JUN 10 1996 <i>Sta. 16</i>	16 ENGINEERING DATA TRANSMITTAL	Page 1 of <u>1</u> 1. EDT 150294
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2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) 77420	4. Related EDT No.: 141517
5. Proj./Prog./Dept./Div.: AX-101 SALTWELL PUMPING	6. Cog. Engr.: J. M. JONES	7. Purchase Order No.: NA
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16. KEY											
Approval Designator (F)		Reason for Transmittal (G)				Disposition (H) & (I)					
E, S, Q, D or N/A (see WHC-CM-3-5, Sec. 12.7)		1. Approval		4. Review		1. Approved		4. Reviewed no/comment			
		2. Release		5. Post-Review		2. Approved w/comment		5. Reviewed w/comment			
		3. Information		6. Dist. (Receipt Acknow. Required)		3. Disapproved w/comment		6. Receipt acknowledged			
(G)	(H)	17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)								(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	2	Cog. Eng. J. M. JONES	<i>[Signature]</i>	5/5-13		M. R. KOCH		5/8-05		3	
1		Cog. Mgr. W. M. HARTY	<i>[Signature]</i>	5/5-13		T. L. WARNICK	<i>[Signature]</i>	5/23/96	5/5-01	3	
3		QA J. J. VERDERBER		S1-57							
		Safety									
		Env.									

18. T. L. WARNICK <i>[Signature]</i> 5/23/96 Signature of EDT Originator	19. _____ Authorized Representative Date for Receiving Organization	20. W. M. HARTY <i>[Signature]</i> 5/30/96 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
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ATR FOR THE AX-101 PUMPING AND INSTRUMENTATION CONTROL SKID

S. K. KUJAK

WESTINGHOUSE HANFORD COMPANY, Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-87RL10930

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Abstract: This Acceptance Test Report presents the results of the acceptance test performed at the shop on the monitor and control functions of the AX-101 Saltwell Pumping PICS skid. This work supports the interim stabilization of tank 241-AX-101.

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Samuel T. Salazar *6/10/96*
Release Approval Date
Release Stamp

Approved for Public Release

TANK FARM
ACCEPTANCE TEST REPORT

SYSTEM
INTERIM STABILIZATION

**ATR FOR THE AX-101 PUMPING AND INSTRUMENTATION CONTROL
SKID**

TANK FARM ACCEPTANCE TEST PROCEDURE

TEST EXECUTION SHEET

Date: <u>3/15/96</u>		Document Number: WHC-SD-WM-ATP-171 REV. 0	
SKID Unit Number: <u>DE-AC06-95RL13061 I</u>			
TEST PERSONNEL			
PRINT NAME			
WHC PROJECT ENGINEER: <u>TERRY WARWICK</u>		TEST DIRECTOR (WHC) <u>Rich Kersay</u>	
QUALITY ASSURANCE: <u>GEORGE MARTIN</u>		WITNESS: <u>TERRY WARWICK</u>	
TEST DIRECTOR (VENDOR): <u>Leonard Karge</u> (Leonard Karge)			
TEST EXECUTION			
<u>Rich Kersay</u>	<u>3/18/96</u>	<u>Terry Warwick</u>	<u>3/18/96</u>
Test Director (WHC)	Date	Project Engineer	Date
TEST WITNESS			
<u>Terry Warwick</u> <u>3/18/96</u>			
Witness Date			
TEST APPROVAL AND ACCEPTANCE			
Westinghouse Hanford Company			
Without Exception		With Exception/Resolved	
<u>Rich Kersay</u> <u>3/18/96</u>		<u>George Martin</u> <u>18 March 1996</u>	
Test Director (WHC) Date		Quality Assurance Date	
<u>Leonard Karge</u> <u>3/18/96</u>		<u>Terry Warwick</u> <u>3/18/96</u>	
Test Director (VENDOR) Date		Project Engineer Date	
<u>Terry Warwick</u> <u>3/18/96</u>		<u>Terry Warwick</u> <u>3/18/96</u>	
Witness Date		Project Engineer Date	

TANK FARM ACCEPTANCE TEST REPORT

TABLE OF CONTENTS

PAGE

TEST EXECUTION SHEET	2
1.0 PURPOSE	5
2.0 INFORMATION	6
2.1 SCOPE	6
2.2 TERMS AND DEFINITIONS	10
2.3 RESPONSIBILITIES	11
2.4 REFERENCES	12
2.5 SAFETY	12
2.6 QUALITY ASSURANCE	13
2.7 GENERAL INFORMATION	13
3.0 RECORDS	14
4.0 PREREQUISITES	15
5.0 PROCEDURE	17
5.1 PICS ELECTRICAL AND PROCESS AIR POWER UP	17
5.2 PICS WATER DRIP SYSTEM	22
5.3 WEIGHT FACTOR AND SPECIFIC GRAVITY SYSTEM	25
5.4 DOV AUTOMATIC AND MANUAL CONTROL	29
5.5 JET PUMP FLOWMETER OPERATION	34
5.6 WATER TANK LEVEL TRANSMITTER	38
5.7 JET PUMP HEAT TRACE AND INSTRUMENT TEMPERATURE	42
5.8 INTERLOCKS	44
5.9 JET PUMP VALVING INTERLOCK	58

Document No.

WHC-SD-WM-ATR-171

Rev/Mod

0

Page

3

TANK FARM ACCEPTANCE TEST REPORT

TABLE OF CONTENTS (Continued)	PAGE
FIGURE 1 - FLOW DIAGRAM INSTRUMENT AIR AND WATER SYSTEMS	61
FIGURE 2 - WEIGHT FACTOR INSTRUMENT ENCLOSURE FLOW SHEET	62
FIGURE 3 - JUMPER TEST ASSEMBLY	63
FIGURE 4 - JET PUMP JUMPER TEST CONNECTIONS	64
ATP EXCEPTION LOG	65
ATP EXCEPTION RECORD	66
ATP ACCEPTANCE RECORD	67
APPENDIX-PICS LEAK TEST PROCEDURE	A-1

TANK FARM ACCEPTANCE TEST PROCEDURE

1.0 PURPOSE

- 1.1 The purpose of this Acceptance Test Procedure (ATP) is to provide a record of functional testing results and verification that requirements specified for the Saltwell Pumping Instrument Skids meet operational requirements of the buyer (WHC).
- 1.2 This ATP shall verify and document that the Vendor fabricated skid system operates as a stand alone unit under control of local operator interface. A jet pump assembly (JPA) will be connected to the skid system for testing the total system as it would be connected in the field.
- 1.3 The following systems will be tested by this ATP:
 - PICS Electrical and Process Air System
 - PICS Water Drip System
 - Weight Factor and Specific Gravity System
 - DOV Automatic and Manual Operation
 - Jet pump Flowmeter Operation
 - Water Tank Level Transmitter
 - Jet pump Heat Trace and Instrument Temperature
 - Interlocks
 - Jet Pump Valving Interlock

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	5

TANK FARM ACCEPTANCE TEST PROCEDURE

2.0 INFORMATION

2.1 SCOPE

2.1.1 DIP TUBES

Saltwell liquid levels are determined by analyzing specific gravity and weight factor data obtained from three dip tubes (tubes projecting into a tank to varying levels). The high pressure dip tube extends to within a few inches of the bottom of the tank. The medium pressure dip tube is 10 inches shorter than the high pressure tube. The low pressure dip tube measures ambient pressure above the liquid in the tank. Air is constantly supplied at a low flow rate through each tube by the instrument air system on the skid.

The dip tubes are connected to the Weight Factor and Specific Gravity System. It is this system which measures the differential pressures that exist between the three Dip Tubes. This system consists of two electronic differential pressure transmitters which convert the measured differential pressures into an electronic signal, representative of the liquid's weight factor and specific gravity.

2.1.2 WATER DRIP SYSTEM

The air flow through each dip tube is monitored by a rotameter and controlled by a valve on each rotameter. Water is added at a low flow rate to the medium and high pressure dip tubes to ensure that no waste salts crystallize in the dip tubes and cause a blockage. The water flow rate is monitored by use of an in-line sight glass.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	6

TANK FARM ACCEPTANCE TEST PROCEDURE

2.1.3 WEIGHT FACTOR AND SPECIFIC GRAVITY TRANSMITTERS

Weight Factor Indicator (WFI): Weight factor readings are obtained by measuring the pressure difference between the high and low pressure tubes. The pressure difference is sensed by the WFI. The WFI converts the pressure difference to a 4 to 20 ma instrument signal used as indication of saltwell level. The analog signal from the WFI is sent via shielded pair cable to an analog input of the PLC in the skid instrument cabinet.

Specific Gravity Indicator (SGI): Specific gravity readings are obtained by measuring the pressure difference between the high and medium pressure dip tubes. The pressure difference is sensed by the SGI. The SGI converts the pressure difference to a 4 to 20 ma analog instrument signal which is sent via shielded pair cable to an analog input of the PLC on the skid.

2.1.4 DIAPHRAGM OPERATED VALVE

The Diaphragm Operated Valve (DOV) on the jet pump jumper is used to control the flow rate of liquid through the jet pump jumper. When the DOV is open some of the liquid being pumped, which is normally recirculated through the jet, is sent out the transfer line to the designated receiver tank.

2.1.5 FLOWMETER

A Johnson Yokogawa magnetic flowmeter measures the flow rate of material out of the jet pump jumper and transmits a data signal to the FQIT. The FQIT converts the flow signal data to a 4 to 20 ma instrument signal sent via shielded, twisted pair cable to an analog input of the PLC on the skid.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	7

TANK FARM ACCEPTANCE TEST PROCEDURE

2.1.6 LIMIT SWITCHES

The jet pump jumper is supplied with two limit switches. Both limit switches are activated by three-way valve, JR-1, to prevent the miss-routing of process fluid. Limit switch, LS-1, in conjunction with a time delay software timer, allows the pumps on a common transfer line to operate for 30 minutes after one pump shuts down. Pumps on the same header will continue to operate if the JR-1 valve on the shutdown pump is in the prime position. All pumps on a common header will shutdown and cannot be restarted if any common header pump's JR-1 valve is in the flush position. LS-2 is (open) whenever the JR-1 valve is in the flush position. While open it prevents any saltwell pumps on a common header from starting and immediately shuts down any running pumps. In normal process operation, the valve actuator arm opens the LS-1 and closes LS-2, and the indicator light on the instrument panel shows normal operation. The three-way valve has three positions: prime, flush, and pump (or process normal).

2.1.7 PRESSURE SWITCHES

Pressure switch PS-1 provides for pump shutdown interlock when pump discharge pressure falls and remains below 15 psig for 30 seconds. The pressure switch designated PS-2 monitors the flush line pressure. PS-2 will stop the pump when the flush line pressure rises above 10 psig. PS-1-1 provides shutdown interlock for this system, usually activated by high pressure in the circulation loop at approximately 185 psig. Activation of any above switch will also initiate an associated alarm.

All of the pressure switches shall be calibrated prior to any tests or pressurization of jet pump jumper assembly.

2.1.8 INSTRUMENT AIR SYSTEM

The Instrument Air System is mounted on the PICS. It contains an air compressor, holding tank, air valving, and controls. The Instrument Air system provides air to Weight Factor Instrument Enclosure (WFIE) for the dip tubes and air to the PICS water system.

The compressor is powered by 480 VAC 3 phase motor and the pressure is regulated by a pressure switch. The instrument air is filtered and dried prior to being sent to the instruments. Air pressure is maintained between 60 and 90 psig.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	8

TANK FARM ACCEPTANCE TEST PROCEDURE

2.1.9 POWER CONTROL STATION

The PICS is powered from a Tank Farm 480 VAC supply. Motor controllers are provided for the saltwell pump and the air compressor. A stepdown transformer provides 120/240 VAC for instrumentation and control. Power receptacles are available for tools, and a light system for nighttime illumination.

