Accession #: D196070483

Document #: SD-ETF-OTR-001

Title/Desc:
200 AREA ETF OPERATIONAL TEST REPORT [SEC 1 OF 2]

This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

Document number: WHC-SD-ETF-OTR-001

Section 1 of 2

Title: 200 AREA EFFLUENT TREATMENT FACILITY OPERATIONAL TEST REPORT

Date: 10/26/95 Revision: 0

Originator: A F CRANE
Co: WHC

Recipient:
Co:

References: EDT-611023

Sta. 4 (3)

OCT 26 1995

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT № 611003

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: 200 Area ETF	6. Cog. Engr.: A.F. Crane	7. Purchase Order No.: NA

8. Originator Remarks:

This Operational Test Report provides the performance results for the 200 Area ETF Operational Test Procedures issued as OSP-OTP-001, OSP-OTP-002, OSP-OTP-004, OSP-OTP-005 and OSP-OTP-008, copies of which are included within the Operational Test Report.

9. Equip./Component No.: NA

10. System/Bldg./Facility: 200 Area ETF

11. Receiver Remarks:

12. Major Assm. Dwg. No.: NA

13. Permit/Permit Application No.: NA

14. Required Response Date: 10/26/95

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-ETF-OTR-001		0	200 Area Effluent Treatment Facility Operational Test Report	NA	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION

(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
1	1	Cog.Eng. A.F. Crane		10/26/95	S6-71						
1	1	Cog. Mgr. N.J. Sullivan		10-26-95	S6-71						
		QA									
		Safety									
		Env.									
1	1	Operations R.B. Wurz		10/26/95	S6-71						

18. 10/26/95
Signature of EDT Originator — Date

19. Authorized Representative for Receiving Organization — Date

20. 10-26-95
Cognizant Manager — Date

21. DOE APPROVAL (if required)
Ctrl. No.
☐ Approved
☐ Approved w/comments
☐ Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

BD-7400-172-1

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RELEASE AUTHORIZATION

Document Number: WHC-SD-ETF-OTR-001, REV 0

Document Title: 200 Area Effluent Treatment Facility Operational Test Report

Release Date: 10/26/95

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 Broz 10/26/95

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SUPPORTING DOCUMENT		1. Total Pages 376
2. Title 200 Area Effluent Treatment Facility Operational Test Report	3. Number WHC-SD-ETF-OTR-001	4. Rev No. 0
5. Key Words ATP, OTP, Test Report, 200 Area ETF	6. Author Name: A.F. Crane AF Crane 10/26/95 Signature Organization/Charge Code 86230/A2105	

7. Abstract

This document reports the results of the 200 Area Effluent Treatment Facility (200 Area ETF) operational testing activities. These operational testing activities demonstrated the functional, operational and design requirements of the 200 Area ETF have been met and identified open items which require retesting.

8. RELEASE STAMP

OFFICIAL RELEASE BY WHC
3
DATE OCT 2 6 1995
Sta. 4

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200 AREA TREATED EFFLUENT DISPOSAL FACILITY
OPERATIONAL TEST REPORT

TABLE OF CONTENTS

APPENDICES

200 AREA EFFLUENT TREATMENT FACILITY
OPERATIONAL TEST REPORT

1.0 PURPOSE

This document reports the results of the 200 Area Effluent Treatment Facility (200 Area ETF) operational testing activities. These test activities were conducted in accordance with the Operational Test Plan for the 200 Liquid Effluent Facility (WHC-SD-WM-TP-214, Rev 1) through the following 200 Area ETF Operational Test Procedures:

OSP-OTP-001	MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE
OSP-OTP-002	MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST PROCEDURE
OSP-OTP-004	MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE
OSP-OTP-005	ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE
OSP-OTP-008	MODULE 8 LOAD-IN STATION OPERABILITY TEST PROCEDURE.

This testing was completed to supplement the Acceptance Test Procedure activities conducted by the construction contractor, ADTECHS. The successful performance of these test activities demonstrated the functional, design and operational requirements of the 200 Area ETF have been met and identified open items which require post start-up resolution.

2.0 TEST PERFORMANCE SUMMARY

The Operational Test Procedures are contained in Appendices A through E with their associated Test Logs, Dispositioned Test Exception Logs and Test Exception Reports. Operational Test Specifications are provided in Appendices F through N. Section 2.1 identifies and reviews all Test Exceptions while Section 2.2 describes all Test Revisions written during the performance of the Operational Test Procedures.

SUMMARY OF OTP RESULTS

Performance of OSP-OTP-001, MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE showed satisfactory results for all items tested. The test verified the working pressures for the piping systems were not exceeded for temperatures up to 110 deg. F. Transfer pump flow control to both SALDS and LERF Basin 44, design flow rates to both locations and integrity of the air relief valves were verified as well as demonstration of the proportional sampling capability of sampler SP-60H144 was completed during this test procedure.

Performance of OSP-OTP-002, MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST PROCEDURE was designed to test the automatic control function to maintain Surge Tank Level and to verify the permanent transfer pumps could receive a remote signal to operate properly. System interlocks, including valve position and Surge Tank level, were tested to insure pump operation. The LERF system performed acceptably and met all technical requirements established by the test criteria for operation of the LERF facility.

Performance of OSP-OTP-004, MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE was not completed due to multiple operational issues. After correction of these issues and the start-up of the 200 Area ETF, OSP-OTP-004 will be restarted and testing will be completed. No impact to facility start-up is anticipated as the Sample Prep Room systems are not required for 200 Area ETF process operation.

Performance of OSP-OTP-005 ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE was not completed due to operational issues associated with the PAX System. As a result, the test portions associated with radio communications for the facility were tested successfully. After correction of the PAX System operational issues, the remainder of the test procedure will be completed. No impact to 200 Area ETF operations is expected as the radio system and control room paging system will be utilized to fulfill the communication requirements.

Performance of OSP-OTP-008, MODULE 8 LOAD-IN STATION OPERABILITY TEST PROCEDURE showed satisfactory results for all items. With discharge to the surge tank, both load-in facility pumps exceeded expected flow rate performance of 50 gpm with actual flows of 70-90 gpm.

2.1 TEST EXCEPTIONS

Test exceptions written during the performance of the Operational Test Procedures were as follows:

OSP-OTP-001, MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE

Test Exception 01	This test exception noted that two permanent plant instruments listed for calibration had expired calibration dates. Final resolution for both instruments (PT-60H037 & FIT-95C051) was to "use as is". These out of calibration conditions did not affect demonstration of system operability.
Test Exception 02	This test exception noted that the way in which a temporary test gauge installed to measure transfer pipeline pressures was attached caused an erroneous reading. The reading could be corrected by closing sampler SP-60H114 upstream isolation valve. The resolution was to close the valve and record the accurate set of readings.

OSP-OTP-002 MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST PROCEDURE

Test Exception 01	This test exception corrected typographical errors and duplications in Section 5.2.1.

Test Exception 02	This test exception was written to change the surge tank level controller from the manual mode to the automatic mode with an input set point of 60% to allow for operation of the LERF level control valve and continuation of the test.
Test Exception 03	This test exception corrected typographical errors in the description of valve names and modify valve position verification requirements to allow for verification of two Surge Tank Sump area valve positions. This was necessary as the valves were inaccessible due to confined space restrictions and allowed for demonstration of the test technical integrity.
Test Exception 04	This test exception provided a simulated Surge Tank level signal of 65% to simulate an tank level above the Surge Tank level set point of 60% to verify system operation. Proper system operation was verified at this simulated value and the test continued.
Test Exception 05	This test exception was written to accept current indicator readings Basin 43 transfer pump which were higher than expected. This was based upon historically similar current readings for this pump which had been in previous service without incident.
Test Exception 06	This test exception was written to accept higher than expected flow readings generated from a temporary ultrasonic flow meter within the instrument error of approximately 15%.

OSP-OTP-004 MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

Test Exception 01	This test exception was written to identify non-operability of the DI water system evaporator still due to installation problems. After resolution of the equipment installation issues the exception will be closed through performance of a retest of Sections 5.2 through 5.6.
Test Exception 02	This test exception was written to allow use of a pyrometer with a range greater than that specified in the test procedure.
Test Exception 03	This test exception was written to eliminate the requirement for measurement of outboard vacuum pump bearing temperature since the bearing was not accessible and the inboard bearing temperature indicated satisfactory operation.

Test Exception 04	This test exception was written to identify motor current readings for the fume hood fan motors did not meet nameplate specifications. Resolution of this discrepancy will be accomplished prior to close out of this test procedure.
Test Exception 05	This test exception was written to allow for elimination of the requirement to obtain complete vibration data due to interference with the fan and motor housings. Axial and outboard readings obtained were recorded and no further data is required.
Test Exception 06	This test exception was written to accept the initial 45A-F-17 vibration reading outside of the acceptable range for the inboard bearing. Subsequent inboard bearing and all other vibration readings indicated acceptable performance.
Test Exception 07	This test exception was written to identify the evaporator still output was below the rated capacity. After resolution of equipment installation issues, Steps 5.2 through 5.2.22 will be re-performed.
Test Exception 08	This test exception was written to identify the DI Water Pump did not meet the capacity identified within the vendor data. Resolution of this discrepancy will be accomplished prior to close out of this test procedure.
Test Exception 09	This test exception was written to identify several of the DI Water System valve positions could not be verified due to inaccessibility. Proper valve operation was indicated through confirmation of other DI Water System operating parameters.

OSP-OTP-005 ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE

Test Exception 01	This test exception was written to identify operational issues had occurred with the PAX System which precluded completion of the test procedure. After completion of system modifications, resolution of this discrepancy will be accomplished and execution of the test procedure completed.

OSP-OTP-008 MODULE 8 LOAD-IN STATION OPERABILITY TEST PROCEDURE.

Test Exception 01	This test exception noted that water was to be pumped from Tk-109 by pump 59A-P-103A and from Tk-117 by pump 59A-P-103B. I was determined during the test that the level instrumentation for Tk-117 was not calibrated. The level instrumentation was required to determined the flow rate at which the pumps were operating. Since the tanks feed a

common header to both pumps it was determined that both transfers could be performed from Tk-109 with no significant change in pump performance.

2.2 TEST REVISIONS

Test revisions which were written to the individual Operational Test Procedures are described below.

OSP-OTP-001 MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE

Test Revision A	This test revision was written to change the OSP-60H-001 procedural steps identified to reflect the current revision of OSP-60H-001.

OSP-OTP-002 MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST PROCEDURE

Test Revision A	This test revision was written to remove the requirements for calibration of specified level controllers, pressure indicators, temperature indicators and flow switches prior to testing. These changes allowed for field verification of equipment operation and reliance on other calibrated instrumentation.
Test Revision B	This test revision was written to eliminate unrelated equipment shutdown due to jumper installation and allow for fuse removal and reinstallation to simulate a level switch alarm activation.

OSP-OTP-004 MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

Test Revision A	This test revision was written to add steps and information required for testing of the DI Water System which were not identified within the original text of the test procedure.

OSP-OTP-005 ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE

No test revisions written.

OSP-OTP-008 MODULE 8 LOAD-IN STATION OPERABILITY TEST PROCEDURE

No test revisions written.

3.0 PERFORMANCE EVALUATION

Technical requirements for operational testing of the 200 Area ETF were defined by the 200 Area Effluent Treatment Facility Operational Test Specifications. The results of the Operational Test Procedures coupled with the completed ADTECHS Acceptance Test Procedures and design documentation have demonstrated satisfactory operability of the 200 Area ETF. All problems observed during testing have been satisfactorily dispositioned through resolution of the test exceptions or are identified as open items which do not affect facility operations. Performance evaluation for the individual systems is documented through the signed off Operational Test Specifications contained in Appendices F through M. An additional Operational Test Report will be issued following final testing per OSP-OTP-004, MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE and OSP-OTP-005 ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE.

RETESTING REQUIREMENTS

OSP-OTP-001 MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE

No retesting is required.

OSP-OTP-002 MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST PROCEDURE

No retesting is required.

OSP-OTP-004 MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

Retesting is required for resolution of open test exceptions and verification of the DI Water System performance.

OSP-OTP-005 ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE

Retesting is required for resolution of open test exceptions and verification of the PAX System performance.

OSP-OTP-008 MODULE 8 LOAD-IN STATION OPERABILITY TEST PROCEDURE

No retesting is required.

APPENDIX A

COMPLETED OSP-OTP-001
MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE

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pg A-2

200 AREA LIQUID EFFLUENT FACILITIES
MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE
OSP-OTP-001

REVISION NO. 0

PAGE 1 OF 25
EFFECTIVE DATE 7/25/95

Author/Cognizant Engineer
T.G. Howell/R.J. Huth
Print Name/Signature

APPROVAL DESIGNATOR ESQ

PROCEDURE APPROVAL

OPERATIONS MANAGER
R.B. Wurz 8/7/95
Print Name/Signature

APPROVAL SIGNATURES

Cognizant Manager 7-25-95 N.J. Sullivan Print Name/Signature	Shift Operations Manager or PIC J.M. Petty Print Name/Signature
Environmental 7/18/95 D.L. Flyckt Print Name/Signature	Operator S.J. Vermeulen Print Name/Signature
Radiation Control N/A P.B. Brannan Print Name/Signature	Safety 7-26-95 M.A. Tredway Print Name/Signature
Quality Assurance 7/27/95 M.J. Warn Print Name/Signature	Other N/A Print Name/Signature/Organization

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TEST PROCEDURE CHANGE RECORD OTP Number ______________ Sheet ______ of ______

Total Number of Controlled Copies Issued _________ Controlled Copies Dispositioned _____

CHANGE LETTER	DATE	APPROVAL DESIGNATOR	REASON FOR CHANGE	APPROVALS
				____________________ Signature/Organization/Date ____________________ Signature/Organization/Date ____________________ Signature/Organization/Date ____________________ Signature/Organization/Date ____________________ Signature/Organization/Date ____________________ Signature/Organization/Date ____________________ Signature/Organization/Date ____________________ Signature/Organization/Date
AFFECTED PAGES/ STEP NOS.				

WHC-SD-ETF-OTR-001, REV. 0

Pg A-4

SIGNATURE RECORD

By signing below, I attest that I am aware of, and understand, my duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this OTP, and as assigned by the PIC.

INITIALS	SIGNATURE	PRINTED NAME	TITLE	ORGANIZATION
		Lisa Ingram	NPO	ETF OPS
SWG	Steven W. Gephart	STEVEN W. GEPHART	NPO	ETF OPS
		R.J. HUTH	TEST ENGINEER	ETF PROCESS ENGRG.
JWB	James W Brooks	JW BROOKS	NPO	ETF OPS
		R. Clinton	Engineer	ETF PROCESS ENG.
TWD	Ti Dallas	TIM DALLAS	SOM	OPS

pg A-6

SIGNATURE RECORD

By signing below, I attest that I am aware of, and understand, my duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this OTP, and as assigned by the PIC.

INITIALS	SIGNATURE	PRINTED NAME	TITLE	ORGANIZATION
PF	Peggy Fiscus	Peggy Fiscus	NPO	WHC
YAF	Yvan a Fillion	YVAN A. Fillion	N.O.	WHC
KBG	K. B. Grant	Kevin GRANT	NPO	WHC
LB	L Burton	LARRY BURTON	NPO	WHC
MD	Monty Downing	Monty Downing	NO	WHC
BG	Bruce Godfrey	Bruce Godfrey	NPO	WHC

pg A-7

SIGNATURE RECORD

By signing below, I attest that I am aware of, and understand, my duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this OTP, and as assigned by the PIC.

INITIALS	SIGNATURE	PRINTED NAME	TITLE	ORGANIZATION
		J.M. Petty	PIC	86220
		PG HAIGH	SUE	86220

TEST LOG	TEST NUMBER:	TEST LOG PAGE NUMBER: _____ of _____

TEST TITLE:

TIME/DATE	EVENT DESCRIPTION/SIGNATURE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:

TEST NAME:

T.E. NUMBER:

DESCRIPTION OF PROBLEM:

ORIGINATOR:

ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☐ CONTINUE

PIC DATE

DISPOSITION:

DISPOSITION AND RETEST REQUIREMENTS BY:

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

DATE

RETEST COMPLETE:

PIC DATE

Pg A-10

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED
01	~~10-16-95~~	~~PT 60H-037 ; FI 95C-051~~ ~~Not Calibrated Per Step~~ ~~4.1.3~~ TWD 10-17-95		

1.0 TITLE

Module 9 SALDS/LERF Recycle Systems Operational Test Procedure.

2.0 PURPOSE

This test procedure will provide for completion of those technical requirements identified in the 200 Area Effluent Treatment Facility (ETF) State Approved Land Disposal Site (SALDS)/Recycle System Operational Test Specification (WHC-SD-LEF-TS-006). Those requirements include:

2.1. Collect operational data to confirm proper operation of the SALDS Disposal discharge line isolation valve 60H-200.

2.2. Collect operational data to confirm the pressure class of the PVC discharge piping to SALDS and Liquid Effluent Retention Facility (LERF) will not be exceeded during actual operating conditions.

2.3. Collect operational data to confirm proper operation of the disposal line air relief valves.

2.4. Collect operational data to confirm proper operation of the LERF discharge line isolation valve 60H-214.

2.5. Collect operational data to confirm ability of Effluent Sampler SP-60H144 to obtain a flow proportional sample.

3.0 PRECAUTIONS AND LIMITATIONS

3.1. If during performance of this procedure, any of the following conditions are found, immediately notify the Person-In-Charge:

- Any equipment malfunction which could prevent fulfillment of it's functional requirements.
- Personnel error or procedural inadequacy which could prevent fulfillment of procedural requirements.

The Person-In-Charge may choose to stop work and place equipment in a safe condition based on the significance of the malfunction, error or inadequacy.

3.2. Contact Person-In-Charge for additional instructions if changing plant conditions affect work or delays in work extend past end of shift.

3.3. If any waste is generated during performance of this instruction consult Facility/Plant/Area Hazardous Waste Coordinator for specific instructions for disposition of the material.

3.4. Comply with WHC and plant/facility specific lock and tag or over-tagging requirements, as applicable.

3.5. Steps may be performed out of sequence as directed by the Person-In-Charge. If performance of any steps in this procedure is not required for procedure completion, the steps not performed shall be indicated as such by entering "N/A" in the appropriate signoff space and explained in the COMMENTS/REMARKS section.

3.6. All Measuring and Test Equipment (M&TE) used during performance of this procedure to collect quantitative data with the exception of timing devices shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy (consistent with state-of-the-art limitations) equal to or greater than the accuracy specified in the procedure.

3.7. Timing measurements shall be made with commercially available time devices.

3.8. The Person-In-Charge has overall control of the testing process and change authorization for this procedure. They are responsible for running the test, data collection, and ensuring compliance with all requirements in this procedure.

3.9. All readings are to be taken and recorded for each location where the capability exists (i.e. local instrument, LCU, MCS).

4.0 PREREQUISITES

4.1. PRE-START CONDITIONS

4.1.1 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Person-In-Charge (PIC) by the LEF Operations Manager.

Approved Person-In-Charge
Tim Dallas
Jim Potty
Dave Nelsen
John Ulmer

Signature: ____________ Date/Time: 10/13/95 1025
Operations Manager

4.1.2 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Test Engineer(s) by the Manager, LEF Process Engineering.

Approved Test Engineer(s)

Bob Pavlina

Dave Vasquez

Paul Haigh

Darrell Heimberger
Jeff Huth

Signature: ______ Date/Time: 10-13-95
Manager, Process Engineering

4.1.3 The following indicating transmitters and instruments are currently calibrated.

Equipment Number	Functional Description	Calibration Due Date	Signature	Date/Time
PT/PI 60H037	Verification Transfer Pump Discharge Header Pressure	9.16.95		TE-01
FT/FIC 60H114	Verification Transfer Pump Discharge Header Flow	4/96	Ji Dallas	10-16-95 1145
FIT/FI 95C051	Cooling Water Blowdown Flow	11.27.94		TE-01

TE-01
10-17-95
TWD

TE-01
10-17-95
TWD

Signature: Ji Dallas Date/Time: 10-16-95 0820
Person-In-Charge

4.1.4 Insure arrangements have been made, as necessary to provide water for testing activities.

Signature: Ji Dallas Date/Time: 10-16-95/0820
Person-In-Charge

4.1.5 The Person in Charge (PIC), the Test Engineer(s), and Test Operators have been indoctrinated in the requirements of this plan before conducting any test activities.

Signature: D. Dallas Date/Time: 10-16-95 1415
Person-In-Charge

4.1.6 At beginning of each shift, brief personnel involved in test, distribute data sheets as required, place personnel in position, and establish communications as required. All personnel participating in the performance of the OTP shall show completion of this requirement by signing the Pre-Job Safety Meeting Form(BD-6000-696.1, WP macro GEF120).

4.1.7 All test personnel have completed the Signature Record Sheet attesting that they are aware of and understand their duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this procedure, and as assigned by the PIC.

Signature: D. Dallas Date/Time: 10-16-95 1415
Person-In-Charge

4.1.8 System and equipment walkdowns have been completed by the Test Engineer to ensure all components are correctly configured to support beginning the test activities.

Signature: Date/Time: 10-16-95 1415
Test Engineer

4.1.9 The following 200 Area ETF Operating Special Procedures have been approved prior to beginning performance of this procedure:

[1] OSP-60H-001, Verification System Operation
[2] OSP-95C-001, Operate Cooling Water System
[3] OSP-65J-002, Process System Sampling

Signature: D. Dallas Date/Time: 10-16-95 1145
Shift Operations Manager (SOM)

4.1.10 A Job Hazard Analysis has been completed prior to beginning performance of this procedure.

Signature: D. Dallas Date/Time: 10-16-95 0825
SOM

4.1.11 Discharge permit issued for pumping water to SALDS.

10/16/95
Signature: DLT / ____________ Date/Time: 10/16/95 1410
Operations Manager

4.1.12 Obtain release from Operations management prior to beginning performance of this procedure.

Signature: ____________ Date/Time: 10/16/95 1410
Operations Manager

4.2. TEST EQUIPMENT

10-16

4.2.1 0 - ~~150~~ 200 psig pressure gauge, accuracy ±0.5% minimum.

Instrument Data

Manufacturer: DRUCK
Model No: DPI 701
Serial No: 7012729/02
Expires Date: 7-26-96

4.2.2 Sample container, minimum 200 ml capacity.

5.0 INSTRUCTIONS

5.0.1 IF Cooling Water Blowdown Pump is in operation, THEN ROUTE discharge to Sump #2.

A) OPEN Blowndown Pump to Sump #2 Isolation Valve 95C-052

B) CLOSE Blowndown Pump to SALDS Isolation Valve 95C-051.

CAUTION
Running pump(s) without water may damage pump(s).

NOTE
Signatures confirm successful completion of a test activity.

5.1. INITIAL CONDITIONS FOR TESTING

MP 10-16-95

5.1.1 Water level ~~is greater than or equal to 30% in a Verification Tank~~ in at least one Verification Tank is sufficient to allow test completion.

5.1.2 Equipment and valve line-up(s) performed in accordance with OSP-60H-00_ Section 5.1.

5.1.3 Water in Verification Tanks(s) to be discharged meets Approved Discharge Permit Requirements.

Signature: DLF / J. Dau Date/Time: 10-16-95-1430
PIC 10/16/95

5.2. OPERATION OF LERF BASIN 44 ISOLATION VALVE 60H-214

5.2.1 VERIFY Transfer Pumps 60H-P-2A and 60H-P-2B are NOT in operation.

5.2.2 VERIFY Cooling Water Blowdown Pump 95C-P-2 is NOT in operation OR its discharge is routed to Sump #2.

5.2.3 STROKE 60H-214.

5.2.4 VERIFY valve position indicator is correct at OPEN and CLOSED positions.

Signature: J. Davis Date/Time: 10-17-95-0959

5.2.5 CLOSE 60H-214.

5.3. OPERATION OF SALDS DISPOSAL DISCHARGE ISOLATION VALVE 60H-200

5.3.1 VERIFY Transfer Pumps 60H-P-2A and 60H-P-2B are NOT in operation.

5.3.2 VERIFY Cooling Water Blowdown Pump 95C-P-2 is NOT in operation OR its discharge is routed to Sump #2.

5.3.3 STROKE 60H-200.

5.3.4 VERIFY valve position indicator is correct at OPEN and CLOSED positions.

Signature: ______ Date/Time: 10-16-95 2205

5.3.5 VERIFY 60H-200 OPEN.

5.4. PVC PRESSURE RATING TESTING

NOTE

The PVC used in the SALDS discharge piping is rated at 150 psig. This pressure rating decreases with temperature above 73.4°F. The below data will be used in determining operating parameters for the SALDS System.

5.4.1 VERIFY Cooling Water Blowdown Pump 95C-P-2 is NOT in operation OR its discharge is routed to Sump #2.

5.4.2 SELECT, on Graphic VERIFICATION:

A) RECEIVING TK, SHUTDOWN

B) VERIFYING TK, SHUTDOWN

C) DISCHARGING TK, SHUTDOWN

D) TANK SELECTION, RESET

5.4.3 DETERMINE which Verification Tank will be used to supply a Transfer Pump for discharge to SALDS.

Verification tank used: C

5.4.4 SELECT, on Graphic VERIFICATION:

A) RECEIVING for Verification Tank (60H-TK-1A), [60H-TK-1B], or {60H-TK-1C}.

B) VERIFYING for Tank (60H-TK-1A), [60H-TK-1B], or {60H-TK-1C}.

C) DISCHARGING for Tank (60H-TK-1A), [60H-TK-1B], or {60H-TK-1C}.

5.4.5 VERIFY, on Graphic VERIFICATION, valve configuration per OSP-60H-001, ATTACHMENT 3, VALVE CONTROL CONFIGURATION.

5.4.6 VERIFY calibration data for test pressure gauge recorded in Step 4.2.1.

(M) 5.4.7 INSTALL test pressure gauge at the effluent sample cooler return line test tap.

✓5.4.8 RECORD the static pressure indicated on the temporary test gauge.

51.0 psig Signature: J. Dallas Date/Time: 10-16-95 1435

✓5.4.9 IF static pressure is greater than, or equal to 50 pounds per square inch gage (psig), THEN GO TO step 5.4.11.

5.4.10 IF the static pressure is less than 50 psig:

A) RECORD static pressure (step 5.4.8) in blank (a) below

B) CALCULATE (b), by SUBTRACTING (a) from 50

C) CALCULATE Run Time, by multiplying (b) by 6

PRESSURE DIFFERENTIAL	REQUIRED RUN TIME
50 - NA (a) = NA (b)	NA (b) x 6 = NA Run Time (minutes)

D) PERFORM a Verification Tank Discharge to SALDS in accordance with OSP-60H-001.

[1] Run the transfer pump at 300 gpm for time calculated in step 5.4.10.C.

→ 5.4.11 PERFORM a Verification Tank Discharge to SALDS in accordance with OSP-60H-001, Section 5.4, Steps 5.4.~~1~~ 7 through 5.4.~~10~~ 14. A 10-16-9

5.4.12 SET, on Graphic VERIFICATION, flow rate for FCV-60H114 at 300 gpm.

5.4.13 OPERATE Transfer Pump started in OSP-60H-001, for at least 15 minutes.

5.4.14 VERIFY FCV-60H114 controls flow to SALDS at 280-320 gpm in less than five cycles around the setpoint.

Signature: A. M. Pitts Date/Time: 10-16-95 2238

5.4.15 VARY flow setpoint using FCV-60H114.

5.4.16 AFTER flow has stabilized, RECORD actual flow and pressure on the test gauge at the following flow rates.

FCV-60H114 SETPOINT	ACTUAL FLOW FIC-60H114 (gpm)	PRESSURE (psig) OPEN	VALVE VSP60H144-K Closed
300 gpm	299	72	68
250 gpm	245	67.5	64
200 gpm	206	62.	59
150 gpm	154	56	55

TE-C
TE
11-17-
TWD

Signature: A. M. Pitt Date/Time: 10-16-95 2302

5.4.17 STOP operating Transfer Pump.

5.4.18 PERFORM Verification Tank Discharge to LERF Basin 44 in accordance with OSP-60H-001, Section 5.5, Steps 5.5.1 through 5.5.~~14~~. 11 TWD 10-17-95

5.4.19 SET, on Graphic VERIFICATION, flow rate for valve FCV-60H114 at 150 gpm.

5.4.20 OPERATE Transfer Pump started in OSP-60H-001, for at least 15 minutes.

5.4.21 VERIFY FCV-60H114 controls flow to LERF Basin at 140-160 gpm in less than five cycles around the setpoint.

Signature: J. Dallas Date/Time: 10-17-95/1032

5.4.22 VARY the flow setpoint using FCV-60H114

5.4.23 AFTER flow has stabilized, RECORD actual flow and pressure on the test gauge at each of the following flow rates.

FCV-60H114 SETPOINT		PRESSURE (psig)	VSP 60H-144-K Closed
200 gpm	191	29	23
150 gpm	145	16	15
100 gpm	97	10	9.5

TE 02 10-17-95 TWP

Signature: J. Dallas Date/Time: 11-17-95 1100

5.4.24 STOP operating Transfer Pump.

5.4.25 CLOSE following valves locally.

- Transfer Pumps to LERF Basin 44 Isolation Valve 60H-214.
- ✓ Transfer Line Isolation at LERF Basin 44 Valve 60N-01.

5.4.26 REMOVE temporary test pressure gauge.

Signature: J. Dallas Date/Time: 10-17-95 1115

5.4.27 RESTORE sample cooler return line test tap.

Signature: J. Dallas Date/Time: 10-17-95 1115

5.5. DISPOSAL LINE AIR RELIEF VALVE TESTING.

5.5.1 REMOVE covers form manholes 1 thru 13.

5.5.2 START transfer pump 60H-P-2A (60H-P-2B) in accordance with OSP-60H-001, Section 5.4.

5.5.3 RUN Transfer pump 60H-P-2A (60H-P-2B) at 300 gallons per minute.

5.5.4 INSPECT air relief valve for signs of water leakage.

5.5.5 MEASURE and RECORD any leakage.

VALVE MUMBER	LEAK RATE (Drips per minute)
ARV-60H-001	0
ARV-60H-002	0
ARV-60H-003	0
ARV-60H-004	0
ARV-60H-005	0
ARV-60H-006	0
ARV-60H-007	0
ARV-60H-008	0
ARV-60H-009	0
ARV-60H-0010	0
ARV-60H-0011	0
ARV-60H-0012	0
ARV-60H-0013	0

5.5.6 VERIFY all valves checked in step 5.5.3 have acceptable leak rates.

Signature: A.M. Date/Time: 10-16-95/0010
PIC

5.5.7 STOP transfer pump started in step 5.5.1.

5.6. EFFLUENT SAMPLER SP-60H-144 TESTING

NOTE

The following will verify that the effluent sampler can collect a proportional sample of 1980cc of effluent over an 8 hour period. Since an 8 hour sample would require the transfer pumps to send water to the SALDS for the same period, an interpolated amount will be collected for 1/2 hours, or about 120 cc of effluent with a flow rate of 300 gpm.

5.6.1 PERFORM Verification Tank Discharge to SALDS in accordance with OSP-60H-001, Section 5.4, Steps 5.4.~~1~~ 7 through 5.4.~~10~~ 14. A 10.16.95

5.6.2 ESTABLISH discharge flow rate of 280-320 gpm to SALDS using FCV-60H114.

5.6.3 VERIFY Cooling Water Blowdown Pump 95C-P-1 is in operation in accordance with OSP-95C-001 AND aligned to SALDS.

5.6.4 RECORD Cooling Water Blowdown discharge flow rate from local FIT-95C051, or from MCS FI-95C051.

Blowdown Flow: 3 gpm

Signature: J.M. Petta Date/Time: 10-16-95/2312

5.6.5 RECORD Transfer Pump flow to SALDS at MCS FIC-60H114.

Transfer Pump Flow 302 gpm

Signature: J.M. Petta Date/Time: 10-16-95/2322

5.6.6 PLACE empty sample container in Effluent System Sampler SP-60H144.

10-16-95 5.6.7 PLACE Effluent System proportional sampler SP-60H144 in service per OSP-65J-002, Section 5.~~2~~ 1.1

10-16-95 5.6.8 ADJUST set point to 40 per OSP-65J-002, steps 5.~~2~~ 1.1.A through 5.~~2~~ 1.1.~~F~~ G.

5.6.9 RECORD time sampler is energized.

TIME: 2321

Signature J. M. Potts Date/Time 10-16-95 2321

5.6.10 OPERATE sampler for 30 minutes.

10-16-95 5.6.11 REMOVE sample container per OSP-65J-002, Section 5.~~6~~2. Isolock Flow Proportional Sample Operations (Automatic).

5.6.12 RECORD time sample flow into the sample bottle stopped.

TIME: 2351

Signature J. M. Potts Date/Time 10-16-95 / 2351

5.6.13 POUR sample contents into a graduated cylinder.

5.6.14 CALCULATE Actual Sample Collection Rate:

A) RECORD volume collected by the sampler.

B) DIVIDE the volume of sample collected by the collection time.

116cc ÷ 30 = 3.867 cc/min
Volume minutes Actual Collection Rate

Signature Date/Time 10-17-95 / 0015

5.6.15 CALCULATE the expected collection rate:

A) ADD flows through FIC-60H114 and flow through FIT-95C051

B) MULTIPLY TOTAL FLOW by 0.0133 cc/gallon.

A) 302 (gpm) + 3 (gpm) = 305 (gpm)
FIC-60H114 FIC-95C051 TOTAL FLOW

B) 305 (gpm) x 0.0133 = 4.0565 (cc/min)
TOTAL FLOW EXPECTED COLLECTION RATE

Signature Date/Time 10.17.95 / 0017

5.6.16 CHECK actual sample collection rate for SP-60H144 is within 10% of the expected collection rate:

A) DETERMINE DIFFERENCE between EXPECTED and ACTUAL COLLECTION RATES

B) DIVIDE DIFFERENCE by EXPECTED COLLECTION RATE

C) MULTIPLY ERROR by 100

A) 4.0565 - 3.867 = 0.1895
EXPECTED COLLECTION RATE (step #5.6.15) ACTUAL COLLECTION RATE (step # 5.6.14) DIFFERENCE

B) 0.1895 ÷ 4.0565 = 0.0467
DIFFERENCE EXPECTED COLLECTION RATE ERROR

C) 0.0467 x 100 = 4.67
ERROR VARIATION PERCENTAGE

5.6.17 VERIFY VARIATION PERCENTAGE is less than 10.

Signature Date/Time 10.17.95 / 0021

5.6.18 STOP the operating Transfer Pump.

5.7. SECURE FROM TEST

5.7.1 VERIFY that all temporary test instrumentation has been removed from the Verification System.

Signature Di Dallas Date/Time 10-17-95/1115

5.7.2 VERIFY that the Verification System has been returned to the design configuration.

Signature Di Dallas Date/Time 10-17-95/1115

6.0 FINAL CONDITIONS

7.0 RECORDS

The complete original of this procedure, including any/all attachments, shall be retained as record of performance.

8.0 REFERENCES

8.1. Internal References

WHC-SD-WM-TP-214, Operational Test Plan for 200 Area Liquid Effluent Facility
OSP-60H-001, Verification System Operation
OSP-95C-001, Operate Cooling Water System
OSP-65J-002, Process System Sampling

8.2. Bibliography

H-2-88985, Piping & Instrumentation Diagram Verification System.
H-2-88746, Civil - Plan & Profile - Disposal Line -14+00 to 14+00.
H-2-88747, Civil - Plan & Profile - Disposal Line 14+00 to 50+00.
H-2-88748, Civil - Plan & Profile - Disposal Line 50+00 to 86+00.
H-2-88749, Civil - Plan & Profile - Disposal Line 86+00 to 122+00.

H-2-88750, Civil - Plan & Profile - Disposal Line 122+00 to 158+00.
H-2-88751, Civil - Plan & Profile - Disposal Line 158+00 to 195+00.
H-2-88752, Civil - Plan & Profile - Disposal Line 195+00 to 233+00.
H-2-88753, Civil - Plan & Profile - Disposal Line 233+00 to 270+00.
H-2-88754, Civil - Plan & Profile - Disposal Line 270+00 to 305+00.

H-2-88775, Piping - Plan and Profile - 4"-60N-001-PVC
H-2-88776, Piping - Plan and Profile - 4"-60N-001-PVC
AWWA C900 89, AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In., for Water Distribution

9.0 ATTACHMENTS

NONE

TEST LOG

TEST NUMBER: OSP-OTP-001

TEST LOG PAGE NUMBER: 1 of 3

TEST TITLE: SALDS/RECYCLE SYSTEMS OTP

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
1400 10-16-95	Held Test indoctrination & Pre Job Safety
	Meeting with all test members. TWD
1435 10-16-95	Checked SALDS Static Pressure ~5-7 PSI. TWD
2140 10-16-95	Held TEST indoctrination & Pre-Job Safety Meeting
	with All TEST personnel.
2155 10-16-95	Began OTP Testing at Section 5.3.
2205 10-16-95	Blowdown Throttled to 3 gpm & Routed to Sump 2. Cycled
	Value 60H-200 per OTP.
2223 10-16-95	Flow From TK-C started at 300 gpm.
2307 10-16-95	Completed Testing of Various Flow Rates From Verification
	Discharge Pumps per Sections 5.4.11 Throug 5.4.17
~~23~~ 2322 /10-16-95	Began 300 gpm TEST while inspection of SALDS Relief
	Values. Also started Isolock Sampler.
2351/10-16-95	Running of Sampler per Sections 5.6.9 Through 5.6.17
	Completed. Transfer pump stopped. Completed Air Relief
	Value inspection - NO LEAKS.

TEST LOG	TEST NUMBER: OSP-OTP-001	TEST LOG PAGE NUMBER: 2 of 3

TEST TITLE: SALDS/RECYCLE SYSTEMS OTP.

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
0010/10-16-95	Completed All Sections of OTP Relating to SALDS
	Transfer. Secured From Testing For The Evening.
	Blow down Pump Routed to SALDS AT 22 gpm.
	Verification TK-C is Back in Verifing Mode.
	Still Need to Complete OTP Sections on Recycle
	Line. J.M.
0800 10-17-95	Held Prejob on Remaining Sections of OTP J Dallas
0959 10-17-95	Cycled Valves 60H-200 & 60H-214 after Cooling
	H_2O was Valved to Sump 2. J Dallas
1009 10-17-95	Setup Verification tank "C" to discharge to
	LERF. J Dallas
1018 10-17-95	Started Verification Discharge Pump to LERF.
	Varied flow rates & Noted Discharge Pressures.
	J Dallas
1056 10-17-95	Secured Pump to LERF. Returned System
	to Normal Configuration. J Dallas

TEST LOG	TEST NUMBER: OSP-OTP-001	TEST LOG PAGE NUMBER: 3 of 3

TEST TITLE: SALDS/Recycle OTP

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
1115 10-17-95	Completed test activities. J. Dallas

TEST PROCEDURE CHANGE RECORD OTP Number OSP-~~60H~~-001 OTP QA 10-16-95 Sheet 17, 21 of 25

Total Number of Controlled Copies Issued 1

Controlled Copies Dispositioned 1

CHANGE LETTER: A

DATE: 10-16-95

APPROVAL DESIGNATOR: NA

REASON FOR CHANGE: CHANGE STEPS TO READ, "PERFORM VERIFICATION TANK DISCHARGE TO SALDS IN ACCORDANCE WITH OSP-60H-001, SECTION 5.4, STEPS 5.4.7 THROUGH 5.4.14."

REASON: OSP-60H-001 WAS RECENTLY REVISED TO INCLUDE OPERATIONAL STEPS NOT REQUIRED FOR THIS OTP. THEREFORE, STEP NO. CHANGES ARE REQUIRED.

AFFECTED PAGES/ STEP NOS.

Pg. 17, STEP 5.4.11
Pg. 21, STEP 5.6.1

APPROVALS

Signature/Organization/Date / ~~PROCESS~~ TEST ENGR / 10.16.95

Signature/Organization/Date / PROCESS ENGINEERING / 10-16-95

Signature/Organization/Date / Operations / 10/16/95

Signature/Organization/Date

Signature/Organization/Date

Signature/Organization/Date

Signature/Organization/Date

Signature/Organization/Date

WHC-SD-ETF-OTR-001, REV. 0
Pg A-32

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED
01	10-17-95	CALIBRATION OF PERMANENT PLANT INSTRUMENTS IS EXPIRED.	O.K. AS IS, NO RETEST REQUIRED	10/23/95
02	10-17-95	TEST PRESSURE READING WITH CLOSED SAMPLE VALVE REQUIRED	O.K AS IS. NO RETEST REQUIRED.	10/23/95

pg A-33

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-001, SECT. 4

TEST NAME: MODULE 5-SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE

T.E. NUMBER: TE - 01

DESCRIPTION OF PROBLEM: STEP 4.1.3 REQUIRES VERIFICATION OF CALIBRATION OF PT/PI-60H037 AND FIT/FI-95C051. CALIBRATION APPEARS TO BE OVERDUE ON BOTH INSTRUMENTS.

ORIGINATOR:
DATE: 10.17.95
ORG: PROCESS ENGR.

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

PIC: J. Dallas
DATE: 10-17-95

DISPOSITION: FOR PT/PI-60H037, USE AS IS. THIS INSTRUMENT WAS NOT USED TO COLLECT DATA DURING THE OTP, HENCE, CURRENT CALIBRATION IS NOT REQUIRED.

FOR FIT-95C051, PERFORM POST-TEST CALIBRATION AS REQUIRED TO VERIFY ACCURACY AT A 5 GPM FLOW RATE. 10.17.95
POST-TEST CALIBRATION PERFORMED 10/23/95 WAS OUT OF TOLERANCE ON AS-FOUND VALUES. SEE ATTACHED SHEET FOR DISPOSITION OF OOT CONDITION AS IT RELATES TO DATA OBTAINED IN THIS TEST. 10.23.95

DISPOSITION AND RETEST REQUIREMENTS BY:
DATE: 10.27.95

DISPOSITION ACTIONS COMPLETE:
Verified By: J. Dallas
DATE: 10-23-95

QAE CONCURRENCE WITH DISPOSITION (if required): N/A
DATE

RETEST COMPLETE:
PIC: N/A
DATE

MODULE 5 SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE

OSP-OTP-001

TEST EXCEPTION # 01

DISPOSITION (CONTINUED)

FIT-95C051 was used in the OTP to measure the cooling water blowdown flow. This flow signal is added to the flow signal from FT-60H114 (Transfer Pumps discharge flow), and sent to Sampler SP-60H144. This proportional sampler then takes a sample based on the sum of these two flows.

The purpose of this part of the OTP is to ensure the sample taken is proportional to indicated flow. Inaccuracy between the indicated flow and the actual flow has no effect on how much sample is obtained. The sampler uses indicated flow to determine when another 10 ml volume should be pulled from the sample stream. Since indicated flow is recorded in the test, and sample volume collected is compared to indicated flow, any difference between indicated and actual flow does not effect the testing of proportionality.

The disposition of this test exception is use as is, no retest required.

10/23/95

J. Davis

10-23-95

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-001, SECT. 5.4

TEST NAME: MODULE 5 - SALDS/RECYCLE SYSTEMS OPERABILITY TEST PROCEDURE

T.E. NUMBER: TE-02

DESCRIPTION OF PROBLEM: TEST STEP 5.4.16 AND 5.4.23 RECORD PRESSURE ON SALDS LINE DOWNSTREAM OF FCV-60H114 FROM TAP OFF OF ISOLOCK SAMPLER SP-60H144. DURING TESTING, IT WAS DETERMINED THAT FLOW THROUGH THE SAMPLER CAUSED AN ERRONEOUSLY HIGH VALUE FOR DISCHARGE LINE PRESSURE. AN ACCURATE VALUE FOR PURPOSES OF DETERMINING MAXIMUM FLOW VS. PRESSURE CAN BE ACHIEVED BY ISOLATING THE ISOLOCK UPSTREAM ISO. VALVE V-SP60H144-K.

