8" X 6 AND REPLACE 5A FUSES WITH 1.0 A PER ECN#704607.

2 OF J4-A	7.4.1	FAB/INSTALL LABEL "DANGER-480V" ON FRONT OF HOUR METER ENCLOSURE.
-----------	-------	--

2 OF J4-A	NOTE:	ALL "ECN" REFERENCES IN BODY OF WORK INSTRUCTIONS ARE FOR ECN #612553.
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5. Reason for Change

TO CORRECT MATERIAL LIST AND DWG CALLOUTS DUE TO CATALOG
OMISSIONS.

6. Approval Designators -Q

7. Approval Signatures	Signature	Date
Cognizant Engineer	X AL-WAZANI, MG	10/24/94
Cognizant Manager	X KISON, PF	10/25/94
Environmental Assurance	N/A	
Health/Safety Assurance	N/A	
Quality Assurance	X TIPPS, MC	10/25/94
Operations	X LAW, TR	10/25/94
PIC	X DRAKULICH, KE	10/26/94
Other	X AHRENS, JL	10/26/94

	Signature	Date	Telephone No.
8. Incorporated By	X AHRENS, JL	10/26/94	272-2488

=====J-7 WORK CHANGE NOTICE - Detail (W175)=====

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