2.1.10 PUMP PRESSURE TRANSDUCERS

The pump suction and discharge transducers are used to monitor pump discharge and suction. The suction transmitter has a range of -10 to 80 psig and the discharge transmitter has a range of 0 to 150 psig. Both transmitters produce a 4 to 20 mA output.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	9

TANK FARM ACCEPTANCE TEST PROCEDURE

2.2 TERMS AND DEFINITIONS

- 2.2.1 CT - Connector
- 2.2.2 CW - Clockwise
- 2.2.3 CCW - Counter Clockwise
- 2.2.4 DB - Dead Band
- 2.2.5 DOV - Diaphragm Operated Valve
- 2.2.6 DTAM - Data Inser And Monitor
- 2.2.7 ECN - Engineering Change Notice
- 2.2.8 EPC - Electro-Pneumatic Converter
- 2.2.9 FI - Flow Indicator
- 2.2.10 FGM - Flammable Gas Monitor
- 2.2.11 FM - Flowmeter
- 2.2.12 FQIT - Flow Iotalizing Indicating Transmitter
- 2.2.13 FS - Full Scale
- 2.2.14 GF - Sight Glass
- 2.2.15 GPM - Gallons Per Minute
- 2.2.16 IA - Instrument Air
- 2.2.17 LS - Limit Switch
- 2.2.18 LDS - Leak Detection Station
- 2.2.19 LDE - Leak Detection Element
- 2.2.20 MCC - Motor Control Center
- 2.2.21 MR - Manometer
- 2.2.22 MTC - Motor Temperature Cutout
- 2.2.23 ATP - Acceptance Test Procedure
- 2.2.24 PIC - Person In Charge
- 2.2.25 PICS - Pumping and Instrumentation Control Skid
- 2.2.26 PLC - Programmable Logic Controler

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	10

TANK FARM ACCEPTANCE TEST PROCEDURE

- 2.2.27 PRV - Pressure Regulating Valve
- 2.2.28 PS - Pressure Switch
- 2.2.29 RV - Relief Valve
- 2.2.30 RW - Raw Water
- 2.2.31 RWP - Radiation Work Permit
- 2.2.32 SGI - Specific Gravty Indicator
- 2.2.33 SRV - Safety Relief Valve
- 2.2.34 TFO - Tank Farm Operations
- 2.2.35 WFIE - Weight Factor Instrument Enclosure
- 2.2.36 WFI - Weight Factor Indicator
- 2.2.37 WG - Water Gauge

2.3 RESPONSIBILITIES

- 2.3.1 The Maintenance craft personnel are responsible for:
 - Providing assistance during the test.
- 2.3.2 Quality Control (QC) is responsible for:
 - Witnessing and signing steps as identified in ATP.
 - Verifying that the procedure sections were performed correctly.
 - Signing and dating test exception and approval sheets.
- 2.3.3 Test Director (WHC)
 - Provides the equipment found in step 4.1 of this procedure.
 - Records equipment status and data per this procedure.
 - Conducts pre-job planning meeting as necessary.
 - Conducts pre-job system walkdown.
 - Recording data, exceptions and other notes as required on the ATP Data Sheets.
- 2.3.4 Test Coordinator (Vendor)
 - Coordinating ATP with Test director.
 - Scheduling/rescheduling of the test as required.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	11

TANK FARM ACCEPTANCE TEST PROCEDURE

2.3 RESPONSIBILITIES (continued)

2.3.5 Witness is responsible for:

- Witness the tests.
- Evaluate results of testing.
- Assist the Test Director when requested.
- Sign Test Exception Sheet as a witness.
- Sign Test Exception Sheet as a witness when retest has been executed and accepted.

2.3.6 Cognizant Engineer is responsible for:

- Making redline changes to this procedure.
- Approving Test Exception resolution(s).
- Signing ATP ACCEPTANCE RECORD.

2.4 REFERENCES

2.4.1 The following documents were used to write or are referenced in this procedure:

- WHC-CM-1-10, SAFETY MANUAL, WKS-6, "PRE-JOB SAFETY PLANNING", "WKS-15, ELECTRICAL WORK SAFETY"
- WHC-CM-6-1 EP 4.2., STANDARD ENGINEERING PRACTICE "TESTING PRACTICES"
- WHC-IP-1026 APPX L, "ENGINEERING PRACTICES GUIDELINES"
- H-14-100723 Rev 0, INSTRUMENT AIR AND WATER DETAILS
- H-14-100724 Rev 0, INSTRUMENTATION WEIGHT FACTOR ENCLOSURE ARRANGEMENT
- H-14-100725 Rev 0, INSTRUMENT ENCLOSURE WIRING DIAGRAM
- H-14-023908 Rev 0, ENGINEERING FLOW DIAGRAM SALT WELL PUMPING SYSTEM
- H-14-023909 Rev 0, ENGINEERING FLOW DIAGRAM SALTWELL DIP TUBE AIR AND WATER SYSTEM
- JOHNSON YOKOGAWA ADMAG AM SERIES VENDOR INFORMATION
- FOXBORO 823 DP SERIES ELECTRONIC DIFFERENTIAL PRESSURE CELL VENDOR INFORMATION
- YOKOGAWA 4153 THREE PEN RECORDER VENDOR INFORMATION

2.5 SAFETY

Warning - Circuit boards are energized. Terminal strips in the Instrument Enclosure have 120 VAC exposed leads. Observe appropriate electrical precautions.

Warning - Energized circuits and leads are contained inside the cabinet.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	12

TANK FARM ACCEPTANCE TEST PROCEDURE

2.6 QUALITY ASSURANCE

See QC responsibilities in section 2.3.

2.7 GENERAL INFORMATION

- 2.7.1 Complete each procedure step in the given order, unless otherwise noted or as directed by the Test Director.
- 2.7.2 All entries recorded in this procedure shall be made in black ink.
- 2.7.3 Editorial changes required to this ATP may be made per the red line method by the Test Director and Cognizant Engineer as long as they do not impact operational facility safety function, or performance and will not compromise or influence the test data. Any changes affecting the above stated criteria shall be made in accordance with WHC-CM-6-1, *Standard Engineering Practices*, EP-2.2 Change Control.
- 2.7.4 Any non-conformance of the instrumentation or unexpected results during testing shall be logged in the ATP EXCEPTION LOG and thoroughly documented on a ATP EXCEPTION RECORD.
- 2.7.5 Do not perform any part of this procedure on faulty equipment. If faulty equipment is discovered, STOP the execution of this procedure and resolve the problem.
- 2.7.6 If the performance of this procedure is suspended for any reason, ensure the equipment is left in a safe and de-energized state as necessary.
- 2.7.7 This procedure DOES NOT contain any separate data/verification sheets. Verification of procedural steps and validity of the data is incorporated into the specific section.
- 2.7.8 Minor air and water leaks will be repaired during the Pre-Test section of the ATP. The intent of this ATP is to provide a method for documenting the condition and capabilities of the as-built PICS unit. The attached ATP Exception Log and Exception Record provides the means of documenting Acceptance Testing results and equipment conditions. Additional sheets are to be used as necessary to delineate the progress of the ATP.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	13

TANK FARM ACCEPTANCE TEST PROCEDURE

3.0 RECORDS

- 3.1 The completed working copy of this procedure and all exception logs and exception records generated by this procedure, will be kept as permanent records.
- 3.2 In the event minor drawing changes are required to successfully complete this ATP, such as changing a relay contact from Normally Open (NO) to Normally Closed (NC), the change shall be noted as an exception and incorporated in an ECN after the completion of this ATP.

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Document No.	Rev/Mod.	Page
WHC-SD-WM-ATR-171	0	14

TANK FARM ACCEPTANCE TEST PROCEDURE

4.0 PREREQUISITES

4.1 The following supplies shall be available at the workplace:

- Voltohmmeter (VOM): Portable, 0-600 volts ac, $\pm 2\%$ accuracy.
Calibration No. 061-45-08-002 Expiration Date 12/12/96
- Thermocouple Voltage Source (West Portable Potentiometer or equivalent).
Calibration No. 819-13-55-001 Expiration Date 11/21/96
- Transmation current (milliamp) simulator or equivalent
Calibration No. 061-13-20-001 Expiration Date 10/26/96
- Rotameter or Flowmeter
- Manometer - minimum range 0-500" water gauge. Must have a read out of variable test pressure.
Calibration No. 819-35-40-003 Expiration Date 01/31/97
- Manometer - minimum range 0-20" water gauge. Must have a read out of variable test pressure.
Calibration No. 819-35-40-001 Expiration Date 01/31/97
- Saltwell Jet pump Jumper
- Jumper Test Assembly (see Figure 3)
- Pan or bucket with water (6" diameter and 3" deep).
- 480V 3 Phase Power Source

4.1.1 Test Director SHALL VERIFY that section 4.1 is complete by signing below.

[Signature]
Test Director Signature

3/15/96
Date

4.1.2 QC Inspector SHALL VERIFY that section 4.1 is complete by signing below.

COORUZ MATA
QC Inspector Signature

3/15/96
Date

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	15

TANK FARM ACCEPTANCE TEST PROCEDURE

4.0 PREREQUISITES (Continued)

4.2 The following documents will be needed to perform this procedure:

- Vendor Information Manuals listed in section 2.4

4.3 The following conditions must be met before this test may commence:

4.3.1 Verify the Pumping and Instrumentation Control Skid (PICS) has been set adjacent to the test area. ☒

4.3.2 Ensure all PICS valves are CLOSED and all PICS breakers are OPEN prior to starting test. ☒

4.3.3 Verify that the associated Jet Pump Jumper and Jumper test assembly have been placed in the pump run in pit or on a prepared test site. ☒

4.3.4 Verify that the PICS water tank has been filled to capacity. ☒

4.3.5 Verify the PICS has been grounded. ☒

4.3.6 Verify that the Jet Pump Jumper has been connected to the PICS. ☒

4.3.7 Test Director (WHC) shall walk down entire test area. ☒

4.3.8 Test Director SHALL VERIFY that section 4.3 is complete by signing below.

R. K. Kim
Test Director Signature

3/15/96
Date

4.3.9 QC Inspector SHALL VERIFY that section 4.3 is complete by signing below.

Gregory M. Maza
QC Inspector Signature

3/15/96
Date

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	16

TANK FARM ACCEPTANCE TEST PROCEDURE

5.0 PROCEDURE

5.1 PICS ELECTRICAL AND PROCESS AIR POWER UP

5.1.1 **ENERGIZE** the PICS by **PERFORMING** the following:

5.1.1.1 **CLOSE** the PICS main DISCONNECT SWITCH SALW-DS-902A, "MAIN DISCONNECT 480V 3PH".

5.1.1.2 **CLOSE** DISCONNECT SWITCH SALW-DS-903A "SALW-DP-901A PNL 480V 3PH".

5.1.1.3 **CLOSE** DISCONNECT SWITCH SALW-DS-904A, "IA CMP PWR 480V 3PH".

5.1.1.4 **CLOSE** DISCONNECT SWITCH SALW-DS-905A, "SALT WELL PMP PWR 480V 3PH".

NOTE - Breakers in panelboard are arranged horizontally from left to right. The following circuit breakers are located in SALW-DP-901A "SALW SKID DIST PNL".

5.1.2 **ENERGIZE** PICS systems by **PERFORMING** the following:

5.1.2.1 **CLOSE** circuit breaker 1 & 3, "MAIN".

5.1.2.2 **CLOSE** Circuit Breaker 2, "WFIE POWER" & "WFIE HEATER".

5.1.2.3 **CLOSE** Circuit Breaker 8, "HEAT TRACE CAB".

5.1.2.4 **CLOSE** Circuit Breaker 6, "WATER TANK HEATER".