ORIGINATOR: 10·17·95
ORG: PROCESS ENGR. DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

J. Dallas 10-17-95
PIC DATE

DISPOSITION: IN ADDITION TO RECORDING PRESSURE WITH V-SP60H144-K OPEN, TAKE AN INFORMATIONAL SET OF READINGS WITH THE VALVE CLOSED, AND RECORD VALUES IN THE RIGHT MARGIN. THE PURPOSE FOR TAKING THESE READINGS IS FOR THE COG. ENGINEER TO MAKE A FLOW VS. TEMPERATURE LIMITATION DETERMINATION. ADDITIONAL READINGS OF PRESSURE TAKEN WITH THE ISOLOCK UPSTREAM ISO. VALVE CLOSED WILL PROVIDE SUFFICIENT INFORMATION TO MAKE THIS DETERMINATION. NO ACCEPTANCE CRITERIA ARE AFFECTED. NO RETEST IS REQUIRED.

DISPOSITION AND RETEST REQUIREMENTS BY:
10·17-95
DATE

DISPOSITION ACTIONS COMPLETE:
Verified By: J. Dallas 10-17-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required):
N/A
DATE

RETEST COMPLETE:
N/A
PIC DATE

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APPENDIX B

COMPLETED OSP-OTP-002
MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST PROCEDURE

PG B-2

200 AREA LIQUID EFFLUENT FACILITIES
MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST PROCEDURE

OSP-OTP-002
PAGE 1 OF 28
REVISION NO. 0
EFFECTIVE DATE 7/25/95

Author/Cognizant Engineer

T.G. Howell/I.G. Papp I.G. Papp
Print Name/Signature

APPROVAL DESIGNATOR ES

PROCEDURE APPROVAL

OPERATIONS MANAGER
7/31/95
R.B. Wurz
Print Name/Signature

APPROVAL SIGNATURES

Cognizant Manager 7-27-95 N.J. Sullivan Print Name/Signature	Shift Manager or PIC J.M. PETTY J.M. Petty Print Name/Signature
Environmental 7-27-95 D.L. Flyckt Print Name/Signature	Operator Bruce E. Godfrey Bruce E. Godfrey 7-30-95 Print Name/Signature
Quality Assurance N/A Print Name/Signature	Safety MA M.A. Treadway 7-26-95 Print Name/Signature
Radiological Controls N/A Print Name/Signature	Other N/A Print Name/Signature/Organization

pg B-3

TEST PROCEDURE CHANGE RECORD

OTP Number ____________ Sheet ______ of ______

Total Number of Controlled Copies Issued ______ Controlled Copies Dispositioned ______

CHANGE LETTER	DATE	APPROVAL DESIGNATOR	REASON FOR CHANGE	APPROVALS
				Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date
AFFECTED PAGES/ STEP NOS.				

SIGNATURE RECORD: By signing below, I attest that I am aware of and understand my duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this OTP, and as assigned by the PIC.

INITIALS	SIGNATURE	PRINTED NAME	TITLE	ORGANIZATION
IGP	Ivan G. Papp	Ivan G. Papp	Engineer	LEF Process Eng.
		Lisa Ingram	NPO	LEF OPS
MAL	Mike A [illegible]	Mike A [illegible]	NPO	LEF Ops
VJT	V J Trainor	V. J. Trainer	NPO	242-A Ops
LLL		Lilly Lin	Engineer	LEF Process Eng
DEC	Coleman	D.E. Coleman	INST	INST
MBG	MB Geffre	MB. Geffre	Inst.	Maintenance
LWG	Larry Guffey	L.W. Guffey	Pipe Fitter	Maintenance
TWD	T. Dallas	Tim DALLAS	PIC	OPS

TEST LOG	TEST NUMBER:	TEST LOG PAGE NUMBER: ____ of ____

TEST TITLE:

TIME/DATE	EVENT DESCRIPTION/SIGNATURE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:

TEST NAME:

T.E. NUMBER:

DESCRIPTION OF PROBLEM:

ORIGINATOR:

ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☐ CONTINUE

PIC DATE

DISPOSITION:

DISPOSITION AND RETEST REQUIREMENTS BY:

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

DATE

RETEST COMPLETE:

PIC DATE

pg B-7

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED

1.0 TITLE

MODULE 6 LERF/INFLUENT SYSTEMS OPERABILITY TEST

2.0 PURPOSE

This test procedure will provide for completion of those technical requirements identified in the 200 Area Effluent Treatment Facility Module 6 Test Specification for the LERF/Influent Systems (WHC-SD-ETF-TS-002, Rev 0). Those requirements include:

- Verify all system instrumentation has been calibrated.
- Verify proper operation of system manual valves.
- Verify all switches and alarms associated with system instrumentation have been verified to actuate at given set values/alarm points.
- Verify proper operation of the interlock between AOV-60A055 and LERF Basin Transfer Pumps P-42/43/44-4.
- Verify proper operation of the LERF Transfer Pumps at rated flow conditions without exceeding full load amps.

All actions will be performed and indications taken at the OCS unless otherwise stated.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 If during performance of this procedure, any of the following conditions are found, immediately notify the Person-In-Charge:

- Any equipment malfunction which could prevent fulfillment of it's functional requirements.
- Personnel error or procedural inadequacy which could prevent fulfillment of procedural requirements.

The Person-In-Charge may choose to stop work and place equipment in a safe condition based on the significance of the malfunction, error or inadequacy.

3.2 Contact Person-In-Charge for additional instructions if changing plant conditions affect work or delays in work extend past end of shift.

3.3 Any waste generated during performance of this instruction shall be packaged in accordance with OSP-65D-003, Package Waste, for disposal.

3.4 Comply with WHC and plant/facility specific lock and tag or over-tagging requirements, as applicable.

3.5 All Measuring and Test Equipment (M&TE) used during performance of this procedure to collect qualitative data with the exception of timing devices shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
  NOTE: Clamp-on flow meter, used in step 5.3.3, does NOT require a calibration sticker or an expiration date.
- Be capable of desired range.
- Have an accuracy (consistent with state-of-the-art limitations) equal to or greater than the accuracy specified in the procedure.

3.6 Timing measurements shall be made with commercially available time devices.

3.7 The Person-In-Charge has overall control of the testing process and change authorization for this procedure. They are responsible for running the test, data collection, and ensuring compliance with all requirements in this procedure.

3.8 All readings are to be taken and recorded for each location where the capability exists (i.e. local instrument, LCU, MCS).

4.0 PREREQUISITES

4.1 Pre-start Conditions

4.1.1 Indicating transmitters and instruments are currently calibrated per Appendix 1.

TWD
10-17-95

Signature: Di Dallas Date/Time: 10-18-95 0830
Person-In-Charge

4.1.2 Controlling computer software is available for testing and the event printer is operational.

Signature: S L Carmichael Date/Time: 13:45 10-17-95
Cognizant Engineer

4.2 The PIC, the Test Engineer(s), and Test Operators have been indoctrinated in the requirements of this plan before conducting any test activities.

Signature: Di Dallas Date/Time: 10-18-95/0820
Person-In-Charge

4.2.1 At beginning of each shift, brief personnel involved in test, distribute data sheets as required, place personnel in position, and establish communications as required. All personnel participating in the performance of the OTP shall show completion of this requirement by signing the Pre-Job Safety Meeting Form (BD-6000-696.1), WP macro GEF120.

4.2.2 All test personnel have completed the signature record sheet attesting that they are aware of and understand their duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this procedure, and as assigned by the PIC.

Signature: JC Dallas Date/Time: 10-18-95/0845
Person-In-Charge

4.2.3 System and equipment walkdowns have been completed by the Test Engineer to ensure all components are correctly configured to support beginning the test activities.

Signature: I. S. Papp Date/Time: 10-17-95/16:47
Test Engineer

4.2.4 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214, Rev 0) have been designated to act as Person-In-Charge by the LEF Operations Manager.

Approved Person-In-Charge

Tim Dallas

Jim Petty

Dave Nelson

Signature: Date/Time: 10/13/95 1030
Operations Manager

4.2.5 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214, Rev 0) have been designated to act as Test Engineer(s) by the Manager, LEF Process Engineering.

Approved Test Engineer(s)

Bob Pavlina / Dave Vasquez

Darrell Heimberger / Paul Haigh

Ivan Papp

Signature: Date/Time: 10-13-95
Manager, Process Engineering

4.2.6 200 Area ETF operating special procedures OSP-60M-003 and OSP-60A-001 have been validated prior to beginning performance of this procedure.

Signature: J. Dallas Date/Time: 10-17-95 1647
Shift Operations Manager (SOM)

4.2.7 A Job Hazard Analysis has been completed prior to beginning performance of this procedure.

Signature: J. Dallas Date/Time: 10-17-95 0945
SOM

4.2.8 Obtain release from Operations management prior to beginning performance of this procedure.

Signature: J. Dallas Date/Time: 10-18-95 0900
SOM

4.3 Test Equipment

4.3.1 Transmation capable of receiving or transmitting a 4-20ma signal.

4.3.2 Stop watch.

Signature J. Dallas Date/Time 10-18-95/0947

5.0 INSTRUCTIONS

5.1 Initial Conditions for Testing

5.1.1 The Surge Tank inlet valve position indication and Surge Tank level indication is functioning as indicated at the MCS.

Signature: Di Dallas Date/Time: 10-18-95/0940

5.1.2 VERIFY no transfer of liquid from 242-A Evaporator to the LERF Basins is in progress or will be made during this testing.

Signature: Di Dallas Date/Time: 10-18-95 0940
PIC

5.2 Manual Valve Test

TE-01
TWD
10-18-95

5.2.1 CYCLE all manual valves listed in Appendix 3 full travel and leave in the as found position.

Signature ____________ Date/Time____/____

5.2.2 RECORD all valve deficiencies in the Test Log.

5.3 LERF Basin 42 Testing

5.3.1 ALIGN LERF Basin Pump P-42-4 for recirculation of the basin:

VALVE NUMBER	VALVE NAME & LOCATION	REQUIRED POSITION	INITIALS (1)	IV (2)
HV-42-8		CLOSE	Ml	TWP for VT
HV-43-20		CLOSE	Ml	TWP for VT
HV-42-9		OPEN	Ml	TWP for VT
HV-42-10		OPEN	Ml	TWP for VT
60A-031	AOV-60A055 inlet isolation	CLOSE	~~Ml~~ 10-19-95	TWP for VT
AOV-60A055		Manually CLOSE	TWP for WC	TWD
AOV-60A055		ACTUATE override on LERF 42 Graphics.	TWP for WC	TWP
HV-42-16		OPEN	Ml	TWP for VT
HV-42-50		CLOSE	Ml	TWP for VT
HV-42-18		CLOSE	Ml	TWP for VT
HV-42-15		CLOSE	Ml	TWP for VT
HV-43-13		CLOSE	Ml	TWP for VT

Signature ____ Date/Time 1520/10-19-95

Signature ____ Date/Time 10-17-95/1:20

5.3.2 TURN ON Pump P-42-4 disconnect switch, at Basin 42.

(M) 5.3.3 INSTALL clamp-on flow measuring device on Pump P-42-4 discharge pipe downstream of LV-P42-4-1.

Instrument Data

Manufacturer: Dynasonics, Inc.

Model No: M3-902

Serial No: NONE

Signature ____ Date/Time 10-18-95/1304

5.3.4 INSTALL a temporary test instrument current source in the insti n loop for Surge Tank level transmitter LT 60A012.

Instrument Data

Manufacturer: Altek ind Corp.
Model No: ~~[illegible]~~ TWD 435-3E
Serial No: 8173540037
Expires Date: 10-6-96

Signature Di Dallas Date/Time 10-18-95/1317

5.3.5 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of 98% on LI~~C-P42-4-1~~ 60A-012.

5.3.6 VERIFY Surge Tank high level alarm LAH-60A012 is initiated.

Signature Di Dallas Date/Time 10-18-95/1316

5.3.7 PLACE TAG HS-P42-4-~~1~~ 3 TWD 10-18-95 in START.

5.3.8 VERIFY that Pump P-42-4 does not start.

Signature Di Dallas Date/Time 10-18-95/1338

5.3.9 PLACE TAG HS-P42-4-~~1~~ 3 TWD 10-18-95 in STOP.

5.3.10 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of ~~50%~~ on ~~LIC-P42-4-1~~. TWD 10-18-95 LI-60A-012 TWD TE-02 ~~60%~~ TWD 65% 10-18-95

~~5.3.11 ADJUST LIC-P42-4-1 setpoint to 50%~~. TE-02 TWD 10-18-95

5.3.12 VERIFY Surge Tank high level alarm LAH-60A012 is clear.

Signature Di Dallas Date/Time 10-18-95/1345

5.3.13 PLACE TAG HS-P42-4-~~1~~ 3 TWD 10-18-95 in START.

5.3.14 VERIFY, locally, LV-P42-4-1 starts to slowly open.

Signature WM Cameron Date/Time 10-18-95/1346

5.3.15 VERIFY pump P-42-4 STARTS.

Signature WM Cameron Date/Time 10/18/96 / 1415

A TWD 10-17-95

5.3.16 ALLOW pump flow to stabilize, THEN RECORD pump discharge pressure, flow rate and motor amps:

Discharge Pressure PI-42-1 0 Pounds Per Square Inch (psig)

P-42-4 Flow clamp-on device 85 Gallons Per Minute (gpm)

P-42-4 motor amps II-P42-4-1 7.75 amps

Signature WM Cameron Date/Time 10/18/95 / 1425

5.3.17 VERIFY Pump P-42-4 flow indicated on the clamp-on flow meter is ≥ 55 gpm.

Signature WM Cameron Date/Time 10/18/95 / 1426

5.3.18 VERIFY low flow alarm FAL-P42-4-1 is clear.

Signature WM Cameron Date/Time 10/18/95 / 1427

5.3.19 DE-ACTIVATE AOV-60A055 override.

TWD 10-18-95 5.3.20 ~~CLOSE~~ verify Closed Surge Tank Inlet valve AOV-60A055 from graphics SURGE.v.

5.3.21 VERIFY Pump P-42-4 stops.

Signature WM Cameron Date/Time 10/18/95 / 1433

5.3.22 OPEN Surge Tank Inlet valve AOV-60A055 from graphics SURGE.v.

5.3.23 START Pump P-42-4 from graphics LERF 42.

5.3.24 VERIFY LV-P42-4-1 starts to slowly open.

Signature WM Cameron Date/Time 10/18/95 / 1434

5.3.25 VERIFY pump P-42-4 STARTS.

Signature WM Cameron Date/Time 10/18/95 / 1434

TE-02 TWD 10-18-95

5.3.26 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of 25% on ~~LIC-P42-4-1~~. TWD 10-18-95 ~~FT~~ LT-60A-012

5.3.27 VERIFY LV-P42-4-1 opens to allow full flow.

Signature J. Dallas Date/Time 10-18-95 / 1412

A TWD 10-17-95

5.3.28 ALLOW pump flow to stabilize, THEN RECORD pump discharge pressure, flow rate and motor amps:

Discharge Pressure PI-42-1 0 psig
P-42-4 Flow clamp-on device 200 gpm
P-42-4 motor amps II-P42-4-1 8.74 amps

Signature WM Cameron Date/Time 10/18/95 / ~~1412~~ 1620

TE-06 TWD 10-18-95 5.3.29 VERIFY Pump P-42-4 flow indicated on the clamp-on flow meter is approximately 170 gpm. ~~(150 - 175)~~. (150 - 175) TWD 10-18-95

Signature WM Cameron Date/Time 10/18/95 / 1720

5.3.30 VERIFY Pump P-42-4 motor amps do not exceed 8.9 amps.

Signature WM Cameron Date/Time 10/18/96 / 1612

5.3.31 VERIFY pump operates without unusual vibration being felt in attached discharge piping or structure.

Signature WM Cameron Date/Time 10/18/95 / 1610

B TWD 10-18-95 (M) 5.3.32 INSTALL a jumper across Terminal Point 2 in LCU1, position 1-2-A, to bring in Surge Tank high level alarm LAH-60A013.

Signature WM Cameron Date/Time 10/18/95 / 1713

5.3.33 VERIFY Pump P42-4 STOPS.

Signature WM Cameron Date/Time 10/18/95 / 1713

B TWD 10-18-95 5.3.34 REMOVE the jumper to clear Surge Tank high level alarm LAH-60A013.

Signature WM Cameron Date/Time 10/18/95 / 1713

(M) 5.3.35 REMOVE clamp-on flow measuring device from Pump P-43-4 discharge pipe downstream of LV-P44-4-1.

5.4 LERF Basin 43 Testing

5.4.1 ALIGN LERF Basin Pump P-43-4 for recirculation of the basin as follows:

VALVE NUMBER	VALVE NAME & LOCATION	REQUIRED POSITION	INITIALS (1)	IV (2)
HV-43-8		CLOSE	FOR WMC MG	WMC
HV-43-20		CLOSE	FOR WMC MG	WMC
HV-43-6		CLOSE	FOR MG WMC	WMC
HV-43-4		CLOSE	FOR MG WMC	WMC
HV-43-5		CLOSE	FOR MG WMC	WMC
HV-43-9		OPEN	FOR MG WMC	WMC
HV-43-10		OPEN	FOR MG WMC	WMC
60A-031	AOV-60A055 inlet isolation	CLOSE	WMC	TWD WMC
AOV-60A055	Surge Tank Inlet valve	Manually CLOSE	WMC	TWD WMC
AOV-60A055		ACTUATE override on LERF 43 graphics	WMC	TWD
HV-43-16		OPEN	FOR MG WMC	WMC
HV-43-50		OPEN	FOR MG WMC	WMC

Signature WM Cameron Date/Time 10/18/95 1742 For M Garrity

Signature WM Cameron Date/Time 10/18/95/ 1742 for JiDa

5.4.2 TURN ON Pump P-43-4 disconnect switch at Basin 43.

5.4.3 INSTALL clamp-on flow measuring device on Pump P-43-4 discharge pipe downstream of LV-P43-4-1.

Instrument Data

Manufacturer: ~~ALTEK INDUSTRIES CORP~~ Dynasonic inc TWD

Model No: ~~435-3E~~ TWD M3-G02

Serial No: ~~81735590037~~ NONE

Expires Date: ~~10-6-96~~ NONE

TWD 10-18-95

Signature WM Cameron Date/Time 10/18/95/ 1730

5.4.4 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of 98% on LI~~C-P43-4-1~~ 60A-012.

5.4.5 VERIFY Surge Tank high level alarm LAH-60A012 is initiated.

Signature WM Cameron Date/Time 10/18/95 / 1730

5.4.6 PLACE TAG HS-P43-4-1 in START.

5.4.7 VERIFY that Pump P43-4 does not start.

Signature WM Cameron Date/Time 10/18/95 / 1744

5.4.8 PLACE TAG HS-P43-4-1 in STOP.

5.4.9 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of ~~50%~~ 65 on LI~~C-P43-4-1~~ 60A-012.

TE-04 TWD 10-18-95

TE-02 TWD 10-18-95

~~5.4.10 ADJUST LIC-P43-4-1 setpoint to 50%.~~

5.4.11 VERIFY Surge Tank high level alarm LAH-60A012 is clear.

Signature WM Cameron Date/Time 10/18/95 / 1750

5.4.12 PLACE TAG HS-P43-4-1 in START.

5.4.13 VERIFY, locally, LV-P43-4-1 starts to slowly open.

Signature WM Cameron Date/Time 10/18/95 / 1804

5.4.14 VERIFY pump P-43-4 STARTS.

Signature WM Cameron Date/Time 10/18/95 / 1804

A TWD 10-17-95

5.4.15 ALLOW pump flow to stabilize,
THEN RECORD pump discharge pressure, flow rate and motor amps:

Discharge Pressure PI-43-1 0 psig

P43-4 Flow clamp-on device 105 gpm

P43-4 motor amps II-P43-4-1 8.60 amps

Signature WM Cameron Date/Time 10/18/95 / 1806

5.4.16 VERIFY Pump P-43-4 flow indicated on the clamp-on flow meter is ≥55 gpm.

Signature WM Cameron Date/Time 10/18/95 / 1806

5.4.17 VERIFY low flow alarm FAL-P43-4-1 is clear.

Signature WM Cameron Date/Time 10/18/95 / 1807

5.4.18 PLACE Surge Tank Inlet valve AOV-60A055 in MANUAL at graphics SURGE.v.

5.4.19 CLOSE Surge Tank Inlet valve AOV-60A055 from graphics SURGE.v.

5.4.20 VERIFY Pump P-43-4 stops.

Signature WMCameron Date/Time 10/18/95 / 1808

5.4.21 OPEN Surge Tank Inlet valve AOV-60A055 from graphics SURGE.v.

5.4.22 START Pump P-43-4 from graphics LERF 43.

5.4.23 VERIFY, locally, LV-43-1 starts to slowly open.

Signature W M Cameron Date/Time 10/18/95 / ~~1810~~ WMC 1810

5.4.24 VERIFY pump P-43-1 STARTS.

Signature W M Cameron Date/Time 10/18/95 / 1810

5.4.25 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of 25% on LI~~C-P43-4-1~~ 60A-012.

5.4.26 VERIFY, locally, LV-43-1 opens to allow full flow.

Signature WM Cameron Date/Time 10/18/95 / 1813

5.4.27 ALLOW pump flow to stabilize, THEN RECORD pump discharge pressure, flow rate and motor amps:

A TWD 10-17-95

Discharge Pressure PI-43-1 0 psig

P-43-4-1 Flow clamp-on device 204 gpm

P-43-4-1 motor amps II-P43-4-1 9.37 amps

Signature WM Cameron Date/Time 10/18/95 / ~~1804~~ WMC 1814

TE-06 TWD 10-18-95

5.4.28 VERIFY Pump P-43-4 flow indicated on the clamp-on flow meter is approximately 170 gpm ~~(150 — 175)~~. (150 - 175)

Signature WM Cameron Date/Time 10/18/95 / 1815

TE-05 TWD 10-18-95

5.4.29 VERIFY, locally, Pump P-43-4 motor amps do not exceed 8.9 amps.

Signature ________ Date/Time ____/____

5.4.30 VERIFY pump operates without unusual vibration being felt in attached discharge piping or structure.

Signature WM Cameron Date/time 10/18/95 / 1815

5.4.31 STOP Pump P-43-4 from graphics LERF 43.

(M) 5.4.32 REMOVE clamp-on flow measuring device from Pump P-43-4 discharge pipe downstream of LV-P43-4-1.

5.5 LERF Basin 44 Testing

5.5.1 ALIGN LERF Basin Pump P-44-4 for recirculation of the basin as follows:

VALVE NUMBER	VALVE NAME & LOCATION	REQUIRED POSITION	INITIALS (1)	IV (2)
60A-031	AOV-60A055 inlet isolation	CLOSE	FOR MG WMC	WMC
AOV-60A055	Surge Tank Inlet valve	CLOSE Manually	FOR MG WMC	TWD
AOV-60A055		override on LERF 44 graphics	WMC	TWD
HV-44-8		CLOSE	FOR MG WMC	WMC
60M-04B		CLOSE	FOR MG WMC	WMC
HV-44-16		OPEN	FOR MG WMC	WMC
60M-05		CLOSE	FOR MG WMC	WMC
HV-44-7		CLOSE	FOR MG WMC	WMC
HV-44-50		CLOSE	FOR MG WMC	WMC
HV-44-10		OPEN	FOR MG WMC	WMC
HV-44-9		OPEN	FOR MG WMC	WMC

Signature Wm Cameron Date/Time 10/18/95 / 1820

Signature Wm Cameron Date/Time 10/18/95 / 1820

5.5.2 TURN ON Pump P-44-4 disconnect switch at Basin 44.

(M) 5.5.3 INSTALL clamp-on flow measuring device on Pump P-44-4 discharge pipe downstream of LV-P44-4-1.

Instrument Data
Manufacturer: ~~ALTEK INDUSTRIES CORP~~ TWD 10-18-95 Dynasonic inc
Model No: ~~435-3E~~ M3-902
Serial No: ~~817 35400 ST~~ NONE
Expires Date: ~~10-6-96~~ NONE

Signature Wm Cameron Date/Time 10/18/95 / 1827

5.5.4 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of 98% on LI~~C-P44-4-1.~~ 60A-012

5.5.5 VERIFY Surge Tank high level alarm LAH-60A012 is initiated.

Signature WM Cameron Date/Time 10/18/95 / 1816

5.5.6 PLACE TAG HS-P44-4-1 in START.

5.5.7 VERIFY that Pump P-44-4 does not start.

Signature WM Cameron Date/Time 10/18/95 / 1827

5.5.8 PLACE TAG HS-P44-4-1 in STOP.

5.5.9 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of ~~50%~~ 65% on LI~~C-P44-4-1~~ 60A-012.

TE-04 TWD 10-18-95

~~5.5.10 ADJUST LIC-P43-4-1 setpoint to 50%.~~

TE-02 TWD 10-18-95

5.5.11 VERIFY Surge Tank high level alarm LAH-60A012 is clear.

Signature WM Cameron Date/Time 10/18/95 / 1832

5.5.12 PLACE TAG HS-P44-4-1 in START.

5.5.13 VERIFY LV-P44-4-1 starts to slowly open.

Signature WM Cameron Date/Time 10/18/95 / 1833

5.5.14 VERIFY pump P-44-4 STARTS.

Signature WM Cameron Date 10/18/95 / 1834

5.5.15 ALLOW pump flow to stabilize, THEN RECORD pump discharge pressure, flow rate and motor amps:

A TWD 10-17-95

Discharge Pressure PI-44-1 0 psig
P-44-4 Flow clamp-on device wm ~~298~~ 98 gpm
P-44-4 motor amps II-P44-4-1 7.78 amps

Signature W M Cameron Date 10/18/95 / 1835

5.5.16 VERIFY Pump P-44-4 flow indicated on the clamp-on flow meter is approximately ≥55 gpm.

Signature WM Cameron Date/Time 10/18/95 / 1835

5.5.17 VERIFY low flow alarm FAL-P44-4-1 is clear.

Signature WM Cameron Date/Time 10/18/95 1836

5.5.18 PLACE Surge Tank Inlet valve AOV-60A055 in MANUAL at graphics SURGE.v.

5.5.19 CLOSE Surge Tank Inlet valve AOV-60A055 from graphics SURGE.v.

5.5.20 VERIFY Pump P-44-4 stops.

Signature D. Dau Date/Time 10-18-95/1835

5.5.21 OPEN Surge Tank Inlet valve AOV-60A055 from graphics SURGE.v.

5.5.22 START Pump P-44-4 from graphics LERF 44.

5.5.23 VERIFY, locally, LV-P44-4-1 starts to slowly open.

Signature WM Cameron Date/Time 10/18/95 / 1837

5.5.24 VERIFY pump P-44-4 STARTS.

Signature WM Cameron Date/Time 10/18/95 / 1838

5.5.25 ADJUST the temporary test instrument LT-60A012 current source current output to achieve a level indication of 25% on LI~~C-P44-4-1~~ 60A-012.

5.5.26 VERIFY LV-P44-4-1 opens to allow full flow.

Signature WM Cameron Date/Time 10/18/95 / 1839

A TWD 10-17-95 5.5.27 ALLOW pump flow to stabilize, THEN RECORD pump discharge pressure, flow rate and motor amps:

Discharge Pressure PI-44-1 0 psig

P-44-4 Flow clamp-on device 204 gpm

P-44-4 motor amps II-P44-4-1 8.72 amps

Signature WM Cameron Date/Time 10/18/95 / 1840

TE-06 TWD 10-18-95 5.5.28 VERIFY Pump P-44-4 flow indicated on the clamp-on flow meter is approximately 170 gpm ~~(150 - 175)~~. (150 - 175)

Signature WM Cameron Date/Time 10/18/95 / 1840

5.5.29 VERIFY Pump P-44-4 motor amps do not exceed 8.9 amps.

Signature WM Cameron Date/Time 10-18-95/ 1840

5.5.30 VERIFY pump operates without unusual vibration being felt in attached discharge piping or structure.

Signature WM Cameron Date/Time 10-18-95/ 1840

5.5.31 STOP Pump P-44-4 from graphics LERF 44.

(M) 5.5.32 REMOVE clamp-on flow measuring device from Pump P-43-4 discharge pipe downstream of LV-P44-4-1.

5.6 Secure From Test

5.6.1 VERIFY that all temporary test instrumentation has been removed from the Verification System.

Signature Dallas Date/Time 10-18-95/1900

5.6.2 ALIGN the LERF Basin Transfer System valves per Appendix 4.

Signature Dallas Date/Time 10-18-95/2100

6.0 DATA REQUIRED

This signed orginal of this procedure, in it's entirety, will be retain as a record of performance.

7.0 REFERENCES

7.1 Internal References

7.1.1 LCU-55M-17 UPS Vendor Manual.

7.2 Bibliography

7.2.1 H-2-88766, Sheet 1, P&ID 242-A Evap & C018H Influent System.
7.2.2 H-2-88766, Sheet 2, P&ID Liquid Effluent Retention Facility & C018H Influent System.
7.2.3 H-2-88766, Sheet 3, P&ID Liquid Effluent Retention Facility & C018H Influent System.
7.2.4 H-2-88766, Sheet 4, P&ID Liquid Effluent Retention Facility & C018H Influent System.
7.2.5 H-2-88818, Electrical/Instm Elementary Diagrams.
7.2.6
7.2.7 H-2-88813, Sheet 1, Electrical\Instm Interconn & Wiring Diag LERF Instm Bldg
7.2.8 H-2-99059, Sheet 13, Instm Interconnection Diagram

8.0 APPENDICES and/or ATTACHMENTS

Appendix 1: List of Instrumentation Requiring Calibration Verification.

Appendix 2: Manual Valve Cycle List

Appendix 3: LERF Transfer System Restoration Valve Alignment.

APPENDIX 1

List of Instrumentation Requiring Calibration Verification

Equipment Number	Functional Description	Signature	Date/Time
FT/FI-60A001	Influent Receiving/Staging ETF Load In Station	Ti Dallas	10-13-95 1535
FT/FI-60A002	Influent Receiving/Staging retention Basins (LERF) Flow	Ti Dallas	10-13-95 1535
FT/FI-60A003	Influent Receiving/Staging 242-A Evaporator Flow	Ti Dallas	10-13-95 1535
LT/LI-60A012	Surge Tank Level	Ti Dallas	10-13-95 1535
LIC-P42-4-1	LERF Basin 42 Local Surge Tank Level Indication		
PI-42-1	LERF Basin 42 Pump Discharge Pressure		
LIC-P43-4-1	LERF Basin 43 Local Surge Tank Level Indication		
PI-43-1	LERF Basin 43 Pump Discharge Pressure	A TWD 10-13-95 PCA	
LIC-P44-4-1	LERF Basin 44 Local Surge Tank Level Indication		
PI-44-1	LERF Basin 44 Pump Discharge Pressure		
TT/TI-60M4302	Instrument Building 242AL71 Temperature		
FSL-P42-4-1	LERF Basin Pump P42-4-1 Low Flow		
FSL-P43-4-1	LERF Basin Pump P43-4-1 Low Flow		
FSL-P44-4-1	LERF Basin Pump P44-4-1 Low Flow		

APPENDIX 2

MANUAL VALVE CYCLE LIST			
Valve Number	Valve Description	Signature	Date/Time
HV-42-10	Basin 242AL-42	J. Dallas	10-18-95 1000
HV-42-8	Basin 242AL-42	J. Dallas	10-18-95 1000
HV-42-16	Basin 242AL-42	J. Dallas	10-18-95 1000
HV-43-20	Basin 242AL-43	J. Dallas	10-18-95 1010
HV-43-6	Basin 242AL-43	J. Dallas	10-18-95 1010
60M-05	Basin 242AL-44	J. Dallas	10-18-95 1010
60M-04B	Basin 242AL-44	J. Dallas	10-18-95 1010
HV-42-18	Basin 242AL-42	J. Dallas	10-18-95 1015
HV-42-15	Basin 242AL-42	J. Dallas	10-18-95 1015
HV-42-9	Basin 242AL-42	J. Dallas	10-18-95 1015
HV-42-50	Basin 242AL-42	J. Dallas	10-18-95 101
HV-43-15	Basin 242AL-43	J. Dallas	10-18-95 1017
HV-43-13	Basin 242AL-43	J. Dallas	10-18-95 1019
HV-43-10	Basin 242AL-43	J. Dallas	10-18-95 1019
HV-43-9	Basin 242AL-43	J. Dallas	10-18-95 1019
HV-43-8	Basin 242AL-43	J. Dallas	10-18-95 1022
HV-43-5	Basin 242AL-43	J. Dallas	10-18-95 1022
HV-43-4	Basin 242AL-43	J. Dallas	10-18-95 1022
HV-43-3	Basin 242AL-43	J. Dallas	10-18-95 1024
60M-04A	Basin 242AL-43	J. Dallas	10-18-95 1024
HV-4~~4~~3-2 TWD 10-18-95	Basin 242AL-43	TE-01	
~~HV-44-8~~	~~Basin 242AL-44~~ TWD 10-18-95	TWD 10-18-95	
HV-44-10	Basin 242AL-44	J. Dallas	10-18-95 1030
HV-44-9	Basin 242AL-44	J. Dallas	10-18-95 1030
HV-44-7	Basin 242AL-44	J. Dallas	10-18-95 1027
60M-12D	Basin 242AL-44	J. Dallas	10-18-95 103

APPENDIX 2

MANUAL VALVE CYCLE LIST			
Valve Number	Valve Description	Signature	Date/Time
60M-14E	Inside Secondary Containment	TE-01 TWD 10-18-95	
60M-16B	Inside Secondary Containment	TE-01 TWD 10-18-95	
HV-43-50	Basin 242AL-43	T. Dallas	10-18-95 1040
HV-44-8	Basin 242AL-44	T. Dallas	10-18-95 1040
HV-44-16	Basin 242AL-44	T. Dallas	10-18-95 1050
HV-44-2	Basin 242AL-44	T. Dallas	10-18-95 1110
HV-44-50	Basin 242AL-44	T. Dallas	10-18-95 1110

APPENDIX 3, LERF TRANSFER SYSTEM RESTORATION VALVE ALIGNMENT

VALVE NUMBER	VALVE NAME & LOCATION	REQUIRED POSITION	INITIALS (1*)	IV (2)
HV-42-8	LERF Basin Pump P42-4-1 Discharge Header Isolation Valve	CLOSED	aea	ERC
HV-43-20	LERF Basin Transfer Header Isolation Between Basin 42 and Basin 43	CLOSED	aea	ERC
HV-42-9	LERF Basin Pump P42-4-1 Basin Recirculation Isolation Valve	CLOSED	aea	ERC
HV-42-10	LERF Basin Pump P42-4-1 Discharge Valve	CLOSED	aea	ERC
60A-031	AOV-60A055 Inlet Isolation Valve	CLOSED	MG	TWD
AOV-60A055	Surge Tank Inlet Isolation Valve	CLOSED	RC	aea
HV-43-8	LERF Basin Pump P43-4-1 Discharge Header Isolation Valve	CLOSED	aea	ERC
HV-43-6	LERF Basin Transfer Header Isolation Between Basin 43 and Basin 44	CLOSED	aea	ERC
HV-43-4	242-A Evaporator Transfer Header to LERF Basin Isolation Valve	CLOSED	aea	ERC
HV-43-5	242-A Evaporator Transfer Header to LERF Basin Isolation Valve	CLOSED	aea	ERC
HV-43-9	LERF Basin Pump P43-4-1 Basin Recirculation Isolation Valve	CLOSED	aea	ERC
HV-43-10	LERF Basin Pump P43-4-1 Discharge Valve	CLOSED	aea	ERC
HV-44-8	LERF Basin Pump P44-4-1 Discharge Header Isolation Valve	CLOSED	aea	ERC
60M-05	242-A Evaporator Transfer Header to ETF Surge Tank Isolation Valve	CLOSED	aea	ERC
60M-04B	LERF Basin Transfer Header to ETF Surge Tank Isolation Valve	CLOSED	aea	ERC
HV-44-9	LERF Basin Pump P44-4-1 Basin Recirculation Isolation Valve	CLOSED	aea	ERC
HV-44-10	LERF Basin Pump P44-4-1 Discharge Valve	CLOSED	aea	ERC

Operator E.R. CATAWAY / ERC 10-18-95
PRINT NAME INITIALS DATE

Operator ALVIN E. ANDOR aea 10/18/95
PRINT NAME INITIALS DATE

SOM/SOE COMPLETION REVIEW J. Dallas DATE 10-18-95

TEST LOG

TEST NUMBER: OSP-OTP-002

TEST LOG PAGE NUMBER: 1 of 2

TEST TITLE: LERF/INFLUENT OTP

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
0800 10-18-95	Held test indoctorination and Pre Job
	Safety Brief. J. Dallas
0930 10-18-95	Cycled Manual Valves at Lerf. All
	Valves worked Fine. J. Dallas
1045 10-18-95	Dispatched Maint. to install temp flow
	meter on Basin 42.
1046 10-18-95	Started Prevalving. J. Dallas
1434 10-18-95	Step 5.3.27 ~~EP~~ TWD 10-18-95 LV-P42-4-1 did not open fully
	When Surge tank Level decreased to 25%.
	Software Eng is looking at Software to
	Verify Proper Programming. J. Dallas
1530 10-18-95	T.E.-02 Written on steps 5.3.27. Will Retest
	appropriate Sections Predisposition. J. Dallas
1620 10-18-95	Resumed testing Per OTP. J. Dallas
1713 10-18-95	Completed Basin 42 testing and Setting up Basin
	43. J. Dallas

TEST LOG

TEST NUMBER: OSP-OTP-002

TEST LOG PAGE NUMBER: 2 of 2

TEST TITLE: LERF/influent Reception OTP.

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
1742 10-18-95	Started Basin 43 testing. Ji Dallas
1815 10-18-95	Basin 43. Pump Current exceeded 8.9 Amps Per
	Step 5.4.29. TE-05 written testing Continued.
1817 10-18-95	Completed Basin 43 testing.
1827 10-18-95	Started testing Basin 44.
1843 10/18/95	Completed testing Basin 44.
2000 10-18-95	Secure from test

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED
01	10-18-95	Section 5.2.1 could not be completed as referenced in Appendix 2.	Valve names (tags) corrected from typographical errors and duplication	10-24-95
02	10-18-95	5.3.27 Did not Perform as expected.	Controller input was corrected for proper operation.	10-24-95
03	10-18-95	5.3.1 & 5.5.1 could not be performed as indicated in steps	Corrected typo in wording and valve positions verified.	10-24-95
04	10-18-95	5.3.10/5.4.9/5.5.9 Set point for current simulator requires change.	Surge Tk level simulation was change to accomodate further testing and prove system performance.	10-24-95
05	10-18-95	Current indicator reading higher than predicted.	Amperage verified to be in an acceptable range by historic operating values.	10-24-95
06	10-18-95	Flow meter readings higher than predicted.	Flow meter inaccuracies along with operational & Design requirements deem indication of 200-204 is acceptable.	10-24-95

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-002 section 5.2.1 /Appx 2	TEST NAME: Mod 6 LERF/Infl. Operability test procedure	T.E. NUMBER: 01

DESCRIPTION OF PROBLEM: Appendix 2 on page 2~~8~~6 & 2~~9~~7 contains a listing of system valves which requires the following corrections as verified by field walk down.

Page 2~~8~~6 lists HV-44-2 in Basin 43; should be HV-43-2

HV-44-8 is listed on page 2~~8~~6 and 2~~9~~7; the table should only contain the entry on page 2~~9~~7.

Page 2~~9~~7 lists 60M-14E & 60M-16B, these valves are in the Surge Tank Sump area and not readily accessable They are not required to be stroked at this time. Stroking can be done at the convenience of the operations organization prior to testing.

ORIGINATOR: I.G. Papp

Ivan G Papp

LEF Process Eng. 10-18-95
ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION
☒ CONTINUE

J. Dallas 10-18-95
PIC DATE

DISPOSITION:

change HV-44-2 in basin 43 to HV-43-2

· Eliminate or cross out the entry of HV-44-8 on page 28

Delete the requirement to stroke 60M-14E & 60M-16B in this procedure.

No retest required.

DISPOSITION AND RETEST REQUIREMENTS BY:

~~N/A~~ I. G. Papp 10-18-95
DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: J Dallas ~~N/A~~ 10-18-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required): N/A DATE	RETEST COMPLETE: N/A PIC DATE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-002 5.3.11 5.5.10 5.3.27 5.4.10

TEST NAME: Module 6 LERF/Inf. Syst Operability Test Procedure

T.E. NUMBER: 02

DESCRIPTION OF PROBLEM: Step 5.3.27 Did not perform as expected. LV-P42-4-1 did not open on decresing Surge Tk (60A-TK-1) level as simulated. Step 5.3.11 is not required. Step 5.4.10 is not required. Step 5.5.10 is not required.

ORIGINATOR: I.G. Papp
J G. Papp

LEF Process Eng 10-18-95
ORG: DATE:

IMPACT ON TESTING: ☒ HOLD FOR RESOLUTION
☐ CONTINUE

10-18-95
PIC DATE

DISPOSITION:
A setpoint for Level Control Valve 60% was added in controller and controller was placed in "auto" in software configuration. Procedure will be restarted at step 5.3.10 then skip to 5.3.22 and continue step wise. Step 5.3.10 will be changed to adjust Surge Tk level simulated signal to 65% rather than 50%.
Note: 60% as indicated on LI-60A-012. No RETEST REQUIRED

DISPOSITION AND RETEST REQUIREMENTS BY:
J G Papp 10-18-95
DATE

DISPOSITION ACTIONS COMPLETE:
Verified By: 10-18-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required): N/A DATE	RETEST COMPLETE:- N/A PIC DATE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & OSP-OTP-002 SECTION: 5.3.1 & 5.5.1	TEST NAME: OSP-OTP-002 Module 6 LERF/INF OTP	T.E. NUMBER: 03

DESCRIPTION OF PROBLEM:

- HV-43-13 is listed under Basin 42 line up but actually located in basin 43.
- Valve 60A-031 in section 5.5.1 is not accessable due to limited access.

ORIGINATOR:

I.G. Papp Ivan G Papp

ORG: LEF Process

DATE: 10-18-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

PIC: Di Dau

DATE: 10-18-95

DISPOSITION:

- Valve HV-43-13 verified in correct position to conduct test by test engineer I.G. Papp and LEF Operator and 242-A EVAP operator.
- 60A-031 is not crucial for LERF operation during this test. Value should be left in "As Is" position.

DISPOSITION AND RETEST REQUIREMENTS BY:

~~N/A~~ IG Papp 10-18-95

DATE

DISPOSITION ACTIONS COMPLETE:

Di Dau 10-18-95

Verified By: IG Papp 10-18-95

DATE

QAE CONCURRENCE WITH DISPOSITION (if required): N/A DATE	RETEST COMPLETE: N/A PIC DATE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:	TEST NAME:	T.E. NUMBER:
OSP-OTP-002 5.3.10/5.4.9/5.5.9	Module 6 LERF/INF Syst OTP	04

DESCRIPTION OF PROBLEM:

The Surge Tank level of 50% as called for is less than the set value for the level controller of 60% Surge Tk level as defined in test exception 02.

ORIGINATOR: I.G. Papp

VS Papp

ORG: LEF Process

DATE: 10-18-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

Di Dallas 10-18-95

PIC DATE

DISPOSITION:

Adjust Surge Tk 60A-TK-001 level (as simulated) to 65% rather than 50% as previously called out. No retest required.