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	17

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.1.2.5 **CLOSE** Circuit Breaker 7, "INSTR CAB". ☒
- 5.1.2.6 **CLOSE** Circuit Breaker 4, "AIR CAB" ☒
- 5.1.3 **OPEN** valve SALW-V-934A (located in the Instrument Air Enclosure). ☒
- 5.1.4 **START** air compressor SALW-CMP-901A "SALW SKID IA COMP" by **POSITIONING** the switch to the HAND position. ☒
- NOTE** - Air Compressor should kick off at 90 psi (± 4 psig).
- 5.1.5 **VERIFY** that Air Compressor starts and builds up pressure as **INDICATED** by pressure gauge SALW-PI-907A "AIR DRYER OUTLET PRESS". ☒
- 5.1.6 **VALVE** in air to the PICS Water Tank by **SLOWLY PERFORMING** the following (Refer to Figure 1):
- 5.1.6.1 **SLOWLY OPEN** valve SALW-V-925A (located in SALW-PNL-801H "INST AIR COMP ENCL"). ☒
- 5.1.6.2 **SLOWLY OPEN** valve SALW-V-927A (located near the instrument water tank). ☒
- 5.1.6.3 **SLOWLY OPEN** valve SALW-V-928A (located near the instrument water tank). ☒
- 5.1.6.4 **ADJUST** PRV SALW-PCV-906A to 30 psi (± 3 psig) as **INDICATED** by pressure gauge SALW-PI-908A "IA PRESS TO WTR TNK". ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

NOTE - If Diptubes are not installed in test area, process air and drip water will be expelled from the side of SALW-PNL-902A "LEVEL INST ENCL". Attach temporary portable hose from diptube outlet to high and medium diptubes in the side of the weight factor enclosure, (from valves SALW-V-905A and SALW-V-907A). Route the flexible hose to a suitable drain and secure.

5.1.7 VALVE IN air to SALW-PNL-902A "LEVEL INST ENCL" by **PERFORMING** the following (Refer to Figure 1 and 2):

5.1.7.1 SLOWLY OPEN valve SALW-V-926A (located in SALW-PNL-901A "INST AIR COMP ENCL").

5.1.7.2 SLOWLY OPEN valve SALW-V-901A (located in the bottom of SALW-PNL-902A "LEVEL INST ENCL").

5.1.7.3 ADJUST pressure control valve SALW-PCV-901A in SALW-PNL-902A "LEVEL INST ENCL" to 20 psi (± 2 psi) as **INDICATED** by the pressure gauge located on the face of the valve.

5.1.7.4 SLOWLY OPEN valve SALW-V-904A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

5.1.7.5 SLOWLY OPEN valve SALW-V-903A located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

5.1.7.6 SLOWLY OPEN valve SALW-V-905A (located in the bottom left of SALW-PNL-902A "LEVEL INST ENCL").

5.1.7.7 SLOWLY OPEN valve SALW-V-906A (located in the bottom left of SALW-PNL-902A "LEVEL INST ENCL").

5.1.7.8 SLOWLY OPEN valve SALW-V-907A (located in the bottom left of SALW-PNL-902A "LEVEL INST ENCL").

Document No.

WHC-SD-WM-ATR-171

Rev/Mod

0

Page

19

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.1.7.9 **SLOWLY OPEN** valve SALW-V-902A (located in the bottom left of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.1.7.10 **SLOWLY OPEN** valve SALW-V-920A (located in the middle left of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.1.7.11 **SLOWLY OPEN** valve SALW-V-921A (located in the middle left of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.1.7.12 **SLOWLY OPEN** valve SALW-V-919A (located in the middle left of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.1.8 **ADJUST** the air flow through the diptubes by **PERFORMING** the following:
- 5.1.8.1 **ADJUST** SALW-PDCV-902A "IA REG TO FIV-902A" (located in the top of SALW-PNL-902A "LEVEL INST ENCL") to APPROXIMATELY 1.5 CFH ($\pm$ 0.5 CFH) as **INDICATED** by SALW-FIV-902A. GM 3/18/96 ☒
TW 3/18/96
- 5.1.8.2 **ADJUST** SALW-PDCV-903A "IA REG TO FIV-903H" (located in the top of SALW-PNL-902A "LEVEL INST ENCL") to APPROXIMATELY 1.5 CFH ($\pm$ 0.5 CFH) as **INDICATED** by SALW-FIV-903A. GM 3/18/96 ☒
TW 3/18/96
- 5.1.8.3 **ADJUST** SALW-PDCV-904A "IA REG TO FIV-904H" (located in the top of SALW-PNL-902A "LEVEL INST ENCL") to APPROXIMATELY 1.5 CFH ($\pm$ 0.5 CFH) as **INDICATED** by SALW-FIV-904A. ☒
- 5.1.9 **CONFIRM** that a signal is present between the WFIE Instruments and the PLC by **PERFORMING** the following:
- 5.1.9.1 **VERIFY** Weight Factor is approximately 0.0" wg as **INDICATED** by DTAM. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.1.9.2 Verify Specific Gravity is approximately 0.0" wg as **INDICATED** by DTAM.

5.1.9.3 **VERIFY** Flow rate is approximately 0.0 GPM as **INDICATED** by DTAM.

5.1.10 Test Director **SHALL VERIFY** that section 5.1 is complete by signing below.

[Signature]
Test Director Signature

3/15/96
Date

5.1.11 QC Inspector **SHALL VERIFY** that section 5.1 is complete by signing below.

Crowe MATR
QC Inspector Signature

3/15/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.2 PICS WATER DRIP SYSTEM

- NOTE** - If Diptubes are not installed in test area, process air and drip water will be expelled from the side of the WFIE. Attach temporary portable hose from diptube outlet to high and medium diptubes in the bottom of the weight factor enclosure, (from valves SALW-V-905A and SALW-V-907A). Route the flexible hose to a suitable drain and secure.
- NOTE** - When adjusting pressure regulator SALW-PCV-905A, be careful not to APPROACH 25 psig or the SALW-PRV-901A relief valve will actuate and relieve the pressure.

5.2.1 **ACTUATE** in the Dip Tube Drip system by **PERFORMING** the following:

TW 3/15/96
GM 3/15/96

- 5.2.1.1 **SLOWLY OPEN** valve SALW-V-918A (located in the bottom right of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.2.1.2 **SLOWLY OPEN** valve SALW-V-916A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.2.1.3 **ADJUST** Pressure Regulator SALW-PCV-905A, located in the bottom of SALW-PNL-902A "LEVEL INST ENCL", to 20 psi (± 2 psig) as **INDICATED** by SALW-PI-901A in the middle of the WFIE. ☒
- 5.2.1.4 **SLOWLY OPEN** valve SALW-V-913A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.2.1.5 **SLOWLY OPEN** valve SALW-V-908A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL"). ☒
- 5.2.1.6 **SLOWLY OPEN** valve SALW-V-915A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL"). ☒

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	22

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.2.1.7 **SLOWLY OPEN** valve SALW-V-914A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

- 5.2.1.8 **ADJUST** valve SALW-V-914A to allow APPROXIMATELY 2 drops/second (± 1 drop/second) as **INDICATED** by sight glass SALW-FG-901A "SW TO LS SGT SEN LINE".

- 5.2.1.9 **ADJUST** valve SALW-V-915A to allow APPROXIMATELY 2 drops/second (± 1 drop/second) as **INDICATED** by sight glass SALW-FG-902A "SW FLOW TO HS SGT/LT SEN LINE".

NOTE - Instrument air to the DOV will remain valved in for testing in subsequent steps.

- 5.2.2 **VALVE OUT** the Diptube purge air and drip water by **PERFORMING** the following:

- 5.2.2.1 **SLOWLY CLOSE** valve SALW-V-925A (located in SALW-PNL-901A "INST AIR COMP ENCL").

- 5.2.2.2 **SLOWLY CLOSE** valve SALW-V-927A (located near the inside top of SALW-PNL-903A "WATER TANK ENCL").

- 5.2.2.3 **SLOWLY CLOSE** valve SALW-V-928A (located near the inside top of SALW-PNL-903A "WATER TANK ENCL").

- 5.2.2.4 **SLOWLY CLOSE** valve SALW-V-918A (located in the bottom of SALW-PNL-902A "LEVEL INST ENCL").

- 5.2.2.5 **SLOWLY CLOSE** valve SALW-V-916A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

- 5.2.2.6 **SLOWLY CLOSE** valve SALW-V-915A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

TANK FARM ACCEPTANCE TEST PROCEDURE

5.2 PICS WATER DRIP SYSTEM (continued)

5.2.2.7 SLOWLY CLOSE valve SALW-V-914A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

5.2.2.8 SLOWLY CLOSE valve SALW-V-913A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

5.2.2.9 SLOWLY CLOSE valve SALW-V-908A (located in the middle of SALW-PNL-902A "LEVEL INST ENCL").

5.2.2.10 SLOWLY CLOSE valve SALW-V-906A (located in the bottom of SALW-PNL-902A "LEVEL INST ENCL").

5.2.2.11 SLOWLY CLOSE valve SALW-V-905A (located in the bottom of SALW-PNL-902A "LEVEL INST ENCL").

5.2.2.12 SLOWLY CLOSE valve SALW-V-907A (located in the bottom of SALW-PNL-902A "LEVEL INST ENCL").

5.2.3 Test Director **SHALL VERIFY** that section 5.2 is complete by signing below.

R. Kern
Test Director Signature

3/15/96
Date

5.2.4 QC Inspector **SHALL VERIFY** that section 5.2 is complete by signing below.

George M. Maza
QC Inspector Signature

3/15/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.3 WEIGHT FACTOR AND SPECIFIC GRAVITY SYSTEM

NOTE - The test manometer will read the pressure as seen by the WFI or SGI.

5.3.1 **CONNECT** the 0-500" wg test Manometer pressure source to the HIGH PRESSURE INLET side of the WFI (labeled as SALW-LT-902A "SALT WELL LEVEL XMITTER").

5.3.2 **ENSURE** the WFI (labeled as SALW-LT-902A "SALT WELL LEVEL XMITTER") LOW PRESSURE SIDE is **OPEN** to the atmosphere.

5.3.3 **CLOSE** the WFI (labeled as SALW-LT-902A "SALT WELL LEVEL XMITTER") equalizing valve.

5.3.4 **CONNECT** the 0-20" wg test Manometer pressure source to the HIGH PRESSURE INLET side of the SGI (labeled as SALW-SGT-801H "SP GRAV XMITTER").

5.3.5 **ENSURE** the SGI (labeled as SALW-SGT-801H "SP GRAV XMITTER") LOW PRESSURE SIDE is **OPEN** to the atmosphere.

5.3.6 **CLOSE** the SGI (labeled as SALW-SGT-801H "SP GRAV XMITTER") equalizing valve.

5.3.7 **SET** the WFI test Manometer to 0" wg.

5.3.8 **SET** the SGI test Manometer to 0" wg.

TANK FARM ACCEPTANCE TEST PROCEDURE

5.3 WEIGHT FACTOR AND SPECIFIC GRAVITY SYSTEM (continued)

- 5.3.9 OBSERVE the DTAM AND RECORD the Weight Factor and Specific Gravity readings on the table below.

WEIGHT FACTOR READING (RANGE 0 ± 10 in wg)	SPECIFIC GRAVITY READING (RANGE 0 ± 0.1 in wg)
0	.05

- 5.3.10 SET the WFI test Manometer to 125" wg. ☒

- 5.3.11 SET the SGI test Manometer to 5" wg. ☒

- 5.3.12 OBSERVE the DTAM AND RECORD the Weight Factor and Specific Gravity readings on the table below.

WEIGHT FACTOR READING (RANGE 125 ± 10 in wg)	SPECIFIC GRAVITY READING (RANGE 5 ± 0.1 in wg)
125	5.08

- 5.3.13 SET the WFI test Manometer to 250" wg. ☒

- 5.3.14 SET the SGI test Manometer to 10" wg. ☒

- 5.3.15 OBSERVE the DTAM AND RECORD the Weight Factor and Specific Gravity readings on the table below.

WEIGHT FACTOR READING (RANGE 250 ± 10 in wg)	SPECIFIC GRAVITY READING (RANGE 10 ± 0.1 in wg)
250.1	10.08

TANK FARM ACCEPTANCE TEST PROCEDURE

5.3 WEIGHT FACTOR AND SPECIFIC GRAVITY SYSTEM (continued)

5.3.16 SET the WFI test Manometer to 375" wg.

5.3.17 SET the SGI test Manometer to 15" wg.

5.3.18 OBSERVE the DTAM AND RECORD the Weight Factor and Specific Gravity readings on the table below.

WEIGHT FACTOR READING (RANGE 375 ± 10 in wg)	SPECIFIC GRAVITY READING (RANGE 15 ± 0.1 in wg)
375.1	15.07

5.3.19 SET the WFI test Manometer to 500" wg.

5.3.20 SET the SGI test Manometer to 20" wg.

5.3.21 OBSERVE the DTAM AND RECORD the Weight Factor and Specific Gravity readings on the table below.

WEIGHT FACTOR READING (RANGE 500 ± 10 in wg)	SPECIFIC GRAVITY READING (RANGE 20 ± 0.1 in wg)
500.182 <i>on 4/5/96</i>	20

NOTE - The SGI (labeled as SALW-SGT-801H "SP GRAV XMITTER") test manometer will need to remain hooked up for subsequent test steps.

5.3.22 DISCONNECT the 0-500" test Manometer pressure source from the HIGH PRESSURE INLET side of the WFI (labeled as SALW-LT-902A "SALT WELL LEVEL XMITTER").

TANK FARM ACCEPTANCE TEST PROCEDURE

5.3 WEIGHT FACTOR AND SPECIFIC GRAVITY SYSTEM (continued)

- 5.3.23 ISOLATE the WFI (labeled as SALW-LT-902A "SALT WELL LEVEL XMITTER") by **OPENING** the WFI equalizing valve **AND CLOSING** the two (2) isolation valves (all three valves are located on the three valve manifold SALW-V-936A "LT-902A 3-VLV MANIF").

- 5.3.24 Test Director **SHALL VERIFY** that section 5.3 is complete by signing below.

[Signature]
Test Director Signature

2/5/96
Date

- 5.3.25 QC Inspector **SHALL VERIFY** that section 5.3 is complete by signing below.

GEORGE MATA
QC Inspector Signature

3/5/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.4 DOV AUTOMATIC AND MANUAL OPERATION

NOTE - This system is a Proportional Integral Derivative (PID) controller for controlling the liquid level in the saltwell screen. The SGI reads unadjusted liquid level once the middle diptube leg is uncovered by declining liquid levels. The system uses the signal from the SGI as the Process Variable. The controller compares the process variable to the setpoint and adjusts the DOV position accordingly (manipulated variable). The purpose of this test section is to verify that the DOV trend is toward achieving the setpoint while different process variables are simulated.

5.4.1 **ENSURE** the Saltwell Jumper and PICS is **CONFIGURED** for **AUTOMATIC** DOV level control by **PERFORMING** the following (Refer to Figures 3 and 4):

5.4.1.1 **SET** the SGI test Manometer to a pressure of 0" wg. ☒

5.4.1.2 **SET** the PID loop setpoint to seven (7) inches **USING** the DTAM. ☒

5.4.1.3 **ENSURE** that only alarms "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 13 SGT LOW" DTAM are **DISPLAYED** on the DTAM. ☒

5.4.1.4 **PLACE** the saltwell jumper JR-1 valve in the **PROCESS** position. ☒

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

5.4.1.6 **START** the Jet pump **USING** the DTAM. ☒

5.4.1.7 **SET** the SGI test Manometer to a pressure of 20" wg. ☒

*NOTE: Recirculation Process
NOT NEEDED*

*GM 3/15/96
RW 3/16/96*

*VERIFY JUMPERS IN AUTOMATIC
POSITION ON THIS*

TANK FARM ACCEPTANCE TEST PROCEDURE

5.4 DOV AUTOMATIC AND MANUAL OPERATION (continued)

- 5.4.1.8 **PLACE** the PID in the AUTO position **USING** the DTAM. ☒
- 5.4.1.9 **VERIFY** that the DOV moves to a more OPEN position. ☒
- 5.4.1.10 **SET** the SGI test Manometer to a pressure of 4" wg. ☒
- 5.4.1.11 **VERIFY** that the DOV moves to a more CLOSED position. ☒
- 5.4.2 **VERIFY** that the Saltwell Low Level alarm is functional by **PERFORMING** the following steps:
- 5.4.2.1 **SET** the SGI test Manometer to a pressure of 15" wg. ☒
- 5.4.2.2 **VERIFY** that the DOV is **NOT FULLY CLOSED** (DOV should be open somewhat to try to achieve the setpoint). ☒
- 5.4.2.3 **VERY SLOWLY DECREASE** the SGI test Manometer pressure. ☒
- 5.4.3 **WHEN** the SGI LOW (alarm 13 at DTAM) alarm has **ANNUNCIATED**, **RECORD** the following:

SGI MANOMETER READING (RANGE 3.5 ± 1.0 in wg)	DOV POSITION (% OPEN) [RANGE - FULLY CLOSED]	SALW-PI-905A PRESSURE (RANGE 3 ± 1.0 psig)
3.41	CLOSED	3

TANK FARM ACCEPTANCE TEST PROCEDURE

5.4 DOV AUTOMATIC AND MANUAL OPERATION (Continued)

5.4.4 VERIFY that the DTAM **DISPLAYS** "Alarm 13 SGI LOW".

5.4.3 VERIFY that the MANUAL CONTROL of the DOV is operational by **PERFORMING** the following steps:

5.4.4.1 SET the SGI test Manometer to a pressure of 15" wg.

5.4.4.2 SET the PID loop to MANUAL CONTROL **USING** the DTAM.

5.4.4.3 SET the DOV to 0% Open **USING** the manual control on the DTAM.

5.4.5 RECORD the following:

DOV POSITION (% OPEN) [RANGE - FULLY CLOSED]	SALW-PI-905A PRESSURE (RANGE 3 ± 1.0 psig)
0%	3

5.4.6 SET the DOV to 25% OPEN **USING** the manual control on the DTAM.

5.4.7 RECORD the following:

DOV POSITION (% OPEN) [RANGE: $25\% \pm 10\%$]	SALW-PI-905A PRESSURE (RANGE: 6 ± 1.0 psig)
25%	6

TANK FARM ACCEPTANCE TEST PROCEDURE

5.4 DOV AUTOMATIC AND MANUAL OPERATION (Continued)

5.4.8 SET the DOV to 75% OPEN USING the manual control on the DTAM.

5.4.9 RECORD the following:

DOV POSITION (% OPEN) [RANGE: 75% ± 10%]	SALW-PI-905A PRESSURE (RANGE: 12 ± 1.0 psig)
75% ⁹⁰	12

5.4.10 SET the DOV to 100% OPEN USING the manual control on the DTAM.

5.4.11 RECORD the following:

DOV POSITION (% OPEN) [RANGE: 100% ± 10%]	SALW-PI-905A PRESSURE RANGE: 15 ± 1.0 psig
100% ⁹⁰	15

5.4.12 VERY SLOWLY DECREASE the SGI test Manometer pressure while OBSERVING the DOV.

5.4.13 VERIFY that the DOV REMAINS FULLY OPEN while the SGI Manometer is DECREASED UNTIL the "SGI LOW" alarm (DTAM alarm 13) ANNUNCIATES.

5.4.14 VERIFY that the DOV IMMEDIATELY CLOSES WHEN the "SGI LOW" alarm (DTAM alarm 13) ANNUNCIATES.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	32

TANK FARM ACCEPTANCE TEST PROCEDURE

5.4 DOV AUTOMATIC AND MANUAL OPERATION (Continued)

5.4.15 **SHUTDOWN** the Jet pump with the DTAM.

5.4.16 Test Director **SHALL VERIFY** that section 5.4 is complete by signing below.

R. Kelly
Test Director Signature

3/15/96
Date

5.4.17 QC Inspector **SHALL VERIFY** that section 5.4 is complete by signing below.

GEORGE MATA
QC Inspector Signature

3/15/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.5 JET PUMP FLOWMETER OPERATION

5.5.1 **ENSURE** that the Saltwell Jumper Flow Element is communicating properly with the FQIT and DTAM by **PERFORMING** the following:

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

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

5.5.1.3 **ENSURE** test manometer is still attached to the SGI **AND SET** to 15" wg.

5.5.1.4 **ENSURE** a rotameter has been installed in series with the jumper flow element as part of the Jumper Test Assembly (see Figures 3 and 4).

5.5.1.5 **SET** the DOV to 0% Open **USING** the manual control on the DTAM.

5.5.1.6 **ENSURE** Jet pump Jumper Valve JR-2 is **CLOSED**.

5.5.1.7 **START** the Jet pump **USING** the DTAM.

5.5.1.8 **SET** the manual DOV control to **OBTAIN** a flowrate of **APPROXIMATELY** 1 GPM through the jumper.

5.5.1.9 **VERIFY** a flowrate of **APPROXIMATELY** 1 GPM through the jumper is **INDICATED** by the test flowmeter.

TANK FARM ACCEPTANCE TEST PROCEDURE

5.5.2 RECORD the following:

CM 3/15/96
TW 3/15/96
* Brooks

DTAM MANUAL CONTROL DOV POSITION (%)	DOV POSITION (% OPEN)	TEST FLOWMETER FLOWRATE (GPM)	JOHNSON YOKOGAWA FQIT FLOWRATE (GPM)	DTAM FLOWRATE (GPM)
3590	6090	1	.96	.95

5.5.3 VERIFY that Test Flowmeter flowrate and ~~Johnson Yokogawa~~ FQIT flowrate are WITHIN ± 0.4 GPM

5.5.4 VERIFY that the DTAM flowrate (from the FQIT) and ~~Johnson Yokogawa~~ FQIT flowrate are WITHIN ± 0.4 GPM.

5.5.5 SET the manual DOV control to OBTAIN a flowrate of APPROXIMATELY 2.5 GPM through the jumper.

5.5.6 VERIFY a flowrate of APPROXIMATELY 2.5 GPM through the jumper is INDICATED by the test flowmeter.

5.5.7 RECORD the following:

DTAM MANUAL CONTROL DOV POSITION (%)	DOV POSITION (% OPEN)	TEST FLOWMETER FLOWRATE (GPM)	* JOHNSON YOKOGAWA FQIT FLOWRATE (GPM)	DTAM FLOWRATE (GPM)
CM 2330 4590	9590	2.5	2.52	2.53

Document No.

WHC-SD-WM-ATR-171

Rev/Mod

0

Page

35

TANK FARM ACCEPTANCE TEST PROCEDURE

5.5 JET PUMP FLOWMETER OPERATION (continued)

5.5.8 VERIFY that Test Flowmeter flowrate and ~~Johnson~~^{*} ~~Yokogawa~~ FQIT flowrate are WITHIN ± 0.4 GPM

5.5.9 VERIFY that the DTAM flowrate (from the FQIT) and ~~Johnson~~^{*} ~~Yokogawa~~ FQIT flowrate are WITHIN ± 0.4 GPM.

NOTE - If 4.0 gpm is not obtainable, open DOV fully (100%).

5.5.10 SET the manual DOV control to OBTAIN a flowrate of APPROXIMATELY 4.0 GPM through the jumper.

5.5.11 VERIFY a flowrate of APPROXIMATELY 4.0 GPM through the jumper is INDICATED by the test flowmeter.

5.5.12 RECORD the following:

DTAM MANUAL CONTROL DOV POSITION (%)	DOV POSITION (% OPEN)	TEST FLOWMETER FLOWRATE (GPM)	JOHNSON [*] YOKOGAWA FQIT FLOWRATE (GPM)	DTAM FLOWRATE (GPM)
100%	100%	3.0	3.04	3.01

5.5.13 VERIFY that Test Flowmeter flowrate and ~~Johnson~~^{*} ~~Yokogawa~~ FQIT flowrate are WITHIN ± 0.4 GPM

5.5.14 VERIFY that the DTAM flowrate (from the FQIT) and ~~Johnson~~^{*} ~~Yokogawa~~ FQIT flowrate are WITHIN ± 0.4 GPM.