DISPOSITION AND RETEST REQUIREMENTS BY:

~~N/A~~ VS Papp 10-18-95

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: Di Dallas 10-18-95

DATE

QAE CONCURRENCE WITH DISPOSITION (if required): N/A DATE	RETEST COMPLETE: N/A PIC DATE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-002 5.4.29	TEST NAME: Module 6 LERF/Infl Syst. Operability Test Proc	T.E. NUMBER: 05

DESCRIPTION OF PROBLEM:

Current on Pump P-43-4 motor indicates > 8.9 amps

ORIGINATOR: I.G. Papp

Ivan G Papp

ORG: LEF Process

DATE: 10-18-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

J. Dallas

PIC

DATE: 10-18-95

DISPOSITION:

2 new pumps and one previously used pump was used as the permanent transfer pumps in LERF. The FLA was based on new pump performance. The 9.37 amps as noted in 5.4.27 is consistent with the current historically noted on the previously used pumps. No immediate action is required. Pump performance will continue to be monitored.

DISPOSITION AND RETEST REQUIREMENTS BY: ~~N/A~~ IG Papp

DATE: 10-18-95

DISPOSITION ACTIONS COMPLETE:

Verified By: ~~N/A~~ J. Dallas

DATE: 10-18-95

QAE CONCURRENCE WITH DISPOSITION (if required): N/A DATE	RETEST COMPLETE: N/A PIC DATE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-002 5.3.29/5.4.28/5.5.28

TEST NAME: Module 6 LERF/INFL Systems O

T.E. NUMBER: 06

DESCRIPTION OF PROBLEM:

5.3.29 Flow range of 150-175 gpm was not achieved. Flow of 200 gpm was observed.

5.4.28 Flow of 204 was observed

5.5.28 Flow of 204 was observed

ORIGINATOR: I.G. Papp J S Papp

Engineering 10-18-95

ORG: LEF Process DATE:

IMPACT ON TESTING: ○ HOLD FOR RESOLUTION ☒ CONTINUE

10-18-95

PIC DATE

DISPOSITION:

5.3.29. Test flow meter indication of 200 gpm is with an acceptable range for operation. Instrument error is considered. No retest required.

5.4.28 Flow of 204 is acceptable for operation. No retest.

5.5.28 Flow of 204 is acceptable for operation. No retest.

DISPOSITION AND RETEST REQUIREMENTS BY:

J.S. Papp 10-18-95

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: 10-18-95

DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

N/A

DATE

RETEST COMPLETE:

N/A

PIC DATE

TEST PROCEDURE CHANGE RECORD OTP Number OSP-OTP-002 Sheet 1 of 1 Total Number of Controlled Copies Issued 1 Controlled Copies Dispositioned yes

CHANGE LETTER	DATE	APPROVAL DESIGNATOR	REASON FOR CHANGE	APPROVALS
A	10-17-95	N/A	Change: LIC-P42-4-1 LIC-P43-4-1 LIC-P44-4-1 will not require calibration prior to testing These are controllers which operate on a signal from LT/LI-60A012 which is calibrated. PI-42-1 PI-43-1 PI-44-1 Pressure readings are for information only and are used as a second check to verify pump operation. Calibration prior to testing is not required TT/TI-60M4302 Not required to be calibrated for this test. Building is thermostatically controlled and will be in service tested. FSL-P42-4-1 ; FSL-P44-4-1 FSL-P43-4-1 Flow switches will be field verified by in service testing and not pre calibrated.	Signature/Organization/Date J.S. Papp / 10-17-95 / 10-17-95 Signature/Organization/Date R. B. Wey /10/18/95 Signature/Organization/Date Operations Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date

AFFECTED PAGES/ STEP NOS.
Page 9 4.1.9.
Page 1~~6~~4 5.3.16
Page 1~~7~~5, 5.3.28
Page ~~20~~18 5.4.15
Page 2~~2~~0 5.4.27
Page 2~~4~~2 5.5.15
Page 2~~8~~3 . 5.5.27
Page 2~~7~~5 Appendix 1

WHC-SD-ETF-OTR-001, REV. 0

Pg B-44

pg 13-45

CHANGE LETTER: B

DATE: 10-18-95

APPROVAL DESIGNATOR: N/A

REASON FOR CHANGE

Jumper installation as verified in field will cause potentially of unrelated equipment shutdown. Correct procedure as follows:

1) Reword Step 5.3.32 as follows:
In panel JB-LCU6, DC on TB-A remove fuse FU4 to simulate LSH-60A013 actuation of alarm LAHX-60A012.

2) Reword step 5.3.34 as follows:
Restore fuse FU4 removed in step 5.3.32 and verify alarm LAHX-60A012 clears.

AFFECTED PAGES/ STEP NOS.

Page 1~~8~~6 / 5.3.32 & 34

APPROVALS

Signature/Organization/Date
J L Page / Process Eng / 10-18-95

Signature/Organization/Date
N J Bull / PROC. ENGINEERING / 10-18-95

Signature/Organization/Date
/ Process Eng / 10-18-95
R Bailey 10/18/95

Signature/Organization/Date
Operation

Signature/Organization/Date

Signature/Organization/Date

Signature/Organization/Date

Signature/Organization/Date

APPENDIX C

OSP-OTP-004
MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

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200 AREA LIQUID EFFLUENT FACILITIES

MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

OSP-OTP-004

PAGE 1 OF 46

REVISION NO. 0

EFFECTIVE DATE 9/25/95

Author/Cognizant Engineer
Signature on File
TG HOWELL/R CLINTON
Print Name/Signature

APPROVAL DESIGNATOR ESQ

PROCEDURE APPROVAL

OPERATIONS MANAGER
R.B. Wurz 9/21/95
Print Name/Signature

APPROVAL SIGNATURES

Cognizant Manager Signature on File N.J. Sullivan Print Name/Signature	Shift Operations Manager or PIC Signature on File D.P. Nelsen Print Name/Signature
Environmental Signature on File D.L. Flyckt Print Name/Signature	Operator Signature on File Steve Gephart Print Name/Signature
Radiation Control Signature on File P.B. Brannan Print Name/Signature	Safety Signature on File M.A. Tredway Print Name/Signature
Quality Assurance Signature on File M.J. Warn Print Name/Signature	Other N/A Print Name/Signature/Organization

Pg C-3

TEST PROCEDURE CHANGE RECORD OTP Number ____________ Sheet ______ of ______

Total Number of Controlled Copies Issued ________ Controlled Copies Dispositioned ________

CHANGE LETTER	DATE	APPROVAL DESIGNATOR	REASON FOR CHANGE	APPROVALS
				____________ Signature/Organization/Date ____________ Signature/Organization/Date ____________ Signature/Organization/Date ____________ Signature/Organization/Date ____________ Signature/Organization/Date ____________ Signature/Organization/Date ____________ Signature/Organization/Date ____________ Signature/Organization/Date

AFFECTED PAGES/ STEP NOS.

SIGNATURE RECORD: By signing below, I attest that I am aware of and understand my duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this OTP, and as assigned by the PIC.

INITIALS	SIGNATURE	PRINTED NAME	TITLE	ORGANIZATION
RFC	Ross F Carrigan	Ross F Carrigan	NPO	86220
		NEAL J. SULLIVAN	ENG. MGR	86230
		R. J. HUTH	ENGINEER	86230
		R. Clinton	Engineer	86230/0HK32
TWD	Ti Dallas	Tim DALLAS	SOM/PIC	86220
		PAUL G. HAIGH	SOE	86220

TEST LOG

TEST NUMBER:

TEST LOG PAGE NUMBER: ______ of ____

TEST TITLE:

TIME/DATE	EVENT DESCRIPTION/SIGNATURE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:	TEST NAME:	T.E. NUMBER:

DESCRIPTION OF PROBLEM:

ORIGINATOR: ORG: DATE:	IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☐ CONTINUE PIC DATE

DISPOSITION:

DISPOSITION AND RETEST REQUIREMENTS BY: DATE	DISPOSITION ACTIONS COMPLETE: Verified By: DATE
QAE CONCURRENCE WITH DISPOSITION (if required): DATE	RETEST COMPLETE: PIC DATE

WHC-SD-ETF-OTR-001, REV. 0

Pg C-7

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED

1.0 TITLE

SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST

2.0 PURPOSE

This test procedure will provide for completion of those technical requirements identified in the 200 Area Effluent Treatment Facility Module 9 Test Specification for the Sample Prep Room Systems (WHC-SD-ETF-TS-002, Rev 0). Those requirements include:

- Verify the D.I. Water pump operates with no evidence of cavitation or high bearing temperature.
- Verify logics for D.I. Water Pump low low level trip.
- Verify D.I. Water Pump capacity and discharge pressure.
- Verify logics for temperature interlock for D.I. Water Cooler initiation and D.I. IX Column bypass valve operation.
- Verify that water quality meets Type II Reagent grade standards.
- Verify proper operation of Evaporator Still logics and control circuit.
- Verify proper response of Evaporator Still to D.I. Water Tank level.
- Verify capacity of Evaporator Still.
- Verify the sample hood Vacuum Pump operates at capacity with no evidence of high bearing temperature.
- Verify available supply of D.I. Water and cold water at each sample hood.
- Verify proper operation of all Solenoid and motor operated valves.

All actions will be performed and indications taken locally unless otherwise stated.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 If during performance of this procedure, any of the following conditions are found, immediately notify the Person-In-Charge:

- Any equipment malfunction which could prevent fulfillment of it's functional requirements.
- Personnel error or procedural inadequacy which could prevent fulfillment of procedural requirements.

The Person-In-Charge may choose to stop work and place equipment in a safe condition based on the significance of the malfunction, error or inadequacy.

3.2 Contact Person-In-Charge for additional instructions if changing plant conditions affect work or delays in work extend past end of shift.

3.3 If any waste is generated during performance of this instruction consult Facility/Plant/Area Hazardous Waste Coordinator for specific instructions to ensure compliance with WHC and DOE environmental standards, as applicable, for disposal.

3.4 Comply with WHC and plant/facility specific lock and tag or over-tagging requirements, as applicable.

3.5 All Measuring and Test Equipment (M&TE) used during performance of this procedure to collect qualitative data with the exception of timing devices shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy (consistent with state-of-the-art limitations) equal to or greater than the accuracy specified on the Data Sheet.

3.6 Timing measurements shall be made with commercially available time devices.

3.7 The Person-In-Charge has overall control of the testing process and change authorization for this procedure. They are responsible for running the test, data collection, and ensuring compliance with all requirements in this procedure.

3.8 All readings are to be taken and recorded locally.

3.9 Concentrated hydrogen peroxide is extremely harmful and can cause severe eye and skin burns.

3.10 If exposed to peroxide, immediately rinse affected area with water for at least fifteen minutes and contact SOM/Control Room. Do not rub affected area.

3.11 Organic material, such as paper, wood and oil, may spontaneously catch fire on contact with hydrogen peroxide. All items/areas which may come into contact with hydrogen peroxide are to be free of materials are interactive with hydrogen peroxide, such as organics and powdered metals.

3.12 Three day incubation period is required to determine the bacteria levels of the sample (Step 5.13).

4.0 PREREQUISITES

4.1 Pre-start Conditions

4.1.1 At beginning of each shift, brief personnel involved in test, distribute data sheets as required, place personnel in position, and establish communications as required. All personnel participating in the performance of the OTP shall show completion of this requirement by signing the Pre-Job Safety Meeting Form (BD-6000-696.1), WP macro GEF 120.

TE-01
10-12-95
TWD

4.1.2 Indicating transmitters and instruments in Appendix 1 are currently calibrated.

TWD 10-12-95

Signature: ______________ Date/Time: ________
Person-In-Charge

T.E. 01
10-12-95
TWD

4.1.3 Ensure that the filter cartridge has been removed from the 5B-F-1 filter housing prior to performing this procedure.

Signature: ______________ Date/Time: 21 OCT 95 10 14
Person-In-Charge

039290 10-20-95

4.2 Procedure users have reviewed MSDS ~~1257~~, Hydrogen Peroxide, and evaluated tasks for potential hazards.

4.3 The following items are available:

- Working Safety Shower/Eyewash Station
- Spill Kit
- Barriers, safety flags/tape
- Communications with Control Room
- Tape, masking or similar

4.4 Personal Protective Equipment:

- Full face shield
- Chemical goggles
- Full acid suit
- Rubber gloves and boots (butyl is preferred, see Health and Safety Plan for other options)

4.5 The PIC, the Test Engineer(s), and Test Operators have been indoctrinated in the requirements of this test before conducting any test activities.

TWD
12

Signature: Ti Dallas Date/Time: 10-~~11~~-95 0837
Person-In-Charge

4.5.1 All test personnel have completed the Signature Record sheet attesting that they are aware of and understand their duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this procedure, and as assigned by the PIC.

TWD
12

Signature: Ti Dallas Date/Time: 10-~~11~~-95 0837
Person-In-Charge

4.5.2 System and equipment walkdowns have been completed by the Test Engineer to ensure all components are correctly configured to support beginning the test activities.

Signature: Date/Time: 10·12·95 0837
Test Engineer

4.5.3 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Person-In-Charge by the LEF Operations Manager.

Approved Person-In-Charge
Tim Dallas
Jim Petty
John Ullman
Dave Nelson
Paul Haagh 10/20/95 — 1300

Signature: Date/Time: 10/11/95 / 1600

Operations Manager

4.5.4 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Test Engineer(s) by the Manager, LEF Process Engineering.

Approved Test Engineer(s)

R.J. Huth

Paul Haigh

Dave Vasquez

Bob Paulina

Darcell Heimbarger

Signature: Date/Time: 10-12-95

Manager, Process Engineering

4.5.5 Obtain release from Operations management prior to beginning performance of this procedure.

Signature: Date/Time: 10/12/95

Operations Manager

4.5.6 Operating Special Procedure OSP-05-001 has been validated prior to beginning performance of this procedure.

Signature: Ji Dallas Date/Time: 11-11-95 1612

Shift Operations Manager

4.5.7 A Job Hazard Analysis has been completed prior to beginning performance of this procedure.

Signature: Ji Dallas Date/Time: 11-11-95 1612

Shift Operations Manager

4.6 Test Equipment

4.6.1 Transmation capable of reading or transmitting a 4-20ma signal.

TE 02 10-12-95 TWD → 4.6.2 Pyrometer with a range of 0-200°F.

4.6.3 Clamp-on ammeter capable of reading 0-50 amps.

4.6.4 Electrical jumper with closed switch.

TE-02 10-12-95 TWD → 4.6.5 Vacuum gage with a range of 0 to 25 in. Hg.

4.6.6 Vibration meter.

4.7 The following craft personnel are available, as necessary:

- Electrician (E)
- Pipefitter (P)
- Mill Wright (M)

5.0 INSTRUCTIONS

NOTE

This system has no installed labeling. Appendix 3 contains a sketch, with valve numbers, of the Deionized (D.I.) Water system.

5.1 Initial Conditions for Testing

5.1.1 The Sample Prep Room Deionized Water System is available for testing.

Signature:__________ Date/Time: 1017 21 OCT 95

5.1.2 The Sample Prep Room Vacuum System is available for testing.

Signature: Ti Dallas Date/Time: 10-12-95 0800

5.1.3 Sanitary Water System is in service to support this test.

Signature: Ti Dallas Date/Time: 10-12-95 0800

5.1.4 Sump Tank 2 is in service to accept water used in this test.

Signature:__________ Date/Time: 1018 21 OCT 95

5.1.5 RCA HVAC System is available to support Lab Hood testing.

Signature: Ti Dallas Date/Time: 10-12-95 0800

5.2 Evaporator Still Logics and Control Circuit Testing

5.2.1 PERFORM system valve alignment per Appendix 2, D.I. Water System Valve Lineup.

Signature__________ Date 10/21/95

NOTE

The jumper installed in step 5.2.2 is used to simulate a low Evaporator Still level.

(E) 5.2.2 INSTALL a jumper with a CLOSED switch in series with one lead to LS-5B031, on South wall of Sample Prep Room.

9 10-21-95

5.2.3 OPEN 5B-020, Cold Water Feed Manual In to Condenser AND 5B-008, DI Water Cooler Manual In. 21 OCT 9

5.2.4 START the Evaporator Still, by depressing the POWER Switch on the Evaporator Still Controller Panel. & the OPERATE switch on the D.I. Water Control Panel. 21 OCT 9

~~5.2.5 VERIFY amber "Still ON" light is illuminated~~. MOVE TO 5.2.9 21 OCT 9

Signature ____________ Date 10/21/95 1017

5.2.6 VERIFY SOV-5B-021 has opened, by listening for flow and observing a level increase in the Evaporator Still.

Signature ____________ Date 21 OCT 95/ 1015

5.2.7 VERIFY SOV-5B-025 has closed, by verifying no flow to the drain.

Signature ____________ Date 1015 / 21 OCT 95

5.2.8 MONITOR level increase in Evaporator Still, 2025E-5B-ST-1, by using installed sight glass, LI-5B030.

NOTE

The heating element contactor makes a loud clacking sound when it opens and closes.

9
10-21-95

5.2.9 VERIFY heating element contactor closes when water level is above the physical level of the low level shutoff probe, LS-5B031, using LI-5B030. AND "STILL ON" Light illuminated.
21 OCT 9

Signature ______ Date 1014 / 21 OCT 95

(E) 5.2.10 OPEN installed test switch at LS-5B031, simulating a Low Level in the Evaporator Still.

5.2.11 VERIFY heating element contactor opens, de-energizing the heating elements.

Signature ______ Date 1019 / 21 OCT 95

5.2.12 DEPRESS POWER Switch on the Evaporator Still Controller Panel, initiating a STOP signal to the Evaporator Still.

5.2.13 VERIFY SOV-5B-025 has opened, by verifying flow to the drain.

Signature ______ Date 1020 / 21 OCT 95

5.2.14 VERIFY SOV-5B-021 has closed, by observing level decrease in the Evaporator Still sightglass.

Signature ______ Date 1020 / 21 OCT 95

(E) 5.2.15 REMOVE test jumper from LS-5B031.

5.2.16 START Evaporator Still, by depressing the POWER Switch on the Evaporator Still Controller Panel.

5.2.17 VERIFY the amber "Still ON" light is illuminated.

5.2.18 MONITOR operation of the Evaporator Still, 2025E-5B-ST-1, as the D.I. Storage Tank, 2025E-5B-TK-1, is being filled.

5.2.19 MARK the level on the D.I. Storage Tank sight glass 5B-034.

5.2.20 AFTER four hours of operation, MEASURE and RECORD increase in D.I. Storage Tank level.

1125
1 1/8 inches. Signature ______ Date 1435 / 21 OCT 95

NOTE

Multiplying level change (inches) times 2.68 (the number of gallons per inch of tank level) and dividing this product by the Evaporator Still run time results in determination of Evaporator Still capacity, in gallons per hour (gph).

5.2.21 CALCULATE Evaporator Still capacity.

a)
1.125 inches X 2.618 = 2.965
Level Change — Gallons per inch of tank level — total gallons produced

b)
2.965 gallons ÷ 4 hours = 0.741 gph
Total gallons produced — run time — capacity

TE-07
21 OCT 95

5.2.22 VERIFY Evaporator Still capacity is 9 - 11 gph.

Signature ______ Date ___/___

5.3 D.I. Water Pump Capacity Testing

△9 10-21-95

5.3.1 VERIFY D.I. Storage Tank, 2025E-5B-TK-1, is ~~one-quarter to three-quarters~~ full, using installed sight glass, LI-5B034. 21 OCT 95

A) IF sight glass level is out of acceptable range THEN OPERATE Evaporator Still UNTIL level is acceptable.

5.3.2 MARK D.I. Storage Tank level on the sight glass with tape.

(P) 5.3.3 DISCONNECT tubing fitting at the inlet to the DI Water Cooler.

(P) 5.3.4 ATTACH temporary tubing to route water to the North Sink.

△9 10-21-95

5.3.5 START the D.I. Water Pump, 2025E-5B-P-1, by depressing the OPERATE Switch on the D.I. Water Control Panel AND HS-5B-035. ~~START stop watch.~~ 21 OCT 95

5.3.6 VERIFY D.I. Water Pump, 2025E-5B-P-1, starts.

Signature ______ Date ~~1047~~ 947/ 23 OCT 95

△9 10-21-95

5.3.7 OPEN 5B-002, to establish flow to the North Sink. AND START a stop watch. 21 OCT 95

5.3.8 RECORD pump discharge pressure as indicated on PI-5B036.

20 psig Signature ______ Date ~~1048~~ 948/ 23 OCT 95

5.3.9 MONITOR D.I. Water Pump for cavitation.

△9 10-21-95

5.3.10 AFTER two minutes of operation, STOP D.I. Water Pump 2025E-5B-P-1. AND the STOP watch 21 OCT 95

5.3.11 CLOSE 5B-002.

5.3.12 MEASURE and RECORD the decrease in D.I. Storage Tank level.

Level Change 6 3/8 inches

Signature Date ~~1051~~ 951 /23 OCT 95

NOTE

Multiplying level change (inches) times 2.618 (number of gallons per inch of tank level), then dividing this product by the pump run time results in pump flow rate (gpm).

5.3.13 CALCULATE pump flow rate.

a)
6.375 inches X 2.618 = 16.69
Level Change — Gallons per inch of tank level — total gallons produced

b)
16.69 gallons ÷ 2 minutes = 8.34 gpm
Total gallons produced — run time — capacity

Signature Date 1052/ 23 OCT 95

NOTE

Pump operating curve, Appendix 4, provides pump operational limits.

5.3.14 VERIFY the D.I. Water Pump flow rate is within limits.

Signature Date ~~1058~~ 955 /23 OCT 95

~~I.E. OK~~
~~23-OCT-95~~

TE-06 23.OCT-95

5.3.15 CALCULATE acceptable pressure range for pump operation at actual flow rate.

a)

Actual pump flow rate = ____________ gpm (step 5.3.13)

b)

Target pump pressure = ____________ psi (Appendix 4 curve)

c)

Upper pressure limit =

_____ psi + (__________ x 0.10) = _____ psi
Target pump pressure Target pump pressure

d)

Lower pressure limit =

_____ psi - (__________ x 0.10) = _____ psi
Target pump pressure Target pump pressure

Signature ____________ Date____/_____

TE-04 23 OCT 95

5.3.16 VERIFY actual pump pressure, recorded in Step 5.3.8, is between the upper and lower pressure limits calculated in step 5.3.15.
Signature ____________ Date____/_____

5.3.17 VERIFY the D.I. Water Pump operated without signs of cavitation.
Signature ____________ Date 1022 / 23 OCT95

(P) 5.3.18 REMOVE temporary tubing on the inlet to the DI Water Cooler.
Signature ____________ Date 1030 / 23 OCT95

(P) 5.3.19 RECONNECT permanent tubing to the inlet to the DI Water Cooler.
Signature ____________ Date 1032 / 23 OCT95

5.4 D.I. Water System Fill and Vent

a

10-21-95

5.4.1 VERIFY D.I. Water Tank 2025E-5B-TK-1 is ~~one-quarter to three-quarters~~ full, using sight glass, LI-5B034.

21 OCT 95

A) IF sight glass level is out of acceptable range THEN OPERATE Evaporator Still UNTIL level is acceptable.

5.4.2 START D.I. Water Pump 2025E-5B-P-1, by depressing the OPERATE Switch on the D.I. Water Control Panel.

5.4.3 VERIFY D.I. Water Pump 2025E-5B-P-1 starts.

Signature ________ Date 1041 / 23 OCT 95

CAUTION

Air will be vented during initial fill of a system. Water hammer can occur until the system is vented and filled.

5.4.4 OPEN 5B-002 to fill the D.I. Water System, establishing recirculation flow back to the D.I. Water Storage Tank 2025E-5B-TK-1.

5.4.5 INSPECT system for leakage.

5.4.6 RECORD location of leaks in Test Log.

(E) 5.4.7 MEASURE and RECORD running amperage of D.I. Water Pump using a clamp-on ammeter.

______ amps

5.4.8 VERIFY amperage of D.I. Water Pump does not exceed 8.2 amps.

Signature ____________ Date____/_____

5.4.9 MEASURE and RECORD D.I. Water Pump motor bearing temperatures every 15 minutes for one hour.

Time	Outboard Motor Bearing	Inboard Motor Bearing
	°F	°F
	°F	°F
	°F	°F
	°F	°F

5.4.10 VERIFY temperatures recorded in Step 5.4.9 are <180°F.

Signature ____________ Date____/_____

5.5 D.I. Water Cooler/D.I. IX Column Logics Testing

(E) 5.5.1 INSTALL a temporary test instrument voltage source in the instrument loop for D.I. Water System Temperature transmitter TE-5B037.

Instrument Data

Manufacturer:______________
Model No:______________
Serial No:______________
Expires Date:______________

(E) 5.5.2 ADJUST temporary test instrument TE-5B037 voltage source voltage output to achieve a temperature indication of ≥70°F on TI-5B037.

5.5.3 VERIFY Cooling Water Supply SOV-5B-009 opens.

Signature ____________ Date____/_____

(E) 5.5.4 ADJUST temporary test instrument TE-5B037 voltage source voltage output to achieve a temperature indication of ≥85°F on TI-5B037.

5.5.5 VERIFY MOV-5B-004 OPENS to recirculate system flow directly to D.I. Storage Tank 2025E-5B-TK-1.

Signature ____________ Date____/_____

5.5.6 VERIFY MOV-5B-003 CLOSES to isolate flow to the D.I. IX Columns 2025E-5B-IX-1 and 2025E-5B-IX-2.

Signature ____________ Date____/_____

(E) 5.5.7 ADJUST temporary test instrument TE-5B037 voltage source voltage output to achieve a temperature indication of ≤80°F on TI-5B037.

5.5.8 VERIFY MOV-5B-003 OPENS to establish system flow through D.I. IX Columns bypass.

Signature ____________ Date____/_____

5.5.9 VERIFY MOV-5B-004 CLOSES to isolate direct recirculation flow to the D.I. Storage Tank 2025E-5B-TK-1.

Signature ____________ Date____/_____

(E) 5.5.10 REMOVE temporary test instrument voltage source in instrument loop for D.I. Water System Temperature transmitter TE-5B037.

5.6 UV Sterilizer Test

5.6.1 ENERGIZE UV Lamp 2025E-5B-UV-1, by inserting lamp plug into wall outlet at UV lamp.

5.6.2 VERIFY lamp operation by observing a bluish glow at the indicating window on the UV Lamp housing.

Signature ____________ Date_____/_____

5.6.3 DE-ENERGIZE UV Lamp 2025E-5B-UV-1 by unplugging the lamp.

5.7 D.I. Water Supply to Sample Hood Test

CAUTION

Air will be vented during initial fill of a system. Water hammer can occur until the system is vented and filled.

5.7.1 VENT D.I. Water to hoods/sinks sink using local valves at hoods/sinks, one at a time.

	Signature	Date/Time
● North Hood	____________	_____/_____
● Center Hood	____________	_____/_____
● South Hood	____________	_____/_____
● North Sink	____________	_____/_____
● South Sink	____________	_____/_____

5.8 D.I. Storage Tank Level Logics Test

5.8.1 VERIFY D.I. Storage Tank level is between 10 - 20 inches using sightglass 5B-034.

A) IF sight glass level is out of acceptable range THEN OPERATE Evaporator Still UNTIL level is acceptable.

5.8.2 VERIFY D.I. Water Pump 2025E-5B-P-1 is running.

5.8.3 VERIFY "Still On" lamp is illuminated on the Evaporator Still Control Panel.

5.8.4 ESTABLISH D.I. Water flow to one, or more, sample hoods/sinks.

NOTE

D.I. Water Storage Tank level should decrease due to water being drained from the tank via the hoods/sinks.

5.8.5 OBSERVE water level in the D.I. Water Storage Tank.

5.8.6 VERIFY and RECORD D.I. Water Pump 2025E-5B-P-1 STOPS at 9-11 inches from the bottom of the tank as indicated by sightglass 5B-034.

Level _____ inches Signature ____________ Date___/____

5.8.7 CLOSE D.I. Water isolation valves opened in step 5.8.4.

5.8.8 MONITOR D.I. Storage Tank level.

5.8.9 VERIFY Evaporator Still 2025E-5B-ST-1 shuts down when tank level increases 3-5 inches from the top of the D.I. Storage Tank, as indicated by 5B-034, as follows:

Level _____ inches

5.8.10 VERIFY the following actions occur WHEN the Evaporator Still shuts down:

A) Heaters de-energize.
B) SOV-5B-021 CLOSES.
C) SOV-5B-025 OPENS.

Signature ____________ Date____/_____

5.8.11 START D.I. Water Pump 2025E-5B-P-1, by depressing the OPERATE switch at the D.I. Water System Control Panel.

5.8.12 ESTABLISH D.I. Water flow to one, or more, sample hoods/sinks, using local valves.

5.8.13 OBSERVE level in the D.I. Water Storage Tank.

5.8.14 VERIFY Evaporator Still 2025E-5B-ST-1 starts at 19-21 inches from the bottom of the D.I. Storage Tank, as indicated by sightglass 5B-034.

Level _____ Signature ____________ Date____/_____

5.8.15 CLOSE D.I. Water isolation valve(s) to all valves opened in step 5.8.12.

5.9 Sample Prep Room Vacuum System Test

(P) 5.9.1 **INSTALL** test vacuum gage on suction side of Vacuum Pump, 2025E-5B-P-2.

Instrument Data

Manufacturer: Dwyer
Model No: 2030
Serial No: R60827C564 / 817-35-40-035
Expires Date: 7-20-96

5.9.2 **START** the Vacuum pump.

5.9.3 **VERIFY** system vacuum increases to greater than, or equal to, 18" Hg.

Vacuum 29.5" Signature J. Davis Date 10-12-95/0937

5.9.4 **OPEN** Vacuum Isolation valve at each sample hood to verify vacuum available at each hood.

- ○ North Hood
- ○ Center Hood
- ○ South Hood

Signature J. Davis Date 10-12-95/0939

5.9.5 MEASURE and RECORD Vacuum Pump motor bearing temperatures every 15 minutes for one hour.

TE-03
10-12-95
TWD

Time start 0935	Outboard Motor Bearing	Inboard Motor Bearing
0950	TE-03 °F	96 °F
1005	TE-03 °F	96 °F
1020	TE-03 °F	97 °F
1035	TWD 10-12-95 TE-03 °F	100 °F

5.9.6 VERIFY temperatures recorded in Step 5.9.5 are <180°F.

Signature ________ Date 10-12-95/1035

5.9.7 STOP Vacuum Pump.

(P) 5.9.8 REMOVE test vacuum gage.

5.10 Measure Lab Hood Fan Motor Current

5.10.1 PLACE Lab Hood Fans in service in accordance with OSP-05-001, Sample Preparatory Room Operations.

(E) 5.10.2 TAKE and RECORD motor current readings.

- Lab Hood Fan 45A-F-16 3.2 amps
- Lab Hood Fan 45A-F-17 3.3 amps
- Lab Hood Fan 45A-F-18 3.2 amps

(E) 5.10.3 RECORD name plate Full Load Amp data for each lab hood fan.

- Lab Hood Fan 45A-F-16 FLA 2.4 amps
- Lab Hood Fan 45A-F-17 FLA 2.4 amps
- Lab Hood Fan 45A-F-18 FLA 2.4 amps

TE-04
10-12-95
TWD

5.10.4 VERIFY amperage recorded in Step 5.10.2 do not exceed the name plate data in Step 5.10.3.

Signature ______________ Date____/_____

5.10.5 REMOVE Lab Hood Fans from service in accordance with OSP-5B-001, Sample Preparatory Room Operations.

5.11 Measure Lab Hood Fan And Motor Vibration

> **WARNING**
>
> Removal of metal shrouds exposes rotating equipment, presenting a personnel hazard.

(M) 5.11.1 REMOVE metal shrouds from around Lab Hood Fans 45A-F-16, 17, and 18.

(E) 5.11.2 RECORD motor RPM from nameplate data on data sheet (Appendix 5,6,7).

Signature ____ Date 10-12-95/1110

5.11.3 START fan 45A-F-16.

5.11.4 VERIFY fan started with no unusual noise or vibration.

1110. Signature ____ Date 10-12-95/1110

(E) 5.11.5 AFTER 5 minutes of run time,
THEN RECORD the following data on applicable data sheet (Appendix 5,6,7):

- horizontal, vertical, and axial peak to peak vibration of each bearing. TE #05 10-12-95 TWD

Signature ____ Date 10-12-95/1115

(E) 5.11.6 AFTER motor temperature has stabilized,
THEN RECORD vibration data, as listed in Step 5.11.5, on applicable data sheet (Appendix 5,6,7).

Signature ____ Date 10-12-95/1220

5.11.7 STOP the fan or blower

5.11.8 VERIFY no unusual noise or vibration during shutdown.

TE-06 10-12-95 TWD

5.11.9 VERIFY vibration data shows fan to be operating between Slightly Rough to Extremely Smooth using the chart provided in Appendix 8.

Signature ____ Date ___/___

5.11.10 REPEAT Steps 5.11.2 through 5.11.9 for fans 45A-F-17 and 45A-F-18.

(M) 5.11.11 RE-INSTALL metal shrouds.

5.12 Secure From Test

5.12.1 VERIFY all temporary test instrumentation has been removed from the D.I. Water System.

Signature ____________ Date/Time_____/_____

5.12.2 VERIFY D.I. Water System is in service in accordance with OSP-05-001.

Signature ____________ Date/Time_____/_____

5.12.3 VERIFY temporary test instrumentation has been removed from the Vacuum System.

Signature ____________ Date/Time 10-11-95/1220

5.13 D.I. Water System Sanitizing

5.13.1 START D.I. Water Pump 2025E-5B-P-1 by depressing the OPERATE Switch on the D.I. Water Control Panel.

Signature ____________ Date_____/_____

NOTE

Three day incubation period will be required to determine the bacteria levels of the sample.

5.13.2 DRAW two water samples from the D.I. Water supply to the South Hood and the North Sink to determine if bacteria levels require sanitizing of the system.

5.13.3 STOP D.I. Water Pump.

5.13.4 CLOSE 5B-002.

5.13.5 IF D.I. Water System bacteria count is greater than 100/ml,
THEN GO TO STEP 5.13.7.

5.13.6 IF D.I. Water System bacteria count is less than 100/ml, THEN GO TO STEP 5.13.~~10~~ 27

21 OCT 95

NOTE

A concentration of 5% - 6% hydrogen peroxide will be added to sanitize the D.I. Water system. This can be achieved by adding 11 gallons of 50%wt hydrogen peroxide to the D.I. Water Storage tank.

5.13.7 VERIFY the D.I. Water System Storage Tank 2025E-5B-TK-1 is 6" from top of tank, using installed sight glass, LI-5B034.

5.13.8 STOP the Evaporator Still by depressing the POWER Switch on the Evaporator Still Controller Panel.

5.13.9 ADD 11 gallons of peroxide to the D.I. Water Storage Tank:

A) DON required Personal Protective Equipment (PPE).

(P) B) REMOVE pipe cap downstream of valve 60D-302.

(P) C) ATTACH temporary tubing to pipe and place free end in one gallon container.

D) THROTTLE OPEN valve 60D-302 and slowly fill container with peroxide.

E) CLOSE 60D-302 when container is filled.

F) PLACE cap on container and transport to Sample Prep Room.

G) LIFT D.I. Water Storage Tank lid.

H) POUR hydrogen peroxide into tank.

I) REPEAT Steps 5.13.9.B through 5.13.9.G <u>UNTIL</u> eleven gallons of peroxide have been added to the D.I. Water Storage Tank.

J) REMOVE PPE.

(P) K) REMOVE temporary tubing.

(P) L) RE-INSTALL pipe cap downstream of 60D-302.

5.13.10 START D.I. Water Pump 2025E-5B-P-1 by depressing the OPERATE Switch on the D.I. Water Control Panel.

5.13.11 VERIFY D.I. Water Pump 2025E-5B-P-1 starts.

Signature ______________ Date____/______

5.13.12 OPEN 5B-002 to fill the D.I. Water System and establish recirculation flow back to D.I. Water Storage Tank 2025E-5B-TK-1.

5.13.13 ESTABLISH flow to each sink to ensure all piping has contact with the peroxide/water mixture.

5.13.14 FLUSH each sink for two minutes.

FLUSH COMPLETED

	Signature	Date/Time
• North Sink	________	___/___
• South Sink	________	___/___

5.13.15 RECORD setpoint for Temperature Alarm Number 2 for TS-5B-037, at the D.I. Water System control panel.

Setpoint ______

(P) 5.13.16 ADJUST setpoint for Temperature Alarm Number 2 for TS-5B-037, at the D.I. Water System control panel, to 5°F below the indicated temperature.

5.13.17 VERIFY MOV-5B-004 opens.

5.13.18 VERIFY MOV-5B-003 closes.

5.13.19 AFTER 5 minutes has elapsed,
RETURN setpoint for Temperature Alarm Number 2 to it's normal setpoint.

5.13.20 VERIFY MOV-5B-004 closes.

5.13.21 VERIFY MOV-5B-003 opens.

5.13.22 WAIT 30 minutes of contact time,
THEN OPEN D.I. Water valve at the North Sink.

NOTE

Pump 2025E-5B-P-1 trips on low level at approximately 10" above the bottom of the tank.

5.13.23 PUMP D.I. Water Storage Tank 2025E-5B-TK-1 down until pump 2025E-5B-P-1 trips on low level.

5.13.24 CLOSE D.I. Water valve to the North Sink.

5.13.25 CLOSE 5B-002.

5.13.26 DRAIN D.I. Water Storage Tank and system piping to sump.

5.13.27 START Evaporator Still 2025E-5B-ST-1, by depressing the POWER Switch on the Evaporator Still Controller Panel.

5.13.28 INSTALL filter cartridge in 2025E-5B-F-1.

5.13.29 <u>WHEN</u> D.I. Water Storage Tank 2025E-5B-TK-1 is full, <u>THEN</u> START D.I. Water Pump 2025E-5B-P-1 by depressing the OPERATE Switch on the D.I. Water System Control Panel.

5.13.30 OPEN 5B-002 to establish D.I. Water System recirculation.

5.13.31 FLUSH water through each sink and sample hood supply for (approximately) five minutes each.

5.13.32 OPEN 5B-005.

5.13.33 OPEN 5B-007.

5.13.34 CLOSE 5B-006, establishing flow through ion exchange columns 2025E-5B-IX-1 and 2025E-5B-IX-2.

5.13.35 MONITOR D.I. Water System resistivity on AI-5B039 to ensure an upward trend to >1 megohm/cm.

5.14 D.I. Water System Quality Testing

NOTE

Resistivity instrument AI-5B038 provides a rough indication of the water quality leaving the first ion exchanger. Acceptable quality is indicated when the green LED is illuminated and non-acceptable quality is indicated when the red LED is illuminated.

5.14.1 IF the D.I. Water Pump is not running, THEN START D.I. Water Pump 2025E-5B-P-1, by depressing the ON/OFF button on the D.I. Water System Control Panel.

5.14.2 VERIFY operation of resistivity indicator AI-5B038 located between the ion exchange columns, by observing either the green or red LED is illuminated.

Signature ______________ Date_____/_____

5.14.3 VERIFY D.I. Water System resistivity increases to greater than 1 megohm/cm, as indicated ON AI-5B039 at the D.I. Water System Control Panel.

Signature ______________ Date_____/_____

5.14.4 LEAVE D.I. Water System in service in accordance with OSP-05-001, to maintain system resistivity >1 megohm and to minimize bacteria buildup unless instructed by SOM to do otherwise.

6.0 DATA REQUIRED

The original of this procedure, in it's entirety will be retained as record of performance.

7.0 REFERENCES

7.1 Internal References

7.1.1 OSP-05-001, Sample Preparatory Room Operations.

7.2 Bibliography

7.2.1 H-1382-022-005, Chem Lab Flow Diagram.
7.2.2 H-1382-022-006, Chem Lab Flow Diagram.
7.2.3 H-1382-022-015, D.I. Water Control Panel Schematic Diagram.
7.2.4 V-1002-0029-B-003, Automatic Controls for Electrically Heated Stills.
7.2.5 OSP-60D-002, Hydrogen Peroxide Receiving.

8.0 ATTACHMENTS

Appendix 1:	List of Instrumentation Requiring Calibration Verification.
Appendix 2:	D.I. Water System Valve Lineup
Appendix 3:	D.I. Water System Drawing.
Appendix 4:	D.I. Water Pump Operating Curve.
Appendix 5:	Vibration Data Sheet for Lab Hood Fan 45A-F-16.
Appendix 6:	Vibration Data Sheet for Lab Hood Fan 45A-F-17.
Appendix 7:	Vibration Data Sheet for Lab Hood Fan 45A-F-18.
Appendix 8:	Vibration Displacement & Velocity Severity Chart For General Horizontal Rotating Machinery.