5.5.15 CLOSE the DOV (to 0%) USING the manual DOV control.

TANK FARM ACCEPTANCE TEST PROCEDURE

5.5 JET PUMP FLOWMETER OPERATION (continued)

5.5.16 RECORD the following:

DTAM MANUAL CONTROL DOV POSITION (%)	DOV POSITION (% OPEN)	TEST FLOWMETER FLOWRATE (GPM)	[*] JOHNSON YOKOGAWA FQIT FLOWRATE (GPM)	DTAM FLOWRATE (GPM)
090	CLOSED	2	0	0

5.5.17 VERIFY that Test Flowmeter flowrate and ^{*}~~Johnson-Yokogawa~~ flowrate are WITHIN ± 0.4 GPM ☒

5.5.18 VERIFY that the DTAM flowrate (from the FQIT) and ^{*}~~Johnson-Yokogawa~~ FQIT flowrate are WITHIN ± 0.4 GPM. ☒

5.5.19 REMOVE the test manometer from the SGI. ☒

5.5.20 ISOLATE the SGI (labeled as SALW-SGT-801H "SP GRAV XMITTER") from the system by OPENING the equalization valve AND CLOSING the two (2) isolation valves (all three valves are located on the SGI three valve manifold SALW-V-935A "SGI-901A 3-VLV MANIF"). ☒

5.5.21 SHUTDOWN the Jet pump at the DTAM. ☒

5.5.22 Test Director SHALL VERIFY that section 5.5 is complete by signing below.

RTen
Test Director Signature

3/15/96
Date

5.5.23 QC Inspector SHALL VERIFY that section 5.5 is complete by signing below.

GEORGE LATA
QC Inspector Signature

3/15/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.6 WATER TANK LEVEL TRANSMITTER

- 5.6.1 **VERIFY** the Water Tank Level Transmitter SALW-LT-903A "WTR TK-901A LEVEL XMITTER" is configured for operation by **PERFORMING** the following:

5.6.1.1 **SLOWLY OPEN** valve SALW-V-929A "LT-903A HS ISO VLV" (located in the bottom of SALW-PLN-903A "WATER TANK ENCL"). ☐

5.6.1.2 **SLOWLY OPEN** valve SALW-V-931A "LT-903A LS ISO VLV" (located in the bottom of SALW-PLN-903A "WATER TANK ENCL"). ☐

- 5.6.2 **RECORD** the DTAM Water Level Transmitter reading on the table below.

DTAM WATER LEVEL TRANSMITTER READING (IN)

- 5.6.2 **PREPARE** the Water Tank Level Transmitter SALW-LT-903A "WTR TK-901A LEVEL XMITTER" for test signals by **PERFORMING** the following:

5.6.2.1 **CLOSE** valve SALW-V-929A "LT-903A HS ISO VLV" (located in the bottom of SALW-PLN-903A "WATER TANK ENCL"). ☒

5.6.2.2 **CLOSE** valve SALW-V-931A "LT-903A LS ISO VLV" (located in the bottom of SALW-PLN-903A "WATER TANK ENCL"). ☒

- 5.6.3 **CONNECT** a 0-50" wg test Manometer pressure source to the HIGH PRESSURE vent/test port of the level transmitter SALW-LT-903A "WTR TK-901A LEVEL XMITTER" . ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.6.4 **VERIFY** the LOW PRESSURE vent/test port of the level transmitter SALW-LT-903A "WTR TK-901A LEVEL XMITTER" is **OPEN** to the atmosphere. ☒

- 5.6.5 **ADJUST** the test manometer the SALW-LT-903A "WTR TK-901A LEVEL XMITTER" to a pressure of 0" wg. ☒

- 5.6.6 **RECORD** the following:

MANOMETER PRESSURE (in wg)	DTAM WATER TANK LEVEL (RANGE: 0 ± 2.5 in)	DTAM "PIN WATER TANK LOW" ALARM PRESENT (YES/NO)
0	2	YES

- 5.6.7 **ADJUST** the test manometer on the SALW-LT-903A "WTR TK-901A LEVEL XMITTER" to a pressure of 25" wg. ☒

- 5.6.8 **RECORD** the following:

MANOMETER PRESSURE (in wg)	DTAM WATER TANK LEVEL (RANGE: 25 ± 2.5 in)	DTAM "PIN WATER TANK LOW" ALARM PRESENT (YES/NO)
25	25	NO

- 5.6.9 **ADJUST** the test manometer on the SALW-LT-903A "WTR TK-901A LEVEL XMITTER" to a pressure of 50" wg. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.6 WATER TANK LEVEL TRANSMITTER (continued)

5.6.10 RECORD the following:

MANOMETER PRESSURE (in wg)	DTAM WATER TANK LEVEL (RANGE: 50 ± 2.5 in)
50	50

NOTE - Alarm 9 trips at 10 inches and resets at 12.5 inches.

5.6.11 **VERIFY** the PICS Water Tank Low Level Alarm (Alarm 9) is **FUNCTIONAL** by **PERFORMING** the following:

5.6.11.1 **SLOWLY DECREASE** the test manometer until the DTAM "Alarm 9 PIC Water Tank LOW" (Water Tank Low Level Alarm) **ANNUNCIATES**.

5.6.11.2 **WHEN** the Water Tank Low Level Alarm **ANNUNCIATES**, **IMMEDIATELY RECORD** the test manometer reading on the table below.

TEST MANOMETER READING [RANGE: 10 ± 2 in wg]
8.05

5.6.12 **IF** Alarm 9 **DOES NOT ANNUNCIATE**, **RESET** the trip setpoint and **REPEAT** all of step 5.6.11.

5.6.13 **ADJUST** the test manometer on the SALW-LT-903A "WTR TK-901A LEVEL XMITTER" to a pressure of 12.5" wg.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	40

TANK FARM ACCEPTANCE TEST PROCEDURE

5.6 WATER TANK LEVEL TRANSMITTER (continued)

5.6.14 **RECORD** the following:

MANOMETER PRESSURE (in wg)	DTAM WATER TANK LEVEL (RANGE: 12.5 ± 2.5 in)	DTAM "PIN WATER TANK LOW" ALARM PRESENT (YES/NO)
11.30	12	NO

5.6.15 **REMOVE** the test manometer from the SALW-LT-903A "WTR TK-901A LEVEL XMITTER" HIGH PRESSURE vent/test port. ☒

5.6.16 **RESTORE** the Water Tank Level Transmitter SALW-LT-903A "WTR TK-901A LEVEL XMITTER" for test signals by **PERFORMING** the following:

5.6.16.1 **OPEN** valve SALW-V-929A "LT-903A HS ISO VLV" (located in the bottom of the water tank enclosure). ☒

5.6.16.2 **OPEN** valve SALW-V-931A "LT-903A LS ISO VLV" (located in the bottom of the water tank enclosure). ☒

GW 3/18/96
TW

5.6.2 DTAM WATER TANK LEVEL TRANSMITTER RECORD

30 (in) ☒

5.6.17 Test Director **SHALL VERIFY** that section 5.6 is complete by signing below.

[Signature]
Test Director Signature

3/18/96
Date

5.6.18 QC Inspector **SHALL VERIFY** that section 5.6 is complete by signing below.

GEORGE MATA
QC Inspector Signature

3/18/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.7 JET PUMP HEAT TRACE AND INSTRUMENT TEMPERATURE

- 5.7.1 **CONNECT** the 120V switched input to terminals 7 through 14 of the phoenix connector (located in the Interconnect Enclosure). ☒
- 5.7.2 **USING** the DTAM, **TURN ON** the heat trace for the jet pump jumper. ☒
- 5.7.3 **VERIFY** that the appropriate 120 V switched input indicator light is **ILLUMINATED**. ☒
- 5.7.4 **USING** the DTAM, **TURN ON** the heat trace for the dip tubes. ☒
- 5.7.5 **VERIFY** that the appropriate 120 V switched input indicator light is **ILLUMINATED**. ☒
- 5.7.6 **USING** the DTAM, **TURN OFF** the heat trace for the jet pump jumper. ☒
- 5.7.7 **VERIFY** that the appropriate 120 V switched input indicator light is **NOT ILLUMINATED**. ☒
- 5.7.8 **USING** the DTAM, **TURN OFF** the heat trace for the dip tubes. ☒
- 5.7.9 **VERIFY** that the appropriate 120 V switched input indicator light is **NOT ILLUMINATED**. ☒
- 5.7.10 **USING** the DTAM, **TURN ON** the heat trace for the jet pump jumper. ☒
- 5.7.11 **USING** the DTAM, **TURN ON** the heat trace for the dip tubes. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.7.12 Test Director **SHALL VERIFY** that section 5.7 is complete by signing below.

Test Director Signature

3/15/96
Date

- 5.7.13 QC Inspector **SHALL VERIFY** that section 5.7 is complete by signing below.

George Math
QC Inspector Signature

3/15/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS

- 5.8.1 **PLACE** the saltwell jumper JR-1 valve in the **PROCESS** position. ☒
- 5.8.2 **ENSURE** the pump recirculation apparatus is filled with water **AND CONFIGURED** to circulate water through the saltwell Jet pump. ☒
- 5.8.3 **VERIFY** no DTAM alarms are **PRESENT** with the exception of alarms 12 & 13. ☒
- 5.8.4 **START** the Jet pump **USING** the DTAM. ☒

WARNING

Energized circuits and leads are contained inside the cabinet.
Observe appropriate electrical precautions.

- 5.8.5 **ENSURE** the 120V switched input is **STILL** connected to terminals 7 through 14 of the phoenix connector (located in the Interconnect Enclosure). ☒
- 5.8.6 **SIMULATE** a FGM #1 alarm condition by **TOGGING AND HOLDING** the corresponding 120V switched input switch. ☒
- 5.8.7 **VERIFY** light is **NOT ILLUMINATED** on PLC module 5 input 6 (the FGM-1 input) located in the Interconnect Enclosure). ☒
- 5.8.8 **VERIFY** strobe is **FLASHING**. ☒
- 5.8.9 **VERIFY** horn is **SOUNDING**. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.8.10 **VERIFY** jet pump is **SHUTDOWN**. ☒

- 5.8.11 **USING** the DTAM, **VERIFY** the heat trace for the jet pump jumper is **OFF**. ☒

- 5.8.12 **USING** the DTAM, **VERIFY** the heat trace for the dip tubes is **OFF**. ☒

- 5.8.13 **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" is **DISPLAYED** on the DTAM. ☒

- 5.8.14 **ACKNOWLEDGE** the alarm by **PRESSING** "Y". ☒

- 5.8.15 **VERIFY** strobe is **NOT FLASHING**. ☒

- 5.8.16 **ACKNOWLEDGE** the alarm by **PRESSING** "Y". ☒

- 5.8.17 **VERIFY** "Alarm 18 Saltwell FGM HIGH" is **STILL DISPLAYED** on the DTAM. ☒

- 5.8.18 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 18 Saltwell FGM HIGH" are displayed as **IN ALARM**. ☒

- 5.8.19 **RELEASE** the corresponding FGM #1 120V switched input switch. ☒

*Turn on TW 3/18/96
 CM 3/18/96*

- 5.8.20 **USING** the DTAM, **VERIFY** the heat trace for the jet pump. ☒

*Turn on TW 3/18/96
 CM 3/18/96*

- 5.8.21 **USING** the DTAM, **VERIFY** the heat trace for the dip tubes is **ON**. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

5.8.22 USING the DTAM's Main Menu, VERIFY "Alarm 18 Saltwell FGM HIGH" has CLEARED.

NOTE - When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.

5.8.23 RESTART the Jet pump USING the DTAM.

5.8.24 SIMULATE a FGM #2 alarm condition by TOGGING AND HOLDING the corresponding 120V switched input switch.

5.8.25 VERIFY light is NOT ILLUMINATED on PLC module 5 input 7 (the FGM-2 input) located in the Interconnect Enclosure).

5.8.26 VERIFY strobe is FLASHING.

5.8.27 VERIFY horn is SOUNDING.

5.8.28 VERIFY jet pump is SHUTDOWN.

5.8.29 USING the DTAM, VERIFY the heat trace for the jet pump jumper is OFF.

5.8.30 USING the DTAM, VERIFY the heat trace for the dip tubes is OFF.

5.8.31 VERIFY "Alarm 12 JET PUMP SHUTDOWN" is DISPLAYED on the DTAM.

5.8.32 ACKNOWLEDGE the alarm by PRESSING "Y".

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

- 5.8.33 VERIFY strobe is **NOT FLASHING**. ☒
- 5.8.34 VERIFY horn is **OFF**. ☒
- 5.8.35 VERIFY "Alarm 19 Pump Pit FGM HIGH" is **DISPLAYED** on the DTAM. ☒
- 5.8.36 **ACKNOWLEDGE** the alarm by **PRESSING "Y"**. ☒
- 5.8.37 USING the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 19 Pump Pit FGM HIGH" are displayed as **IN ALARM**. ☒
- 5.8.38 **RELEASE** the corresponding FGM #2 120V switched input switch. ☒
- 5.8.39 USING the DTAM, *Turn on TW 3/18/96*
on 3/18/96 **VERIFY** the heat trace for the jet pump. ~~jumper is ON~~. ☒
- 5.8.40 USING the DTAM, *Turn on SW 3/18/96*
on 3/18/96 **VERIFY** the heat trace for the dip tubes. is **ON**. ☒
- 5.8.41 USING the DTAM's Main Menu, **VERIFY** "Alarm 19 Pump Pit FGM HIGH" has **CLEARED**. ☒
- NOTE** - When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.
- 5.8.42 **RESTART** the Jet pump **USING** the DTAM. ☒
- 5.8.43 **SIMULATE** a MTC alarm condition by **TOGGING AND HOLDING** the corresponding 120V switched input switch. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

- 5.8.44 VERIFY light is **NOT ILLUMINATED** on PLC module 5 input 8 (the MTC input) located in the Interconnect Enclosure). ☒
- 5.8.45 VERIFY strobe is **FLASHING**. ☒
- 5.8.46 VERIFY horn is **SOUNDING**. ☒
- 5.8.47 VERIFY jet pump is **SHUTDOWN**. ☒
- 5.8.48 VERIFY "Alarm 12 JET PUMP SHUTDOWN" is **DISPLAYED** on the DTAM. ☒
- 5.8.49 **ACKNOWLEDGE** the alarm by **PRESSING "Y"**. ☒
- 5.8.50 VERIFY strobe is **NOT FLASHING**. ☒
- 5.8.51 VERIFY horn is **OFF**. ☒
- 5.8.52 VERIFY "Alarm 20 MOTOR TEMPERATURE CUTOUT" is **DISPLAYED** on the DTAM. ☒
- 5.8.53 **ACKNOWLEDGE** the alarm by **PRESSING "Y"**. ☒
- 5.8.54 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 20 MOTOR TEMPERATURE CUTOUT" are displayed as **IN ALARM**. ☒
- 5.8.55 **RELEASE** the corresponding MTC 120V switched input switch. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

5.8.56 USING the DTAM's Main Menu, **VERIFY** "Alarm 20 MOTOR TEMPERATURE CUTOUT" has **CLEARED**.

NOTE - When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.

5.8.57 **RESTART** the Jet pump **USING** the DTAM.

5.8.58 **SIMULATE** a tank AN-101 alarm condition by **TOGGING AND HOLDING** the corresponding 120V switched input switch.

5.8.59 **VERIFY** light is **NOT ILLUMINATED** on PLC module 5 input 9 (the COMBINED AN-101 INTERLOCK input) located in the Interconnect Enclosure).

5.8.60 **VERIFY** strobe is **FLASHING**.

5.8.61 **VERIFY** horn is **SOUNDING**.

5.8.62 **VERIFY** jet pump is **SHUTDOWN**.

5.8.63 **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" is **DISPLAYED** on the DTAM.

5.8.64 **ACKNOWLEDGE** the alarm by **PRESSING** "Y".

5.8.65 **VERIFY** strobe is **NOT FLASHING**.

5.8.66 **VERIFY** horn is **OFF**.

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

- 5.8.67 **VERIFY** "Alarm 21 COMBINED AN-101 INTERLOCK" is **DISPLAYED** on the DTAM. ☒
- 5.8.68 **ACKNOWLEDGE** the alarm by **PRESSING** "Y". ☒
- 5.8.69 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 21 COMBINED AN-101 INTERLOCK" are displayed as **IN ALARM**. ☒
- 5.8.70 **RELEASE** the corresponding AN-101 interlock 120V switched input switch. ☒
- 5.8.71 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 21 COMBINED AN-101 INTERLOCK" has **CLEARED**. ☒
- NOTE** - When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.
- 5.8.72 **RESTART** the Jet pump **USING** the DTAM. ☒
- 5.8.73 **SIMULATE** an A/AX valve pits and/or clean out boxes alarm condition by **TOGGING AND HOLDING** the corresponding 120V switched input switch. ☒
- 5.8.74 **VERIFY** light is **NOT ILLUMINATED** on PLC module 5 input 10 (the COMBINED A/AX VALVE PIT COB LEAK input) located in the Interconnect Enclosure). ☒
- 5.8.75 **VERIFY** strobe is **FLASHING**. ☒
- 5.8.76 **VERIFY** horn is **SOUNDING**. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

- 5.8.77 **VERIFY** jet pump is **SHUTDOWN**. ☒
- 5.8.78 **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" is **DISPLAYED** on the DTAM. ☒
- 5.8.79 **ACKNOWLEDGE** the alarm by **PRESSING** "Y". ☒
- 5.8.80 **VERIFY** strobe is **NOT FLASHING**. ☒
- 5.8.81 **VERIFY** horn is **OFF**. ☒
- 5.8.82 **ACKNOWLEDGE** the alarm by **PRESSING** "Y". ☒
- 5.8.83 **VERIFY** "Alarm 22 COMBINED A/AX VALVE PIT COB LEAK" is **STILL DISPLAYED** on the DTAM. ☒
- 5.8.84 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 22 COMBINED A/AX VALVE PIT COB LEAK" are displayed as **IN ALARM**. ☒
- 5.8.85 **RELEASE** the corresponding A/AX valve pits and/or clean out boxes 120V switched input switch. ☒
- 5.8.86 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 22 COMBINED A/AX VALVE PIT COB LEAK" has **CLEARED**. ☒
- NOTE** - When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.
- 5.8.87 **RESTART** the Jet pump **USING** the DTAM. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

- 5.8.88 **SIMULATE** a manual master shutdown trip condition by **TOGGING AND HOLDING** the corresponding 120V switched input switch. ☒
- 5.8.89 **VERIFY** light is **NOT ILLUMINATED** on PLC module 5 input 11 (the manual master shutdown input) located in the Interconnect Enclosure). ☒
- 5.8.90 **VERIFY** strobe is **FLASHING**. ☒
- 5.8.91 **VERIFY** horn is **SOUNDING**. ☒
- 5.8.92 **VERIFY** jet pump is **SHUTDOWN**. ☒
- 5.8.93 **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" is **DISPLAYED** on the DTAM. ☒
- 5.8.94 **ACKNOWLEDGE** the alarm by **PRESSING "Y"**. ☒
- 5.8.95 **VERIFY** strobe is **NOT FLASHING**. ☒
- 5.8.96 **VERIFY** horn is **OFF**. ☒
- 5.8.97 **VERIFY** "Alarm 23 MANUAL MASTER SHUTDOWN" is **DISPLAYED** on the DTAM. ☒
- 5.8.98 **ACKNOWLEDGE** the alarm by **PRESSING "Y"**. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

5.8.99 USING the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 23 MANUAL MASTER SHUTDOWN" are displayed as **IN ALARM**.

5.8.100 **RELEASE** the corresponding manual master shutdown 120V switched input switch.

5.8.101 USING the DTAM's Main Menu, **VERIFY** "Alarm 23 MANUAL MASTER SHUTDOWN" has **CLEARED**.

NOTE - When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.

5.8.102 **RESTART** the Jet pump **USING** the DTAM.

5.8.103 **SIMULATE** a dome pressure #1 alarm condition by **TOGGING AND HOLDING** the corresponding 120V switched input switch.

5.8.104 **VERIFY** light is **NOT ILLUMINATED** on PLC module 5 input 12 (the dome pressure #1 input) located in the Interconnect Enclosure).

5.8.105 **VERIFY** strobe is **FLASHING**.

5.8.106 **VERIFY** horn is **SOUNDING**.

5.8.107 **VERIFY** jet pump is **SHUTDOWN**.

5.8.108 **USING** the DTAM, **VERIFY** the heat trace for the jet pump jumper is **OFF**.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	53

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

- 5.8.109 USING the DTAM, **VERIFY** the heat trace for the dip tubes is **OFF**. ☒

- 5.8.110 **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" is **DISPLAYED** on the DTAM. ☒

- 5.8.111 **ACKNOWLEDGE** the alarm by **PRESSING** "Y". ☒

- 5.8.112 **VERIFY** strobe is **NOT FLASHING**. ☒

- 5.8.113 **VERIFY** horn is **OFF**. ☒

- 5.8.114 **VERIFY** "Alarm 24 DOME PRESSURE #1 HIGH" is **DISPLAYED** on the DTAM. ☒

- 5.8.115 **ACKNOWLEDGE** the alarm by **PRESSING** "Y". ☒

- 5.8.116 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 24 DOME PRESSURE #1 HIGH" are displayed as **IN ALARM**. ☒

- 5.8.117 **RELEASE** the corresponding dome pressure #1 120V switched input switch.

TW 3/18/96

TURN ON ON 3/18/96

☒

- 5.8.118 **USING** the DTAM, **VERIFY** the heat trace for the jet pump jumper is **ON**.

TW 3/18/96

TURN ON ON 3/18/96

☒

- 5.8.119 **USING** the DTAM, **VERIFY** the heat trace for the dip tubes is **ON**. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

- 5.8.120 **USING** the DTAM's Main Menu, **VERIFY** "Alarm 24 DOME PRESSURE #1 HIGH" has **CLEARED**.

NOTE - When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.

- 5.8.121 **RESTART** the Jet pump **USING** the DTAM.

- 5.8.122 **SIMULATE** a dome pressure #2 alarm condition by **TOGGING AND HOLDING** the corresponding 120V switched input switch.

- 5.8.123 **VERIFY** light is **NOT ILLUMINATED** on PLC module 5 input 13 (the dome pressure #2 input) located in the Interconnect Enclosure).

- 5.8.124 **VERIFY** strobe is **FLASHING**.

- 5.8.125 **VERIFY** horn is **SOUNDING**.

- 5.8.126 **VERIFY** jet pump is **SHUTDOWN**.

- 5.8.127 **USING** the DTAM, **VERIFY** the heat trace for the jet pump jumper is **OFF**.

- 5.8.128 **USING** the DTAM, **VERIFY** the heat trace for the dip tubes is **OFF**.

- 5.8.129 **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" is **DISPLAYED** on the DTAM.

- 5.8.130 **ACKNOWLEDGE** the alarm by **PRESSING** "Y".

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	55

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

5.8.131 VERIFY strobe is **NOT FLASHING**.

5.8.132 VERIFY horn is **OFF**.

5.8.133 VERIFY "Alarm 25 DOME PRESSURE #2 HIGH" is **DISPLAYED** on the DTAM.

5.8.134 **ACKNOWLEDGE** the alarm by **PRESSING "Y"**.

5.8.135 USING the DTAM's Main Menu, **VERIFY** "Alarm 12 JET PUMP SHUTDOWN" and "Alarm 25 DOME PRESSURE #2 HIGH" are displayed as **IN ALARM**.