APPENDIX 1

List of Instrumentation Requiring Calibration Verification			
Equipment Number	Functional Description	Signature	Date/Time
LS-5B031	Evaporator Still Low Level Cut-Off Probe		
LS-5B033	D.I. Water Storage Level Switch		
PI-5B036	D.I. Water Pump Discharge Pressure Indicator		
AE/AI-5B039	D.I. Water System Ion Exchanger Outlet Resistivity Cell		
AI-5B038	D.I. Water System Resistivity Indicator (between the ion exchangers)		
PI-5B040	D.I. Water System Filter Inlet Pressure Indicator		
PI-5B041	D.I. Water System Filter Outlet Pressure Indicator		
TS/TI-5B037	D.I. Water Cooler Outlet Temperature Switch		

OSTG-01
22 OCT 95

OSTE-01
22 OCT 95

OSTE-01
22 OCT .95

OSTE-01
22 OCT 95

OSTE-01
22 OCT 95

TE-01
21 OCT 95

TE-01
21 OCT 95

TE-01
21 OCT 95

MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

OSP-OTP-004

APPENDIX 2, DI WATER SYSTEM VALVE LINEUP

VALVE NUMBER	VALVE NAME & LOCATION	REQUIRED POSITION	INITIALS (1*)	IV (2)
5B-001	DI WATER STORAGE TK OUT ISOL	OPEN	YAF	
MOV-5B-003	DI WATER SYS RESIN COLUMN IN ISOL	~~OPEN~~		21 OCT 95
MOV-5B-004	DI WATER SYS HIGH TEMP RECIRC	~~CLOSE~~		21 OCT 95
5B-005	DI WATER SYS RESIN COLUMN IN ISOL	CLOSE	YAF	
5B-006	DI WATER SYS RESIN COLUMN BYPASS	OPEN	YAF	
5B-007	DI WATER SYS RESIN COLUMN OUT ISOL	CLOSE	YAF	
SOV-5B-009	DI WATER SYS HEAT EXCHANGER COOLING WATER IN	~~CLOSE~~		21 OCT 95
5B-010	DI WATER STORAGE TK DRN ISOL	CLOSE	YAF	
5B-014	DI WATER SUPPLY HEADER ISOL TO SOUTH HOOD	OPEN (inaccessible)		
5B-015	DI WATER SUPPLY HEADER ISOL TO SOUTH SINK	OPEN (inaccessible)		
5B-016	DI WATER SUPPLY HEADER ISOL TO CENTER HOOD	OPEN (inaccessible)		
5B-017	DI WATER SUPPLY HEADER ISOL TO NORTH HOOD	OPEN (inaccessible)		
5B-018	DI WATER SUPPLY HEADER ISOL TO NORTH SINK	OPEN (inaccessible)		
5B-026	COLD WATER ISOL TO SAMPLE PREP. ROOM	OPEN	YAF	
5B-027	COLD WATER ISOL TO SAMPLE PREP. ROOM HOT WATER HEATER	OPEN	YAF	
SOV-5B-025	EVAPORATOR SHELL DRAIN	~~OPEN~~		21 OCT 95
5B-024	EVAPORATOR SHELL DRAIN ISOL	OPEN	YAF	
5B-022	EVAPORATOR FEEDWATER TO CONDENSER ISOL	OPEN	YAF	
SOV-5B-021	EVAPORATOR FEEDWATER STRAINER IN ISOL	~~CLOSED~~		21 OCT 95
5B-023	EVAPORATOR SHELL VENT ISOL	CLOSED	YAF	
5B-010	DI WATER TANK DRAINAGE	CLOSED	YAF	
5B-008	DI WATER COOLER MANUAL IN	CLOSED	YAF	
5B-020	COLD WATER FEED MANUAL IN TO CONDENSER	CLOSED	YAF	
5B-029	HOT WATER HEATER DRN	CLOSED	YAF	
5B-002	DI WATER PUMP OUT	CLOSED	YAF	

Operator Yvan A Fillion YAF 10-21-95 Operator ______ ______ ______
PRINT NAME INITIALS DATE PRINT NAME INITIALS DATE

SOM/SOE COMPLETION REVIEW ______ DATE 10-21-95

MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

OSP-OTP-004

VISION NO. 0

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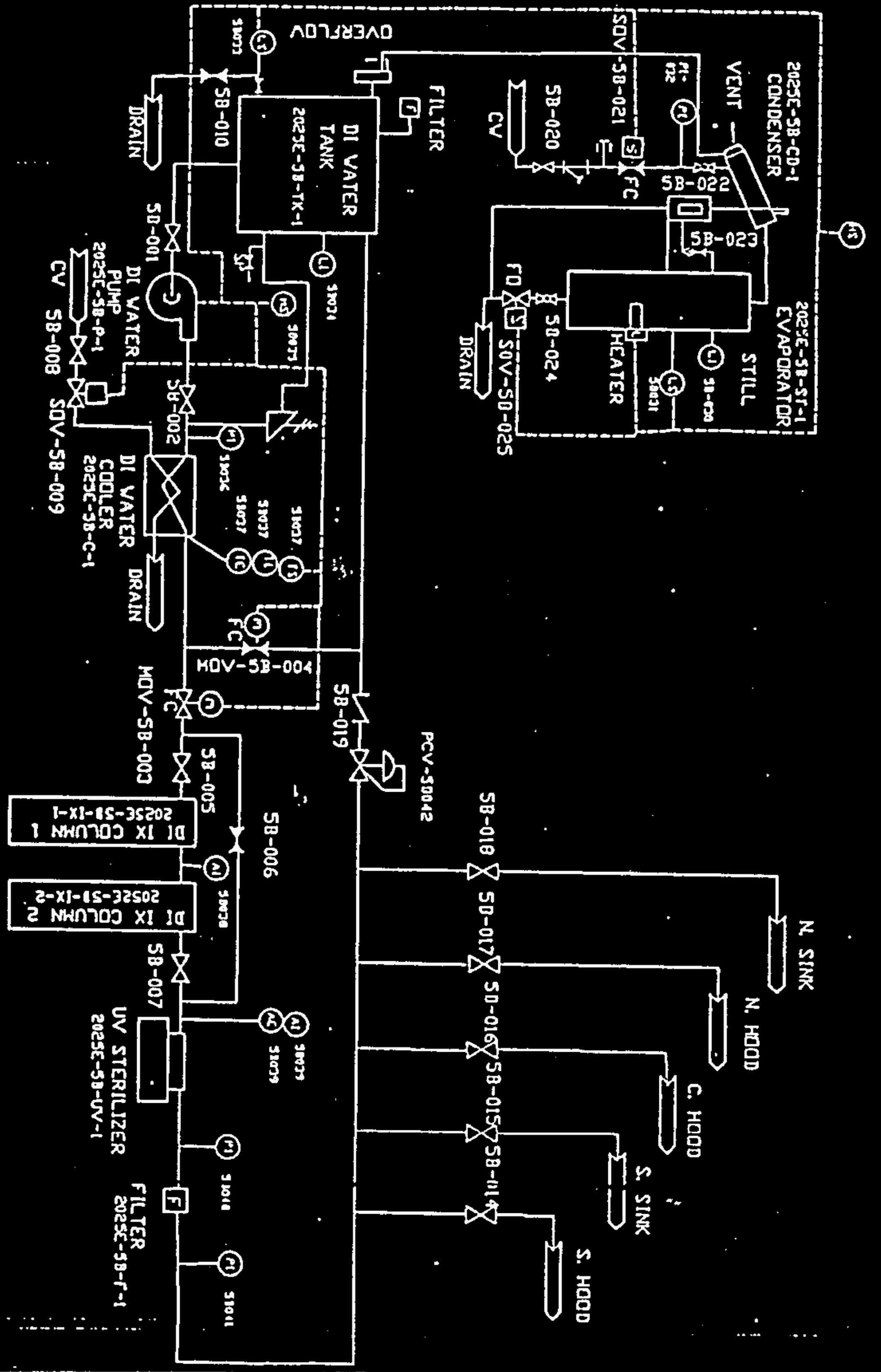
EFFECTIVE DATE 9/25/95

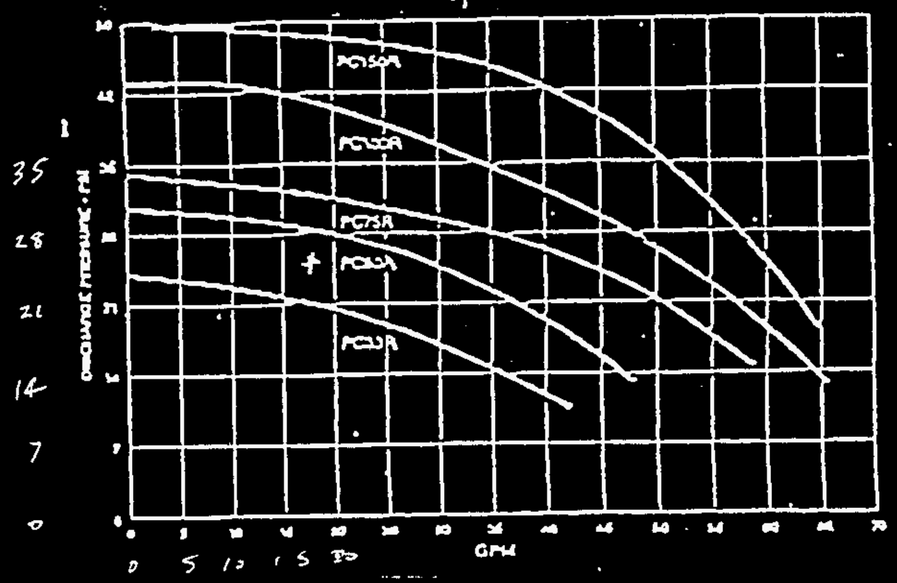
APPENDIX 3, D.I. WATER SYSTEM DRAWING



APPENDIX 4. D.I. WATER PUMP OPERATING CURVE

NOTE
D.I. Water Pump 2025E-5B-P-1 is a Model PC50R.

Model Number	A	HP
PC33R	8.51	1/2
PC50R	8.51	1/2
PC75R	9.36	3/4
PC100R	9.36	1
PC150R	10.26	1 1/2



MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

OSP-OTP-004

VISION NO. 0

PAGE 43 OF 46
EFFECTIVE DATE 9/25/95

Appendix 5. Vibration Data Sheet for Lab Hood Fan 45A-F-16.

VIBRATION DATA (mil)

1ST READING	MOTOR OUTBOARD	MOTOR INBOARD	FAN/BLWR INBOARD	FAN/BLWR OUTBOARD
HORIZONTAL	TE-05	1.395	2.064	TE-05
VERTICAL	TE-05	2.357	1.713	TE-05
AXIAL	TE-05	0.479	1.613	TE-05

TE-05 10-12-95 TWD

2ND READING	MOTOR OUTBOARD	MOTOR INBOARD	FAN/BLWR INBOARD	FAN/BLWR OUTBOARD
HORIZONTAL	TE-05	1.122	1.889	TE-05
VERTICAL	TE-05	~~4.37~~ 2.265 12OCT.95	1.451	TE-05
AXIAL	TE-05	0.679	~~1.8~~ 1.598 12OCT.95	TE-05

TE-05 10-12-95 TWD

Motor Nameplate Data: 1725 RPM

MARKS : Motor Pully RPM 1732
Fan Pully RPM 2827

Performed by : Date 10/12/95

Verified by : Date 10/12/95

MODULE 9 SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST PROCEDURE

OSP-OTP-C04

VISION NO. 0

PAGE 44 OF 46
EFFECTIVE DATE 9/25/95

Appendix 6. Vibration Data Sheet for Lab Hood Fan 45A-F-17.

VIBRATION DATA (mil)

1ST READING	MOTOR OUTBOARD	MOTOR INBOARD	FAN/BLWR INBOARD	FAN/BLWR OUTBOARD
HORIZONTAL	TE-05	0.469	2.324 *	TE-05
VERTICAL	TE-05	2.809	1.313	TE-05
AXIAL	TE-05	1.167	1.910	TE-05

TE-05
10-12-95
TWD

2ND READING	MOTOR OUTBOARD	MOTOR INBOARD	FAN/BLWR INBOARD	FAN/BLWR OUTBOARD
HORIZONTAL	TE-05	0.624	2.082	TE-05
VERTICAL	TE-05	3.404	1.626	TE-05
AXIAL	TE-05	0.964 ~~0.564~~	1.564	TE-05

TE-05
10-12-95
TWD

GWJ
12.OCT.95

Motor Nameplate Data: 1725 RPM

REMARKS : Motor Pully RPM 1728

FAN Pully RPM 2742

* Exceeded expected Range TE-06 written TWD

Performed by : Date 10/12/9

Verified by : Date 10/12/95

Appendix 7. Vibration Data Sheet for Lab Hood Fan 45A-F-18.

VIBRATION DATA (mil)

1ST READING	MOTOR OUTBOARD	MOTOR INBOARD	FAN/BLWR INBOARD	FAN/BLWR OUTBOARD
HORIZONTAL	TE-05	1.049	1.490	TE-05
VERTICAL	TE-05	2.180	1.641	TE-05
AXIAL	TE-05	0.771	0.996	TE-05

TE-05
10-12-95
TWD

2ND READING	MOTOR OUTBOARD	MOTOR INBOARD	FAN/BLWR INBOARD	FAN/BLWR OUTBOARD
HORIZONTAL	TE-05	1.033	1.418	TE-05
VERTICAL	TE-05	2.220	1.723	TE-05
AXIAL	TE-05	0.684	1.127	TE-05

TE-05
10-12-95
TWD

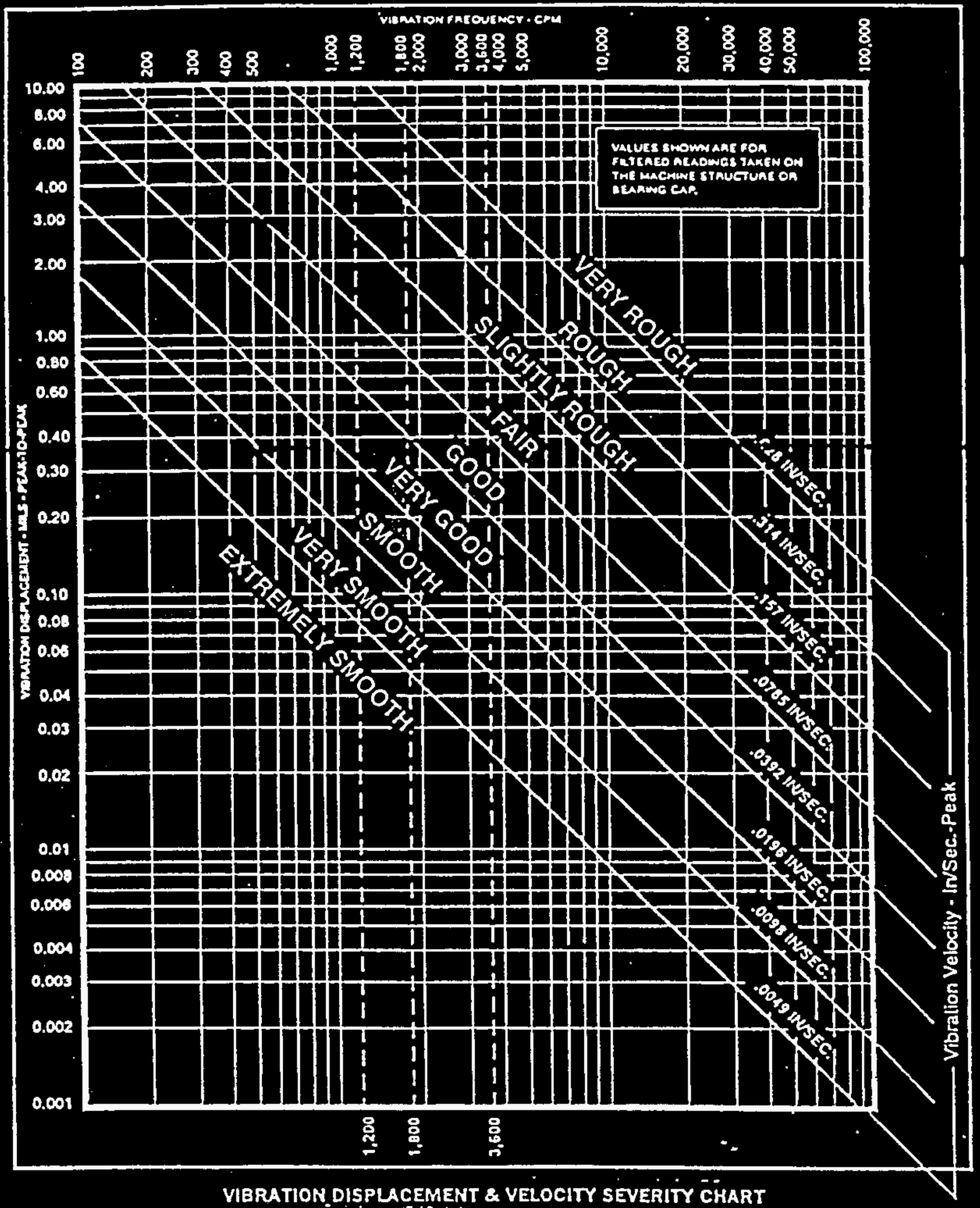
Motor Nameplate Data: 1725 RPM

REMARKS : Motor Pully RPM 1736
Fan Pully RPM 2803

Performed by : Date 10/12/95

Verified by : Date 10/12/95

Appendix 8. Vibration Displacement & Velocity Severity Chart For General Horizontal Rotating Machinery.



VIBRATION DISPLACEMENT & VELOCITY SEVERITY CHART
FOR GENERAL HORIZONTAL ROTATING MACHINERY
(Source: IRD Mechanalysis, Inc. Columbus, Ohio)

TEST LOG	TEST NUMBER: OSP-OTP-004	TEST LOG PAGE NUMBER: 1 of ___

TEST TITLE: Sample Prep Room OTP

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
0800 10-12-95	Held Pre Job brief & Test indoctorination with test
	Personnel.
0830 10-12-95	Dispatched maintanance Personnel to assemble test equipment.
0912 10-12-95	walked down test activities in Sample Prep area.
0930 10-12-95	installed temp gauge on Vacuum Pump.
0935 10-12-95	Started Vacuum Pump testing Per Section 5.9 on OSP-OTP-004.
0840 10-12-95	installed L&T LEF-95-057 on Vent hood fans to
	adjust belts as needed.
1025 10-12-95	Started hood Fans 45A-F-16, 17 & 18 to record
	Motor Current readings Per Section 5.10 & 5.11.
1035 10-12-95	Motor Current readings were ~ 3.2 Name plate
	Full load amp Data is 2.4. Motors are all Running
	higher than the full load Current DATA. Discussed
	with Test Eng. TE-04 written.
1110 10-12-95	Started Fan 45A-F-16 to Check Vibration.
1120 10-12-95	Motor outboard & Fan/Blower outboard ~~to~~ TWO Could not be reached
	due to Fan design. TE-
1207 10-12-95	Completed Vibration readings for fans 45A-F-16, 17 & 18.
	Complete Steps 5.9, 5.10 & 5.11.
	J. Dallas

TEST LOG

TEST NUMBER: OSP-OTP-004

TEST LOG PAGE NUMBER: 2 of ___

TEST TITLE: Sample/Prep Room OTP

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
1025 20 OCT 95	Performed troubleshooting of heating elements (still). Determined
	that 4 or more elements are burnout.
0910 21 OCT 95	Held prejob w/ test personnel. Walked down activities
	to be performed this shift.
0958 21 OCT 95	Installed test switch, AND start still
1020 21 OCT 95	Removed test switch, level switch functioned properly
1435 21 OCT 95	Completed 5.2, wrote TE-07 for low production from still.
1525 21 OCT 95	Installed temporary tubing (5.3.3) & started testing
	DI Water Pump.
1600 21 OCT 95	DI Water Pump did not started. Filled DI tank
	per R. Winton. Pump still did not run.
0915 23 OCT 95	Held Pre-job w/ test personnel. Discussed planned
	workscope for the day
0940 23 OCT 95	Electrician reset heater on DI water pump. Pump
	now functioning
1000 23 OCT 95	Completed Pump test. Pump fell well below curve
	TE-06 written.
1055 23 OCT 95	Started Pump to test system for leaks - Most
	tubing connections & the UV sterilizer
	were leaking.

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED
01	10-12-95	D.I. System Not Ready for test		
02	10-12-95	4.6 Test Equipment Range	TEST EQUIPMENT OK. TO USE AS IS. No. RETEST REQUIRED	10/24/95
03	10-12-95	5 10-12-95 ~~4~~.9.5 Outboard Bearing Not Accesable	USE AS IS. NO RETEST REQUIRED.	10/24/95
04	10-12-95	5.10.2 / 5.10.3 Name Plate full load Current Lower than actual Current Draw.		
05	10-12-95	Appendix 5, 6 & 7 Data for Fans outboard & Motor outboard Could not Physically be reached	USE AS IS. NO RETEST REQUIRED.	10/24/95
06	10-12-95	5.11.9 Step requires vibration Data to be between Slightly Rough and extremely Smooth. 45A-F-17 Fan Blower inboard exceeded Spec.	USE AS IS. NO RETEST REQUIRED.	10/24/95
07	21.OCT.95	Still capacity lower than specified. Expected 9-11 gph, 0.74 gph actual.		
08	23.OCT.95	Pump discharge pressure well below expected range		
09	OCT 23, 95	SEVERAL VALVES ON VALVE Line-up Sheet Could NOT BE VERIFIED due To inACCESSibility	VERIFICATION of THESE VALVES NOT REQUIRED. SYSTEM PARAMETERS SHOW THAT THESE VALVES ARE ALIGNED PROPERLY	10/24/95

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-004

TEST NAME: MODULE 9 - SAMPLE PREP ROOM SYSTEM OPERABILITY TEST PROCEDURE

T.E. NUMBER: 01

DESCRIPTION OF PROBLEM: Sections 5.2 thru 5.6 can not be completed due to the inoperability of the Evaporator Still. The heaters were wired incorrectly, so still will not produce the water required for testing the DI water-sytem. Also, level switches were not set properly. The current configuration did not have a low level cutoff for the DI water Storage Tank.

ORIGINATOR:

ORG: DATE: 10-24-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☑ CONTINUE

PIC DATE 10-24-95

DISPOSITION: The still heater is to be rewired to the correct configuration. Level switches are to be set to the proper levels within the storage tank. New parts have been ordered to complete the corrections.
Perform Retest after Replacement of Parts

DISPOSITION AND RETEST REQUIREMENTS BY:

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: DATE

QAE CONCURRENCE WITH DISPOSITION (if required): N/A

DATE

RETEST COMPLETE:

PIC DATE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-004	TEST NAME: MODULE 9 - SAMPLE PREP ROOM SYSTEM OPERABILITY TEST PROCEDURE	T.E. NUMBER: 02

DESCRIPTION OF PROBLEM: SECTION 4.6 (TEST EQUIPMENT) STEP 4.6.2 REQUIRES A PYROMETER WITH A RANGE OF 0-200°F. THE PYROMETER USED HAD A RANGE GREATER THAN THAT. STEP 4.6.5 REQUIRED A VACUUM GAUGE WITH A RANGE OF 0-25" Hg. THE GAUGE USED HAD A RANGE OF 0-30"Hg.

ORIGINATOR: 10·12·95
ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE
Di Dallas 10-12-95
PIC DATE

DISPOSITION: TEST INSTRUMENTATION USED HAD RANGES WHICH ENCOMPASSED THE REQUIRED RANGES, FOR TEST PURPOSES, AND WERE THEREFORE ACCEPTABLE FOR USE. NO RETEST REQUIRED. USE AS IS.

DISPOSITION AND RETEST REQUIREMENTS BY:
10.12-95
DATE

DISPOSITION ACTIONS COMPLETE:
Verified By: Di Dallas 10-12-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required):
N/A
DATE

RETEST COMPLETE:
N/A
PIC DATE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:	TEST NAME:	T.E. NUMBER:
OSP-OTP-004	MODULE 9 - SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST	03

DESCRIPTION OF PROBLEM: IN STEP 5.9.5, VACUUM PUMP INBOARD AND OUTBOARD MOTOR BEARING TEMPERATURE MEASUREMENTS ARE REQUIRED. THE OUTBOARD MOTOR BEARING IS NOT ACCESSIBLE FOR TEMPERATURE MEASUREMENT, DUE TO VACUUM PUMP HOUSING AND THE MANNER OF INSTALLATION.

ORIGINATOR:
ORG: DATE: 10-12-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE
PIC DATE 10-12-95

DISPOSITION: USE AS IS. ~~OUTB~~ JA 10.12.95 INBOARD BEARING TEMPERATURES WERE VERY LOW (96° AND 100°F, RESPECTIVELY), AND ALL OTHER PERFORMANCE PARAMETERS INDICATED SATISFACTORY OPERATION. NO RETEST REQUIRED.

DISPOSITION AND RETEST REQUIREMENTS BY:
DATE 10.12.95

DISPOSITION ACTIONS COMPLETE:
Verified By: DATE 10-12-95

QAE CONCURRENCE WITH DISPOSITION (if required):
DATE

RETEST COMPLETE:
PIC DATE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-004

TEST NAME: MODULE 9 Sample Prep room Systems operability Test Procedure

T.E. NUMBER: TE-04

DESCRIPTION OF PROBLEM:

Step 5.10.4 states to verify actual Motor Current Readings Do not excede name Plate full load amp data.
Actual Current readings were 3.2 - 3.3.
name plate full load amp Data was 2.4 ea.

ORIGINATOR:

ORG: DATE: 10.12.95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

Ji Dallas 10-11-95
PIC DATE

DISPOSITION: PROCESS ENGINEERING GROUP TO DETERMINE ACCEPTABILITY OF AS OBTAINED CURRENT READINGS.

DISPOSITION AND RETEST REQUIREMENTS BY:

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

DATE

RETEST COMPLETE:

PIC DATE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-004	TEST NAME: MODULE 9 - SAMPLE PREP ROOM SYSTEMS OPERABILITY TEST	T.E. NUMBER: 05

DESCRIPTION OF PROBLEM: IN APPENDICES 5, 6 AND 7, SPACES ARE PROVIDED TO RECORD DATA FOR FAN AND MOTOR OUTBOARD BEARING VIBRATION. DUE TO THE CONFIGURATION OF THE FAN/MOTOR HOUSING, THESE READINGS COULD NOT BE OBTAINED. STEP 5.11.5 REQUIRES VALUES FOR EACH BEARING.

ORIGINATOR: 10-12-95
ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE
Ji Dallas 10-12-95
PIC DATE

DISPOSITION: USE AS IS. AXIAL AND OUTBOARD READINGS WERE OBTAINED AND RECORDED. FAN SIZE AND COST DO NOT MERIT ADDITIONAL MODIFICATIONS REQUIRED TO OBTAIN THIS DATA. NO RETEST REQUIRED.

DISPOSITION AND RETEST REQUIREMENTS BY:
10-12-95
DATE

DISPOSITION ACTIONS COMPLETE:
Verified By: Ji Dallas 10-12-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required):
DATE

RETEST COMPLETE:
PIC DATE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:	TEST NAME:	T.E. NUMBER:
OSP-OTP-004	Module 9 Sample Prep Room Systems operability Test Procedure	TE-06

DESCRIPTION OF PROBLEM:

5.11.9 Requires Vibration Data to Be Between Slightly Rough and extremely Smooth. 45A-F-17 Fan/Blower inboard bearing Horizonal Readings exceeded the expected range.

ORIGINATOR: Ji Dallas

ORG: 86220 OPS DATE: 10-12-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

Ji Dallas 10-12-95
PIC DATE

DISPOSITION:

USE AS IS. SUBSEQUENT (WARM) READING MET ACCEPTANCE CRITERIA, AND ALL OTHER VIBRATION READINGS FOR THIS FAN/MOTOR COMBINATION WERE ACCEPTABLE. NO RETEST REQUIRED.

DISPOSITION AND RETEST REQUIREMENTS BY:

10.12.95
DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: Ji Dallas 10-12-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

DATE

RETEST COMPLETE:

PIC DATE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-004

TEST NAME: Module 9 Sample Prep Room Systems Operability Test Procedure

T.E. NUMBER: TE-07

DESCRIPTION OF PROBLEM: Section 5.2 steps 5.2.19 thru 5.2.22 require still capacity to be determined. Still is not producing expected rate of 9-11 gph. It produces only 0.741 gph.

ORIGINATOR: 10-24-95
ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

10-24-95
PIC DATE

DISPOSITION: Still capacity is inhibited by burned out heaters. Installation of new heaters will require a retest.

DISPOSITION AND RETEST REQUIREMENTS BY:

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

DATE

RETEST COMPLETE:

PIC DATE

[illegible] pg C-58

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-004

TEST NAME: Module 9 Sample Prep. Room Systems Operability Test Procedure

T.E. NUMBER: TE-08

DESCRIPTION OF PROBLEM: DI Pump discharge is lower than expected. The capacity was well under the pump curve in Appendix 9, page 42.

ORIGINATOR:
10-24-95
ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☑ CONTINUE
10-24-95
PIC DATE

DISPOSITION: It will be determined by Process Engineering whether or not current capacity is acceptable.

DISPOSITION AND RETEST REQUIREMENTS BY:
DATE

DISPOSITION ACTIONS COMPLETE:
Verified By: DATE

QAE CONCURRENCE WITH DISPOSITION (if required):
DATE

RETEST COMPLETE:
PIC DATE

TEST EXCEPTION REPORT FORM

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP 004

TEST NAME: Module 9 Sample Prep Room Operability Test Procedure

T.E. NUMBER: TE - 09

DESCRIPTION OF PROBLEM:

The SOV's and the MOV's can not be verified due to inaccessibility.

ORIGINATOR: 10-25-95
ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☑ CONTINUE

10-21-95
PIC DATE

DISPOSITION:

SOV's and MOV's are not required to be verified. System parameters indicate that these valves are actuating. No Retest Required.

DISPOSITION AND RETEST REQUIREMENTS BY:

10-25-95
DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: 10-21-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

N/A
DATE

RETEST COMPLETE:

N/A
PIC DATE

TEST PROCEDURE CHANGE RECORD

OTP Number OSP-OTP-004 Sheet 1 of 1

Total Number of Controlled Copies Issued 1

Controlled Copies Dispositioned 10-25-95

CHANGE LETTER	DATE	APPROVAL DESIGNATOR	REASON FOR CHANGE	APPROVALS
a	10-25-95	NA	At the time that OSP-OTP-004 was written some steps or actions were neglected. The additions were discovered during OTP testing. These steps are required for the testing of the system.	/Design Engr./ 10-25-95 Signature/Organization/Date /TEST ENG./10-25-95 Signature/Organization/Date /Process Engr./10-25-95 Signature/Organization/Date /Operations/10-25-95 Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date

AFFECTED PAGES/ STEP NOS.

16 5.2.3, 5.2.4, 5.2.5

17 5.2.9

19 5.3.1, 5.3.5, 5.3.7, 5.3.10

22 5.4.10

APPENDIX D

OSP-OTP-005
ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE

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pg D-2

200 AREA LIQUID EFFLUENT FACILITIES

ETF COMMUNICATIONS OPERABILITY TEST PROCEDURE

OSP-OTP-005

PAGE 1 OF 16

REVISION NO. 0

EFFECTIVE DATE 08/25/95

Author/Cognizant Engineer

22Aug'95

T.G. Howell/F.A. Graf Jr.

Print Name/Signature

APPROVAL DESIGNATOR N/A

PROCEDURE APPROVAL

OPERATIONS MANAGER

R.B. Wurz 9/14/95

Print Name/Signature

APPROVAL SIGNATURES

Cognizant Manager 8-29-95 N.J. Sullivan Print Name/Signature/Date	Shift Manager John Ulmer Print Name/Signature/Date 9/13/95
Environmental N/A Print Name/Signature/Date	Operator Robert VanLear 9-13-95 Print Name/Signature/Date
Quality Assurance N/A Print Name/Signature/Date	Safety N/A Print Name/Signature/Date
Radiation Control N/A Print Name/Signature/Date	Other N/A Print Name/Signature/Date

Pg D-3

TEST PROCEDURE CHANGE RECORD OTP Number ____________ Sheet ______ of ______

Total Number of Controlled Copies Issued __________ Controlled Copies Dispositioned __________

CHANGE LETTER	DATE	APPROVAL DESIGNATOR	REASON FOR CHANGE	APPROVALS
				Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date
AFFECTED PAGES/ STEP NOS.				

SIGNATURE RECORD: By signing below, I attest that I am aware of and understand my duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this OTP, and as assigned by the PIC.

INITIALS	SIGNATURE	PRINTED NAME	TITLE	ORGANIZATION
TWD	J. Dallas	Tim DALLAS	Son	OPS 86220
		Lisa Ingram	NPO	OPS

TEST LOG	TEST NUMBER:	TEST LOG PAGE NUMBER: _____ of _____

TEST TITLE:

TIME/DATE	EVENT DESCRIPTION/SIGNATURE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:	TEST NAME:	T.E. NUMBER:

DESCRIPTION OF PROBLEM:

ORIGINATOR:

ORG: DATE:

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☐ CONTINUE

PIC DATE

DISPOSITION:

DISPOSITION AND RETEST REQUIREMENTS BY:

DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

DATE

RETEST COMPLETE:

PIC DATE

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED

TABLE OF CONTENTS

1.0 TITLE

ETF COMMUNICATIONS SYSTEMS OPERABILITY TEST

2.0 PURPOSE

This test procedure will provide for completion of those technical requirements identified in the 200 Area Effluent Treatment Facility Module 6 Test Specification for the Communications Systems in the Basic Support Systems (WHC-SD-ETF-TS-002). Those requirements include:

- Verify proper operation of Public Announcement Exchange (PAX) backup power supply.
- Verify ability to access the Public Address System via the PAX System in the Effluent Treatment Facility (ETF) Control Room.
- Verify ability to access the Public Address System via the PAX System from local stations in each Paging Zone.
- Radio range and coverage of transmitter is sufficient to provide coverage at State Approved Liquid Disposal Site (SALDS), all TEDF equipment locations, Liquid Effleunts Retention Facility (LERF), and within ETF. All areas of non-coverage must be deemed acceptable to facility management.
- Verify radios can be operated in the plant without interfering with equipment/system controls.
- Verify radios can be operated with clear and audible communications in all areas of the ETF with the plant online and equipment operating.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 If during performance of this procedure, any of the following conditions are found, immediately notify the Person-In-Charge:

- Any equipment malfunction which could prevent fulfillment of it's functional requirements.
- Personnel error or procedural inadequacy which could prevent fulfillment of procedural requirements.

The Person-In-Charge may choose to stop work and place equipment in a safe condition based on the significance of the malfunction, error or inadequacy.

3.2 Contact Person-In-Charge for additional instructions if changing plant conditions affect work or delays in work extend past end of shift.

3.3 Comply with Westinghouse Hanford Company (WHC) and plant/facility specific lock and tag or over-tagging requirements, as applicable

3.4 All Measuring and Test Equipment (M&TE) used during performance of this procedure to collect qualitative data with the exception of timing devices shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy (consistent with state-of-the-art limitations) equal to or greater than the accuracy specified in the procedure.

3.5 The Person-In-Charge has overall control of the testing process and change authorization for this procedure. They are responsible for running the test, data collection, and ensuring compliance with all requirements in this procedure.

4.0 PREREQUISITES

4.1 <u>Pre-start Conditions</u>

TE-01
TWD
10-17-95

4.1.1 PAX System is in service per OSP-10-001.

Signature:______________________ Date/Time:________
Person-In-Charge

4.2 The PIC, the Test Engineer(s), and Test Operators have been indoctrinated in the requirements of this plan before conducting any test activities.

Signature:______________________ Date/Time: 10-17-95 0800
Person-In-Charge

4.2.1 At beginning of each shift, brief personnel involved in test, distribute data sheets as required, place personnel in position, and establish communications as required. All personnel participating in the performance of the OTP shall show completion of this requirement by signing the pre-job data sheet.

4.2.2 All test personnel have completed the signature record sheet attesting that they are aware of and understand their duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this procedure, and as assigned by the PIC.

Signature:______________________ Date/Time: 10-17-95 0800
Person-In-Charge

Pg D-11

TE-01
TWD
10-17-95

4.2.3 System and equipment walkdowns have been completed by the Test Engineer to ensure all components are correctly configured to support beginning the test activities.

Signature:____________________ Date/Time:________
Test Engineer

4.2.4 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Person-In-Charge by the LEF Operations Manager.

Approved Person-In-Charge

Tim Dallas
Jim Potts
Dave Nelson

Signature:____________________ Date/Time: 10/13/95
Operations Manager 1030

4.2.5 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Test Engineer(s) by the Manager, LEF Process Engineering.

Approved Test Engineer(s)

Bob Pawlina/Paul Haigh
Darrell Heimberger/Dave Vasquez
RBW 10/17/95

Signature:____________________ Date/Time: 10/17/95
Manager, Process Engineering

4.2.6 200 Area ETF Operating Special Procedure OSP-10-001 has been validated prior to beginning performance of this procedure.

Signature: RBW ____________________ Date/Time: 10/17/95
Operations Manager 0910

4.2.7 A Job Hazard Analysis has been completed prior to beginning performance of this procedure.

Signature: Dallas Date/Time: 10-13-95/1000
Operations Manager

4.2.8 Obtain release from Operations management prior to beginning performance of this procedure.

Signature: Date/Time: 10/12/95
Operations Manager

4.3 Test Equipment

4.3.1 None

5.0 INSTRUCTIONS

5.1 Initial Conditions for Testing

TE-01
TWD
10-17-95

5.1.1 VERIFY PAX system is in service per OSP-10-001, Operation of the Plant Communication System.

Signature:____________________ Date/Time:______

5.1.2 VERIFY plant radio system is available for testing.

Signature: Ji Dallas Date/Time: 10-17-95 0800

5.2 PAX Battery Backup Test

5.2.1 OPEN circuit breaker No. 3 in Distribution Panel No. 4 in the Electrical Equipment Room 126.

Signature:____________________ Date/Time:______

5.2.2 VERIFY PAX System is available for service, on battery power, by placing an internal and an external call per OSP-10-001.

Signature:____________________ Date/Time:______

5.2.3 CLOSE circuit breaker No. 3 in Distribution Panel No. 4 to restore normal power to the PAX System.

Signature:____________________ Date/Time:______

5.3 PAX Paging Test

5.3.1 VERIFY ability to access the Public Address System via the PAX System in the Control Room per OSP-10-001.

Signature:____________________ Date/Time:______

5.3.2 Verify ability to access the Public Address System via the PAX System from local stations in each Paging Zone (Inside, Outside and All-Zone) per OSP-10-001.

Signature:____________________ Date/Time:______

5.4 Radio Communications Test

5.4.1 ESTABLISH radio communications, with an operator in each location described in Appendix 1.

NOTE

Acceptable radio communications are clear transmissions which overcome equipment background noise.

5.4.2 INITIAL appropriate columns for each location to denote acceptable/non-acceptable communications established and if radio transmission interference with plant controls was detected.

5.4.3 RECORD any plant control interference in the test log including equipment/system identification.

5.5 Secure From Test

5.5.1 RESTORE power supply for PAX System to normal per OSP-10-001.

Signature:____________________ Date/Time:______

6.0 DATA REQUIRED

The original of this procedure, in it's entirety, will be retained in accordance with IP-0931, section 14, Operations Record Control.

7.0 REFERENCES

7.1 Internal References

7.1.1 OSP-10-001, Operation of the Plant Communications System.

7.2 Bibliography

7.2.1 H-2-89029, General Arrangement Ground Floor Plan.
7.2.2 H-2-89102, Electrical Panel Schedules.

8.0 ATTACHMENTS

Appendix 1: Equipment Rooms/Process Areas

APPENDIX 1: Equipment Rooms/Process Areas

Room/Area Description	Initials for Acceptable Communications	Initials for Non-Acceptable Communications	Initials for Transmission Interference With Plant Controls	Comments
Electrical Equip. Room 126				
Communications Room 207				
HEPA Filter Room 129				
Process Area (North) Room 131				
Process Area (Center) Room 131				
Process Area (South) Room 131				
Vapor Compressor Room 132				
Seal Water Room 133				
Air Compressor Room 134				
Secondary Waste Receiving Tank Area				
Concentrated Waste Tank Area				
Drum Handling Room				

Room/Area Description	Initials for Acceptable Communications	Initials for Non-Acceptable Communications	Initials for Transmission Interference With Plant Controls	Comments
Truck Bay Room 138				
Filled Drum Storage Room 137				
Cooling Tower Area				
Load-In Station Area				
Surge Tank Area				
Verification Tank Area				
LERF Basin Area				
SALDS Area	TWD			

TEST LOG	TEST NUMBER: OSP-OTP 006	TEST LOG PAGE NUMBER: 1 of ____

TEST TITLE: ETF Communications OTP

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
1315 / 10-17-95	Held Pre Job Safety and wrote TE-01 to allow
	testing Radio Section of OTP-006.
1510 / 10-17-95	Completed Radio test. J. Dallas

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED
01	10/17/95	MITEL SYSTEM NOT READY for TESTING. PREREQUISTES for MITEL SYSTEM NOT MET AT THIS TIME	Permissible to perform RADIO TESTING per section 5.1.2 & Section 5.4	10-24-95

Pg D-19

7.2

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-005 4.1.1, 4.2.3 5.1.1	TEST NAME: ETF Communications System	T.E. NUMBER: 01

DESCRIPTION OF PROBLEM: MiTEL system NOT Ready for TESTing.

ORIGINATOR: J. Dallas 10-17-95

ORG: 86720 DATE: 10-17-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

J. Dallas 10-17-95
PIC DATE

DISPOSITION: MiTEL SYSTEM NOT Required for TESTing of PlaNT Radio's. Radio TESTing May Be performed AT This Time

DISPOSITION AND RETEST REQUIREMENTS BY:

J. Dallas 10-17-95
DATE

DISPOSITION ACTIONS COMPLETE:

Verified By: J. Dallas 10-17-95
DATE

QAE CONCURRENCE WITH DISPOSITION (if required):

N/A
DATE

RETEST COMPLETE:

N/A
PIC DATE

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APPENDIX E

COMPLETED OSP-OTP-008
MODULE 8 LOAD-IN STATION OPERABILITY TEST PROCEDURE

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200 AREA LIQUID EFFLUENT FACILITIES

MODULE 8 LOAD-IN STATION OPERABILITY TEST PROCEDURE

OSP-OTP-008

REVISION NO. 0

PAGE 1 OF 17

EFFECTIVE DATE 8/8/95

Author/Cognizant Engineer
TG Howell/E.A. MCNAMAR
E.A. McNamar 8-3-95
Print Name/Signature

APPROVAL DESIGNATOR N/A

PROCEDURE APPROVAL

OPERATIONS MANAGER
8/16/95
R.B. Wurz
Print Name/Signature

APPROVAL SIGNATURES

Cognizant Manager 8-4-95 N.J. Sullivan Print Name/Signature	Shift Operations Manager or PIC F. John Ulmer Print Name/Signature
Environmental N/A D.L. Flyckt Print Name/Signature	Operator BJ Knapp BJ Knapp Print Name/Signature
Radiation Control N/A P.B. Brannan Print Name/Signature	Safety N/A M.A. Tredway Print Name/Signature
Quality Assurance N/A M.J. Warn Print Name/Signature	Other N/A Print Name/Signature/Organization

pg E-3

TEST PROCEDURE CHANGE RECORD OTP Number ______________ Sheet ______ of ______

Total Number of Controlled Copies Issued __________ Controlled Copies Dispositioned __________

CHANGE LETTER	DATE	APPROVAL DESIGNATOR	REASON FOR CHANGE	APPROVALS
				Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date Signature/Organization/Date

AFFECTED PAGES/ STEP NOS.

SIGNATURE RECORD: By signing below, I attest that I am aware of and understand my duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214) and this OTP, and as assigned by the PIC.

INITIALS	SIGNATURE	PRINTED NAME	TITLE	ORGANIZATION
EAM	E.A. McNamar	E.A. McNamar	Senior Engineer	LEF Process Engineering
TWD	TiDallas	TIM DALLAS	SOM/PIC	OPS
RLI	Roy Ingram	Roy INGRAM	NPO	OPS
JmB	Jim Brooks	JIM BROOKS	NPO	OPS
WM C	WM Cameron	WILLIAM CAMERON	NPO	OPERATIONS

TEST LOG

TEST NUMBER:

TEST LOG PAGE NUMBER: _____ of ____

TEST TITLE:

TIME/DATE	EVENT DESCRIPTION/SIGNATURE

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION:	TEST NAME:	T.E. NUMBER:

DESCRIPTION OF PROBLEM:

ORIGINATOR: ORG: DATE:	IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☐ CONTINUE PIC DATE

DISPOSITION:

DISPOSITION AND RETEST REQUIREMENTS BY: DATE	DISPOSITION ACTIONS COMPLETE: Verified By: DATE
QAE CONCURRENCE WITH DISPOSITION (if required): DATE	RETEST COMPLETE: PIC DATE

pg E-7

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED

1.0 TITLE

MODULE 8 LOAD-IN STATION OPERABILITY TEST

2.0 PURPOSE

This test procedure will provide for completion of those technical requirements identified in the 200 Area Effluent Treatment Facility Module 8 Test Specification for the LOAD-IN STATION (WHC-SD-ETF-TS-002). Those requirements include:

- Verify all system instrumentation has been calibrated.
- Verify proper operation of the Load-In-Station Pumps at rated flow conditions.
- Verify ability to transfer a Load-In-Station tank to the Surge Tank at rated pump flow and pressure.

All actions will be performed and indications taken at the operator Control Station (OCS) unless otherwise stated.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 If during performance of this procedure, any of the following conditions are found, immediately notify the Person-In-Charge:

- Any equipment malfunction which could prevent fulfillment of it's functional requirements.

- Personnel error or procedural inadequacy which could prevent fulfillment of procedural requirements.

The Person-In-Charge may choose to stop work and place equipment in a safe condition based on the significance of the malfunction, error or inadequacy.

3.2 Contact Person-In-Charge for additional instructions if changing plant conditions affect work or delays in work extend past end of shift.

3.3 Any waste generated during performance of this instruction shall be packaged in accordance with OSP-65D-003, Package Waste, for disposal.

3.4 Comply with WHC and plant/facility specific lock and tag or over-tagging requirements, as applicable.

3.5 All Measuring and Test Equipment (M&TE) used during performance of this procedure to collect qualitative data with the exception of timing devices shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
- Equal to or greater than the <u>input</u> tolerance specified on the Data Sheet.

3.6 Timing measurements shall be made with commercially available time devices.

3.7 The Person-In-Charge has overall control of the testing process and change authorization for this procedure. They are responsible for running the test, data collection, and ensuring compliance with all requirements in this procedure.

3.8 All readings are to be taken and recorded for each location where the capability exists (i.e. local instrument, LCU, MCS).

4.0 PREREQUISITES

4.1 Pre-start Conditions

4.1.1 Controlling computer software is available for testing and the event printer is operational.

Signature: ______________ Date/Time: 10-19-95/ 14:15
Cognizant Engineer

4.2 The PIC, the Test Engineer(s), and Test Operators have been indoctrinated in the requirements of this plan before conducting any test activities.

Signature: ______________ Date/Time: 10-19-95/~~15~~ 1355 TWD 10-19-95
Person-In-Charge

4.2.1 At beginning of each shift, brief personnel involved in test, distribute data sheets as required, place personnel in position, and establish communications as required. All personnel participating in the performance of the OTP shall show completion of this requirement by signing the Pre-Job Safety Meeting Form (BD-6000-696.1), WP macro GEF120.

4.2.2 All test personnel have completed the signature record sheet attesting that they are aware of and understand their duties and responsibilities as described in the Test Plan (WHC-SD-WM-TP-214), this procedure, and as assigned by the PIC.

Signature: ______________ Date/Time: 10-19-95/1500
Person-In-Charge

4.2.3 System and equipment walkdowns have been completed by the Test Engineer to ensure all components are correctly configured to support beginning the test activities.

Signature: ______________ Date/Time: 10-19-95/1355
Test Engineer

4.2.4 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Person-In-Charge by the Liquid Effluent Facilities (LEF) Operations Manager.

Approved Person-In-Charge

Tim Dallas

Jim Petty

Dave Nelson

Signature: ______________ Date/Time: 10/13/95 2038
Operations Manager

4.2.5 Qualified personnel per the Operational Test Plan for the 200 Area Liquid Effluent Facility (WHC-SD-WM-TP-214) have been designated to act as Test Engineer(s) by the Manager, LEF Process Engineering.

Approved Test Engineer(s)

Bob Pavlina

Dave Vasquez

Darrell Heimberger

Paul Haigh

Ed. McNamar

Signature: ______________ Date/Time: 10-13-95
Manager, Process Engineering

4.2.6 Operating Special Procedure OSP-59A-001, Operation of The ETF Load-In Station, been approved prior to beginning performance of this procedure.

Signature: Tim Dallas Date/Time: 10-19-95 1345
Shift Operations Manager

4.2.7 A Job Hazard Analysis has been completed prior to beginning performance of this procedure.

Signature: ______________ Date/Time: 10-17-95/1611
Shift Operations Manager

4.2.8 Obtain release from Operations management prior to beginning performance of this procedure.

Signature: ______________ Date/Time: 10-19-95 1520
Shift Operations Manager

4.3 Test Equipment

4.3.1 Stop watch.

Signature ______________ Date/Time 10-4-95/1325

5.0 INSTRUCTIONS

5.1 Initial Conditions for Testing

5.1.1 VERIFY Surge Tank System is available for testing.

Signature: Di Dallas Date/Time: 10-19-95 1500

5.1.2 VERIFY Load-In Station is available for testing.

Signature: Di Dallas Date/Time: 10-19-95 1500

5.1.3 VERIFY no transfer of liquid from any source to the Surge Tank is in progress.

Signature: Di Dallas Date/Time: 10-19-95 1500

TE-01
TWD
10-19-95

5.1.4 VERIFY Load-In-Station Tanks, 59A-TK-109 ~~and 59A-TK-117~~ TE-01 TWD 10-19-95 contain at least 2,000 gallons of water each.

Signature: E. A. McManus Date/Time: 10-19-95 1500

5.2 Load-In-Station Tank 59A-TK-109 Transfer Test

NOTE

Tank volume is approximately 90 gallons per percent indicated level.

5.2.1 RECORD Load-In-Station Tank 59A-TK-109 level as indicated on 59A-LI109.

57.5 TWD 10-18-95 ~~68.0~~ %

Signature: Di Dallas Date/Time: 10-19-95 1415

5.2.2 PERFORM a transfer of Load-In-Station Tank 59A-TK-109 with pump 59A-P-103A to the Surge Tank in accordance with OSP-59A-001 AND OSP-60A-001.

A. RECORD pump discharge pressure as indicated on 59A-PI-103A.

26.5 psig
Signature: Ji Dallas Date/Time: 10-19-95-1656

B. AFTER 10 minutes has elapsed, THEN STOP the operating Load-In-Station transfer pump per OSP-59A-001.

C. RECORD time required for the transfer to take place and tank level as indicated by 59A-LI109.

10 min. ~~84.6~~ 50.1 TWD 10-19-95 %

Signature: Ji Dallas Date/Time: 10-19-95 1705

5.2.3 CALCULATE transfer rate:

A) Multiply percentage change in tank level by 90 gallons per percent.

B) Divide gallons transferred by the time recorded in step 5.2.2.C.

a) Volume Transferred

7.4 ~~9.8~~ CAM 10-19-95 % X 90 gallons = ~~882~~ 666 CAM 10-19-95
Change in tank level Gallons transferred

b) ~~882~~ 666 CAM 10-19-95 ÷ 10 = ~~88.2~~ 66.6 CAM 10-19-95 gpm
Gallons transferred Transfer Time - minutes 59A-TK-109 transfer flowrate

TE-01 TWO 10-19-95

5.3 Load-In-Station Tank 59A-TK-~~117~~ 109 Transfer Test

5.3.1 RECORD Load-In-Station Tank 59A-TK-~~117~~ 109 TE-01 TWO 10-19-95 level as indicated on 59A-L~~I117~~. 109 TE-01 TWO 10-19-95

TE

1635

67.52 %

Signature: Di Dallas Date/Time: 10-19-95/1630

> **NOTE**
>
> Tank volume is approximately 90 gallons per percent indicated level.

5.3.2 PERFORM a transfer of Load-In-Station Tank 59A-TK-~~117~~ 109 TE-01 TWO 10-19-95 with pump 59A-P-103B to the Surge Tank in accordance with OSP-59A-001 AND OSP-60A-001.

A. RECORD pump discharge pressure as indicated on 59A-PI-103B.

24.5 psig

Signature: Di Dallas Date/Time: 10-19-95/1643

B. WHEN 10 minutes has elapsed, THEN STOP operating Load-In-Station transfer pump per OSP-59A-001.

C. RECORD time required for the transfer to take place and tank level as indicated by 59A-L~~I117~~. 109 TE-01 TWO 10-19-95

10 minutes 57.5 %

Signature: Di Dallas Date/Time: 10-19-95 ~~[illegible]~~ 1655 TWO 10-19-95

5.3.3 CALCULATE transfer rate:

A) Multiply percentage change in tank level by 90 gallons per percent.

B) Divide gallons transferred by the time recorded in step 5.3.2.C.

a) Volume Transferred

9.8 % X 90 gallons = 882
Change in tank level Gallons transferred

b)

882 ÷ 10 = 88.2 gpm
Gallons transferred Transfer Time - minutes 59A-TK-109 transfer flowrate

5.4 <u>Secure From Test</u>

5.4.1 PERFORM Load-In-Station shutdown valve lineup in accordance with OSP-59A-001.

Signature: Date/Time: 10-19-95 1735

6.0 DATA REQUIRED

The original of this procedure will be retained in accordance with IP-0931, section 14, *Operations Record Control*.

7.0 REFERENCES

7.1 Internal References

7.1.1 OSP-59A-001, OPERATION OF THE ETF LOAD-IN STATION.
7.1.2 OSP-60A-001, SURGE TANK SYSTEM OPERATION.

7.2 Bibliography

7.2.1 H-2-817974, P&ID ETF TRUCK LOAD-IN FACILITY.
7.2.2 H-2-88974, P&ID INFLUENT RECEPTION SYSTEM.

8.0 APPENDICES

NONE

TEST LOG

TEST NUMBER:

TEST LOG PAGE NUMBER: 1 of 1

TEST TITLE:

TIME/DATE	EVENT DESCRIPTION/SIGNATURE
15-30 10-19-95	Conducted Pre-Job brief & Reviewed Confined Space
	Entry Permits for Surge tank Sump & Load in
	Sump. J. Dau
1555 10-19-95	Worked. Prevalve Line up for OTP. J. Dau
1705 10-19-95	GPCT on Control Room Console for Load in Failed
	Pump 59A-P-103A Continued Running. Pump
	was Monitored Locally. J. Dau
1708 10-19-95	GPCT was Restored System back to normal.
1710 10-19-95	Completed operation of Both Pumps at 291 Load
	in. J. Dau
1740 10-19-95	Completed OTP Activities J. Dau

TEST EXCEPTION LOG

TE #	DATE	DESCRIPTION	DISPOSITIONED	DATE CLOSED
1	10-19-95	use 59A-TK-109 for both pumps.		10-19-95

TEST EXCEPTION REPORT

TEST PROCEDURE NO. & SECTION: OSP-OTP-008, 5.18.5.3

TEST NAME: Load-In Station Operability Test Procedure

T.E. NUMBER: 001

DESCRIPTION OF PROBLEM:

59A-TK-117 Level indicating system was not calibrated.
~~Sato~~

ORIGINATOR: E.A. McNamar

ORG: LEF Proc. Engr. DATE: 10-19-95

IMPACT ON TESTING: ☐ HOLD FOR RESOLUTION ☒ CONTINUE

PIC J. Dallas DATE 10-19-95

DISPOSITION:

Perform test by pumping from 59A-TK-109 with both pumps. Piping & valving is identical for both tanks & flow testing will not affect end results. No retest required.

DISPOSITION AND RETEST REQUIREMENTS BY:

E.A. McNamar DATE 10-19-95

DISPOSITION ACTIONS COMPLETE:

Verified By: J. Dallas DATE 10-19-95

QAE CONCURRENCE WITH DISPOSITION (if required):

N/A DATE

RETEST COMPLETE:

PIC N/A DATE

Accession #: D196070496

Document #: SD-ETF-OTR-001

Title/Desc:
200 AREA ETF OPERATIONAL TEST REPORT [SEC 2 OF 2]

This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

Document number: WHC-SD-ETF-OTR-001

Section 2 of 2

Title: 200 AREA EFFLUENT TREATMENT FACILITY OPERATIONAL TEST REPORT

Date: 10/26/95 Revision: 0

Originator: A F CRANE
Co: WHC

Recipient:
Co:

References: EDT-611023

APPENDIX F

WHC-SD-C018H-TS-002
200 AREA ETF BASIC SUPPORT SYSTEMS OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To	From	
Distribution	LEF Process Engineering	Page I of 1
		Date 7/07/95

Project Title/Work Order

200 Area Effluent Treatment Facility Basic Support System Operational Test Specification

EDT No. 611984

ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach. / Appendix Only	EDT/ECN Only
R.B. Wurz	S6-71	X			
D.L. Flyckt	S6-71	X			
N.J. Sullivan	S6-71	X			
M.A. Tredway	S2-42	X			
M.W. Peres	S6-71	X			
L.L. Lin	S6-71	X			
R.J. Huth	S6-71	X			
S.L. Carmichael	S6-71	X			
R.B. Benton	S6-71	X			
I.G. Papp	S6-71	X			
D.K. Scully	S6-71	X			
J.M. Petty	S6-77	X			
M.J. Warn	H4-16	X			
200 Area LEF File	S6-71	X			
Central Files	A3-88	X			

②

PS F-3

JUL 20 1995

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT № 611984

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: R. J. Huth	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date:

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-C018H-TS-002		0	200 Area Effluent Treatment Facility Basic Support Systems Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp
1	1	Cog.Eng. S.T. Willet		6-9-95	S6-71	Cog. Eng. J. B. Benton		6/26/95	S6-71	1	1
1	1	Cog. Mgr. N.J. Sullivan		5-25	S6-71	Cog. Eng. S.L. Carmichael		6-28-95	S6-71	1	1
		QA NA				Cog. Eng. R. J. Huth		6-21-95	S6-71	1	1
1	1	Safety M. A. Treadway	For M. Treadway	7-7-95	S2-42	Cog. Eng. F. A. Graf		6-26-95		1	1
1	1	Env. D.L. Flyckt		7/6/95	S6-71						
1	1	Operations R. B. Wurz		7/11/95	S6-71						

18. 7/7/95 Signature of EDT Date Originator	19. Authorized Representative Date for Receiving Organization	20. 7-19-95 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

BD-7400-172-1

RELEASE AUTHORIZATION

Document Number: WHC-SD-C018H-TS-002, REV 0

Document Title: 200 Area Effluent Treatment Facility Basic Support Systems Operational Test Specification

Release Date: 7/19/95

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 7/19/95

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SUPPORTING DOCUMENT

1. Total Pages ~~38~~ 32

7/19/95

2. Title
200 Area Effluent Treatment Facility Basic Support Systems Operational Test Specification

3. Number
WHC-SD-C018H-TS-002

4. Rev No.
0

5. Key Words
OTP, Test Specification, 200 Area Effluent Treatment Facility

6. Author
Name: R.J. Huth

Signature

Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Basic Support Systems operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational, and design requirements for the Basic Support Systems have been met.

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC
DATE JUL 20 1995

200 AREA EFFLUENT TREATMENT FACILITY BASIC SUPPORT SYSTEMS OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Basic Support Systems operational testing activities. As specified in the Design Construction Specification (DCS),V-C018HC1-001, contractor performed acceptance testing of the facility will perform testing to a level consistent with actual "operational testing" as defined by WHC-CM-6.1, EP-4.2. As a result, the required level of detail for WHC performed operational testing is lessened. Specifically, the purpose of operational testing will be to perform any additional testing deemed important in fully defining operational characteristics of the systems. If all test requirements listed in this document have been satisfied prior to facility turnover, no Operational Test Procedure will be required. Test Requirements may be satisfied by contractor performed testing or justified as not requiring testing by the cognizant engineer.

This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Basic Support Systems have been met. The Basic Support Systems include:

1) Instrument Air System (1D, Table A-1)
2) Process Air System (1E, Table A-2)
3) PABX System (10B, Table A-3)
4) Radio (10C, Table A-4)
5) Public Address System (10E, Table A-5)
6) Sumps and Building Drains (20B, Table A-6)
7) 240V and Lower Distribution System (25A, Table A-7)
8) 480V and Higher Distribution System (25B, Table A-8)
9) Freeze Protection System (25E, Table A-9)
10) Grounding and Cathodic Protection System (25F, Table A-10)
11) Lighting System (25G, Table A-11)
12) Motor Control Centers, MCC's, (25H, Table A-12)
13) Building Exhaust, HVAC, (45A, Table A-13)
14) Building Supply, HVAC, (45B, Table A-14)
15) HEPA Filter, HVAC, (45C, Table A-13 and Table 14)
16) Safety Showers (65H, Table A-15)
17) Continuous Air Monitors, CAM's, (70A, Table A-16)
18) Portable Instrumentation (70B, Table A-17)
19) Portal Monitors (70C, Table A-18)
20) Cooling Water (95C, Table A-19)
21) Raw Water System (95H, Table A-20)

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted as the individual subsystems become operational to demonstrate the operability of the Basic Support Systems. The following list contains the initial conditions which must be met to perform testing of the Basic Support Systems:

1) Instrument Air System (1D)
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
2) Process Air System (1E)
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
3) PABX System (10B)
   - Electrical system is in service to the extent required to allow performance of this system test.
4) Radio (10C)
   - Electrical system is in service to the extent required to allow performance of this system test.
5) Public Address System (10E)
   - Electrical system is in service to the extent required to allow performance of this system test.
6) Sumps and Building Drains (20B)
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
7) 240V and Lower Distribution System (25A)
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
8) 480V and Higher Distribution System (25B)
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
9) Freeze Protection System (25E)
   - Electrical system is in service to the extent required to allow performance of this system test.
10) Grounding and Cathodic Protection System (25F)
    - Electrical system is in service to the extent required to allow performance of this system test.

11) Lighting System (25G)

- Electrical system is in service to the extent required to allow performance of this system test.

12) Motor Control Centers. MCC's. (25H)
- MCS testing completed to the extent required to allow performance of this system test.
- Electrical system is in service to the extent required to allow performance of this system test.

13) Building Exhaust. HVAC. (45A)
- MCS testing completed to the extent required to allow performance of this system test.
- Electrical system is in service to the extent required to allow performance of this system test.
- Instrument Air System is in service.

14) Building Supply. HVAC. (45B)
- MCS testing completed to the extent required to allow performance of this system test.
- Electrical system is in service to the extent required to allow performance of this system test.
- Instrument Air System is in service.

15) HEPA Filter. HVAC. (45C)
- HVAC Systems completed to the extent to allow performance of this test.

16) Safety Showers (65H)
- Sanitary water available to the safety showers.

17) Continuous Air Monitors. CAM's. (70A)
- Electrical system is in service to the extent required to allow performance of this system test.

18) Portable Instrumentation (70B)
- Not applicable.

19) Portal Monitors (70C)
- Electrical system is in service to the extent required to allow performance of this system test.

20) Cooling Water (95C)
- MCS testing completed to the extent required to allow performance of this system test.
- Electrical system is in service to the extent required to allow performance of this system test.
- Instrument Air System is in service.

21) Raw Water System (95H)
- Raw Water supply available.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Basic Support Systems are defined by the test requirements presented in Appendix A. Appendix A will contain a table for each system in the module. The tables will contain the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria.

These test requirements demonstrate the following:

> Basic Support Systems and associated support equipment operate as designed.
>
> As applicable, the control systems operate and status the Basic Support Systems.

Testing will utilize Operational Test Procedures to demonstrate operability of the ETF Basic Support Systems.

3.1 Applicable Documents

V-C018HC1-001, Design Construction Specification Project C-018H 242A Evaporator/PUREX Plant Process Condensate Treatment Facility forms a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

The reference(s) which document the completion of each acceptance criterium is provided in the Completed By column of Appendix A. If no reference document is provided, demonstration of the test requirement in an OTP may be warranted. Upon completion of the operability test for this module, the requirement/acceptance criteria will be verified by the LEF Process Engineering system cognizant engineer. The cognizant engineer will document his verification by initialing and dating the spaces provided in the Verification column of Appendix A. The verified appendices will be included as part of the Operability Test Report.

The LEF cognizant engineer may close out a requirement based on witnessing actions to meet acceptance criteria during the performance of an approved Adtechs test procedure. The LEF cognizant engineer may also sign a requirement if technical justification can be provided without actually performing the test. The technical justification, where required, shall be included in the Operability Test Report.

4.1 Data Required:
As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be recorded to evaluate whether system(s) performance meets the acceptance criteria.

Appendix A. Table A-1. Instrument Air System (1D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of the instrument air low pressure alarm.	The low pressure alarm PAL-1D011 is activated when the pressure is 80 ± 2 PSIG	ATP S-1231-405 Step 7.58 -7.64	STW 10-4-95
2	Verify Instrument Air System can be operated in the Automatic and Manual modes as selected from the MCS.	The AUTO/MANUAL position of HS-1D041 shall be initiated at MCS.	CAIO S-1231-318 Sep 6.24 & 6.25 S-1231-405 Sect. 7.0	STW 10-4-95
3	Verify operating logics of the instrument air dryer.	The dryer unit alternates in service tower at intervals as set per dryer timer.	ATP S-1231-405 Step 7.6 - 7.25	STW 10-4-95
4	Verify that the following solenoid drain valves function properly per the set cycle of 45 minutes close and 5 seconds open. (See attached list of solenoid drain valves)	Verify each valve in attached list operates as per the given logic.	ATP S-1231-405 Step 7.39-7.50	STW 10-4-95
5	Verify proper operation of system regulating valves.	The PCV-1D031 has been set at 90 ± 2 PSIG and maintain header pressure under load conditions.	ATP S-1231-405 Step 7.52 - 7.57	STW 10-4-95
6	Verify setpoint of system relief valves.	PSV-1D030 has been tested and set at 175 ± 2 PSIG. Certification or bench test data is available.	certification is available but No data attached.	STW 10-4-95
7	Verify drying capability of the instrument air dryers.	The instrument air dryer system provides dry air with dew point ≤-40°F at ≥ 50% of full load flow.	S-1231-405 STEP 7.31-7.38. S-1233-703, 7.2.12.11	STW 10-9-95
8	Verify proper system operation at loaded conditions.	System provides dry air at a pressure of > 90 PSIG when the plant is at full operating conditions.	No low pressure alarm occurre during 703 test	STW 10-4-95

Appendix A, Table A-2, Service Air System (1B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify the operation of the system low pressure alarm.	The low pressure alarm PAL-1B011 is activated when the pressure is 80 ±2 PSIG	S-1231-404 STEP 7.2.88	STW 10-4-95
2	Verify Service Air System can be operated in the Automatic and Manual modes as selected from the MCS.	The AUTO/MANUAL position of HS-1B030 shall be initiated at MCS.	S-1231-404 SECT. 7.3 & 7.4	STW 10-4-95
3	Verify that the following solenoid drain valves function properly per the set cycle of 45 minutes close and 5 seconds open.	Verify each valve operates as per the given logic.	S-1231-404 STEPS 7.2.68-7.2.80	STW 10-4-95
4	Verify proper operation of system pressure regulating valves.	The PCV-1B037 and PCV-1B038 have been set at 90 ± 2 PSIG and maintain header pressure under load conditions.	S-1231-404 STEPS 7.2.50-7.2.54	STW 10-4-95
5	Verify proper operation of the service air system.	The system provides service air at a pressure of > 90 PSIG when the plant is at full operating conditions.	No Low pressure Alarm occurs during 703 test	STW 10-9-95
6	Verify proper loading of service air compressor.	The compressor loads at 110 ± 5 PSIG and unloads at 120 ± 5 PSIG.	S-1231-404 STEPS 7.2.44 & 7.2.53	STW 10-4-95
7	Verify that no unusual noise or vibration of the compressor during startup, operation or shutdown.	Vibration data taken and compressor observed during system operation.	S-1231-404 STEPS 7.2.3 & 7.2.32	STW 10-4-95

Appendix A. Table A-3. PABX System (10B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of PAX System backup power supply.	Battery Backup exists and operates so that PAX service continues to be available when AC power is disconnected from the MITEL Switch. (D/C 16740-2.1.3.2)		
2	Verify ability to access the Public Address System via the PAX System in the Control Room.	Paging can be performed from a Control Room Station to each of the two Paging Zones (Inside and Outside the ETF) and the All-Call Zone (both Inside and Outside together). The Plant Public Address (PA) system is utilized during this test. (D/C 16740-2.1.3.2)		
3	Verify the ability to access the Public Address System via the PAX System from local stations in each Paging Zone.	Paging can be performed from an Operating Floor Station to each of the two Paging Zones (Inside and Outside the ETF) and the All-Call Zone (both Inside and Outside together). The Plant Public Address (PA) system is utilized during this test. (D/C 16740-2.1.3.2)		

Appendix A, Table A-4, Radio System (10C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify transmitter power level is within manufacturer's specifications.	Ericsson/General Electric, RANGER type, base station is 35 watts RF power into a 50 ohm load or antenna.	Checked by Radio maintenance under Ticket # 03-01-95 0287 per S.L. Madden	Sll 10-26-95
2	Transmitter frequency and modulation are within manufacture's specification.	All transmit frequencies measure with-in +/- 2 ppm of the assigned operating frequency. The modulation frequency deviation is less than +/- 5 Khz of the carrier frequency.	↓	Sll 10-26-95
3	Sensitivity and operability of all receivers are within manufacturer's specifications.	The receiver sensitivity shall measure at least .35 microvolts for a EIA 12-db SINAD ratio. The Signal Noise And Distortion (SINAD) is a ratio, expressed in decibels, of (1) signal plus noise plus distortion to (2) noise plus distortion produced at the output of a receiver . The receiver shall operate within +/- 2 ppm of assigned receiver operating frequency.	↓	Sll 10-26-95
4	Range and coverage of transmitter is sufficient to provide coverage at SALDS, all TEDF equipment locations, LERF, and within the facility. All areas of non-coverage must be deemed acceptable to facility management.	Establish radio communications in all equipment/process rooms within ETF, as well as outside process areas and SALDS location.	OSP-OTP-005	CEH 10/26/95
5	Verify that radios can be operated in the plant without interfering with equipment/system controls.	Determine that base transmitter or portable units do not cause detrimental interference with plant control systems, ancillary instrumentation or with the fire suppression system (radio link to Hanford Fire Department).	OSP-OTP-005	CEH 10/26/95

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Appendix A, Table A-5, Public Address System (10E)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of the Public Address System.	The PA system needs to be clearly audible in each process zone of the facility (inside and outside of structure) with the facility in full operation (MTT and STT).		

Appendix A, Table A-6, Sumps and Building Drains System (20B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Alarms and switches associated with Sump System 20B actuate at the given setpoints .	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	JA 10.3.95
2	Verify pump motors and pumps operate without excessive vibration, noise or overheating.	Monitor and record data for vibration and bearing temperatures for evaluation of pump and motor operation.	S-1231-306 S-1231-410 STEPS 7.2.16-7.3.16 S-1231-411 7.2.16-7.3.16	JA 10.3.95
3	Verify sump pumps 20B-P-1A/B operate with normal motor current.	Sump Pumps (20B-P-1A/B) motor current does not exceed 10.2 amps as indicated on II-20B032 and II-20B034 respectively.	S-1231-306 S-1231-410 STEP 7.2.10 7.3.10	JA 10.3.95
4	Verify sump pumps 20B-P-2A/B operate with normal motor current.	Sump Pumps (20B-P-2A/B) motor current does not exceed 12.5 amps as indicated on II-20B034 and II-20B036 respectively	S-1231-306 S-1231-411 STEP 7.2.10 7.3.10	JA 10.3.95
5	Verify proper seal water flow established for Sump Pump 20B-P-1A/B.	Flow indicator 60H-129 Sump Pump 20B-P-1A/B Seal Water Flow calibrated for ≥4 gpm	S-1231-410 STEP 7.2.6, 7.3.6	JA 10.3.95
6	Verify proper seal water flow established for Sump Pump 20B-P-2A/B.	Flow indicator 60H-136 Sump Pump 20B-P-2A/B Seal Water Flow calibrated for 2-4 gpm	S-1231-411 STEP 7.2.6, 7.3.6	JA 10.3.95
7	Verify MCS indication from AI-20B021.	Sump Tank 20B-TK-1 Conductivity meter AI-20B021 reads between 0 - 1500E-6 S/cm at the MCS	S-1231-410 STEP 7.7.14	JA 10.3.95
8	Verify MCS indication from AI-20B024.	Sump Tank 20B-TK-2 Conductivity meter AI-20B024 reads between 0 - 1500E-6 S/cm at the MCS	S-1231-411 STEP 7.6.14	JA 10.3.95

Appendix A, Table A-6, Sumps and Building Drains System (20B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
9	Verify proper operation of the Sump Pumps in the Automatic mode.	When in the AUTO mode the Sump Pumps and controlling software operate as defined by the latest revision of logic diagram H-2 88986	S-1231-410 SECT 7.7 S-1231-411 SECT 7.6, S-1231-100	JA 10-3-95
10	Verify proper operation of the Sump Pumps in the Manual mode.	When in the MANUAL mode the Sump Pumps and controlling software operate as defined by the latest revision of logic diagram H-2 88986	S-1231-410 & 411 SECT. 7.2, 7.3, 7.4 S-1231-100	JA 10.3-95
11	Verify drainage pumps 20B-P-3/4/5/6 operate without any unusual noise or vibration.	Observe pumps during operation for usual noise or indications of unusual vibration.	PUMP OPERATION OBSERVED ON VARIOUS OCCASIONS BY COG. ENGR. FOR ALL PUMPS	JA 10.8.95
12	Verify operation of pumps 20B-P-3/4/5/6 using local controls.	Drainage pumps 20B-P-3/4/5/6 start when actuated by their respective handswitches HS-20B050, HS-20B051, HS-20B017 and HS-20B018	S-1231-412 STEPS 7.2.5, 7.3.5, 7.4.5, 7.5.5	JA 10.3-95
13	Verify operation of control circuitry for pumps 20B-P-1A/B and 20B-P-2A/B.	Control loop 20B001 and 20B002 actuate the correct pump control response	S-1231-410 & 411 SECTION 7.7 S-1231-100	JA 10.3-95

Appendix A, Table A-7, 240V and Lower Distribution System (25A)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Note 1		See Note 1	10-5-95

Note 1: All testing of the electrical systems has been performed during construction testing. No further testing is required.

Appendix A. Table A-8. 480V and Higher Distribution System (25B)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Note 1		See Note 1.	KC 10-5-95

Note 1: All testing of the electrical systems has been performed during construction testing. No further testing is required.

Appendix A. Table A-9. Freeze Protection System (25E)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Heat Tracing is installed properly with insulation and cables (and associated equipment) having no physical damage.	Megger test with resistance not less than 10MΩ.	S-1231-~~001~~ 338 Sect ~~7~~.0 6	10-24-95
2	Verify proper calibration of heat trace channels.	All channels are calibrated; for both the standard mode and the narrow range mode per instructions in Chromalox user's manual 0037-75087, p 24-26.	S-1231-~~001~~ 338 Sect ~~7~~6.0	10-24-95
3	Verify Heat Tracing maintains systems at the correct temperatures.	Temperature set points are correct according to pipe contents: eg. 70°F for NaOH, 40°F for process influent and effluent, 5°for H_2SO_4.	S-1231-~~001~~ 338 Sect ~~7~~6.0	10-24-95
4	Verify proper alarm response for each heat trace circuit.	Alarm set points for each circuit are appropriate for pipe content and deadband setting; the alarm set points are not within the range of the deadband. Refer to submittals #V-1381-007-301 through #V-1381-007-314.	~~S-1231-338~~ ~~Sect 6.0~~ Review submittals and field Verified by Process Engineering	10-24-95
5	Verify output update rate for each heat trace circuit.	Output update rate is set at least 30 seconds.	S-1231-~~001~~ 338 Sect ~~7.0~~ 6.0	10-24-95
6	Verify that circuits are labeled correctly.	Each circuit label corresponds to the pipe(s) that they protect.	S-1231-~~001~~ 338 Sect ~~7.0~~ 6.0	10-24-95

Appendix A, Table A-10, Grounding and Cathodic Protection System (25F)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Note 1		See Note 1	10-5-95

Note 1: All testing of the electrical systems has been performed during construction testing. No further testing is required.

Appendix A, Table A-11, Lighting System (25G)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of emergency lights in response to a loss of power.	See specification WHC-SD-C018H-TS-008, 200 Area Effluent Treatment Facility Loss Of Plant Electrical Operational Test Specification.		

Appendix A, Table A-12, Motor Control Centers (25H)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Note 1		See Note 1	10-5-95

Note 1: All testing of the electrical systems has been performed during construction testing. No further testing is required.

Appendix A. Table A-13. RCA HVAC System (45A,B,C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of RCA HVAC MCS indication.	RCA HVAC instrumentation which indicate a value on the OCS per P&ID H-2-89021 Sh. 1 of 2 has been verified to indicate properly.	S-1231-100	JA 10.4.95
2	All switches and alarms associated with RCA HVAC instrumentation have been verified to actuate at design set values/alarm points.	Setpoints verified as listed in S-1223-003.	S-1231-100	JA 10.4.95
3	Verify proper operation of RCA HVAC dampers.	RCA HVAC Dampers are capable of being stroked fully open and fully closed.	S-1231-401 YS-1691-028 (AIR BALANCE) LOG. EGR. WITNESS ATP 401	JA 10.4.95
4	The RCA HVAC fans operate at listed design flowrates with no evidence of abnormal operating characteristics, including high vibration, surge or high bearing temperature:	45B-F-1A (RCA Supply Fan A) 40,000 CFM ± 10% 45B-F-1B (RCA Supply Fan B) 40,000 CFM ± 10% 45B-F-5 (Vapor Compressor Room Fan) 4000 CFM ± 10% 45B-F-6 (Dryer Room Fan) 3000 CFM ± 10% 45A-F-1A (RCA Exhaust Fan A) 29000 CFM ± 10% 45A-F-1B (RCA Exhaust Fan B) 29000 CFM ± 10% 45A-F-1C (RCA Exhaust Fan C) 29000 CFM ± 10%	S-1231-308 S-1231-401, 7.1.7.32 S-1231-401, 7.1.11.32 S-1231-401, 7.1.18.7 S-1231-401, 7.1.19.7 S-1231-401, 7.1.3.55 S-1231-401, 7.1.4.50 S-1231-401, 7.1.5.50	JA 10.4.95

Appendix A, Table A-13, RCA HVAC System (45A,B,C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
5	Verify fan motor operation with normal motor current.	The following fan motors do not exceed their rated full load amperage rating during normal operation: 45B-F-1A (RCA Supply Fan A) 45B-F-1B (RCA Supply Fan B) 45B-F-5 (Vapor Compressor Room Fan) 45B-F-6 (Dryer Room Fan) 45A-F-1A (RCA Exhaust Fan A) 45A-F-1B (RCA Exhaust Fan B) 45A-F-1C (RCA Exhaust Fan C)	S-1231-308 S-1231-401 7.1.3.20 7.1.4.16 7.1.5.15 7.1.7.10 7.1.11.9	10.4.95
6	Verify flows have been balanced within the duct system in accordance with ASHRAE Handbook and AABC.	Acceptable quantities are ± 10% of those shown on Drawing H-2-89021 Sh. 1 of 2 and H-2-89325.	S-1231-401 7.2.2.4 (AIR FLOW ONLY) S-1231-403	10.4.95
7	Verify RCA space temperature control.	RCA space temperature is controlled at setpoint ± 4°F in the cooling mode and in the heating mode.	S-1231-401 7.14, 7.13, 7.1.9, 7.1.10, 7.1.18.18, 7.1.19.18	10.4.95
8	Verify pressure control in the Dryer/Drum Handling Area (Zone II).	Controlled at a negative pressure with respect to Zone III (RCA) pressure.	Recorded in S-1231-401, S-1231-703 7.1.23.23	10-4-95
9	Verify pressure control in RCA (Zone III)	RCA pressure is a negative pressure with respect to outside atomospheric pressure.	S-1231-401, 7.1.16.19, 7.1.23.17 S-1231-703	10-4-95
10	Verify negative pressure maintained in lab hood ducting.	The lab hood exhaust ductwork from the three lab hood fans to the main RCA exhaust duct has been successfully leak tested, or no leakage is observed when a detectable smoke is injected into the lab hoods.	SEE ATTACHED DUCT LEAK TEST REPORT.	10-4-95

Appendix A. Table A-13. RCA HVAC System (45A,B,C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
11	Verify proper operation of the RCA HVAC System controls.	The RCA HVAC System operation is controlled in accordance with Logic Diagram H-2-89888.	S-1231-100 S-1231-401 SECT 7.1.15-7.1.17, 7.1.23	JA 10.4.95
12	Verify DOP testing of HEPA filters.	HEPA Filter DOP testing has been successfully completed.	S-1231-401 7.2.3.4	JA 10.4.95
13	Perform leak testing of process exhaust system.	Leak testing of process exhaust has been successfully completed in accordance with the requirements of ASME N509-1989 and N510-1989.	S-1231-401 7.2.1.5	JA 10.4.95
14	Verify proper operation of the building relief damper.	The building relief damper (ECN 1371) has been verified to relieve at setpoint ± 0.10 inwg. Certification of testing is available.	SEE ATTACHED CALCULATION.	JA 10.4.95
15	Verify proper response of the RCA HVAC System to receipt of fire protection signals.	The following fans shut down upon receiving a fire signal from the Fire Alarm Control Panel: 45B-F-1A (RCA Supply Fan A) 45B-F-1B (RCA Supply Fan B) 45B-F-5 (Vapor Compressor Room Fan) 45B-F-6 (Dryer Room Fan) 45A-F-1A (RCA Exhaust Fan A) 45A-F-1B (RCA Exhaust Fan B) 45A-F-1C (RCA Exhaust Fan C)	S-1231-510, 7.1.1 S-1231-401 7.1.23	JA 10.4.95
16	Verify ability to maintain temperature in Thin Film Dryer room at design or below.	With the Thin Film Dryer operating, the Thin Film Dryer room temperature as indicated on TIC-45A007 is maintained at 95°F ± 4°F.	SEE ATTACHED JUSTIFICATION	JA 10.4.95

Appendix A. Table A-13. RCA HVAC System (45A,B,C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
17	Verify ability to maintain temperature in Vapor Compressor room at or below design.	With the Vapor Compressor operating, the Vapor Compressor room temperature as indicated on TIC-45A006 is maintained at 95°F ± 4°F.	SEE ATTACHED JUSTIFICATION	JA 10-4-95

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KEH 5232: Duct Test No. 7

NORTHWEST AIR SYSTEMS, INC.

AIR DUCT LEAKAGE TEST REPORT

PROJECT: KEH 5232: EFFLUENT TREATMENT FACILITY

AIR SYSTEM TESTED: FUME HOOD EXHAUST

TEST SECTION: SHEET H-2-89138 SHT 1. FUME HOOD EXHAUST DUCT FROM WALL PENETRATION IN FUME HOOD ROOM AT GRID 5/D/E TO MAIN TRUNK SOUTH OF FILTER HOUSING 2B

FAN CFM: 3000 DUCT PRESSURE CLASS: 1"

LEAKAGE CLASS: 5% ALLOWABLE SPECIFIED TEST PRESSURE: 1"

DESIGN DATA:
SURFACE AREA(SQ.FT.): 414

ALLOWABLE LEAKAGE FACTOR(CFM/100 SQ.FT.): 0.3623

ALLOWABLE LEAKAGE CFM(TEST SECTION): 150

FIELD TEST DATA RECORD:
TEST APPARATUS DATA: AIRDATA MULTIMETER ADM-850; S/N M92703 CAL DATE: 1-18-94
UNITED McGILL ORIFICE TUBE #2617-L
DWYER 0-16" SLACK TUBE MANOMETER

DUCT PRESSURE(IN.W.G.): 1.0" ACROSS ORIFICE: 0.10

ACTUAL CFM FROM CHART: 45

TEST PERFORMED BY: 6/22/94
date

TEST WITNESSED BY:
date

Attach additional test reports and boundary sheets if testing multiple segments.

Page _____ of _____

KEH 5232: DUCT TEST No. 7

DUCT VOLUME ROUND DUCT	SURFACE AREA ROUND DUCT
$V = 3.14r^2 * L$ V = Volume (cubic feet) r = radius (ft) L = Length (ft)	$SA = 3.14d * L$ SA = Surface Area (ft) d = diameter (ft) L = Length (ft)
RECTANGULAR DUCT	RECTANGULAR DUCT
$V = b * h * L$ b = base (ft) h = height (ft) L = Length (ft) 125 ft^3	$SA = 2(b+h) * L$ 414 ft^2

TIME	PRESSURE

$Ls = e/A * PQ/100$

Ls = Allowable Leakage Rate
e = SA of Section Being Tested
A = SA of Total System
P = Allowable Leakage Percentage
Q = Total System Airflow

$$L_s = \frac{414}{414} \times \frac{(5)\,3000}{100}$$

$$L_s = 150 \text{ cfm}$$

$$L_{op} = \frac{150 \text{ cfm}}{414 \text{ ft}^2} = 0.3623 \frac{\text{cfm}}{\text{ft}^2}$$

TEST DATE:

CALCULATIONS BY:

3000 cfm

KEH 5232 : Duct Test No. 7 SHEET H-2-89138 SHEET 1

FUME HOOD EXHAUST DUCT FROM HOODS AT GRID 5/D/E TO MAIN TRUNK SOUTH OF FILTER HOUSING 28

	1''	Volume (ft^3)	Surface Area (ft
72'	20x12	120	384
9'	14x6	5	30
		125	414

CALCULATION
BUILDING RELIEF DAMPER SETTING

BY: R.J. HOTH / 10.4.95

REFERENCE: ADTECHS submittal 121/V2070-002, Backdraft Louver Damper Certificate of Compliance, #V-KETF-2116-002, Rev. 0

BACKGROUND: PEP INC., supplier of the building relief damper, provided a calculation that determined the required counterweight on the damper, to achieve an opening differential of 2 inwc. This weight was determined to be 54 pounds. ADTECHS provided information that the actual installed weight was 49 pounds. The purpose of this calculation is to determine the opening pressure using a 49 pound counterweight.

From the referenced calculation, the opening moment for the dampers is:

7 blades x 62.8P in-lbs. = 439.6P in-lbs,

where P is the opening pressure in inches wc.

The closing moment is: 7 blades X 9.6P in-lbs. = 67.2P in-lbs.

The net moment is the opening minus closing moments, or

$$M = 439.6P-67.2P = 372.4P$$

The net moment is equal to the counterweight (49 lbs.) times the moment arm length (13.79 inches). Therefore,

$$372.4P = 49 \times 13.79, \text{ or}$$

$$P = 1.81 \text{ inwc}$$

The setpoint of the damper is therefore 1.81 inwc.

Justification for Appendix A, Table A-13, RCA HVAC System, Items 16 and 17

The intent of the acceptance criteria is to ensure that the TCVs for cooling water modulate to control Dryer Room and Vapor Compressor area temperatures, and that the temperatures are maintained below a nominal 95 deg. F.

Testing in ATP S-1231-401, section 7.1.10 verifies proper operation of the TCVs in controlling to a temperature setpoint. Testing in ATP S-1231-701 verifies that Dryer Room and Compressor area temperatures were maintained well below 95 deg. F during simultaneous operation of both the main and secondary treatment trains, during typical summer weather conditions.

This combination of testing results adequately demonstrates successful operation of the Dryer Room and Vapor Compressor area cooling systems.

10.4.95

Appendix A. Table A-14. Non-RCA HVAC System (45A,B,C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of Non-RCA HVAC MCS indication.	Non-RCA HVAC instrumentation which indicate a value on the OCS per P&ID H-2-88021 Sh. 2 of 2 has been verified to indicate properly.	S-1231-100	JA 10.4-95
2	All switches and alarms associated with Non-RCA HVAC instrumentation have been verified to actuate at design set values/alarm points.	Setpoints verified as listed in S-1223-003.	S-1231-100	JA 10.4.95
3	Verify proper operation of NON-RCA HVAC dampers.	Non-RCA HVAC Dampers are capable of being stroked fully open and fully closed.	S-1231-402 WITNESSED BY COG ENGINEER DURING ATP 402	JA 10.4-95
4	The listed Non-RCA HVAC fans operate at listed design flowrates with no evidence of abnormal operating characteristics, including high vibration, surge or high bearing temperature:	45B-F-2 (Operations Area AHU Supply Fan) 12,000 CFM ± 10% 45B-F-3 (Electrical Equipment Room AHU Supply Fan) 2,000 CFM ± 10% 45B-F-4 (Control Room AHU Supply Fan) 8000 CFM ± 10%	S-1231-308 SECT.6 (vibration, temperature, noise only) AIR BALANCE REPORT OF 8/1/95	JA 10.4.95
5	Verify fan motor operation with normal motor current.	Motors for the following fans do not exceed their rated full load amperage rating during normal operation: 45B-F-2 (Operations Area AHU Supply Fan) 45B-F-3 (Electrical Equipment Room AHU Supply Fan) 45B-F-4 (Control Room AHU Supply Fan)	S-1231-308 SECT.6	JA 10.4.95
6	Flows have been balanced within the duct system in accordance with ASHRAE Handbook and AABC.	Acceptable quantities are ± 10% of those shown on Drawing H-2-89021 Sh. 2 of 2.	S-1231-401/402 AIR BALANCE OF 8/1/95	JA 10.4-95

Appendix A, Table A-14, Non-RCA HVAC System (45A,B,C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
7	Verify First Floor Operations Area space temperature control.	Space temperature is controlled at setpoint ± 4°F in the cooling mode and in the heating mode.	S-1231-402 SECT.7.4	10-4-95
8	Verify First Floor Electrical Equipment Area space temperature control.	Space temperature is controlled at setpoint ± 4°F in the cooling mode and in the heating mode.	S-1231-402 SECT.7.4	10-4-95
9	Verify Control Area space temperature control.	Space temperature is controlled at setpoint ± 4°F in the cooling mode and in the heating mode.	S-1231-402 SECT.7.4	10-4-95
10	Verify Control Area space relative humidity control.	Space humidity controlled between at setpoint ± 5%.	S-1231-402 SECT.7.3.11	10-4-95
11	Verify Control Room pressure.	The differential pressure between the control room and the outside atmosphere is maintained at 0.05 inwg ± 0.03 inwg.	COG. ENGR. WITNESSED CLOSE-OUT OF ATP 103 TEST EXCEPTION #013, RESULTS MET ACCEPTANCE CRITERIA.	10.16.95
12	Verify proper operation of the Non-RCA HVAC System controls.	The Non-RCA HVAC System operation is controlled in accordance with Logic Diagram H-2-89888.	S-1231-100	10-4-95
13	Verify proper response of the Non-RCA HVAC System to receipt of fire protection signals.	Verify that the Operations Area, Electrical Equipment Room and Control Room AHUs shut down upon receiving a fire signal from the Fire Alarm Control Panel.	S-1231-402, 7.1.12.36, 7.1.13.36, 7.2.9.36	10-4-95

Appendix A, Table A-15, Safety Showers (65H)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Safety showers have sufficient pressure and flow rate.	Safety showers flowrate meets the minimum requirements of ANSI standard Z358.1-1990, 30 gpm.	S-1231-377	10-9-95
		Eyewash stations are correct as intended by the vendors instructions and designs.	S-1231-377	/10-9-95

3

Appendix A. Table A-16. Continuous Air Monitors (70A)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify current calibration of Continuous Air Monitors	@ Must have successfully passed a WHC OR PNL calibration procedure.	*	10/16/95

@ Action to meet this requirement is to be performed per site approved calibration procedures.