5.8.136 **RELEASE** the corresponding dome pressure #2 120V switched input switch.

Cam 3/15/90
TW

~~* 5.8.137 USING the DTAM, VERIFY the heat trace for the jet pump jumper is ON.~~

~~* 5.8.138 USING the DTAM, VERIFY the heat trace for the dip tubes is ON.~~

5.8.139 USING the DTAM's Main Menu, **VERIFY** "Alarm 25 DOME PRESSURE #2 HIGH" has **CLEARED**.

~~* **NOTE** When the jet pump is restarted the "Alarm 12 JET PUMP SHUTDOWN" will automatically clear.~~

~~* 5.8.140 **RESTART** the Jet pump **USING** the DTAM.~~

Document No.

WHC-SD-WM-ATR-171

Rev/Mod

0

Page

56

TANK FARM ACCEPTANCE TEST PROCEDURE

5.8 INTERLOCKS (continued)

WARNING

Energized circuits and leads are contained inside the cabinet.
Observe appropriate electrical precautions.

- *5.8.141 ~~DISCONNECT~~ the 120V switched input from terminals 7 through 14 of the phoenix connector (located in the Interconnect Enclosure).

- 5.8.142 Test Director **SHALL VERIFY** that section 5.8 is complete by signing below.

Rich Kewey per Telbourn, T42
Test Director Signature 3/18/96

3/18/96
Date

- 5.8.143 QC Inspector **SHALL VERIFY** that section 5.8 is complete by signing below.

GEORGE MATA
QC Inspector Signature

3/15/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

5.9 JET PUMP VALVING INTERLOCK

5.9.1 **PLACE** the AX-101 saltwell jumper JR-1 valve in the **PROCESS** position.

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

5.9.3 **VERIFY** no alarms are **ANNUNCIATING** at the DTAM.

5.9.4 **START** the A-101 jet pump **USING** the DTAM.

5.9.5 **START** the AX-101 jet pump **USING** the DTAM.

5.9.6 **PLACE** the AX-101 JR-1 Valve on the Jet Pump Jumper in the **PRIME** position.

5.9.7 **VERIFY** the following:

5.9.7.1 AX-101 jet Pump **IMMEDIATELY SHUTS DOWN**.

5.9.7.2 A-101 jet Pump **CONTINUES TO OPERATE**.

5.9.7.3 "ALARM 5 JR-1 Position NOT PROCESS" is **DISPLAYED** at DTAM.

5.9.7.4 "ALARM 12 JET PUMP SHUTDOWN" is **DISPLAYED** at the DTAM.

5.9.8 **PLACE** the AX-101 JR-1 Valve on the Jet Pump Jumper in the **PROCESS** position.

Document No.	Rev/Mod	Page
WHC-SD-WM-ATR-171	0	58

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.9.9 **RESTART** the AX-101 Jet pump **USING** the DTAM. ☒

- 5.9.10 **PLACE** the AX-101 JR-1 Valve on the Jet Pump Jumper in the FLUSH position. ☒

- 5.9.11 **VERIFY** the following:
 - 5.9.11.1 A-101 jet Pump **IMMEDIATELY SHUTS DOWN**. ☒
 - 5.9.11.2 AX-101 jet Pump **IMMEDIATELY SHUTS DOWN**. ☒
 - 5.9.11.3 A-101 jet Pump **CAN NOT** be **RESTARTED** at the power enclosure with JR-1 in the FLUSH position. ☒
 - 5.9.11.4 AX-101 jet Pump **CAN NOT** be **RESTARTED** at the power enclosure with JR-1 in the FLUSH position. ☒
 - 5.9.11.5 "ALARM 5 JR-1 Position NOT PROCESS" is **DISPLAYED** at AX-101 DTAM. ☒
 - 5.9.11.6 "ALARM 12 JET PUMP SHUTDOWN" is **DISPLAYED** at the AX-101 DTAM. ☒

- TW 3/18/96*
GM 3/18/96

JR-1 in process position

☒

- 5.9.12 **RESTART** the A-101 Jet pump **USING** the DTAM. ☒

- 5.9.13 **RESTART** the AX-101 Jet pump **USING** the DTAM. ☒

- 5.9.14 **SHUTDOWN** the AX-101 jet pump **USING** the DTAM. ☒

- 5.9.15 **WAIT** APPROXIMATELY thirty (30) minutes, **VERIFY** the A-101 jet pump **SHUTS DOWN**. ☒

TANK FARM ACCEPTANCE TEST PROCEDURE

- 5.9.16 Test Director **SHALL VERIFY** that section 5.9 is complete by signing below.

[Signature]
Test Director Signature

2/15/96
Date

- 5.9.17 QC Inspector **SHALL VERIFY** that section 5.9 is complete by signing below.

GEORGE MATIN
QC Inspector Signature

3/3/96
Date

TANK FARM ACCEPTANCE TEST PROCEDURE

FIGURE 1: FLOW DIAGRAM INSTRUMENT AIR AND WATER SYSTEMS

TANK FARM ACCEPTANCE TEST PROCEDURE

FIGURE 2: WEIGHT FACTOR INSTRUMENT ENCLOSURE FLOW SHEET

TANK FARM ACCEPTANCE TEST PROCEDURE

FIGURE 3: JUMPER TEST ASSEMBLY

TANK FARM ACCEPTANCE TEST PROCEDURE

FIGURE 4: JET PUMP JUMPER TEST CONNECTIONS

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION LOG

This page may be reproduced as necessary

PAGE _____ of _____

ATP EXCEPTION LOG		
Number	Date	Description
1	3/18/96	WRONG Suffix on VALVE Numbers in Steps 5.1.8.1 & 5.1.8.2
2	3/18/96	WRONG Sequence on Steps 5.2.1.1 & 5.2.1.2
3	3/18/96	USED A Different Flowmeter
4	3/18/96	Delete EXTRA Steps moved Step 5.6.2
5	3/18/96	Change "Verify" to TURN ON in section 5.8
6	3/18/96	Delete Steps 5.8.137, 5.8.138, 5.8.140, & 5.8.141
7	3/18/96	ADD Step After 5.9.11 to OPEN JR-1 VALVE to Process Position

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION RECORD

This page may be reproduced as necessary.

ATP step number: <u>5.1.8.1 & 5.1.8.2</u>	ATP Exception Log Number <u>1</u>
Description of Exception: <u>Valves in Nameplate</u>	
<u>description have wrong suffix.</u>	
Resolution of Exception: <u>CORRECTED suffix from</u>	
<u>"H" to "A."</u>	
Date of Resolution:	<u>3/18/96</u>
Test Director signature: <u>[Signature]</u>	<u>[Signature]</u>
Cognizant Engineer signature:	<u>[Signature]</u>
Quality Assurance signature:	<u>[Signature]</u>
Tank Farm Operations signature:	<u>[Signature]</u> <u>3/19/96</u>

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION RECORD

This page may be reproduced as necessary.

ATP step number: S.2.1.1; S.2.1.2	ATP Exception Log Number 2
Description of Exception: Step S.2.1.2 should be performed before S.2.1.1 to provide pressure indication prior to pressurizing water to the DIP tubes	
Resolution of Exception: Perform Step S.2.1.2 before S.2.1.1	
Date of Resolution:	
Test Director signature:	
Cognizant Engineer signature:	
Quality Assurance signature:	
Tank Farm Operations signature:	

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION RECORD

This page may be reproduced as necessary.

ATP step number: <u>5.5</u>	ATP Exception Log Number <u>3</u>
Description of Exception: <u>MAGNETIC FLOWMETER is</u> <u>referred to as JOHNSON-YOKOGAWA.</u> <u>JOHNSON-YOKOGAWA FLOWMETER is NOT</u> <u>available.</u>	
Resolution of Exception: <u>SUBSTITUTED a Brooks</u> <u>FLOWMETER for use in the test.</u>	
Date of Resolution:	<u>3/18/96</u>
Test Director signature:	<u>RN Remy</u>
Cognizant Engineer signature:	<u>Timothy L. P...</u>
Quality Assurance signature:	<u>G20202 MATA</u>
Tank Farm Operations signature:	<u>W. H. ...</u> <u>3/19/96</u>

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION RECORD

This page may be reproduced as necessary.

ATP step number: <i>5.6.1 & 5.6.2</i>	ATP Exception Log Number <i>4</i>
Description of Exception: <i>STEP 5.6.1 is duplicated by step 5.6.16. Step 5.6.2 is in the wrong place.</i>	
Resolution of Exception: <i>Delete Step 5.6.1 AND move step 5.6.2 to follow step 5.6.16</i>	
Date of Resolution:	<i>3/18/96</i>
Test Director signature:	<i>RN Tracy</i>
Cognizant Engineer signature:	<i>W. Randy L. Pomeroy</i>
Quality Assurance signature:	<i>GEORGE MATH</i>
Tank Farm Operations signature:	<i>W. J. Am</i> <i>3/19/96</i>

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION RECORD

This page may be reproduced as necessary.

ATP step number: <u>5.8</u>	ATP Exception Log Number <u>5</u>
<div style="text-align: right; font-size: small; margin-right: 20px;">pg 95</div> Description of Exception: <u>Steps 5.8.20 & 21, 5.8.39 & 40,</u> <u>5.8.118 & 119: STEP HAS you verify Heat</u> <u>TRACE IS ON. Heat TRACE NEEDS to be TURNED</u> <u>ON.</u>	
Resolution of Exception: <u>Replace the word "verify"</u> <u>with "turn on". Delete "jumper is on." in</u> <u>Steps 5.8.20, 39, 118. Delete "is on" in steps</u> <u>5.8.21, 40, 119.</u>	
Date of Resolution:	<u>3/18/96</u>
Test Director signature:	<u>[Signature]</u>
Cognizant Engineer signature:	<u>[Signature]</u>
Quality Assurance signature:	<u>[Signature]</u>
Tank Farm Operations signature:	<u>[Signature] 3/19/96</u>

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION RECORD

This page may be reproduced as necessary.

ATP step number: 5.8 p56	ATP Exception Log Number 6
Description of Exception: Steps 5.8.138 ^{TW} , 5.8.138, 5.8.140 & 5.8.141 REQUEST ACTIONS THAT ARE NOT NEEDED FOR PERFORMANCE OF THE REMAINDER OF THE TEST.	
Resolution of Exception: DELETE STEPS 5.8.137, 5.8.138, 5.8.140, & 5.8.141.	
Date of Resolution:	3/18/96
Test Director signature:	<i>[Signature]</i>
Cognizant Engineer signature:	TW Rang L Poon
Quality Assurance signature:	GEORGE MATTA
Tank Farm Operations signature:	<i>[Signature]</i> 3/19/96

TANK FARM ACCEPTANCE TEST PROCEDURE

ATP EXCEPTION RECORD

This page may be reproduced as necessary.

ATP step number: <u>5.9.11</u>	ATP Exception Log Number
Description of Exception: <u>JR-1 VALVE NEEDS TO BE IN</u>	
<u>PROCESS POSITION before starting Jet Pump</u>	
<u>in step 5.9.12.</u>	
Resolution of Exception: <u>Add a step to reposition</u>	
<u>JR-1 to PROCESS POSITION after step</u>	
<u>5.9.11.6</u>	
Date of Resolution:	<u>3/18/96</u>
Test Director signature:	<u>RN Kwan</u>
Cognizant Engineer signature:	<u>W. Randy L. Poon</u>
Quality Assurance signature:	<u>George Math</u>
Tank Farm Operations signature:	<u>W. Hsu 3/18/96</u>

ATP ACCEPTANCE RECORD

Randy L. Powers RANDY L. POWERS 3/18/96
Cognizant Engineer (Signature) (Print Name) Date

MN Hanson GN HANSON 3/19/96
Tank Farm Operations (Signature) (Print Name) Date

NA

Safety (Signature) (Print Name) Date

Quality Assurance (Signature) J. CADICK 3/19/96

(Print Name) Date

Test Director (Signature)
 Test Director (Print Name)
 Date

PUMPING AND INSTRUMENTATION CONTROL SYSTEM (PICS)

LEAK TEST PROCEDURE

1.0 PURPOSE

To ensure that all piping (air & water service) is free of all leaks within typical operating pressures as specified in this procedure. This procedure is using a combination hydrostatic and pneumatic test in accordance with Engineering Change Notice (ECN) 629550.