* - These units have been taken out of service and are reflected in Air Sampling Plan

Appendix A. Table A-17. Portable Radiation Instrumentation - 70B

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify current calibration of Portable Radiation Instrumentation.	@ Must have successfully passed a WHC OR PNL calibration procedure.	*	10/16/95

@ Action to meet this requirement is to be performed per site approved calibration procedures.

* - Viewed Calibration Stickers on all portable rad instr.

Appendix A, Table A-18, PORTAL MONITORS - 70C

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document	Verification Initials/Date
1	Verify current calibration of Portal Monitors.	@ Must have successfully passed a WHC OR PNL calibration procedure. *		10/17/95

@ Action to meet this requirement is to be performed per site approved calibration procedures.

* Only one PCM-1B is at ETF currently - the other has not been returned by T-Plant.
Our maint procedures do not require a cal sticker but rather have it noted in a database.

Appendix A, Table A-19, Cooling Water System (95C)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify the following rotating equipment operates with no evidence of abnormal operating characteristics (high vibration, cavitation, high bearing temperature).	95C-P-1 95C-P-2 95C-F-1A 95C-F-1B.	S-1231-305 S-1231-406 STEP 7.3.2, 7.3.13,7.4.5,7.6.15	STW 10-4-95
2	Verify proper operation of the cooling tower heaters.	The cooling tower heaters (95C-E-2A/2B) are automatically controlled from the MCS and are capable of maintaining a temperature of greater than freezing point, during continuous and prolonged operation of plant and in the shutdown mode.	S.1231-309 S-1231-406 SECTION 7.2	STW 10-4-95
3	Verify proper operation of Flow proportional sampler SP-95C015.	Capable of pulling and storing a composite flow proportional sample of the cooling water blowdown stream.	S-1231-703 step 7.2.12.13 1	STW 10-9-95
4	Verify proper operation of the Cooling Water System hand switches.	The AUTO/MANUAL position of the following HS shall be initiated at MCS: HS-95C113, HS-95C114, HS-95C111, HS-95C112, HS-95C031, HS-95C084.	S-1231-406 SECTION 7.8	STW 10-4-95
5	Verify proper operation of the Cooling Water System low pressure alarm.	Alarm PAL-95C012 is activated at set point of ~~80±5~~ psig. 70±5	observed Alarm occurred during pre 703 testing	STW 10-9-95
6	Verify proper operation of cooling water pump low level interlock.	The low level interlock shut down the cooling water pump when the low level switch is activated at set point of 12.5 ±0.5 inches.	S-1231-406 STEP 7.4.28	STW 10-4-95

Appendix A, Table A-19. Cooling Water System (95C)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
7	Verify adequate cooling capacity of the cooling tower.	The cooling tower can adequately remove the heat load of the ETF systems when plant is at full operating conditions.	~~S-1231-501 Sect. 7.3.5~~ STw ~~S-1231-502 sect. 7.5-7.8~~ STw	No High Temp occure during 703 Test. STw 10-9-95
8	Verify the cooling water pump motors operate with normal current draw.	Pumps do not exceed the motor full load amperage rating of 115 Amps and 10 Amps for 95C-P-1 and 95C-P-2 respectively.	S-1231-305 S-1231-406 7.4.8, 7.6.30	STw 10-5-95
9	Verify the cooling tower fan motors operate with normal current draw.	Fans do not exceed the motor full load amperage rating of 45 Amps for 95C-F-1A/1B.	S-1231-305 S-1231-406 7.3.6, 7.3.17	STw 10-5-95

Appendix A, Table A-20, Raw Water System (95H)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of system heat tracing.	All heat trace to system 95H must be capable of maintaining a temperature above freezing.	S-1231-338 Sect. 6.0	STw 10-9-95

APPENDIX G

WHC-SD-C018H-TS-003
200 AREA ETF PROCESS SUPPORT SYSTEM OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To Distribution	From LEF Process Engineering	Page 1 of 1
		Date 7/06/95
Project Title/Work Order 200 Area Effluent Treatment Facility Process Support System Operational Test Specification		EDT No. 611980
		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
R.B. Wurz	S6-71	X			
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JUL 06 1995 ②

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Page 1 of 1

1. EDT № 611980

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: R. J. Huth	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date:

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-C018H-TS-003		0	200 Area Effluent Treatment Facility Process Support System Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp
1	1	Cog.Eng. R.J. Huth		6-6-95	S6-71	Cog. Eng. S.L. Carmichael		6-6-95	S6-71	1	1
1	1	Cog. Mgr. N.J. Sullivan		6-7-95	S6-71	Cog. Eng. J. B. Benton	JB Benton	6/7/95	S6-71	1	1
		QA NA				Cog. Eng. S. T. Willett	S. T. Willett	[illegible]	S6-71	1	1
1	1	Safety M. A. Tredway		7-5-95	S2-42					1	1
1	1	Env. D.L. Flyckt		6/[illegible]	[illegible]					1	1
1	1	Operations R. B. Wurz		6/20/95	S6-71						

18. ZB Howell 7/6/95 Signature of EDT Originator Date	19. Authorized Representative for Receiving Organization Date	20. 7/6/95 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

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pg G-4

RELEASE AUTHORIZATION

Document Number:	WHC-SD-C018H-TS-003, REV 0
Document Title:	200 Area Effluent Treatment Facility Process Support System Operation Test Specification
Release Date:	7/6/95

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

Kara M. Broz

July 6, 1995

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SUPPORTING DOCUMENT

1. Total Pages 14

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6. Author
Name: R.J. Huth
Signature
Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Process Support Systems operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational, and design requirements of the Process Support Systems have been met.

8. RELEASE STAMP

OFFICIAL RELEASE ②
BY WHC
DATE JUL 06 1995
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C018H - [illegible]

200 AREA EFFLUENT TREATMENT FACILITY PROCESS SUPPORT SYSTEMS OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Process Support Systems operational testing activities. As specified in the DCS, contractor performed acceptance testing of the facility will perform testing to a level consistent with actual "operational testing" as defined by WHC-CM-6.1, EP-4.2. As a result, the required level of detail for WHC performed operational testing is lessened. Specifically, the purpose of operational testing will be to perform any additional testing deemed important in fully defining operational characteristics of the systems. If all test requirements listed in this document have been satisfied prior to facility turnover, no Operational Test Procedure will be required. Test Requirements may be satisfied by contractor performed testing or justified as not requiring testing by the cognizant engineer.

This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Process Support Systems (listed below) have been met.

1) Cranes, Hoists, Conveyers, Manipulators.
2) Uninteruptable Power Supply
3) Process Offgas
4) Effluent Verification
5) Chilled Water
6) Seal Water
7) Demineralized Water

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted as the individual subsystems become operational to demonstrate the operability of the Process Support Systems. The following list contains the initial conditions which must be met to perform testing of the Process Support Systems:

1) Cranes, Hoists, Conveyers, Manipulators.
   - Power available to associated crane, hoist, manipulator or conveyor.
   - Applicable requirements for the Hanford Site Hoisting and Rigging Manual apply to operation of facility hoists.
2) Uninteruptable Power Supply
   - MCS testing completed to the extent required to perform this system test.
   - Normal power is available to the UPS.

3) Process Offgas
- Instrument Air System is in service.
- Electrical system is in service to the extent required to allow performance of this system test.

4) Effluent Verification
- MCS testing completed to the extent required to allow performance of this system test.
- Instrument Air System is in service.
- Electrical system is in service to the extent required to allow performance of this system test.

5) Chilled Water
- MCS testing completed to the extent required to allow performance of this system test.
- Instrument Air System is in service.
- Electrical system is in service to the extent required to allow performance of this system test.

6) Seal Water
- MCS testing completed to the extent required to allow performance of this system test.
- Instrument Air System is in service.
- Electrical system is in service to the extent required to allow performance of this system test.

7) Demineralized Water
- MCS testing completed to the extent required to allow performance of this system test.
- Electrical system is in service to the extent required to allow performance of this system test.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Process Support Systems are defined by the test requirements presented in Appendix A. Appendix A will contain a table for each system in the module. The tables will contain the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria.

These test requirements demonstrate the following:

> Process Support Systems and associated support equipment operate both automatically and manually.
>
> As applicable, the control systems operate and status the Process Support Systems.

3.1 Applicable Documents

V-C018HC1-001, Design Construction Specification Project C-018H 242A Evaporator/PUREX Plant Process Condensate Treatment Facility forms a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

The reference(s) which document the completion of each acceptance criterium is provided in the Completed By column of Appendix A. If no reference document is provided, demonstration of the test requirement in an OTP may be warranted. Upon completion of the operability test for this module, the requirement/acceptance criteria will be verified by the LEF Process Engineering system cognizant engineer. The cognizant engineer will document his verification by initialing and dating the spaces provided in the Verification column of Appendix A. The verified appendices will be included as part of the Operability Test Report.

The LEF cognizant engineer may close out a requirement based on witnessing actions to meet acceptance criteria during the performance of an approved Adtechs test procedure. The LEF cognizant engineer may also sign a requirement if technical justification can be provided without actually performing the test. The technical justification, where required, shall be included in the Operability Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be verified to evaluate whether system performance meets the acceptance criteria.

Appendix A, Table A-1. Cranes, Hoists, Conveyors, Manipulators (15)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Each crane and hoist in the ETF shall be operationally tested, as required.	Sections 12.17.1 of the Hanford Site Hoisting and Rigging Manual (DOE-RL-92-36.	OPERATIONAL TESTING DOCUMENTED IN INDIVIDUAL CRANE HISTORY FILES IN 2025EA TECH. LIBRARY	10.3.95
02	Each crane and hoist in the ETF shall be load tested, as required.	Sections 12.17.2, 12.17.4 and 12.17.5 of the Hanford Site Hoisting and Rigging Manual (DOE-RL-92-36.	LOAD TESTING DOCUMENTED IN INDIVIDUAL CRANE HISTORY FILES IN 2025EA TECH. LIBRARY.	10.3.95
03	Verify Rough Filter Lifting device capability to perform filter changeout.	Perform filter changeout of the Rough Filter or verify adequate clearances by field measurement.	COG. ENGINEER WITNESSED FILTER ELEMENT REPLACEMENT AFTER ATP 703 ON 9/21 & 9/22/95.	10.3.95
04	Verify fine Filter Lifting device capability to perform filter changeout.	Perform filter changeout of the Fine Filter or verify adequate clearances by field measurement.	SEE ATTACHED PSI VERIFYING CHANGEOUT CAPABILITY.	10.3.95

DON'T SAY IT --- *Write It!*

DATE: June 26, 1995

TO: R. J. Huth S6-71

FROM: C. Whitman (ADTECHS)
Telephone: 2-0702

cc: N. J. Sullivan S6-71
L. L. Lin S6-71

SUBJECT: Use of Rough and Fine Filter Lifting Devices for Filter Changeout

The purpose of this DSI is to confirm that during testing of the Rough and Fine Filters, the installed lifting devices were used to replace the filter housing and filter vessel head. This proved the adequacy of the lifting devices to perform a filter changeout for these two filters.

C. E. Whitman
Adtechs Test Director

Appendix A, Table A-2. Uninteruptable Power Supply (25I)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
Reference WHC-SD-C018H-TS-00~~7~~8, 200 Area Effluent Treatment Facility Loss of Plant Electrical Operational Test Specification				

Appendix A. Table A-3. Process Offgas System (45D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify proper operation of Vessel Ventilation MCS indication.	Vessel Ventilation instrumentation which indicate a value on the OCS per P&ID H-2-88993 has been verified to indicate properly.	S-1231-100	JA 10.3.95
02	All switches and alarms associated with Vessel Ventilation instrumentation have been verified to actuate at design set values/alarm points.	Setpoints as listed in S-1223-003 Latest Rev., Set-Value Selection Basis.	S-1231-100	JA 10.3.95
03	Verify proper operation of Vessel Ventilation dampers.	Vessel Ventilation dampers are capable of being stroked fully open and fully closed.	S-1231-421 SECT.2.73	JA 10.3.95
04	The Vessel Ventilation fans operate at listed design flow rates with no evidence of abnormal operating characteristics, including high vibration, surge or high bearing temperature.	45D-F-1A (VOG Blower A) 610 - 990 CFM 45D-F-1B (VOG Blower B) 610 - 990 CFM	S-1231-308 SECT.6 S-1231-421 SECT.7	JA 10.3.95
05	Vessel Ventilation fan motors do not exceed their rated full load amperage rating during normal operation.	45D-F-1A (VOG Blower A) 45D-F-1B (VOG Blower B)	S-1231-308 SECT.6 S-1231-421 SECT.7	JA 10.3.95
06	Verify proper operation of the Vessel Ventilation System.	Operation is controlled in accordance with Logic Diagram H-2-89888.	S-1231-421 SECT.7	JA 10.3.95
07	Verify Vessel Ventilation System operation from the LCU.	VERIFY that inputs required to operate the Vessel Off-Gas System per POP-45D-001 are available at the LCU.	REF. POP 05P-55-003, ETF LOI DISPLAYS MLW 5, GROUP 48-54	JA 10.9.95

Appendix A, Table A-3, Process Offgas System (45D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
08	Verify that the Vessel Ventilation System can be maintained at a negative pressure under normal operations.	The inlet pressure, as indicated on PIC-45D001, is maintained between -3.5 inwg and -8.0 inwg at flows of 610 and 990 cfm with all loads in normal operation.	S-1231-421 SECT.7	10.3.95
09	Verify DOP testing of HEPA filter.	HEPA Filter DOP testing has been successfully completed by third party.	S-1231-421 SECT.7	10.3.95
10	Verify performance of leak testing of the Vessel Ventilation System.	Tested in accordance with the requirements of ASME N509-1989 and N510-1989.	S-1231-421 SECT.7 ADTECHS LETTER L-SHO/ICF-KH-1266	10.3.95

Appendix A, Table A-4. Effluent Verification System (60H)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify proper operation of Effluent Verification System MCS indication.	System 60H instrumentation which indicate a value on the OCS per P&ID H-2-88995 has been verified to indicate properly.	S-1231-100	10.3.95
02	All switches and alarms associated with instrumentation shown on attached list have been verified to actuate at given set values/alarm points.	Setpoints as listed in S-1223-003 Latest Rev., Set-Value Selection Basis.	S-1231-100	10.3.95
03	The Effluent Verification System pumps operate at listed design flow rates with no evidence of abnormal operating characteristics, including high vibration, excessive cavitation or high bearing temperature:	60H-P-1 (Return Pump) 300 (≥ 270) gpm 60H-P-2A (Transfer Pump A) 300 (≥ 270) gpm 60H-P-2B (Transfer Pump B) 300 (≥ 270) gpm	S-1231-418-7.1.15 S-1231-457-7.2.21 S-1231-457-7.3.19	10.3.95
04	The Effluent Verification System pump motors do not exceed the listed full load amperage rating during normal operation.	60H-P-1 (Return Pump) ≤ 38.0 amps 60H-P-2A (Transfer Pump A) ≤ 56.6 amps 60H-P-2B (Transfer Pump B) ≤ 56.6 amps	S-1231-305 S-1231-457-7.2.23 S-1231-457-7.3.21	10.3.95
05	Verify proper operation of the Verification System heat tracing.	Heat Tracing on the Effluent Verification System is capable of controlling temperatures in the piping system above freezing, in any mode of system operation including "shutdown".	S-1231-338-6.3 ADDITIONAL EVIDENCE PROVIDED DURING 94-95 WINTER OPERATIONS WITH NO FREEZING PROBLEMS.	10.3.95

Appendix A. Table A-4. Effluent Verification System (60H)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
06	Verify proper operation of the Verification Tank Heaters.	Verification Tank Heaters 60H-E-1A, -1B and -1C cycle on at 50 ± 2 degrees F and off at 60 ± 2 degrees F and are capable of maintaining tank contents above freezing, in any mode of plant operation including "shutdown".	.S-1231-309 & S-1231-420	JA 10.3.95
07	Verify proper operation of Verification Transfer pump flow control to the SALDS.	The Transfer Pump discharge flow control loop (FIC-60H114) controls flow to the State Approved Land Disposal Site (SALDS) at the setpoint value of 300 [270 to 330] gpm without "hunting" or causing unacceptable pressure surges in the PVC piping to SALDS.	S-1231-457, 7.2.21 S-1231-457, 7.3.19	JA 10.3.95
08	Verify proper operation of the Verification Tank/Transfer Pump low level interlock.	Worst case Verification Tank Lo Level switch (Discharging Tank Level ≤SL) stops Transfer Pumps in "Discharge" mode without evidence of Transfer Pump cavitation or air entrainment.	S-1231-457, 7.4.12,31,48,5.14, 31, 48	JA 10-3-95
09	Verify proper operation of the Verification Tank/Return Pump low level interlock.	Worst case Verification Tank Lo-Lo Level switch (Verifying Tank Level ≤AL) stops Return Pump in "Verifying" mode without evidence of Return Pump cavitation or air entrainment.	S-1231-418, 7.4.16	JA 10.3.95
10	Verify proper operation of Verification System during mode changes.	The Return Pump (60H-P-1) runs with no interruption in Verification Water services during Verification Tank mode changes (i.e., when switching "receiving" tank to "verifying" tank, "verifying" tank to "discharging" tank, and "discharging" tank to "receiving" tank).	S-1231-501	JA 10.3.95

Appendix A. Table A-4. Effluent Verification System (60H)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
11	Verify proper operation of the Return Header pressure control.	PIC-60H013 controls return header pressure at 90 [81-99] psig without "hunting".	S-1231-418, 7.1.13	JA 10.3.95
12	Verify proper operation of the Verification System.	The Verification System operation is controlled in accordance with Logic Diagram H-2-89882.	S-1231-100 S-1231-457 S-1231-418	JA 10.3.95
13	Satisfactory performance of Verification Water services has been demonstrated.	Spray nozzle patterns in system tanks have been inspected to ensure adequate coverage.	S-1231-419 Sect. 7.2 through 7.12	JA 10.3.95
14	Verify capability of effluent sampler to produce a proportional sample.	Operate sampler SP-60H-144 to produce a flow proportional sample.	DSP-OTP-001	JA 10.17.95

Appendix A, Table A-5, Chilled Water System (45B)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify proper operation of Chilled Water System MCS indication.	System 45B (Chilled Water) instrumentation which indicate a value on the OCS per P&ID H-2-89325 has been verified to indicate properly.	S-1231-100	10.3.95
02	All switches and alarms associated with System 45B have been verified to actuate at design set values/alarm points.	Setpoints as listed in S-1223-003 Latest Rev., Set-Value Selection Basis.	S-1231-403	10.3.95
03	The Chilled Water System pumps operate at listed design flow rates with no evidence of abnormal operating characteristics, including high vibration, excessive cavitation or high bearing temperature:	45B-P-1A (Chilled Water Pump A) 572 [515 to 629] GPM 45B-P-1A (Chilled Water Pump A) 572 [515 to 629] GPM 45B-P-2A (Evaporative Media Pump A) >14 GPM 45B-P-2B (Evaporative Media Pump B) >14 GPM	S-1231-305 S-1231-403 7.3.29-7.3.99, 7.3.242, 7.3.314 S-1231-401 SECT 7.1.1 & 7.1.2	10.3.95
04	Chilled Water System pump motors do not exceed the listed full load amperage rating during normal operation:	45B-P-1A (Chilled Water Pump A) ≤ 62.0 amps 45B-P-1A (Chilled Water Pump A) ≤ 62.0 amps	S-1231-305 S-1231-403 7.3.29-7.3.99	10.3.95
05	Verify proper operation of the Chilled Water System.	System operation is controlled in accordance with Logic Diagram H-2-89894.	S-1231-403 S-1231-100	10.3.95
06	Verify proper operation of the Chilled Water System chillers.	The chillers maintain chilled water temperature at setpoint ± 2°F.	S-1231-403 7.9.60	10.3.95

Appendix A, Table A-6, Seal Water System (95B)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	The Seal Water pump operates with no evidence of abnormal operating characteristics.	Seal Water Pump 95B-P-1 operates with no sign of excessive vibration or high bearing temperature.	S-1231-305 S-1231-409 STEPS 7.2.4, 7.3.11 & 7.4.7	STW 10-4-95
02	Verify proper operation of the Seal Water Tank level alarms.	Low alarm level setpoint of 10% ±1%.	S-1231-409 STEP 7.3.7	STW 10-4-95
		High alarm setpoint of 95% ±1%.		STW 10-4-95
03	Verify proper operation of the low low level pump interlock.	The low low alarm switch is activated at setpoint of 5% ±1% to shutdown the Seal Water pump, 95B-P-1.	S-1231-409 STEP 7.3.9	STW 10-4-95
04	Verify the Seal Water System pump operates without exceeding the motor full load amperage rating.	Full load amperage rating of 3 Amps during any mode of plant operations. Pump 95B-P-1.	S-1231-305	STW 10-4-95
05	Verify Seal Water system operation in Automatic and manual.	The AUTO/MANUAL position of HS-95B031 shall be initiated at MCS.	S-1231-409 SECT. 7.3 & 7.4	STW 10-4-95
06	Verify cooling capability of Seal Water System cooler.	The seal water cooler is able to maintain the outlet temperature at less than 90°F as indicated on TI-95B021 (local) when the system is in full operation. (MTT and STT operating)	S-1231-703 step 7.2.12-113 observed TI-95B021 is less than 90°F	STW 10-9-95
07	Verify that the Seal Water Pump operates on the pump performance curve.	10gpm with nominal discharge pressure of 80psig.	S-1231-703 step 7.2.12.113	STW 10-9-95

Appendix A, Table A-7, Demineralized Water System (95D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify proper operation of system solenoid valves.	Solenoid valves fully open and fully close when banks are switched.	S-1231-413 7.1.64-7.1.82	STW 10-4-95
02	Verify operation of system alarm on high resistivity.	Resistivity ≥ 1 Meg Ohms.	S-1231-413 7.1.64-7.1.75	STW 10-4-95
03	Verify flow capacity of the Demineralized Water System.	Minimum flow rate of 2 gpm or better to thin film boiler and evaporator boiler systems.	S-1231-413 7.1.30	STW 10-4-95
04	Verify the system effluent meets the water quality requirements.	pH: 7 - 9 Hardness: 0 - 10 ppm Alkalinity: 1 - 100 ppm Fe + Cu: 0 - 5 ppm Resistivity : 1 Meg Ohms	S-1231-413 7.2.17	STW 10-4-95
05	Verify proper operation of the Demineralized Water System.	The system is able to automatically switch and/or manually switch from Bank A to Bank B or vice versa when the other bank is depleted.	S-1231-413 7.1.64-7.1.82	STW 10-4-95

APPENDIX H

WHC-SD-C018H-TS-004
200 AREA ETF MAIN TREATMENT TRAIN OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To Distribution	From LEF Process Engineering	Page 1 of 1
		Date 7/06/95
Project Title/Work Order 200 Area Effluent Treatment Facility Main Treatment Train Operational Test Specification		EDT No. 611983
		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach. / Appendix Only	EDT/ECN Only
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2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: I. G. Papp	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
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1	WHC-SD-C018H-TS-004		0	200 Area Effluent Treatment Facility Main Treatment Train Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

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(See Approval Designator for required signatures)

(G) Reason	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp
1	1	Cog. Eng. I.G. Papp	IG Papp	6-7-95	S6-71	Cog. Eng. L.L. Lin		6-8-95	S6-71	1	1
1	1	Cog. Mgr. N.J. Sullivan		6-20-95	S6-71	Cog. Eng. E.A. McNamar	E.A. McNamar	6-15-95	S6-77	1	1
		QA NA				Cog. Eng. R. Clinton	R. Clinton	6-7-95	S6-71	1	1
1	1	Safety M. A. Treadway	MA		S2-42						
1	1	Env. D. L. Flyckt		7/6/95	S6-71						
1	1	Operations R. B.		7/7/95	S6-71						

18. 7/6/95 Signature of EDT Originator Date	19. Authorized Representative Date for Receiving Organization	20. 7/6/95 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

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RELEASE AUTHORIZATION

Document Number:	WHC-SD-C018H-TS-004, REV 0
Document Title:	200 Area Effluent Treatment Faciliity Main Treatment Train Operational Test Specification
Release Date:	7/7/95

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 7/7/95

Kara M. Broz

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SUPPORTING DOCUMENT

1. Total Pages 42

2. Title

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6. Author

Name: I.G. Papp

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Signature

Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Main Treatment Train operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Main Treatment Train have been met.

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC
DATE JUL 10 1995

2

A-6400-073 (08/94) WEF124

WHC-SD-C018H-TS-004, Rev 0

200 AREA EFFLUENT TREATMENT FACILITY
MAIN TREATMENT TRAIN
OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Main Treatment Train operational testing activities. As specified in the Design Construction Specification (DCS), V-CO18HC1-001, contractor performed acceptance testing of the facility will perform testing to a level consistent with actual "operational testing" as defined by WHC-CM-6.1, EP-4.2. As a result, the required level of detail for WHC performed operational testing is lessened. Specifically, the purpose of operational testing will be to perform any additional testing deemed important in fully defining operational characteristics of the systems. If all test requirements listed in this document have been satisfied prior to facility turnover, no Operational Test Procedure will be required. Test Requirements may be satisfied by contractor performed testing or justified as not requiring testing by the cognizant engineer.

This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Main Treatment Train have been met. The Main Treatment Train includes:

1) Influent Receiving & Staging (60A)
2) Filtration - Rough/Fine (60B)
3) pH Adjustment (60C)
4) UV Oxidation (60D)
5) Degasification (60E)
6) Reverse Osmosis (60F)
7) Ion Exchange (60G)
8) Chemical Makeup & Storage (65C)
9) Solid Waste Handling - Resin Dewatering (80E)

2.0 INITIAL FACILITY CONDITIONS

The following list contains the initial conditions which must be met to perform testing of the MCS:

- MCS testing completed to the extent required to allow performance of this system test.
- Electrical system is in service to the extent required to allow performance of this system test.
- Instrument Air System is in service.
- Cooling Water System is in service to the extent required to all performance of this system test.
- RCA HVAC System is in service to the extent required to allow performance of this system test.
- Seal Water System is in service to the extent required to allow performance of this system test.
- Vessel Off Gas System is in service to the extent required to allow performance of this system test.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Main Treatment Train are defined by the test requirements presented in Appendix A. Appendix A will contain a table for each system in the module. The tables will contain the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria.

These test requirements demonstrate that the Main Treatment Train Systems and associated support equipment operate as designed.

3.1 Applicable Documents

V-C018HC1-001, Design Construction Specification Project C-018H 242A Evaporator/PUREX Plant Process Condensate Treatment Facility forms a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

The reference(s) which document the completion of each acceptance criterium is provided in the Completed By column of Appendix A. If no reference document is provided, demonstration of the test requirement in an OTP may be warranted. Upon completion of the operability test for this module, the requirement/acceptance criteria will be verified by the LEF Process Engineering system cognizant engineer. The cognizant engineer will document his verification by initialing and dating the spaces provided in the Verification column of Appendix A. The verified appendices will be included as part of the Operability Test Report.

The LEF cognizant engineer may close out a requirement based on witnessing actions to meet acceptance criteria during the performance of an approved Adtechs test procedure. The LEF cognizant engineer may also sign a requirement if technical justification can be provided without actually performing the test. The technical justification, where required, shall be included in the Operability Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be verified to evaluate whether system performance meets the acceptance criteria.

Appendix A, Table A-1, Influent Receiving & Staging (60A)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Alarms and switches associated with System 60A actuate at the given setpoints .	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	JSP/10-3-95
2	Verify system rotating equipment operates with no evidence of abnormal operating characteristics (high vibration, cavitation, high bearing temperature).	60A-P-1A/B/C.	S-1231-305 S-1231-426 7.2.11 - 7.2.30, Sect. 7.3 & 7.4	JSP/10-3-95
3	Verify proper operation of the Surge Tank heaters.	Surge Tank heaters (60A-E-1A/B) are automatically controlled from the MCS and are capable of maintaining a temperature of greater than freezing point, during continuous and prolonged operation, of the Surge Tank contents in any mode of plant operation including shutdown mode.	S-1231-429	JSP/10-3-95
4	Verify proper operation of proportional sampler SP-60A008.	Sampler SP-60A008 is capable of pulling and storing a composite flow proportional sample of the Process Condensate from the ETF piping at the location just upstream of the Rough Filter.	S-1231-501 Step 7.3.5.5.53	JSP/10-3-95
5	Verify Surge Tank Pumps do not exceed the motor full load amperage rating.	Full load amperage rating of 42.1 Amps for 60A-P-1A/B/C.	S-1231-426 Sect. 7.2, 7.3, 7.4 S-1231-427 Sect. 7.2, 7.3, 7.4	JSP/10-3-95

Appendix A, Table A-1, Influent Receiving & Staging (60A)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
6	Verify proper operation of the interlock between the surge tank heaters and surge tank level.	The Surge Tank heaters (60A-E-1A/B) are turned off automatically at Surge Tank volume of 5,000 gallons operational capacity or less.	S-1231-429 Sect. 7.4	JBP/10-3-95
7	Verify proper operation of system 60A heat trace.	All heat trace to System 60A components must be capable of maintaining a temperature of greater than freezing for the Process Condensate feedstock in the affected piping during any mode of plant operations. (This criteria should be covered under the criteria for Heat Trace system)	S-1231-338	JBP/10-3-95

Appendix A, Table A-1, Influent Receiving & Staging (60A)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
8	Verify proper operation of MCS indication for system instrumentation.	FI-60A001 at 20-75 gpm. FI-60A002 at 20-150 gpm. FI-60A003 at 20-75 gpm. AI-60A005 at 0-1060E-6 S/cm. AI-60A006 at -2 to 14. TI-60A011 for temperature indication of the Surge Tank contents. LI-60A013 for level indication of the Surge Tank contents. PI-60A014 for indication of the Surge Tank Pumps 60A-P-1A/B/C combined discharge pressure. RI-60A004 at 0-8.6E-4. AI-60A007 at 0-218 ppm.	S-1231-458 S-1231-458 S-1231-458 S-1231-216 S-1231-501 S-1231-501 S-1231-429 Step 7.3 S-1231-429 STEP 7.1 S-1231-426, 7.2.14, 7.3.16, 7.4.16 S-1231-501	JBP/10-3-95
9	Verify proper operation of AOV-60A057 in all modes of plant operation.	AOV-60A057 is remotely operable in automatic or manual to support any mode of plant operation.	S-1231-426, 427, 430, 501	JBP/10-3-95
10	Verify proper operation of AOV-60A019 in all modes of plant operation.	AOV-60A019 is remotely operable in automatic or manual to support any mode of plant operation.	S-1231-426, 427, 430, 501	JBP/10-3-95

Appendix A, Table A-1, Influent Receiving & Staging (60A)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
11	Verify pH Analyzers AE60A022 and AE60A023 are selectable from MCS.	AE60A022 and AE60A023 are remotely selectable from the MCS.	S-1231-425 Sect. 7.1	JLP/10-3-95
12	Verify proper operation and capacity of the Surge Tank.	System 60A must accommodate an ETF influent flowrate of greater than or equal to 40 gpm and less than or equal to 150 gpm for 42 days continuous operation in MCS READY or OPERATIONS Mode. This requirement can be accepted on simultaneous operation of the entire treatment train for 6 continuous hours provided no process oscillations of an increasing nature are observed for this length of time.	S-1231-501 S-1231-703	JLP/10-3-95
13	Verify proper operation of pH Adjustment of the Surge Tank.	Feed forward and feedback pH control of the Surge Tank contents, to maintain the Surge Tank inventory pH greater than pH 4 and less than pH 7, shall accommodate continuous feed to the ETF and continuous operations in READY or OPERATION MODE simultaneously.	S-1231-501	JLP/10-3-95

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Appendix A, Table A-1, Influent Receiving & Staging (60A)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
14	Verify proper operation and capacity of the Surge Tank Pumps.	Surge Tank Pumps are capable of delivering at least 180 gpm (full flow) each and are remotely operable in automatic or manual to support any mode of plant operation.	S-1231-501	JGP/10-3-95
15	Verify proper operation of the Surge Tank pH meter cleaning mode.	Remotely operable from the MCS and cycles according to Logic H-2-89915 pages 70-77.	S-1231-425 Sect. 7.6 & 7.7	JGP/10-3-95
16	Verify minimum closure time of AOV-60A056 is set to prevent water hammer as a result of valve closure.	The minimum time of closure for influent AOV 60A056 shall accommodate the influent stream designated for that respective feed piping system to prevent waterhammer occurrence. ICF-KH calculations (calculation # C-018-012 job # CR9583) place the closure time of the valve at 106 seconds to maintain less than the 100 psig operating pressure. The WHC Thermal Hydraulic Analysis Group has calculated the closure time at 2 minutes (IM 23210-JJI-93-124). Therefore, AOV-60A056 should not close in a total time faster than 120 seconds.	This item to be deleted, No water to be transferred from 242-A Evaporator to ETF directly JGP	

Appendix A, Table A-2, Filtration - Rough/Fine (60B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
		Rough Filter		
1	Verify proper operation of AOV's.	Air operated valves (AOV), including AOV-60B074 can be fully opened and fully closed via the MCS.	S-1231-431 Steps 7.4.7-7.4.40 S-1231-100	10/17/95
2	Alarms and switches associated with the Rough Filter actuate at the given setpoints .	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-430 S-1231-703 S-1231-431 S-1231-100	10/17/95
3	Verify proper operation of the Rough Filter.	The filtration unit shall accommodate the full design flow range and generate acceptable quantities of backwash waste. Criteria: The unit shall accommodate a flow range of 45 to 175 gpm and generates less than 1% of its daily influent flow as backwash waste (S-135A-001).	S-1231-430 Steps 7.33, 7.41 See Note	10/17/95
4	Verify proper response of the Main Treatment Train to backwash of the Rough Filter.	The Main Treatment Train shall switch from Operation Mode to Backwash Mode when: Filter backwash is selected from OCS	S-1231-458 Steps 7.6.1.2.1 - 7.6.1.2.29	10/17/95
		The DP across the filter rises above the set point (SH) for PDSH-60B-103	S-1231-703	10/17/95
5	Verify proper response of the Rough Filter differential pressure following a backwash cycle.	Upon completion of backwash, the differential pressure across the filter shall be reduced to less than the set point (SH) for PDSH-60B-103, AND the Main Treatment Train is switched back to Operation Mode.	S-1231-458 Step 7.6.1.2.26 S-1231-703	10/17/95

Appendix A, Table A-2, Filtration - Rough/Fine (60B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
6	Verify proper backwash air supply pressure at initiation of the backwash cycle.	Backwash air supply pressure of 80 to 100 psig as indicated on PI-60B105.	S-1231-431 Step 7.3.21	10/17/95
7	Verify operating parameters of the Rough Filter are within design limits.	Operating pressure in the filter vessel shall be less than 150 psig at max design flow of 175 gpm.	S-1231-430 Step 7.45	10/17/95
8	Verify Rough Filter inlet temperature is within design limits.	The operating temperature in the filter vessel shall be less than 140°F at 175 gpm.	observed in ATP S-1231-703	10/17/95
9	Verify pressure in the air receiving vessel is within design limits.	The operating pressure in the gas receiver vessel shall be less than 125 psig.	S-1231-431 Step 7.4.32	10/17/95
10	Verify proper operation of the Rough Filter initial fill sequence.	The initial fill sequence for the filter unit is as per logic drawings H-2-89873 and the related LCN's.	S-1231-458 Steps 7.6.1.2.14, 7.6.1.2.20 S-1231-100	10/17/95
11	Verify proper operation of the Rough Filter backwash sequence.	The backwash sequence for the filter unit is as per logic drawings H-2-89873, and the related LCN's.	S-1231-458 Sect. 7.6.1.2 S-1231-100	10/17/95
12	Verify proper operation of MCS indication of manual valves 60B-006 and 60B-025.	Verify the Open and Close statuses are indicated on MCS.	S-1231-100	10/17/95
13	Verify proper operation of MCS indication of Rough Filter AOV's.	Verify the Open and Close statuses are indicated on MCS.	S-1231-100	10/17/95
15	Verify proper operation of SOV-60B-021 in response to a backwash cycle.	Solenoid valve 60B-021 fully closed and fully opened at the initiation and conclusion of the backwash cycle.	S-1231-431 Steps 7.4.29, 7.4.30	10/17/95
		Fine Filter		

Appendix A, Table A-2, Filtration - Rough/Fine (60B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
16	Verify proper operation of AOV's.	All air operated valves (AOV) can be fully opened and fully closed via the MCS.	S-1231-442 Steps 7.16 - 7.38	10/17/95
17	Alarms and switches associated with the Fine Filter actuate at the given setpoints.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100 S-1231-703	10/18/95.
18	Verify proper operation of the Fine Filter.	The filtration unit shall accommodate the full design flow range and generate acceptable quantities of backwash waste. Criteria: The unit shall accommodate a flow range of 35 to 175 gpm and generates less than 1% of its daily influent flow as backwash waste (S-135A-001).	S-1231-442 Steps 7.28, 7.35.2 (Tested at 36 gpm & 121 gpm)	10/18/95
19	Verify proper response of the Main Treatment Train to backwash of the Fine Filter.	The Main Treatment Train shall switch from Operation Mode to Backwash Mode when: Filter backwash is selected from OCS	S-1231-458 Steps 7.6.2.2.1 - 7.6.2.2.23	10/18/95
		The DP across the filter rises above the set point (SH) for PDSH-60B-203		10/18/95
20	Verify proper response of the Fine Filter differential pressure following a backwash cycle.	Upon completion of backwash, the differential pressure across the filter shall be reduced to less than the set point (SH) for PDSH-60B-203, AND the Main Treatment Train is switched back to Operation Mode.	S-1231-458 Step 7.6.2.2.11 S-1231-703	10/18/95.
21	Verify proper backwash air supply pressure at initiation of the backwash cycle.	At the initiation of the filter backwash, the backwash air supply pressure shall be at 80 to 100 psig as indicated on PI-60B205.	S-1231-443 Steps 7.2.1-7.2.4	10/18/95.

Appendix A, Table A-2, Filtration - Rough/Fine (60B)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
22	Verify operating parameters of the Fine Filter are within design limits.	The operating pressure in the filter vessel shall be less than 150 psig at max design flow of 175 gpm.	S-1231-442 Step 7.35.6	10/18/95
23	Verify Rough Filter inlet temperature is within design limits.	The operating temperature in the filter vessel shall be less than 140°F at 175 gpm.	observed during ATP S-1231-793	10/18/95.
24	Verify pressure in the air receiving vessel is within design limits.	The operating pressure in the gas receiver vessel shall be less than 125 psig.	S-1231-443 Step 7.2.4	10/18/95
25	Verify proper operation of the Fine Filter initial fill sequence.	The initial fill sequence for the filter unit is as per logic drawings H-2-89873 and the related LCN's.	S-1231-100 S-1231-458 Steps 7.6.2.2.11 thru 7.6.2.2.17	10/18/95
26	Verify proper operation of the Fine Filter backwash sequence.	The backwash sequence for the filter unit is as per logic drawings H-2-89873, and the related LCN's.	S-1231-100 S-1231-458 Sect. 7.6.2.2.1-7.6.2.2.24	10/18/95.
27	Verify proper operation of MCS indication of manual valves 60B-036 and 60B-045.	Verify the Open and Close statuses are indicated on MCS.	S-1231-100	10/18/95
28	Verify proper operation of MCS indication of Rough Filter AOV's.	Verify the Open and Close statuses are indicated on MCS.	S-1231-100	10/18/95.
29	Verify proper operation of SOV-60B-051 in response to a backwash cycle.	Solenoid valve 60B-051 fully closed and fully opened at the initiation and conclusion of the backwash cycle.	S-1231-443 Steps 7.2.1-7.2.3	10/18/95

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Note on Table A-2, Item 3:

During performance of ATP S-1231-703, the rough filter backwash was on a cycle as frequently as 20 minutes. At this rate, a total of 11,520 gallons of waste was generated out of 216,000 gallons of feed processed, ie. a recycle of 5.3%. *The spec requirement of 1% of the daily influent flow was exceeded.* ADTECHS letter L-JHO/ICF KH-1415 addressed this anomaly as being an unique situation which should not be encountered during normal operation.

Appendix A, Table A-3, pH Adjustment (60C)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify pH Adjustment Pumps do not exceed the motor full load amperage rating.	Motor full load amperage rating for 60C-P-1A/B is 50 Amps. FLA for 60C-P-2A/B is 26.4 Amps.	S-1231-305 S-1231-436 Steps 7.2.9, 7.3.8 S-1231-454 Steps 7.2.27, 7.3.23	JSP/10-3-95
2	Alarms and switches associated with the pH Adjustment System actuate at the given setpoints.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	JSP/10-3-95
3	Verify system rotating equipment operates with no evidence of abnormal operating characteristics (high vibration, cavitation, high bearing temperature).	60C-P-1A/B 60C-P-2A/B	S-1231-305 S-1231-436 Steps 7.2.18, 7.3.11 S-1231-454 Sect 7.2	JSP/10-3-95

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Appendix A, Table A-3, pH Adjustment (60C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
4	Verify proper operation of the pH Adjustment System.	The System (60C) shall accommodate continuous operation under all plant modes of operation (SHUTDOWN, READY, PURGE, OPERATION)[both pH and Effluent pH Adjustment portions of system 60C]. Demonstration of this criteria shall be accepted upon 2.5 hours of continuous operations. This time will allow sufficient demonstration that the pH and volume control of the pH and Effluent pH Adjustment tanks are capable of operating without uncontrollable process oscillations. Oscillations are indicated by pH conditions which oscillate outside the range for OPERATIONS Mode and cannot be maintained (returned to OPERATIONS Mode automatically) by the pH controllers. Level oscillations are indicated by level changes which do not allow for maintaining OPERATIONS mode for the time required.	S-1231-501 Sect 7.3 & 7.4 S-1231-438 S-1231-703	JSP/10-3-95
5	Verify proper operation of proportional samplers SP-60C224/~~225~~/228/229 New samplers installed for AVOCS and Flow Proportional sampling JSP	SP-60C224/225 are capable of pulling a flow proportionate sample from the downstream piping of the Effluent pH Adjustment Tank (60C-TK-2) and storing the sample (approximately 72 hours at 150 gpm ETF discharge rate) until laboratory analysis can be performed.	S-1231-501 Steps 7.3.5.56, 7.3.5.57 S-1231-456 Steps 7.2.47 - 7.2.53, 7.2.18 - 7.2.22, 7.3.47 - 7.3.53	JSP/10-3-95

Appendix A, Table A-3, pH Adjustment (60C)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
6	Verify proper operation of the pH Adjustment System flow controller FIC-60C218 in conjunction with pH Adjustment Tank level controller LIC-60C211.	Flow Controller FIC-60C218 shall control the flow from 60C-TK-2 in conjunction with LIC-60C211 to control the discharge flow from the Effluent pH Adjustment Tank (60C-TK-2) to maintain a nominal volume in 60C-TK-2 at 73% total operational capacity (1,825 gallons).	S-1231-456 Steps 7.2.1 - 7.2.12	JSP 10-3-95
7	Verify proper operation of pH Adjustment Tank level controller LIC-60C111.	Level controller LIC-60C111 shall control the level in the pH Adjustment Tank (60C-TK-1) to achieve a nominal set value of 71% operational capacity (1850 gallons).	S-1231-456 Steps 7.2.1 - 7.2.12, 7.2.39 - 7.2.46	JSP 10-3-95
8	Verify proper operation of system flow control valves in the automatic mode.	Flow control valves shall operate in an automatic mode with no indication (noise and/or vibration) of cavitation.	visual verification	JSP 10-3-95
9	Verify proper response of the pH Adjustment System to swings in pH or high level in the pH Adjustment Tank.	The pH Adjustment portion of system 60C will revert from OPERATIONS Mode to READY Mode on the following conditions: • pH read by AI-60C103/104 is equal or greater than 6 or less than or equal to 2. • Level of 65C-TK-1 as read by LIC-60C111 equal to or greater than 95% (2,470 gallons) total operational capacity.	S-1231-501 S-1231-703 witness during in house testing JSP	JSP 10-3-95

Appendix A, Table A-3, pH Adjustment (60C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
10	Verify proper response of the pH Adjustment System to component failure or tank low level.	The pH Adjustment portion of system 60C will revert from OPERATIONS Mode or READY Mode to SHUTDOWN Mode on the following conditions: • LAL-60C111<= AL, 47% (1,222 gallons) total operational capacity. • AOV-60B080 failure. • Pump Failure (60C-P-1A/B)	sequence testing CA10 on 60C-P-1A/B witnessed during in house testing JLP	JLP 10-3-95
11	Verify proper response of the Effluent pH Adjustment system to swings in pH.	The Effluent pH Adjustment portion of system 60C will revert from OPERATIONS Mode to READY Mode on the following conditions: • pH read by AI-60C222/223 is equal or greater than 8.5 or less than or equal to 6.5.	S-1231-501 (TPCN) S-1231-703	JLP 10-3-95
12	Verify proper response of the Effluent pH Adjustment System to pump failure.	The Effluent pH Adjustment portion of system 60C will revert from OPERATIONS Mode or READY Mode to SHUTDOWN Mode on the following conditions: • Pump Failure (60C-P-2A/B)	CA10 on 60C-P-2A/B and sequence testing. witnessed during in house testing JLP	JLP 10-3-95
13	Verify proper operation of the ISCO sampler.	Capable of pulling and storing a composite flow proportional sample over period a 670,000-gallon process run.	witnessed during in house testing JLP	JLP 10-3-95

Appendix A, Table A-3, pH Adjustment (60C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
14	Verify proper operation of the AVOCS Sampler.	Capable of pulling and storing a zero-head space, composite flow proportional sample over a 670,000-gallon process run.	witnessed during in-house testing JBP	JBP 10-3-95

Appendix A, Table A-4, UV Oxidation (60D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify system 60D pumps do not exceed the motor full load amperage rating during any mode of plant operations.	60D-P-1A1 60D-P-1A2 60D-P-1B1 60D-P-1B2 60D-P-2A1 60D-P-2A2 60D-P-2B1 60D-P-2B2	S-1231-435	BP 10-3-95
2	Alarms and switches associated with the UV Oxidation System actuate at the given setpoints.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	Factory Test.	BP 10-3-95
3	Verify System 60D rotating equipment operates with no evidence of abnormal operating characteristics (cavitation).	This equipment includes FCV-60D104 and FCV-60D204.	S-1231-435	BP 10-3-95
4	Verify system components return to fail safe position on loss of utilities.	System 60D components return to a fail safe mode on loss of utilities.	Factory Test.	BP 10-3-95
5	Verify proper operation of proportional sampler SP-60D006.	SP-60D006 is capable of taking a flow proportional sample of the process stream from the downstream side of the peroxidation destruction module and storing the sample(s) until laboratory analysis can be performed. This will require approximately a 72 hr storage period.	S-1231-501 Step 7.3.5.54	BP 10-3-95

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Appendix A, Table A-4, UV Oxidation (60D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
6	Verify manual control of UV Oxidizer flow control from MCS or LCU.	The UV-1 and the UV-2 shall be capable of receiving an operator input (from the MCS or the Local PLC) to adjust the flow rate of the respective process streams by automatically throttling FCV-60D104 and FCV-60D204 respectively.	S-1231-433 Step 7.4.1 S-1231-501 Step 7.4.1	10-3-95
7	Verify proper operation of the UV Oxidizer cleaning system in the automatic mode.	Each chamber (1A,1B,2A,2B) must be self cleaning in an Automatic mode. The self cleaning feature means that the quartz tubes and inner wall of the individual reaction tube (which houses the individual lamps) must be self cleaned by the systems automatic flow reversing mechanism. This self cleaning mechanism must receive an operator preset timed signal to begin the cleaning cycle.	S-1231-433	10-3-95
8	Verify proper system operation via MCS controls or local controls.	The UV system must be capable of remote and local operations as outlined in V-135A-002-494 UV Logic diagrams.	S-1231-433 Sect 7.3 & 7.4 S-1231-501 Sect 7.3 & 7.4	10-3-95
9	Verify proper operation of the Peroxide Feed Module.	Peroxide Feed Module must be integrated to the UV system to provide flow proportional control to the chemical injection pumps (peroxide pumps, P-1A1,P-1B2,P-1B1,P-1B2,P-2A1,P-2A2,P-2B1,P-2B2). Flow signal shall be received from FI-60D104, and FI-60D204 for units UV-1 and UV-2 respectively Per Logic diagrams for the UV system.	S-1231-501	10-3-95

Appendix A, Table A-4, UV Oxidation (60D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
10	Verify capability to energize UV lamps from MCS and ~~LCU~~ PLC BP	Energizing the lamps (turning them on) shall be accomplished from either the local touchscreen on UV-1 or UV-2 or the MCS depending on the status of the remote or local switch.	S-1231-433 Sect 7.3 S-1231-501 Step 7.3.4	BP 10-3-95
11	Verify proper operation of MCS indication for the Peroxide Feed Module tank and metering pumps.	60D-TK-1 and 60D-P-1A1/2,1B1/2,2A1/2,2B1/2]) shall be remotely monitored for alarm conditions and operational status (operating parameters).	S-1231-501	BP 10-3-95
12	Verify local control capability of the peroxide feed pumps flow rate from the LCU and the pump face.	The peroxide feed pumps shall be remotely controllable from the Local UV touchscreen and locally from the local pump face with respect to injection rate of peroxide to the UV-1/2.	S-1231-501	BP 10-3-95
13	Verify proper MCS indication and control for the peroxide destruction module.	The peroxide destruction module (60D-CO-1A/B) shall be monitored remotely and system shutdown shall be automatically actuated on alarm condition.	Factory Test.	BP 10-3-95
14	Verify proper operation of the UV oxidizer flow control from the LCU.	The UV-1/2 LCUs must be able to receive a flow signal from the FIC-60D104/204 for the purpose of calculating the minimum allowable flow based on the number of available (energized) lamps.	Factory Test.	BP 10-3-95

Appendix A, Table A-4, UV Oxidation (60D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
15	Verify proper operation of the UV Oxidizer outlet temperature indication during normal and reverse flow conditions.	Temperature elements TE-60D113/112/142/141/213/212/242/241 (along with TE-60D105/106/205/206) must be able to monitor the effluent temperature within the UV-1 and UV-2 units for high temperature conditions of the UV chamber A/B effluent. See attached set point basis information on TAH-60D105/106/205/206.	S-1231-433 Steps 7.4.2.60 - 7.4.2.66	JSP 10-3-95
16	Verify UV Oxidizer shutdown on mismatch of flow versus energized lamps.	The UV-1 and UV-2 shall be able to shut down automatically if the number of lamps which are on, falls below the preset value or the computed number of lamps required (as calculated with respect to the flowrate) is lower than the calculated value.	Factory Test.	JSP 10-3-95
17	Verify UV Oxidizer shutdown in response to system general alarms.	GENERAL ALARMS: • Low water flow • Remote shutdown • Peroxide module locked (lockout switch in LOCKOUT position) • High Influent pressure • Overpressure ADS #1 • Overpressure relief • Low Peroxide Tank Volume • PLC Rack fault • High Influent Temp • Overpressure ADS #2 • Emergency Stop	Factory Test.	JSP 10-3-95

Appendix A, Table A-4, UV Oxidation (60D)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
18	Verify UV Oxidizer shutdown in response to system chamber alarms.	CHAMBER ALARMS: • Tube cleaner low air pressure • Lamp Enclosure door open • Peroxide feed valve not fully open (60D-309/318/328/334/341/342/343/344) • Tube cleaner valve out of position (AOV-60D111/112/113/114/119/120/121/122/211/212/213/214/219/220/221/222) • Ground fault interrupt secondary • Low Lamp output (Lamps 1-24) • Lamp drive high temperature • Remote trip main circuit breaker • Switching failure • Low peroxide pressure • High water temperature • Influent valve not fully open (60D-118/110/218/210) • Lamp drive door open • Lamp enclosure moisture • Low water pressure • Effluent valve not fully open (60D-128/129/228/229) • Ground fault interrupt primary Factory Test	Factory Test.	10-3-95

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Appendix A, Table A-5, Degasification (60E)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Alarms and switches associated with the Degasification System actuate at the given setpoints.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	LAm 10-2-95
2	Verify proper operation and indication of the Degasification System from the MCS.	All appropriate signals are received and displayed at the MCS. This includes flow, level, pressure, temperature, conductivity and valve position indication, status of rotating equipment (pumps and blower), indication of MANUAL or AUTO mode for selected equipment, alarm conditions and indication of READY/SHUTDOWN/OPERATION mode. Reference S-1223-003, Set-Values Selection Basis.	S-1231-458 Sect 7	LAm 10-2-95
3	Verify that control loop (LIC-60E-012) properly controls outlet flow control valve (LCV-60E-012).	In AUTO mode: 1. valve opens as liquid level rises above set value 2. valve closes as liquid level drops below set value 3. valve maintains level in degas column at approximately 50%.	S-1231-446	LAm 10-2-95
4	Verify system rotating equipment operates with no evidence of abnormal operating characteristics (high vibration, cavitation, high bearing temperature).	60E-P-1A 60E-P-1B 60E-D-1.	S-1231-305 Sect.6.5 S-1231-308 Sect.6.5	LAm 10-2-95
5	Verify proper operation of the Degasifier Pumps low level trip.	Pumps 60E-P-1A and 60E-P-1B shut down at the degas column low level setpoint of 17.6% ±1%.	S-1231-445 Sect.7.42 - 7.63	LAm 10-2-95

Appendix A, Table A-5, Degasification (60E)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
6	Verify the RO loop transitions to SHUTDOWN on degas column high level.	Setpoint of 90% ±2%.		SAM 10-2-95
7	Verify Degasifier pumps performance is within design parameters.	Pumps 60E-P-1A and 60E-P-1B flow at 175 gpm ±10 gpm at pressure of 43 psig ±5 psig.	S-1231-445 Sect.7.12 - 7.25	SAM 10-2-95
8	Verify Degasifier Pumps do not exceed the motor full load amperage rating.	Pumps 60E-P-1A and 60E-P-1B do not exceed full load amperage of 20 Amps.	S-1231-305 Sect.6.5	SAM 10-2-95
9	Verify Degasifier Blower performance is within design parameters.	Blower 60E-D-1 operates at design flow rate of 284 cfm ±5 cfm. Blower 60E-D-1 operates at negative pressure at design flow rate of 284 cfm.	S-1231-445 Sect.7.36 S-1231-445 Sect.7.38	SAM 10-2-95
10	Verify Degasifier Blower does not exceed the motor full load amperage rating.	Blower 60E-D-1 does not exceed full load amperage of 20 amps.	S-1231-308 Sect.6.5	SAM 10-2-95
11	Verify Degasifier Inlet Cooler maintains adequate cooling capacity at full load.	Inlet cooler (60E-E-1) maintains 86 ±5°F outlet temperature.		SAM 10-2-95
12	Verify proper operation of Temperature Control Valve TCV-60E-001 in Automatic.	TCV-60E-001 operates in AUTO mode to maintain degas feed inlet temperature at 86°F ±5°F.		SAM 10-2-95

Appendix A, Table A-6, Reverse Osmosis (60F)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify all appropriate signals are received and displayed at LCU-1/2A/2B/3 and the MCS.	This includes, but is not limited to flow, level, pressure, temperature, conductivity, valve position indication, status of rotating equipment (pumps and blower), indication of MANUAL or AUTO mode for selected equipment, alarm conditions and indication of READY/SHUTDOWN/OPERATION mode. Reference S-1223-003, Set-Values Selection Basis and L-1372-101, LCU Terminal Tag Assignment List.	S-1231-100	LAM 10-2-95
2	Alarms and switches associated with System 60H actuate at the given setpoints .	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	LAM 10-2-95
3	Verify the system rotating equipment operates with no evidence of abnormal operating characteristics (high vibration, cavitation, high bearing temperature).	60F-P-1A 60F-P-1B 60F-P-2A 60F-P-2B 60F-P-3A 60F-P-3B 60F-P-4 60F-P-5	S-1231-475 Sect.7.2, 7.3 S-1231-447 Sect.7.2, 7.3 S-1231-305 Sect.6.5 S-1231-305 Sect.6.5	LAM 10-2-95
4	Verify 1st RO Feed Tank Pumps performance is within design limits	Pumps 60F-P-1A and 60F-P-1B flow at 188 gpm ±10 gpm in the range of 200-400 psig discharge pressure.	S-1231-475 Sect.7.4, 7.5	LAm 10-2-95
5	Verify 1st RO Feed Tank Pump motor s do not exceed full load amperage.	Pumps 60F-P-1A and 60F-P-1B do not exceed full load amperage of 80 amps.	S-1231-475 Sect.7.2, 7.3	LAM 10-2-95

Appendix A, Table A-6, Reverse Osmosis (60F)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
6	Verify proper operation of pump interlock.	Interlock allows only one of the below listed pumps to operate and initiates Auto condition. 60F-P-1A 60F-P-1B		LAM 10-2-95
7	Verify 1st RO Feed Tank pumps operate without high vibration	Monitor and record data for vibration for evaluation of pump and motor operation. 60F-P-1A 60F-P-1B	S-1231-305 Sect.6.5	LAM 10-2-95
8	Verify 2nd RO Feed Tank Pumps performance is within design limits	Pumps 60F-P-2A and 60F-P-2B flow at 171 gpm ±10 gpm in the range of 350-575 psig discharge pressure.	S-1231-446 Sect.7.2 S-1231-446 Sect.7.2	LAM 10-2-95
9	Verify 1st RO Feed Tank Pump motors do not exceed full load amperage.	Pumps 60F-P-2A and 60F-P-2B do not exceed full load amperage of 110 amps.	S-1231-447 Sect.7.2, 7.3	LAM 10-2-95
10	Verify 2nd RO Feed Tank pumps operate without high vibration	Pumps 60F-P-2A and 60F-P-2B - perform baseline vibration analysis	SEE ITEM #4	LAM 10-2-95
11	Verify proper operation of pump interlock which allows only one to pump to operate and initiates Auto condition.	60F-P-2A 60F-P-2B test logic interlocks that permit only one pump to operate, and to initiate "AUTO" condition.		LAM 10-2-95
12	Verify 1st RO Feed Booster Pumps performance is within design limits	Pumps 60F-P-3A and 60F-P-3B flow at 100 gpm ±10 gpm in the range of 100-430 psig discharge pressure.		LAM 10-2-95

Appendix A, Table A-6, Reverse Osmosis (60F)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
13	Verify 1st RO Feed Booster Pump motors do not exceed full load amperage.	Pumps 60F-P-3A and 60F-P-3B do not exceed full load amperage of 20.5 amps during normal operation.		TAM 10-2-95
14	Verify 1st RO Feed Booster pumps operate without high vibration.	Pumps 60F-P-3A and 60F-P-3B - perform baseline vibration analysis	S-1231-475 Sect.7.2, 7.3 S-1231-447 Sect.7.2, 7.3 S-1231-305 Sect.6.5 S-1231-305 Sect.6.5	TAM 10-2-95
15	Verify proper operation of pump interlock which allows only one to pump to operate and initiates Auto condition.	60F-P-3A & B test logic interlocks that permit only one pump to operate, and to initiate "AUTO" condition.		TAM 10-2-95
16	Verify the CIP Pump performance is within design limits.	Pump 60F-P-4 flows at 50 gpm ±10 gpm at less than 55 psig during normal operation.	S-1231-449 Sect.7	TAM 10-2-95
17	Verify the CIP Pump motor does not exceed full load amperage.	Pump 60F-P-4 does not exceed full load amperage of 24 amps during normal operation.	S-1231-305 SECT.6	TAM 10-2-95

Appendix A, Table A-6, Reverse Osmosis (60F)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
18	Verify the CIP pump operates without high vibration.	Pump 60F-P-4 - perform baseline vibrational analysis.	S-1231-475 Sect.7.2, 7.3 S-1231-447 Sect.7.2, 7.3 S-1231-305 Sect.6.5 S-1231-305 Sect.6.5	TAm 10-2-95
19	Verify proper operation of the Dosing pump with flowrate to meet design injection rate.	Perform functional test of scale inhibitor dosing pump 60F-P-5 and set flow rate to feed 5 ppm of scale inhibitor based on flow indication from FI-60D007.	S-1231-448	TAm 10-2-95
20	Verify control valves on 1st and 2nd RO stages and outlet of 2nd RO feed tank can be operated manually outside of MCS/LCU control.	FCV-60F186, FCV-60F182, PCV-60F250, FCV-60F2662, FCV-60F273.	S-1231-247	TAm 10-2-95
21	Verify proper operation of solenoid operated valves in the concentrate and permeate sample lines.	Solenoid operated valves (SOV) open and close when actuated by hand switch.		TAm 10-2-95
22	Verify proper response of system components to a loss of power.	System 60F components must return to a fail safe position on a loss of utilities. Control valves PCV-60F100, FCV-60F186, FCV-60F182, PCV-60F250, FCV-60F262, FCV-60F273 fail CLOSED.		TAm 10-2-95

Appendix A, Table A-6, Reverse Osmosis (60F)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
23	Verify that individual stream flows (permeates, concentrates and recycles) are per Zenon design parameters at steady state operation.	1. FI-60F169 is 88 gpm ±10% 2. FI-60F188 is 83 gpm ±10% 3. FI-60F182 is 17 gpm ±10% 4. FI-60F186 is 17 gpm ±10% (READY mode only) 5. FI-60F250 is 171 gpm ±10% 6. FI-60F262 is 17 gpm ±10% 7. FI-60F263 is 154 gpm ±10% 8. FI-60F273 is 154 gpm ±10% (READY mode only)	S-1231-446 Sect.7.2	TAM 10-2-95
24	Verify system meets design recovery and rejection rates at design flows and pressures.	The RO system is designed to remove 99.5% of contaminants from a water feed stream containing approximately 3,000 ppm Total Dissolved Solids (TDS). Numbers listed below are the expected conductivity readings for normal operations. 1. 1st RO 1st Array Brine conductivity = 11,000E-06 S/cm 2. 1st RO 1st Array Permeate conductivity = 400E-06 S/cm 3. 1st RO 2nd Array Permeate conductivity = 2,200E-06 S/cm 4. 2nd RO Brine conductivity = 12,000E-06 S/cm 5. 2nd RO Permeate conductivity = 40E-06 S/cm	S-1231-501 Sect.7.3.5	TAM 10-2-95

Appendix A, Table A-6, Reverse Osmosis (60F)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
25	Verify flow proportional sampling capability for the 2nd RO Stage sampler.	Second RO Stage Flow Proportional Sampler has been functional tested to show flow proportional operation and setup parameters verified.	S-1231-310 Sect.6	TAM 10-2-95
26	Verify the Vessel Vent system maintains a negative pressure on system tanks.	1st RO feed tank 2nd RO feed Tank CIP tank.	S-1231-421 Sect.7.9	TAM 10-2-95
27	Verify availability of verification water to system tanks.	Verification water is piped to and available for use in the 1st RO feed tank, 2nd RO feed tank and CIP tank.	S-1231-419 Sect. 7.5, 7.6, 7.7	TAM 10-2-95
28	Verify MCS Logic - functional test permissives for all modes (Ready, Operation, Shutdown and Auto).	Reference RO Logic Diagrams, H-2-89879, sheets 1-68.	S-1231-100	TAM 10-2-95
29	Verify proper automatic operation of PCV-60F-100.	Verify that control loop (PIC-60F-100) properly controls outlet flow control valve (PCV-60F-100) in AUTO mode: 1. valve opening increases as liquid level rises above set value 2. valve opening decreases as liquid level drops below set value 3. valve opening is varied to maintain level in 1st RO Feed Tank at approximately 50%.	S-1231-446 S-1231-458 S-1231-501	TAM 10-2-95

Appendix A, Table A-6, Reverse Osmosis (60F)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
30	Verify proper operation of PCV-60F-100 in manual mode.	Control loop (PIC-60F-100) can be operated in MANUAL mode to control outlet flow control valve (PCV-60F-100).	S-1231-446 Sect.7.2	CAM 10-2-95
31	Verify proper automatic operation of PCV-60F-250.	Verify that control loop (PIC-60F-250) properly controls outlet flow control valve (PCV-60F-250) in AUTO mode: 1. valve opening increases as liquid level rises above set value 2. valve opening decreases as liquid level drops below set value 3. valve maintains level in 2nd RO Feed Tank at approximately 65%.	S-1231-446 S-1231-458 S-1231-501	CAM 10-2-95
32	Verify proper operation of PCV-60F-250 in manual mode.	Verify that control loop (PIC-60F-250) can be operated in MANUAL mode to control outlet flow control valve (PCV-60F-250).	S-1231-446 Sect.7.2	CAM 10-2-95

Appendix A, Table A-7, Ion Exchange (60G)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of system AOV's and position indication at MCS.	Verify that all air operated valves (AOV) can be fully opened and fully closed via the MCS, and the field position status agrees with what's indicated on MCS.	S-1231-100 S-1231-451 S-1231-501	10/18/95
2	Alarms and switches associated with the Degasification System actuate at the given setpoints.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	10/18/95

Appendix A, Table A-7, Ion Exchange (60G)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
3	Verify proper operation of FCV-60G-401 from the MCS.	AOV-60G401 can be operated via the MCS to deliver flow for the following flow paths:		
		MTT is in SHUTDOWN mode: Valve is positioned to Surge Tank	S-1231-458 S-1231-703	10/18/95
		MTT is in OPERATION mode and the conductivity out of the secondary column is <u>less</u> than 1 Us/cm: Flow goes to Effluent pH Adjustment Tank.	S-1231-703 S-1231-100	10/18/95
		MTT is in OPERATION mode and only the conductivity out of the primary column is <u>at or above</u> 1 Us/cm: Both Conductivity and Polisher Common Alarm shall annunciate.	S-1231-100	10/18/95
		MTT is in OPERATION mode and the conductivity out of the secondary column is <u>at or above 1 uS/cm</u>: three-way valve is switched to Surge Tank.	S-1231-100	10/18/95.
4	Verify proper polisher operation at design flow range.	The polisher unit shall accommodate the full design flow range and generate acceptable quantities of backwash waste. Criteria: The unit shall accommodate a flow range of 40 to 150 gpm.	S-1231-446	10/18/95.

Appendix A, Table A-7, Ion Exchange (60G)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
5	Verify proper polisher operation with all combination of columns in service.	A-B B-C C-A.	S-1231-100	10/18/95.
6	Verify ability to regenerate an exhausted resin bed while maintaining MTT Operation.	The polisher system can be aligned to allow regeneration of the exhausted resin bed during MTT Operation.	S-1231-703 S-1231-458 Sect. 7.8 S-1231-100	10/18/95.
7	Verify outlet chemistry of the secondary polisher is within design limits.	pH approximately 7 conductivity 0.1 uS/cm or less.	S-1231-501 Step 7.3.5	10/18/95
8	Verify the operating pressure of the polishers is within design limits.	Operating pressure to the polisher system shall be less than the design maximum of 90 psig as indicated on PI-60G-100 (Ref: Process Description Section 3.5, V-135A-006-075).	S-1231-446	10/18/95
9	Verify the operating temperature of the polisher inlet is within design limits.	Operating temperature in the polisher columns shall be less than 140°F.	S-1231-501 observed by S-1231-703	10/18/95
10	Verify MCS position for manual valves 60G-003 and 60G-004.	Open and Close statuses are indicated on MCS.	S-1231-100	10/18/95.
11	Verify proper sequencing of the regeneration of each polisher unit.	The sequence of regeneration shall be as stated in Attachment A and shall Follow the logic given in H-2-89880.	See Attachment "A"	10/18/95.
12	The resin charging and the subsequent regeneration shall provide well mixed and tightly packed cation/anion resin beds.	As viewed through the bottom viewing port on the polisher unit.	S-1231-451 Step 7.16.121.1 S-1231-703.	10/18/95
13	Verify the operating ranges of process parameters.	As per values indicated in S-1223-003, "Set-Values Selection Bases".	S-1231-100 S-1231-501	10/18/95

Appendix A, Table A-7, Ion Exchange (60G)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
14	Verify even flow distribution of process feed to columns.	As indicated at the top surface of the resin bed - eg. no evidence of channeling or sloping.	see Note	10/18/95

Table A-7, Item 7

A pH of less than 5.5 was observed at the polisher effluent during ATP S-1231-703. An evaluation showed the possible causes are 1) The existing pH instrumentation is not rated for use in low conductivity water, therefore the pH values indicated by the instrument are unliable. 2) The anion resins in the polisher columns are exhausted, the silica ions are eluded by the incoming sulfate ions to form silicic acid and cause the effluent pH to go down. 3) The residual sulfuric acid from previous regenerations caused the effluent to be acidic.

Resolution to possible cause 1:

> The column performance will be monitored by the conductivity instrumentation until the pH instrumentation is upgraded

Resolution to possible cause 2 & 3:

> This problem can be rectified by regenerating the polisher columns.

Table A-7, Item 14

Not all three columns are filled to the level which can be seen through the sight window - middle sight window is what the vendor recommended. Therefore this acceptance criterium cannot be verified. However The effluent quality as indicated by the conductivity instrumentation was within the acceptable range of less than 1 uS/cm during all simulated feed testing conducted by ADTECHS.

Appendix A, Table A-8, Chemical Makeup & Storage (65C)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify that system pump motors do not exceed full load amperage rating.	Full load amps for 65C-P-1/2 is 10.2 Amps. 65C-P-3/4 is 12.5 Amps.	S-1231-219 S-1231-305 S-1231-321 S-1231-414 Step 7.3.2-7.3.10, Sect.7.5 & 7.6 S-1231-415 Step 7.2.2-7.2.8, 7.3 & 7.4, S-1231-416 Step 7.3.2-7.3.8, 7.3, S-1231-417 Step 7.2.2-7.2.8, 7.3	JBP 10-3-95
2	Verify switches and alarms associated with System 65C instrumentation have been verified to actuate at given set values/alarm points.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	JBP 10-3-95

Appendix A, Table A-8, Chemical Makeup & Storage (65C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
3	Verify system rotating equipment operates with no evidence of abnormal operating characteristics (high vibration, cavitation, high bearing temperature).	The following rotating equipment operates with no evidence of abnormal operating characteristics (noises, cavitation, vibration). This equipment includes 65C-P-1/2/3/4.	S-1231-219 S-1231-305 S-1231-321 S-1231-414 Step 7.3.2-7.3.10, Sect.7.5 & 7.6 S-1231-415 Step 7.2.2-7.2.8, 7.3 & 7.4, S-1231-416 Step 7.3.2-7.3.8, 7.3, S-1231-417 Step 7.2.2-7.2.8, 7.3	10-3-95

Appendix A, Table A-8, Chemical Makeup & Storage (65C)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
4	Verify system 65C shall revert from OPERATION Mode to SHUTDOWN Mode on alarm conditions.	(per logic H-2-89889) • H2SO4 Storage Tank Pump not running (65C-P-1) • H2SO4 Storage Tank Pump not in auto • H2SO4 Solution Tank Pump not running (65C-P-3) • H2SO4 Solution Tank Pump not in auto • Verification tank VERIFYING OPERATION not initiated (per H-2-89882) • H2SO4 Storage Tank Pump alarm condition • H2SO4 Solution Tank Pump alarm condition • H2SO4 Storage Tank LALL-65C101<=ALL per attached set point basis • H2SO4 Solution Tank LAL-65C111<=AL per attached set point basis • AOV-65C010 not in AUTO • AOV-65C052 not in AUTO • AOV-65C010/052 failure 7.7.44-53 • AOV-65C030/051 failure 7.6.44-7.6.53 • FALX2-65C104 <= AL per attached set point basis • NAOH Storage Tank Pump not running (65C-P-2) • NAOH Storage Tank Pump not in auto • NAOH Solution Tank Pump not running (65C-P-4) • NAOH Solution Tank Pump not in auto • NAOH Storage Tank Pump alarm condition • NAOH Solution Tank Pump alarm condition • NAOH Storage Tank LALL-65C201<=ALL per attached set point basis • NAOH Solution Tank LAL-65C211<=AL per attached set point basis • AOV-65C030 not in AUTO • AOV-65C051 not in AUTO • FALX1-65C104 <= AL per attached set point basis	S-1231-414 S-1231-416 S-1231-501 S-1231-458 S-1231-703	ABP 10-3-95
5	Verify ability to manually shutdown the Chemical Feed System.	This action includes activating shutdown button on Graphics screen CHEMICAL.v or UTILITY.v	S-1231-501 witnessed during in house testing ABP	10-3-95

Appendix A, Module 3, Table A-9, Solid Waste Handling - Resin Dewatering (80E)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper seal established between drum fill head and High Integrity Container.	Drum Fill Head (80E-H-1) seals with the High Integrity Container (HIC) preventing water or resin leakage.	S-1231-470 Sect. 7.1.1	RC / 10-9-95 Clint
2	Verify proper monitoring capability of the resin dewatering process.	The Camera and remote monitoring equipment observes the resin dewatering process within the HIC.	S-1231-470 Sect. 7.2.18	RC / 10-9-95 Clint
3	Verify proper operation of Control Panel High Integrity Container water level indication.	Level Switch and Indicator loop (80E018) accurately transmit HIC water level information to the local control panel.	S-1231-470 Sect. 7.2.17	RC / 10-9-95 Clint
4	Verify system rotating equipment operates with no evidence of abnormal operating characteristics.	Dewatering Pump (80E-P-1) operates without leaks, excessive noise or vibration.	witnessed ATP 470	RC / 10-9-95
6	Verify proper direction of rotation and speed control.	Jog blower to verify proper speed control and rotation.	S-1231-470 Sect. 7.2.15	/ Clint / 10-9-95
7	Verify operation of solenoid valves to control dewatering pump speed.	SOV 80E001, 002 and 003 vary the airflow to dewatering pump.	S-1231-470 Sect. 7.2.13	/ Clint / 10-9-95
8	Verify proper operation of all system manual valves.	Stroke all valves (Manual, SOV, AOV) full open and full closed.	S-1231-100	/ Clint / 10-9-95
9	Verify proper operation of camera, display and lights.	Camera, video display and light work properly. Zoom and focus controls operate properly	S-1231-470 Sect. 7.2.6-8	/ Clint / 10-9-95

Pg I-16

ATTACHMENT A, ION EXCHANGE SYSTEM (60G)	
ACCEPTANCE CRITERIA	VERIFICATION COMPLETED BY (DOC)
Caustic Kill - Caustic flow is within the flow range of 16 to 21 gpm, and this flow rate is reached within 10 seconds.	S-1231-451, SECT. 7.2
Slow Rinse - Water flow should be within 16 to 21 gpm and this flow rate is reached within 10 seconds.	S-1231-451, SECT. 7.3
Blowdown I - Air pressure is delivered at about 30 (+-3) psig as indicated at PI-60G006.	S-1231-451, SECT. 7.4
Backwash - No excessive bed rise which results in loss of resins as seen through the top viewing window on the column	S-1231-451, SECT. 7.5
Resin Settle - This phase takes about 10 minutes.	S-1231-451, SECT. 7.16
Caustic Intro - Caustic flow is between 16 to 21 gpm.	S-1231-451, SECT. 7.6
Caustic/Acid Intro - Flow rate for both streams is between 16 to 21 gpm, this flow rate is attained within 10 seconds.	S-1231-451, SECT. 7.7
Slow Rinse - Verification water flow through both acid and caustic supply routes are between 16 and 21 gpm.	S-1231-451, SECT. 7.8
Fast Rinse - Water flow is about 100 gpm.This phase takes about 20 minutes.	S-1231-451, SECT. 7.9
Blowdown II - At the end of this phase, water level is about 1-2 inches above the resin bed, eg. top of the resin bed can be seen through the middle window.	S-1231-451, SECT. 7.10
Air-Water Mix - This phase takes about 3 minutes.	S-1231-451, SECT. 7.11
Air Mix - This phase takes about 10 minutes.Resins are in a tight slurry homogeneous mix as viewed in the middle sight window.	S-1231-451, SECT. 7.12

ATTACHMENT A, ION EXCHANGE SYSTEM (60G)

ACCEPTANCE CRITERIA	VERIFICATION COMPLETED BY (DOC)
Blowdown III - At the end of this phase, water level is about 1-2 inches above the resin bed, eg. top of the resin bed can be seen through the middle window.	S-1231-451, SECT. 7.13
Water Fill - This phase takes about 10 minutes.At the end of this phase, the column is filled with water indicated by overflowing water seen through FG-60G406.	S-1231-451, SECT. 7.14
Final Rinse - This phase takes about 15 minutes.	S-1231-451, SECT. 7.15

APPENDIX I

WHC-SD-C018H-TS-005
200 AREA ETF SECONDARY TREATMENT TRAIN OPERATIONAL TEST SPECIFICATION

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pg I-2

DISTRIBUTION SHEET

To Distribution	From LEF Process Engineering	Page 1 of 1
		Date 7/06/95
Project Title/Work Order 200 Area Effluent Treatment Facility Secondary Treatment Train Operational Test Specification		EDT No. 611982
		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach. / Appendix Only	EDT/ECN Only
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D.L. Flyckt	S6-71	X			
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JUL 18 1995

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Page 1 of 1

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1	WHC-SD-C018H-TS-005		0	200 Area Effluent Treatment Facility Secondary Treatment Train Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Rea-son	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Rea-son	(H) Disp
1	1	Cog.Eng. R.J. Huth		6-6-95	S6-71	Cog. Eng. D.E. Scully	DE Scully	6/7/95	S6-71	1	1
1	1	Cog. Mgr. N.J. Sullivan		6-20-95	S6-71	Cog. Eng. E.A. McNamar		6-15-95	S6-71	1	1
		QA NA									
1	1	Safety M. A. Treadway	T. Howell For M Treadway	7/6/95							
1	1	Env. D.L. Flyckt		7/6/95							
1	1	Operations R. B. Wurz		7/7/95	S6-71						

18. TB Howell 7/6/95 Signature of EDT Date Originator	19. Authorized Representative Date for Receiving Organization	20. 7-11-95 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments

RELEASE AUTHORIZATION

Document Number: WHC-SD-C018H-TS-005, REV 0

Document Title: 200 Area Effluent Treatment Facility Secondary Treatment Train Operation Test Specification

Release Date: 7/17/95

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

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

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SUPPORTING DOCUMENT

1. Total Pages 27

2. Title

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6. Author

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DE Scully
Signature

Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Secondary Treatment Train operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Secondary Treatment Train Systems (listed below) have been met.

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC ②
DATE JUL 18 1995

200 AREA EFFLUENT TREATMENT FACILITY SECONDARY TREATMENT TRAIN OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Secondary Treatment Train operational testing activities. As specified in the DCS, contractor performed acceptance testing of the facility will perform testing to a level consistent with actual "operational testing" as defined by WHC-CM-6.1, EP-4.2. As a result, the required level of detail for WHC performed operational testing is lessened. Specifically, the purpose of operational testing will be to perform any additional testing deemed important in fully defining operational characteristics of the systems. If all test requirements listed in this document have been satisfied prior to facility turnover, no Operational Test Procedure will be required. Test requirements may be satisfied by contractor performed testing or justified as not requiring testing by the cognizant engineer.

This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Secondary Treatment Train Systems (listed below) have been met.

1) Waste Evaporation (60I)
2) Waste Drying (60J)
3) Boiler and Steam Generation (65A)
4) Drum Handling (80C)

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted as the individual subsystems become operational to demonstrate the operability of the Secondary Treatment Train systems. The following list contains the initial conditions which must be met to perform testing of the Secondary Treatment Train systems:

1) Waste Evaporation (60I)
    - MCS testing completed to the extent required to allow performance of this system test.
    - Electrical system is in service to the extent required to allow performance of this system test.
    - Instrument Air System is in service.
    - Cooling Water System is in service to the extent required to all performance of this system test.
    - RCA HVAC System is in service to the extent required to allow performance of this system test.
    - Seal Water System is in service to the extent required to allow performance of this system test.

2) Waste Drying (60J)
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
   - Instrument Air System is in service.
   - RCA HVAC System is in service to the extent required to allow performance of this system test.
   - Cooling Water System is in service to the extent required to all performance of this system test.

3) Boiler and Steam Generation (65A)
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
   - Instrument Air System is in service.
   - RCA HVAC System is in service to the extent required to allow performance of this system test.
   - Cooling Water System is in service to the extent required to all performance of this system test.
   - Seal Water System is in service to the extent required to allow performance of this system test.

4) Drum Handling (80C)
   - Electrical system is in service to the extent required to allow performance of this system test.
   - Instrument Air System is in service.
   - RCA HVAC System is in service to the extent required to allow performance of this system test.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Secondary Treatment Train Systems are defined by the test requirements presented in Appendix A. Appendix A will contain a table for each system in the module. The tables will contain the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria.

These test requirements demonstrate the following:

Secondary Treatment Train and associated support equipment operate both automatically and manually.

As applicable, the control systems operate and status the Secondary Treatment Train systems.

3.1 Applicable Documents

V-C018HC1-001, Design Construction Specification Project C-018H 242A Evaporator/PUREX Plant Process Condensate Treatment Facility forms a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

The reference(s) which document the completion of each acceptance criterium is provided in the Completed By column of Appendix A. If no reference document is provided, demonstration of the test requirement in an OTP may be warranted. Upon completion of the operability test for this module, the requirement/acceptance criteria will be verified by the LEF Process Engineering system cognizant engineer. The cognizant engineer will document his verification by initialing and dating the spaces provided in the Verification column of Appendix A. The verified appendices will be included as part of the Operability Test Report.

The LEF cognizant engineer may close out a requirement based on witnessing actions to meet acceptance criteria during the performance of an approved Adtechs test procedure. The LEF cognizant engineer may also sign a requirement if technical justification can be provided without actually performing the test. The technical justification, where required, shall be included in the Operability Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be verified to evaluate whether system performance meets the acceptance criteria.