2.0 RESPONSIBILITIES

PIC - Person In Charge - Shall ensure that the necessary requirements for compliance to this procedure are followed.

QA/QC - Quality Assurance/Control - Shall witness procedure steps where specified. Shall also concur on resolution of test exceptions

Cog. Engineer - Shall provide disposition on test exceptions. Shall approve test exceptions and final test results.

PIC: Leonard Karge, CDC Rep.

3/7/96
Date

QA/QC: John Verderber, WHC QA

3/7/96
Date

Cog. Engr.: G. Ryan Geschke WHC

3/20/96
Date

3.0 PRE-TEST VERIFICATIONS

TANK ID: AX-101 SKID DESIGNATOR: I

- 3.1 Verify that power to the compressor (SALW-DS-904A) is OFF (Open)
- 3.2 Verify that valve V-934A is OPEN.
- 3.3 Verify that PI-906A & 907A indicate 0 psig in air receiver tank.
- 3.4 Verify PI-901A is zero.

QC JPV
QC JPV
QC JPV
QC JPV

- 3.5 If the pressure in PI-901A is > 0 psig, drain pressure by opening valve V-914A. When PI-901A reaches 0 psig, CLOSE V-914A.

QC JPV

- 3.6 Verify that the following valves are CLOSED:

(✓) V-902A	(✓) V-914A
(✓) V-905A	(✓) V-915A
(✓) V-906A	(✓) V-930A
(✓) V-907A	(✓) V-932A
(✓) V-908A	(✓) V-917A
(✓) V-913A	(✓) V-937A

QC JPV

- 3.7 Verify that the following valves are OPEN:

(✓) V-934A	(✓) V-925A
(✓) V-926A	(✓) V-927A
(✓) V-901A	(✓) V-928A
(✓) V-904A	(✓) V-929A
(✓) V-903A	(✓) V-931A
(✓) V-920A	(✓) V-918A
(✓) V-921A	(✓) V-916A
(✓) V-919A	

Equalizing Valves:

(✓) V-936A (Middle - OPEN, Others - CLOSED)
(✓) V-935A (Middle - OPEN, Others - CLOSED)

QC JPV

- 3.8 PIC to ensure that there is at least 9 gallons (10% full) of water in tank TK-901A.

Minimum necessary = 10"

RECORD - _____ inches SEE EXCEPTION #1

PIC JK

4.0 INITIAL SERVICE LEAK TEST

- 4.1 Turn on power to the air compressor by CLOSING SALW-DS-904A and placing the HAND-OFF-AUTO switch in AUTO.

- 4.2 Pressure in the air receiver tank as indicated by PI-906A and PI-907A should rise to approximately 90 psig (± 5 psig).

QC JPV

- 4.3 Once pressure has stabilized at approx. 90 psig (± 5 psig), adjust PCV-901A to 22 psig (± 1 psig) as indicated by PI-902A, PI-903A, PI-904A and PI-905A. Adjust PCV-906A to 36 psig (± 1 psig) as indicated by PI-908A. Adjust PCV-905A to 22 psig (± 1 psig) as indicated by PI-901A.
CLOSE VALVE SALW-V-904A *

QC JPV

- 4.4 TURN OFF compressor by OPENING SALW-DS-904A

* SEE EXCEPTION #2

4.5 RECORD date/time and pressures as indicated by the following gauges:

Date/Time	<u>3/7/96 2:24</u>	PI-906A	<u>89</u>	(90±5)
Date/Time	<u> </u>	PI-907A	<u>87</u>	(90±5)
Date/Time	<u> </u>	PI-902A	<u>22</u>	(22±1)
Date/Time	<u> </u>	PI-903A	<u>22</u>	(22±1)
Date/Time	<u> </u>	PI-904A	<u>0</u>	(22±1) SEE EXCEPTION #3
Date/Time	<u> </u>	PI-905A	<u>0</u>	(22±1) SEE EXCEPTION #4
Date/Time	<u> </u>	PI-908A	<u>35</u>	(36±1)
Date/Time	<u> </u>	PI-901A	<u>22</u>	(22±1)

QC

4.6 After 10 minutes has passed, record date/time and pressure:

Date/Time	<u>3/7/96 2:34</u>	PI-906A	<u>76</u>
Date/Time	<u> </u>	PI-907A	<u>75</u>
Date/Time	<u> </u>	PI-902A	<u>21</u>
Date/Time	<u> </u>	PI-903A	<u>20.5</u>
Date/Time	<u> </u>	PI-904A	<u>0</u>
Date/Time	<u> </u>	PI-905A	<u>0</u>
Date/Time	<u> </u>	PI-908A	<u>35</u>
Date/Time	<u> </u>	PI-901A	<u>22</u>

SEE ATTACHMENT FOR RETEST

QC

ACCEPTANCE CRITERIA: Pressure shall not drop by more than 5% from step 4.5 to 4.6. for any of the respective gauges. If leaks exist, repair and repeat test steps from step 3.1.

The test has been performed in accordance with the procedure. Any leaks identified during testing have been corrected and a retest has been satisfactorily performed.

QC

RETEST JGV

4.5 RECORD date/time and pressures as indicated by the following gauges:

Date/Time	<u>3/7/96</u>	<u>2:38</u>	PI-906A	<u>89.5</u>	(90±5)
Date/Time			PI-907A	<u>88</u>	(90±5)
Date/Time			PI-902A	<u>21</u>	(22±1)
Date/Time			PI-903A	<u>21</u>	(22±1)
Date/Time			PI-904A	<u>0</u>	(22±1)
Date/Time			PI-905A	<u>0</u>	(22±1)
Date/Time			PI-908A	<u>35.5</u>	(36±1)
Date/Time	↓	↓	PI-901A	<u>22</u>	(22±1)

QC JGV

4.6 After 10 minutes has passed, record date/time and pressure:

Date/Time	<u>3/7/96</u>	<u>2:48</u>	PI-906A	<u>89</u>
Date/Time			PI-907A	<u>86</u>
Date/Time			PI-902A	<u>20.5</u>
Date/Time			PI-903A	<u>20</u>
Date/Time			PI-904A	<u>0</u>
Date/Time			PI-905A	<u>0</u>
Date/Time			PI-908A	<u>35.5</u>
Date/Time	↓	↓	PI-901A	<u>21.5</u>

QC JGV

ACCEPTANCE CRITERIA: Pressure shall not drop by more than 5% from step 4.5 to 4.6. for any of the respective gauges. If leaks exist, repair and repeat test steps from step 3.1.

The test has been performed in accordance with the procedure. Any leaks identified during testing have been corrected and a retest has been satisfactorily performed.

QC JGV

4.7 DRAIN pressure from system by OPENING the following valves:

- V-907A
- V-906A
- V-905A
- V-937A

5.0 TEST EXCEPTIONS

5.1 This test has been performed X with, _____ without exceptions.

See attached sheet(s) for test exceptions and resolution.

5.2 All exceptions have been dispositioned and accepted.

Cog. Engr. [Signature] 3/20/96
QC [Signature] 3/20/96

PUMPING AND INSTRUMENTATION CONTROL SYSTEM (PICS)

TEST EXCEPTIONS

TEST EXCEPTION NUMBER: 1Procedure Step: 3.8 Tank ID: AX-101 Skid ID: I

Description of Problem:

DP CELL SALW-LT-803H WAS NOT FUNCTIONING. THE
MINIMUM WATER LEVEL OF 10" COULD NOT BE VERIFIED.

Exception Resolution:

DP CELL (TRANSFERRED FROM A-101 SKID) DID NOT FUNCTION
CORRECTLY DUE TO SUSPECTED SOFTWARE JUMPER ON DP CELL. PRESENCE
OF WATER IN TANK WAS DETECTED BY AUDIBLE METHODS. NO RETEST IS
REQUIRED BASED ON PREVIOUS LEAK TESTS USING ONLY PNEUMATIC
PRESSURE IN SAME LINES

Concurrence with Resolution:

[Signature] 3/24/96
 PIC Date

[Signature] 3/20/96
 Cog. Engineer Date

[Signature] 3/20/96
 QA/QC Date

Retest Required: YES, X NO, N/A
 Acceptable Retest Performed: YES, NO
 Exception Resolved

PIC Date

[Signature] 3/20/96
 Cog. Engineer Date

[Signature] 3/20/96
 QA/QC Date

PUMPING AND INSTRUMENTATION CONTROL SYSTEM (PICS)

TEST EXCEPTIONS

TEST EXCEPTION NUMBER: 2

Procedure Step: 4.3 Tank ID: AX-101 Skid ID: I

Description of Problem:

VALVE SALW-V-904A HAD TO BE CLOSED TO HOLD
PRESSURE BECAUSE SALW-LY-901A HAS AN EXTERNAL
VENT AND IS NOT CAPABLE OF MAINTAINING NORMAL
OPERATING PRESSURE (BY COMPONENT DESIGN)

Exception Resolution:

IT IS ACCEPTABLE TO CLOSE VALVE SALW-V-904A DUE TO THE
EXTERNAL VENT ON THE I/P CONVERTER. LEAKS IN DOWNSTREAM
PORTION OF SYSTEM WILL BE DETECTED DURING THE UTP IN THE
FIELD.

Concurrence with Resolution:

[Signature] 3/24/96
PIC Date

[Signature] 3/20/96
Cog. Engineer Date

[Signature] 3/25/96
QA/QC Date

Retest Required: YES, X NO, ___ N/A
Acceptable Retest Performed: ___ YES, ___ NO
Exception Resolved

[Signature] 3/25/96
QA/QC Date

[Signature] 3/20/96
Cog. Engineer Date

PUMPING AND INSTRUMENTATION CONTROL SYSTEM (PICS)

TEST EXCEPTIONS

TEST EXCEPTION NUMBER: 3Procedure Step: 4.5 Tank ID: AX-101 Skid ID: I

Description of Problem:

PRESSURE AT PI-904A READ 0 PSIG. PRESSURE OF
22 ± 1 PSIG IS REQUIRED (STEP 4.3)

Exception Resolution:

PRESSURE AT PI-904A SHOULD READ 0 PSIG, DUE TO TEST STEPS
3.7. EQUALIZING VALVES.

Concurrence with Resolution:

[Signature] 3/20/96
PIC Date

[Signature] 3/20/96
Cog. Engineer Date

[Signature] 3/20/96
QA/QC Date

Retest Required: YES, X NO, N/A
Acceptable Retest Performed: YES, NO
Exception Resolved

[Signature] 3/20/96
PIC Date

[Signature] 3/20/96
Cog. Engineer Date

[Signature] 3/20/96
QA/QC Date

PUMPING AND INSTRUMENTATION CONTROL SYSTEM (PICS)

TEST EXCEPTIONS

TEST EXCEPTION NUMBER: 4Procedure Step: 4.5 Tank ID: AX-101 Skid ID: I

Description of Problem:

PRESSURE AT PI-905A READ 0 PSIG. PRESSURE OF
22 ± 1 PSIG IS REQUIRED (STEP 4.3)

Exception Resolution:

PRESSURE AT 905A WILL READ 0 PSIG DUE TO CLOSING OF SALW-V-904A
AS NOTED IN EXCEPTION #2.

Concurrence with Resolution:

[Signature] 3/20/96 [Signature] 3/20/96
 PIC Date Cog. Engineer Date

[Signature] 3/20/96
 QA/QC Date

Retest Required: YES, X NO, N/A
 Acceptable Retest Performed: YES, NO
 Exception Resolved

[Signature] 3/20/96 [Signature] 3/20/96
 PIC Date Cog. Engineer Date

[Signature] 3/20/96
 QA/QC Date

A-9