* Maximum sustained feed rate ≃ 17 gpm. MTT feed rate must be adjusted accordingly DEL

Appendix A, Table A-1, Waste Evaporation System (60I)

	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify that the SWRTs can feed the evaporator within the design range.	Feed rate of 6 to 20 gpm.	S-1231-459 7.6.21 & 7.7.21	* DEL 10/9/95
02	Verify proper response of the MTT to a high level in both SWRT,s.	Verify that if both SWRTs are in "RECEIVING" and exceed the 95% level (AHH), the MTT will automatically be brought from "OPERATION" to "READY" mode.	S-1231-463 7.3.124	DEL 10/9/95
03	Verify proper operation of the interlock between polisher regeneration and SWRT level.	Verify for both SWRTs that a Polisher cannot begin a regeneration if the SWRT in "RECEIVING" mode has a liquid level >47%.	S-1231-100	ZH 10/7/95
04	Verify proper operation of waste transfer routing AOV's.	Verify that the waste transfer routing AOVs position correctly for each SWRT when in the "RECEIVING" and "READY" (blinking and steady) modes.	S-1231-463 SECT. 7.6 & 7.7	DEL 10/9/95
05	Verify proper response of SWRT's on loss of any utilities. (Verification Water, Seal Water, Cooling Water, VOG, Compressed Air).	"SWRT COMMON ALARM" is annunciated and that a SWRT in "READY" mode goes into "SHUTDOWN" mode.	S-1231-463 SECT. 7.6 & 7.7	DEL 10/9/95
06	Verify proper SWRT mode change when in automatic.	Each of the 2 SWRTs have been switched from "RECEIVING" to blinking "READY" mode, and from steady "READY" mode to "RECEIVING" under automatic conditions.	S-1231-463 SECT 7.2 & 7.3	DEL 10/9/95
07	Verify proper operation of SWRT's in all operating modes.	SWRTs function in all operating modes without system fault(s) and shutdown.	S-1231-463 S-1231-459	DEL 10/9/95
08	Verify proper operation of the SWRT recirculation pump low level interlock.	Each SWRT recirculation pump will shut down at a level of ≤5% and the tank goes to "SHUTDOWN" mode.	S-1231-459 7.8.31 & 7.9.24	DEL 10/9/95

Can't average 20 gpm per ATP 703

Check w/Lilly

* This is OK as long as MTT rate is reduced to a feed rate that can be supported ~~by~~ the evaporator feed rate achievable

Appendix A, Table A-1, Waste Evaporation System (60I)

	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
09	Verify proper SWRT mode change due to pH adjustments.	Each SWRT can be brought from blinking "READY" to steady "READY" by bringing the pH within specification using 4% H2SO4 and 4% NaOH.	S-1231-502 7.7.32	10/5/95
10	Verify proper operation of the waste evaporator.	The evaporator functions in all operating modes without system fault(s) and shutdown.	S-1231-463	10/5/95
11	Verify proper flush operations of the evaporator.	FLUSH the evaporator by heating and recirculating water or feed, then return to HOT STANDBY.	S-1231-463 SECT 7.16	10/5/95
12	Verify the processing capability of the waste evaporator.	The evaporator system can process a feed at the rate of 6 to 20 gpm.	S-1231-463 SECT 7.15	10/5/95
13	Verify leak tightness of the evaporator.	During normal operation, perform checks for system leaks - Positive and negative.	factory tests + in-house testing	10/5/95
14	Verify design influent flow rates to the SWRTs.	SWRTs can receive MTT waste up to an average rate of 20 gpm.	S-1231-502 7.8.100	10/5/95
15	Verify proper operation of the evaporator feed preheater.	Verify evaporator feed is preheated to the specification range.	S-1231-463 SECT 7.14	10/5/95
16	Verify capacity of the evaporator recirculation pump.	Evaporator recirculation rate is 6020±600 gpm.	S-1231-463 7.8.37	10/5/95
17	Verify proper operation of the evaporator dump line based on specific density.	Dump line recirculates and dumps concentrate at the correct density setpoint.	S-1231-502 7.8.138	10/5/95
18	Verify proper density control of the evaporator concentrates.	Concentrate density is controlled within specification.	S-1231-502 7.8.138	10/5/95

Appendix A, Table A-1, Waste Evaporation System (60I)

	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
19	Verify proper operation of the waste evaporator with the vapor compressor in operation.	Evaporator System boils the brine surrogate in steady state without excessive use of the auxiliary boiler.	S-1231-502 7.8.141	10/5/95
20	Verify transfer capability of the evaporator distillate.	Distillate has been successfully discharged to the Surge Tank and the SWRTs based on conductivity limit set at AI 60I104.	S-1231-501	10/5/95
21	Verify proper response of the evaporator to system alarms.	All system alarms cause the 60I system to respond according to the published logic (H-2-89883).	S-1231-100	10/5/95
22	Verify proper operation of the low level interlock between the vapor compressor and the evaporator level.	The vapor compressor stops when the vapor body level is <30%.	S-1231-463 7.14.379	10/5/95
23	Verify proper operation of the low level interlock between the recirculation pump and the evaporator level.	The recirculation pump 60I-P-02 stops when the vapor body level is <10%.	S-1231-467 7.14.37	10/5/95
24	Verify proper operation of the low level interlock between the distillate flash tank pump and flash tank level.	The distillate flash tank pump 60I-P-03 stops when the flash tank level is <15% (ALL) in "RUN" mode, and <30% (AL) when in "STARTUP" and "HOT STANDBY" modes.	S-1231-463 7.13.94 7.13.95 S-1231-100	10/5/95
25	Verify proper auto start function of the distillate flash tank pump.	The distillate flash tank pump starts when the flash tank level is >15% (ALL) in RUN mode, and >80% (AH) when in "START UP" and "HOT STANDBY" modes.	S-1231-463 SECT 7.15	10/5/95

Appendix A, Table A-1, Waste Evaporation System (60I)

	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
26	Verify proper operation of the interlock between the evaporator and flash tank level.	The evaporator goes to HOT STANDBY from RUN when the distillate flash tank level >90% (AHH).	Verified by MCS "Sequence testing" S-1231-100	10/5/95
27	Verify evaporator mode change due to vapor body temperature increase.	The evaporator goes from HEAT UP mode to HOT STANDBY when the vapor body temperature (TI-60I111) >212°F (AH).	S-1231-463 7.14.61	10/5/95
28	Verify evaporator mode change due to vapor body temperature decrease.	Verify that the evaporator goes from RUN mode to HOT STANDBY when the vapor body temperature (TI-60I111) < 200°F (AL).	Verified by MCS. "Sequence Testing" per S-1231-100	10/5/95
29	Verify proper operation of the interlock between the vapor compressor and vapor body pressure.	The vapor compressor stops when the vapor body pressure (PIC 60I109) >23"WG, and when <1" WG.	Verified by MCS. Sequence Testing S-1231-100	10/5/95
30	Verify proper operation of the vapor compressor low suction pressure shutdown.	The vapor compressor automatically shuts down at a PS-60I140 suction pressure of -10±1" WG (AL).	Verified by MCS "Sequence Testing" per S-1231-100	10/5/95
31	Verify proper operation of the evaporator vapor pressure controller with increasing pressure.	PCV-60I109 opens above its lower limit stop of 10% when the vapor body pressure (PIC 60I109A) is > setpoint.	Witnessed by Cog. Engr.	10/5/95
32	Verify proper operation of the boiler steam outlet valve in response to decreasing vapor pressure in the evaporator.	Boiler steam valve ~~PY~~ PCV- 60I152 opens when the vapor body pressure (PIC 60I109B) is < setpoint.	S-1231-463 7.15.80 - 7.15.86	10/5/95
33	Verify proper operation of the temperature controls of the feed distillate heat exchanger.	Brine outlet temperature is approximately 175°F (TI-60I112) at steady state RUN conditions.	S-1231-463 7.14.120	10/5/95

Appendix A, Table A-1, Waste Evaporation System (60I)

	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
34	Verify proper operation of the temperature controls for vapor compressor outlet and heater shell.	The vapor compressor outlet temperature (TI-60I113) and the heater shell temperature (TI-60I115) are approximately Tsat corresponding to steam Psat (PT-60I133) in the steady state RUN mode.	S-1231-463 7.14.126 - 7.14.129	10/5/95

Appendix A, Table A-1, Waste Evaporation System (60I)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
35	Verify proper operation of the feed distillate heat exchanger.	The feed distillate heat exchanger distillate outlet temperature (TI-60I116) is approximately 122°F.	S-1231-463 7.14.122	10/5/95
36	Verify proper operation of AOVs and MOVs from the MCS.	All air operated valves (AOV) and motor operated valves (MOVs) can be fully opened and fully closed via the MCS .	S-1231-100	10/5/95
37	Verify all automatic control valves can be manipulated from the MCS.	All automatic control valves (ACV) can be placed in fully open, 50% open, and fully closed via the MCS.	S-1231-100	10/6/95
38	All switches and alarms associated with the waste evaporator instrumentation have been verified to actuate at design set values/alarm points.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	10/6/95
39	The Waste Evaporator System rotating equipment operate at listed design flow rates with no evidence of abnormal operating characteristics, including high vibration, excessive cavitation or high bearing temperature:	60I-BL-01 60I-P-1A 60I-P-1B 60I-P-02 60I-P-03 60I-P-04 60I-P-05 60I-P-06 60I-P-07	S-1231-305 S-1231-321	10/6/95

Appendix A, Table A-1, Waste Evaporation System (60I)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
40	Verify that the rotating equipment operates at amperage draws under the full load amps rating (FLA) during all modes of system operation.	60I-BL-01 60I-P-1A 60I-P-1B 60I-P-02 60I-P-03 60I-P-04 60I-P-05 60I-P-06 60I-P-07	S-1231-305 S-1231-321	WES 10/6/95
41	Verify by visual observation that the spray nozzles in all tanks work properly.	Observe all system tanks for proper spray pattern.	S-1231-419, 7.9, 7.10	WES 10/6/95
42	Verify that the eductors in tanks 60I-TK-1A, -B provide good mixing.	Check eductors in tanks 60I-TK-1A and 60I-TK-1B for proper mixing operation by monitoring time for pH stabilization following reagent addition. pH should stabilize in <3 minutes.	~~Verf~~ Witnessed by Cog. Engr.	WES 10/6/95
43	Verify that all system pump discharge pressures are within the nominal range and on the pump curve of head vs discharge rate.	60I-P-1A 60I-P-1B 60I-P-02 60I-P-03 60I-P-04 60I-P-05 60I-P-06	S-1231-305	WES 10/6/95
44	Verify that the VOG system is functioning for all Dryer System vessels.	By detection of a vacuum condition at the VOG port for tanks 60I-TK-1A, -1B, and 60I-E-03 (evap vent gas cooler)	S-1231-421, 7.9.84-95	WES 10/6/95

Appendix A. Table A-1. Waste Evaporation System (60I)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
45	Verify that cooling water is being supplied at the proper flow rates and temperatures at all cooling water consumption points.	60I-P-1A 60I-P-1B 60I-P-02 60I-P-03 60I-P-04 60I-P-06 60I-C-01C 60I-E-03	S-1231-406 7.5.16-26 7.5.5-15 7.5.162-169 7.5.223-232 7.5.170-177 7.5.178-186 7.5.187-202	10/6/95
46	Verify that the seal water is being supplied at the proper pressures and flow rates at all seal water consumption points.	60I-P-1A 60I-P-1B 60I-P-02 60I-P-03	S-1231-409 7.5.15-19 7.5.20-24 7.5.55-58 S-1231-463 7.10.5	10/6/95
47	Verify proper operation of the anti-foam tank mixer and anti-foam pump.	Tank mixer and pump function correctly using water or other surrogate liquid.	S-1231-464 7.3-7.4	10/6/95
48	Verify proper flow capacity of the anti-foam pump.	The anti-foam pump can be adjusted for various flow rates.	S-1231-464 7.4	10/6/95
50	Verify proper operation of boiler steam trap and strainer.	The boiler steam trap and steam trap strainer function correctly, including strainer blowdown.	S-1231-408 7.27	10/6/95
51	Verify that the boiler can be blowndown successfully.	Perform boiler blowdown.	S-1231-408 7.38-7.47	10/6/95
52	Verify proper operation of the boiler level control.	The boiler level is maintained automatically with demin water.	S-1231-408 7.34-7.35	10/6/95
53	Verify proper operation of the boiler pressure control.	The boiler pressure is controlled at the nominal value of 20 psig.	S-1231-408 7.30-33	10/6/95

Appendix A, Table A-1. Waste Evaporation System (60I)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
54	Verify proper operation of the vapor compressor auxiliary oil system temperature and pressure control.	The vapor compressor auxiliary oil system maintains proper temperature (<140°F) and pressure (13-16 psig) of the oil during steady state conditions.	Witnessed by Cog. Engr.	WEL 10/6/95
55	Verify proper operation of the vapor compressor discharge temperature and pressure control.	Discharge temperature and pressure is within the acceptable range: <15 psig per PT-60I133 and <290°F.	Witnessed by Cog. Engr.	WEL 10/6/95
56	Verify proper operation of the distillate spray to the vapor compressor suction.	Distillate is successfully sprayed into the suction of the vapor compressor during compressor operation at desired flow per FI-60I148 within ±10%.	Witnessed by Cog. Engr.	WEL 10/6/95
57	Verify proper operation of waste evaporator system pressure regulators.	PCV-60I-244 approximately 50±2 psig. PCV-60I-245 55±2 psig.	Witnessed by Cog. Engr.	WEL 10/6/95
58	Verify proper operation of all system tank level controls.	All tank levels are controlled within the normal operating range. 60I-B-01 (Boiler) 5 3/4" to 6 1/2" on LG 60I197. 60I-TK-1A (SWRT) 7-93%. 60I-TK-1B (SWRT) 7-93%. 60I-EV-01 (Vapor Body) 50±2%. 60I-TK-02 (Distillate Flash Tank) 60±2%. 60I-TK-04 (Anti-Foam Tank) 20-93%. 60I-TK-5 (Level Control Tank) 13±2%.	Witnessed by Cog. Engr.	WEL 10/6/95
59	Verify capability to sample Dryer System wastes at sample sink.60J wastes (CT "A" and "B") can be sampled at the sample sink 20B-SK-1.	60I wastes (except evaporator distillate) can be sampled at the sample sink 20B-SK-1.	S-1231-463 7.4.2, 7.5.1, 7.8.73	WEL 10/6/95

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Appendix A. Table A-1. Waste Evaporation System (60I)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
60	Verify proper operation of system controls from the MCS.	All MCS actuated pumps, AOVs, ACVs, and MOVs can be placed in AUTO and MANUAL from the MCS.(MOV-60I261 local control only)	S-1231-463 7.1.13/7.6.16 7.1.14/7.6.15 7.1.24/7.13.73 7.1.31/7.13.65 7.1.32/7.13.66 7.1.33/7.13.68 7.1.34/7.13.68 7.1.27/7.1.56 7.1.28/7.1.57 7.1.30/7.16.64 7.1.29/7.16.63 7.1.6/7.10.55 7.13.231/7.13.69	WEL 10/6/95
61	Verify proper operation of the brine heater temperature control.	The heater inlet brine temperature (TW-60I125) is approximately 228°F. The heater outlet brine temperature (TW-60I126) is approximately 233°F.	S-1231-463 7.14.127 S-1231-463 7.14.128	WEL 10/6/95
62	Verify proper operation of the evaporator vent gas cooler temperature control.	The evap vent gas cooler water inlet temperature is about 76°F.	S-1231-463 7.14.130	WEL 10/6/95
63	Verify proper operation of the vent cooler pressure control.	The vent cooler feed pressure (PI-60I129) is approximately atmospheric pressure ±2 psig.	Witnessed by Cog. Eng.	WEL 10/6/95
64	Verify proper operation of the distillate flash tank outlet temperature control.	The distillate flash tank outlet temperature (TI-60I131) is 213°F.	S-1231-463 7.9.68	WEL 10/6/95
65	Verify proper operation of the Level Control Tank level control.	The Level Control Tank level (LIC-60I132) controls the level between the limits of 12% and 14%.	Witnessed by Cog. Eng.	WEL 10/6/95

Appendix A, Table A-1, Waste Evaporation System (60I)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
66	Verify proper operation of the heater vapor pressure control.	The Heater vapor pressure (PI-60I133) is 14.5 psig, or less, depending on position of FCV-60I124.	S-1231-463 7.14.136	WEL 10/6/95
67	Verify proper operation of the interlock between the vapor compressor outlet silencer outlet valve and level.	The vapor compressor outlet silencer outlet valve AOV-60I210 opens for 5 seconds at the high level setpoint.	S-1231-463 7.10.60	WEL 10/6/95
68	Verify proper operation of the vapor compressor high differential pressure shutdown.	The vapor compressor automatically shuts down at a PDS 60I138 pressure differential of 19.5±1 psi (AH).	Verified by MCS "Sequence Testing" per S-1231-100.	WEL 10/6/95
69	Verify proper operation of the vapor compressor high differential temperature shutdown.	The vapor compressor automatically shuts down at a TDS 60I139 differential temperature of 120±5°F (AH).		WEL 10/6/95
70	Verify proper operation of the vapor compressor high temperature shutdown.	The vapor compressor automatically shuts down at a TS-60I137 temperature of 330±10°F.		WEL 10/6/95
71	Verify proper automatic operation of the vapor compressor auxiliary oil pump.	The vapor compressor lube oil system pump (60I-P-7) automatically starts at a PS-60I141 oil pressure of 13±1 psig (SL) and automatically stops at a PS-60I141 oil pressure of 16±1 psig (SH).		WEL 10/6/95
72	Verify proper operation of the vapor compressor low oil pressure shutdown.	The vapor compressor automatically stops at a PS-60I142 oil pressure of 11±1 psig (AL).		WEL 10/6/95
73	Verify proper operation of the vapor compressor high oil temperature shutdown.	The vapor compressor automatically stops at a TS-60I143 lube oil temperature of 140±3°F (AH).		WEL 10/6/95

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Appendix A, Table A-1, Waste Evaporation System (60I)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
74	Verify proper operation of the vapor compressor low distillate flow shutdown.	The vapor compressor automatically stops when the FS-60I145 detects flow below 0.5±0.1 gpm (AL).	Verified by MCS "Sequence Testing" per S-1231-100.	WEL 10/6/95
75	Verify proper operation of the vapor compressor inlet silencer level control.	The vapor compressor inlet silencer level switch LS-60I146 actuates AOV-60I262 open for 5 seconds when ON, and that AOV-60I264 opens when the switch is OFF.	Witnessed by Cog. Engr.	WEL 10/6/95
76	Verify proper ~~evaporator~~ boiler pressure during operation.	The pressure as read at PI60I152 is 20 psig.	S-1231-408 7.30-33	WEL 10/6/95
77	Verify proper operation of the boiler water level control.	The boiler water operating level as indicated at LG-60I303 is 5 3/4 to 6 1/2 inches.	S-1231-408 7.34-35	WEL 10/6/95

Appendix A. Table A-2. Waste Drying System (60J)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify the design feed rate from the Concentrates Tanks to the dryer.	Feed rate of 0.8 gpm.	S-1231-469 SECT.7.4.26	WES 10/9/95.
02	Verify proper operation of the interlock between the evaporator and Concentrates Tanks level.	If both CTs are in "RECEIVING" and exceed the 94.8% level (AHH), the Evaporator will automatically be brought from "RUN" to "HOT-STANDBY" mode.	Verified by MCS "Sequence Testing" per S-1231-100.	WES 10/9/95
03	Verify proper operation of waste transfer routing AOV's.	Waste transfer routing AOVs position correctly for each CT when in the "RECEIVING" and "READY" (blinking and steady) modes.	S-1231-502	WES 10/9/95
04	Verify proper response of CT's on loss of any utilities. (Verification Water, Seal Water, Cooling Water, VOG, Compressed Air).	The "CT COMMON ALARM" is annunciated and that a CT in "READY" mode goes into "SHUTDOWN" mode.	Witnessed by Cog. Engr.	WES 10/9/95
05	Verify proper CT mode change when in automatic.	Each of the 2 CTs have been switched from "RECEIVING" to blinking "READY" mode, and from steady "READY" mode to "RECEIVING" under automatic conditions.	Witnessed by Cog. Engr.	WES 10/9/95
06	Verify proper operation of the CT recirculation pump low level interlock.	Each CT recirculation pump shuts down at the ~~5%~~ 2.3% level and the tank goes to "SHUTDOWN" mode.	S-1231-465 Sect 7.4.5	WES 10/9/95
07	Verify proper CT mode change due to pH adjustments.	Each CT can be brought from blinking "READY" to steady "READY" by bringing the pH within specification using 4% H2SO4 and 4% NaOH.	S-1231-502 SECT.7.4	WES 10/9/95
08	Verify proper daily flush operations of the dryer.	Perform DAILY FLUSH of the dryer, then return to RUN.	S-1231-502 SECT.7.5	WES 10/9/95

Appendix A, Table A-2, Waste Drying System (60J)				
#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
09	Verify proper weekly flush operations of the dryer.	Perform WEEKLY FLUSH of the dryer, then return to RUN.	S-1231-502 SECT.7.5	10/9/95
10	Verify leak tightness of the dryer.	During normal operation, perform checks for system leaks - either positive or negative.	~~Witnessed by Cog. Engr.~~	10/20/95 with this caveat
11	Verify design influent flow rates to the CTs.	CTs can receive evaporator waste up to an average rate of 0.80 gpm.	S-1231-502	10/9/95
12	Verify proper operation of the dryer feed preheater.	The dryer feed is preheated to the specification range.	S-1231-502 SECT.7.5	10/9/95
13	Verify proper operation of the dryer rotary valve.	The dryer rotary valve discharges dry salt to the drum without spillage and leakage of salt.	S-1231-502 SECT.7.5	10/20/95
14	Verify that the salt moisture content is controlled within specification.	Free water <1%w.	S-1231-502	10/9/95
15	Verify transfer capability of the dryer distillate.	Dryer distillate has been successfully discharged to the Surge Tank.	S-1231-502 SECT.7.5	10/9/95
16	Verify proper response of the dryer to system alarms.	All alarms cause the 60J system to respond according to the logic published in H-2-89884.	S-1231-100	10/9/95
17	Verify proper operation of the low level interlock between the recirculation pump and the spray condenser level.	The recirculation pump 60J-P-3 stops when the spray condenser level is <10%.	Witnessed by Cog. Engr.	10/9/95

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Appendix A, Table A-2, Waste Drying System (60J)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
18	Verify dryer mode change based on dryer hopper temperature, steam pressure and main jacket outlet temperature.	Dryer goes from blinking HEAT UP mode to steady HEAT UP and blinking READY when the dryer hopper temperature is (TI-60J018) >212°F, the steam pressure is ≥150 psig (PIC-60J032), and the main jacket out temperature as indicated by TI-60J011 reaches 228°F.	S-1231-502 SECT.7.5	10/9/95
19	Verify proper operation of the dryer steam pressure control.	Dryer steam valve PY 60J032 modulates to hold a steam pressure (PIC 60J032) of 150±5 psig.	S-1231-502 SECT.7.5	10/9/95
20	Verify proper operation of the dryer feed preheater.	The feed preheater (60J-E-3) brine outlet temperature is approximately ~~200°F~~ (TIC 60J028) at steady state RUN conditions. 130°F	S-1231-502 SECT.7.5	10/9/95
21	Verify proper dryer and hopper temperature control.	The dryer main jacket outlet temperature (TI-60J011) and the hopper outlet temperature (TI-60J018) are approximately 365°F in the steady state RUN mode.	S-1231-502 SECT.7.5	10/9/95
22	Verify proper operation of AOVs and MOVs from the MCS.	All air operated valves (AOV) and motor operated valves (MOVs) can be fully opened and fully closed via the MCS.	S-1231-100	10/9/95
23	All switches and alarms associated with the thin film dryer instrumentation have been verified to actuate at design set values/alarm points.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	10/9/95

Appendix A. Table A-2. Waste Drying System (60J)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
24	The Thin Film Dryer System rotating equipment operate at listed design flow rates with no evidence of abnormal operating characteristics, including high vibration, excessive cavitation or high bearing temperature:	60J-P-1A 60J-P-1B 60J-P-2 60J-P-3 60J-F-1	S-1231-305 S-1231-308 FACTORY TEST	WES 10/9/95
25	The Thin Film Dryer System rotating equipment operates at amperage draws under the full load amps rating (FLA) during all modes of system operation.	60J-P-1A 60J-P-1B 60J-P-2 60J-P-3 60J-F-1	S-1231-305 S-1231-308 FACTORY TEST	WES 10/9/95
26	Verify by visual observation that the spray nozzles in all tanks work properly.	Observe all system tanks for proper spray pattern. (Spray condenser 60J-DE-01 not observed.)	S-1231-419 7.11.15-7.11.21 7.12.16-7.12.21	WES 10/9/95
27	Verify that the eductors in tanks 60J-TK-1A, -B provide good mixing.	Check eductors in tanks 60J-TK-1A and 60J-TK-1B for proper mixing by monitoring time for pH to stabilize following reagent addition. This should be ≤3 minutes.	Witnessed by Cog. Engr.	WES 10/9/95
28	Verify that all system pump discharge pressures are within the nominal range and on the pump curve of head vs discharge rate.	60J-P-1A 60J-P-1B 60J-P-02 60J-P-03(No CAIO listed)	S-1231-305	WES 10/9/95
29	Verify that the VOG system is functioning for all Dryer System vessels.	By detection of a vacuum condition at the VOG port for tanks 60J-TK-1A, 60J-TK-1B and 60J-DE-01 (spray condenser not checked)	S-1231-421 7.9.195-198, 7.9.199-202	WES 10/9/95

Appendix A, Table A-2. Waste Drying System (60J)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
30	Verify that cooling water is being supplied at the proper flow rates and temperatures at all cooling water consumption points.	60J-P-1A 60J-P-1B VOG cooler CT "A" VOG cooler CT "B"	S-1231-406 7.5.49-58, 7.5.27-36, 7.5.38-48	NOS-8 10/9/95
31	Verify that the seal water is being supplied at the proper pressures and flow rates at all seal water consumption points.	CT tank "A" Pump 60J-P-1A CT tank "B" Pump 60J-P-1B Dryer rotor double mechanical seal	S-1231-409 7.5.25-29, 7.5.30-34, 7.5.11-14	NOS-8 10/9/95
32	Verify proper operation of the auto start logics for the dryer feed pump.	The dryer feed pump does not start until the hopper temperature as measured by TI-60J018 reaches 212±2°F and the PIC-60J032 steam pressure reaches 150±1 psig.	Witnessed by Cog. Engr.	NOS-8 10/9/95
33	Verify proper operation of the dryer vapor temperature control.	The normal dryer vapor temperature is ≥212°F as measured at TI-60J019.	S-1231-502 7.5.106	NOS-8 10/9/95
34	Verify proper operation of the filled drum indication.	Filled drum signal is transmitted to the Drum Handling system when temperature probe TS-60J020 reaches ~~220°F.~~ 232°F.	S-1231-502	NOS-8 10/9/95
35	Verify proper operation of the interlock between the dryer feed pump and feed temperature or steam pressure.	The dryer feed pump will stop if either the feed temperature (TI-60J028) drops below 100°F or the jacket steam pressure as measured by PIC-60J032 drops below 140 psig.	S-1231-100	NOS-8 10/9/95
36	Verify proper operation of the dryer vapor pressure control.	Dryer vapor pressure is approximately -2" WG as measured by PIC-60J033.	S-1231-502 7.5.104	NOS-8 10/9/95

Appendix A, Table A-2. Waste Drying System (60J)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
37	Verify dryer operation at the design feed flow rate.	Dryer feed flow rate is 0.8 gpm as measured by flowmeter FI-60J034.	S-1231-502 7.5.99	10/9/95
38	Verify design distillate flow rate with the dryer in operation.	Distillate flow rate is 0.6 gpm as measured by flowmeter FI-60J035.	S-1231-502 7.5.100	10/9/95
39	Verify proper spray condenser level control with the dryer in operation.	Spray condenser liquid level is 50% as indicated by LIC-60J036.	S-1231-502 7.5.98	10/9/95
40	Verify proper operation of the distillate outlet cooler temperature control.	Distillate cooler outlet temperature (distillate) is approximately 130°F as measured by TI-60J038.	S-1231-502 7.5.110	10/9/95
41	Verify proper operation of the dryer lower bearing seal purge.	Dryer lower bearing seal purge air flow is about 3 scfm as measured by FI-60J041, and that the air pressure is about 5 psig as measured by PI-60J200.	S-1231-469 7.1.15-17	10/9/95
42	Verify that all pressure regulators are controlling to the desired output pressure.	60J-174 60J-166 60J-132 60J-032 60J-033 60J-180	S-1231-230	10/9/95
43	Verify that all tank levels are controlled within the normal operating range.	60J-TK-1A 60J-TK-1B 60J-D-1 60J-DE-01 60J-H-1	S-1231-502	10/9/95
44	Verify capability to sample Dryer System wastes at sample sink.	60J wastes (CT "A" and "B") can be sampled at the sample sink 20B-SK-1.	S-1231-502	10/9/95

Appendix A, Table A-2, Waste Drying System (60J)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
45	Verify proper operation of system controls from the MCS.	Verify that all MCS actuated pumps, AOVs, ACVs, and MOVs can be placed in AUTO and MANUAL from the MCS.	S-1231-502	NOSL 10/9/95
46	Verify proper operation of the Vent Cooler temperature control.	Vent Cooler cooling water outlet temperature as measured by TI-60J045 is about 94°F.	S-1231-502 7.5.112	NOSL 10/9/95
47	Verify proper operation of the dryer feed preheater steam pressure control.	Dryer feed preheater steam pressure is 15 psig as measured by PI-60J201 and PI-60J201.	S-1231-502 7.5.116/117	NOSL 10/9/95
48	Verify proper operation of the distillate cooler cooling water outlet temperature control.	Distillate cooler cooling water outlet temperature is approximately 86°F as measured by TI-60J203.	S-1231-502 7.5.111	NOSL 10/9/95
49	Verify that cooling water supplied to the distillate cooler at the design temperature requirement.	Distillate cooler cooling water inlet temperature is approximately 76°F as measured by TI-60J204.	S-1231-502 7.5.113	NOSL 10/9/95

Appendix A, Table A-3, Boiler and Steam Generation System (65A)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	All switches and alarms associated with the Boiler and Steam Generation System instrumentation have been verified to actuate at design set values/alarm points.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	S-1231-100	10.3.95
02	Verify the Boiler Feed Pump operates without excessive vibration, noise or overheating.	Pump 65A-P-1	S-1231-305 S-1231-407 7.78	10.3.95
03	The Boiler Feed Pump motor does not exceed the listed full load amperage rating during normal operation.	Current indicator II-65A004 indicates at the MCS an operating current not greater the 4.0 amps	S-1231-407 SECT.7.194, 7.186	10.3.95
04	Verify Boiler Feed Pump operation at nominal discharge pressure	Boiler feed pump 65A-P-1 is capable of maintaining boiler level at normal operating level during boiler operation.	S-1231-407 SECT.7.183-7.194	10.3.95
05	Verify proper operation of the Condensate Tank temperature control.	Condensate Tank, 65A-TK-1, maintained at≤228°F and ≤5 psig	S-1231-407 SECT.7.218/220	10.3.95
06	Verify proper operation of the Condensate Tank level control.	Level Control loop 65A001 maintains Condensate tank level by actuating Demineralized water flow through AOV-95D021.	S-1231-407 SECT.7.201	10.3.95
07	Verify proper operation of the Boiler water level control.	Level Control loop 65A010 maintains Boiler water level by actuating Feed pump 65A-P-1.	S-1231-407 SECT.7.192	10.3.95

Appendix A. Table A-3. Boiler and Steam Generation System (65A)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
09	Verify proper operation of Boiler pressure control.	Pressure control loop 65A011 maintains boiler pressure by cycling of boiler heating elements Pressure is maintained in the boiler at 151 to 159 psig. Local microprocessor cycles the boiler heating elements when a signal is received from the pressure control loop 65A041	S-1231-407 7.128, 7.224	JA 10.3.95
10	Verify proper operation of the boiler logics in Automatic and Manual modes.	When in the AUTO mode the Boiler skid and controlling software operate as defined by the latest revision of logic diagram H-2-89891 When in the MANUAL mode the Boiler skid and controlling software operate as defined by the latest revision of logic diagram H-2-89891	S-1231-407 S-1231-100	JA 10.3.95

Appendix A, Table A-4, Drum Handling System (80C)				
#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify proper operation of the Empty Drum Feed Conveyor system logics.	Empty Drum Feed Conveyor System (80C-CR-01,02,03) automatically detects and positions 12 drums on conveyor system.	S-1231-471 SECT.7.3	EAm 10-2-95
02	Verify proper operation of indexing posts at Airlock #1 entrance.	Air operated indexing stop posts position drums prior to entering Airlock #1.	S-1231-471 SECT.7.3	EAm 10-2-95
03	Verify proper operation of Airlock #1 and #2 inner and outer door interlocks.	Airlock #1 and #2 inner and outer doors open independently of each other maintaining negative air pressure in the dryer room.	S-1231-471 SECT.7.3, 7.4	EAm 10-2-95
04	Verify proper operation of Conveyor Section 80-CR-04 logics.	Conveyor section 80-CR-04 automatically positions and detects a drum in Airlock #1.	S-1231-471 SECT.7.4	EAm 10-2-95
05	Verify proper operation of the Transition conveyor, 80C-CR-05A, logics.	Transition conveyor (80C-CR-05A) between Airlock #1 inner door and the Drum Filling Station automatically detects and transfers an empty drum to conveyor 80C-CR-05B.	S-1231-471 SECT.7.4	EAm 10-2-95
06	Verify proper operation of the Fill Station conveyor, 80C-CR-05B, logics.	Fill Station conveyor (80C-CR-05B) automatically detects a drum and operates in forward and reverse directions.	S-1231-471	EAm 10-2-95
07	Verify proper operation of the lift table.	The lift table raises an empty drum to the Dryer fill hopper.	S-1231-471 SECT.7.4	EAm 10-2-95
08	Verify proper operation of the Drum Capping conveyor, 80C-CR-06, logics.	Drum Capping conveyor (80C-CR-06) operates in the forward and reverse direction.	S-1231-471	EAm 10-2-95

Appendix A. Table A-4. Drum Handling System (80C)

#	Test Requirements	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
09	Verify proper operation the Drum Capping station logics.	Drums are detected and positioned under the Drum Capping stand. Drum Capping stand is able to remove the drum lid and drum lid liner from an empty drum and hold the lid in position prior to installing lid on a filled drum.	S-1231-471 SECT.7.4 S-1231-471 SECT.7.4	TAM 10-2-95
10	Verify proper operation of the Transfer Chain conveyors logics.	Transfer Chain conveyors (80C-CR-06A and 07A) raise the filled drum above the conveyor rollers effecting a 90 degree change direction of the drum.	S-1231-471 SECT.7.4	TAM 10-2-95
11	Verify proper operation of conveyor sections 80C-CR-07 and 80C-CR-08 logics.	Conveyor sections 80C-CR-07 and 08 detect, position and transfer filled drums enroute to Airlock #2.	S-1231-471 SECT.7.4	TAM 10-2-95
12	Verify proper operation of Conveyor turntable 80C-CR-09A, 09B, and 09C logics.	Conveyor turntable 80C-CR-09A, 09B, and 09C rotates a filled drum 180 degrees to facilitate washing of a contaminated drum.	S-1231-471 SECT.7.5	TAM 10-2-95
13	Verify proper operation of the drum washing station.	Air and water headers in Airlock #2 thoroughly wash the exterior of a filled drum.	S-1231-471 SECT.7.5	TAM 10-2-95
14	Verify proper operation of drum handling operation from local control panel 80C001.	80C001 controls and visually monitors (via Closed Circuit Television) drum handling operations.	S-1231-326, 6.4 S-1231-471	TAM 10-2-95
15	Verify proper operation of all SOVs in the Drum Handling System.	Stroke all solenoid valves full open and full close to verify operability of specific functions within the system, i.e. capping station, lift table, stop posts, water supply, air supply, and etc.	S-1231-471 Sect. 7.2, 7.4	TAM 10-2-95

APPENDIX J

WHC-SD-C018H-TS-006
200 AREA ETF SALDS/RECYCLE OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To Distribution	**From** LEF Process Engineering	**Page** 1 of 1 **Date** 6/22/95
Project Title/Work Order 200 Area Effluent Treatment Facility SALDS/Recycle System Operational Test Specification		**EDT No.** 611976 **ECN No.** N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
R.B. Wurz	S6-71	X			
D.L. Flyckt	S6-71	X			
N.J. Sullivan	S6-71	X			
M.A. Tredway	S2-42	X			
M.W. Peres	S6-71	X			
L.L. Lin	S6-71	X			
R.J. Huth	S6-71	X			
S.L. Carmichael	S6-71	X			
R.B. Benton	S6-71	X			
I.G. Papp	S6-71	X			
D.K. Scully	S6-71	X			
J.M. Petty	S6-77	X			
M.J. Warn	H4-16	X			
200 Area LEF File	S6-71	X			
Central Files	A3-88	X			

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Page 1 of 1

1. EDT № 611976

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: R. J. Huth	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date:

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(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Desig-nator	(G) Reason for Trans-mittal	(H) Origi-nator Dispo-sition	(I) Receiv-er Dispo-sition
1	WHC-SD-C018H-TS-006		0	200 Area Effluent Treatment Facility SALDS/Recycle System Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Rea-son	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Rea-son	(H) Disp
1	1	Cog.Eng. R.J. Huth	RJ Huth	5-25-95	S6-71						
1	1	Cog. Mgr. N.J. Sullivan	NJ Sullivan	5-31-95	S6-71						
		QA NA									
1	1	Safety M. A. Treadway	MAT	6-13-95	S2-42						
1	1	Env. D.L. Flyckt	D. L. Flyckt	6/13/95	S6-71						
1	1	Operations R. B. Wurz	RB Wurz	[illegible]	S6-71						

18. 6/22/95 Signature of EDT Date Originator	19. Authorized Representative Date for Receiving Organization	20. 6/22/95 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

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Pg 5-4

RELEASE AUTHORIZATION

Document Number:	WHC-SD-C018H-TS-006, REV 0
Document Title:	200 Area Effluent Treatment Facility SALDS/Recycle System Operational Test Specification
Release Date:	6/23/95

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

Kara M. Broz

June 23, 1995

SUPPORTING DOCUMENT

1. Total Pages 5

2. Title

200 Area Effluent Treatment Facility SALDS/Recycle System Operational Test Specification

3. Number

WHC-SD-C018H-TS-006

4. Rev No.

0

5. Key Words

OTP, Test Specification, 200 Area Effluent Treatment Facility

6. Author

Name: R.J. Huth
Signature
Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) SALSD/Recycle System operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational, and design requirements of the SALDS/Recycly Systems have been met.

8. RELEASE STAMP

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DATE JUN 23 1995

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WHC-SD-~~ETF~~-TS-006, Rev 0

200 AREA EFFLUENT TREATMENT FACILITY SALDS/RECYCLE SYSTEM OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) SALDS/Recycle System operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the SALDS/Recycle Systems (listed below) have been met.

1) SALDS Disposal System
2) Verification Tank Recycle to LERF

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted as the individual subsystems become operational to demonstrate the operability of the SALDS/Recycle Systems. The following list contains the initial conditions which must be met to perform testing of the SALDS/Recycle Systems:

1) SALDS Disposal System
    - MCS testing completed to the extent required to allow performance of this system test.
    - Electrical system is in service to the extent required to allow performance of this system test.
    - Instrument Air System is in service.
    - Sufficient water in a Verification Tank to allow performance of this system test.

2) Verification Tank Recycle to LERF
    - MCS testing completed to the extent required to allow performance of this system test.
    - Electrical system is in service to the extent required to allow performance of this system test.
    - Instrument Air System is in service.
    - Sufficient water in a Verification Tank to allow performance of this system test.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility SALDS/Recycle Systems are defined by the test requirements presented as a table in Appendix A. The table will contain the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria.

These test requirements demonstrate the following:

> SALDS/Recycle System and associated support equipment operate both automatically and manually.
>
> As applicable, the control systems operate and status the SALDS/Recycle Systems.

Testing will utilize Operational Test Procedures to demonstrate operability of the ETF SALDS/Recycle Systems.

3.1 Applicable Documents

C-018H-C7, Construction Specification For 242-A\PUREX Effluent Transfer Line and Drain Field, form a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

Completion of the test requirements and acceptance criteria presented in Appendix A will demonstrate that the technical requirements identified in Section 3.0 have been met. Completion of each test requirement/acceptance criteria will be verified by the LEF Process Engineering Cognizant Engineer or his representative. Space will be provided in Appendix A for a signature for verification of compliance with the acceptance criteria. The verification block of the appendix will be signed as part of the Operational Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be recorded to evaluate whether system(s) performance meets the acceptance criteria.

Appendix A, Table A-1. SALDS Disposal System

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify proper operation of the SALDS Disposal discharge line isolation valve.	Valve 60H-200 (SALDS Line Isolation) has been stroked fully open and fully closed.	OSP-OTP-001	JA 10.17.95
02	Verify that the pressure class of the PVC discharge piping to the SALDS and LERF Recycle piping is not exceeded at higher operating temperatures.	Correlation of PVC SALDS piping pressure versus pump flow has been developed. This information is required as input to define a potential Operating Specification (OSD).	OSP-OTP-001	JA 10.17.95
03	Verify proper operation of disposal line air relief valves.	Air relief valves operate with insignificant leakage during steady state operation.	OSP-OTP-001	JA 10.17.95

Appendix A, Table A-2. Verification Tank Recycle To LERF System

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
01	Verify proper operation of the Transfer Pump discharge flow control to the LERF Basin.	Flow control loop (FIC-60H114) controls flow to the Liquid Effluent Retention Facility (LERF) Basin 44 at the setpoint value of 150 [135 to 165] gpm without "hunting" or causing unacceptable pressure surges in the PVC piping to LERF.	OSP-OTP-001	JA 10.17.95
02	Verify proper operation of the Verification Tank Recycle line isolation valve.	Valve 60H-214 (LERF Recycle Line Isolation) has been stroked fully open and fully closed.	OSP-OTP-001	JA 10.17.95

APPENDIX K

WHC-SD-C018H-TS-007

200 AREA ETF INFLUENT COLLECTION SYSTEM OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To Distribution	From LEF Process Engineering	Page 1 of 1
		Date 6/22/95
Project Title/Work Order 200 Area Effluent Treatment Facility Influent Collection System Operational Test Specification		EDT No. ~~611976~~ 611977
		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
R.B. Wurz	S6-71	X			
D.L. Flyckt	S6-71	X			
N.J. Sullivan	S6-71	X			
M.A. Tredway	S2-42	X			
M.W. Peres	S6-71	X			
L.L. Lin	S6-71	X			
R.J. Huth	S6-71	X			
S.L. Carmichael	S6-71	X			
R.B. Benton	S6-71	X			
I.G. Papp	S6-71	X			
D.K. Scully	S6-71	X			
J.M. Petty	S6-77	X			
M.J. Warn	H4-16	X			
200 Area LEF File	S6-71	X			
Central Files	A3-88	X			

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JUN 23 1995

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Page 1 of 1

1. EDT № 611977

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: I.G. Papp	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
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		14. Required Response Date:

15. DATA TRANSMITTED

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1	WHC-SD-C018H-TS-007		0	200 Area Effluent Treatment Facility Influent Collection System Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Rea-son	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Rea-son	(H) Disp
1	1	Cog.Eng. I.G. Papp	IGPapp	5-31-95	S6-71						
1	1	Cog. Mgr. N.J. Sullivan	[illegible]	5-31-95	S6-71						
		QA NA									
1	1	Safety M. A. Treadway	[illegible]	6-13-95	S2-42						
1	1	Env. D.L. Flyckt	[illegible]	6/[illegible]	S6-71						
1	1	Operations R. B. Wurz	[illegible]	6/20/95	S6-71						

18. Thomas G. Howell
Signature of EDT Originator
Date 6/21/95

19. ____________________
Authorized Representative for Receiving Organization
Date

20. [illegible]
Cognizant Manager
Date 6/22/95

21. DOE APPROVAL (if required)
Ctrl. No.
☐ Approved
☐ Approved w/comments
☐ Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

BD-7400-172-1

PS K-4

RELEASE AUTHORIZATION

Document Number: WHC-SD-C018H-TS-007, REV 0

Document Title: 200 Area Effluent Treatment Facility Influent Collection System Operational Test Specification

Release Date: 6/23/95

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

Kara M. Broz

June 23, 1995

SUPPORTING DOCUMENT

1. Total Pages 6

2. Title
200 Area Effluent Treatment Facility Influent Collection System Operational Test Specification

3. Number
WHC-SD-C018H-TS-007

4. Rev No.
0

5. Key Words
OTP, Test Specification, 200 Area Effluent Treatment Facility

6. Author
Name: I.G. Papp
IG Papp
Signature
Organization/Charge Code 86230/A2654

7. Abstract
This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Influent Collection System operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Influent Collection System have been met.

8. RELEASE STAMP

OFFICIAL RELEASE ②
BY WHC
DATE JUN 23 1995

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WHC-SD-~~ETF~~-TS-007, Rev 0

200 AREA EFFLUENT TREATMENT FACILITY INFLUENT COLLECTION SYSTEM OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Influent Collection System operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Influent Collection System have been met.

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted to demonstrate the operability of the Influent Collection Systems. The following list contains the initial conditions which must be met to perform testing of the Influent Collection Systems:

- MCS testing completed to the extent required to allow performance of this system test.
- LERF and 2025E Electrical systems are in service to the extent required to allow performance of this system test.
- 2025E Instrument Air System is in service.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Influent Collection System is defined by the test requirements presented in Appendix A. This table contains the test requirements and acceptance criteria for each requirement. Space is provided to record the document(s) used to satisfy the acceptance criteria and verification initials of the Cog Engineers.

These test requirements demonstrate the following:

- Influent Collection System and associated support equipment operate as designed.

- As applicable, the control systems operate and status the Influent Collection systems.

Testing will utilize Operational Test Procedures to demonstrate operability of the ETF Influent Collection System.

3.1 Applicable Documents

C-018H-C6, Construction Specification For 242A\PUREX Effluent Treatment Facility Collection System, forms a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this test specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

The reference(s) which document the completion of each acceptance criterium is provided in the Completed By column of Appendix A. If no reference document is provided, demonstration of the test requirement in an OTP is warranted. Upon completion of the operability test for this module, the requirement/acceptance criteria will be verified by the LEF Process Engineering system cognizant engineer. The cognizant engineer will document his verification by initialing and dating the spaces provided in the Verification column of Appendix A. The verified appendices will be included as part of the Operability Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be recorded to evaluate whether system(s) performance meets the acceptance criteria.

Appendix A, Table A-1, Influent Collection System (60M)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper operation of system manual valves.	System 60M valves can be stroked fully open and fully closed.	OSP-OTP-002	JSP 10-19-95
2	Verify proper operation of LERF Basin Transfer Pump P-42-4 logics.	Pump P-42-4 shall be operable from the ETF MCS, LCU55-M-17, and LERF local pump controls.	WHC-SD-C018H-ATP-004	JSP 10-3-95
3	All switches and alarms associated with system instrumentation have been verified to actuate at given set values/alarm points.	Setpoints as listed in S-1223-003 Rev. 2, Set-Value Selection Basis.	OSP-OTP-002	JSP 10-19-95
4	Verify proper operation of the interlock between LERF Basin Transfer Pump P-42-4 and Surge Tank level.	Pump P-42-4 shall be shut down remotely and automatically on an ETF Surge Tank LSH-60A012 or LAH-60A-013.	WHC-SD-C018H-ATP-004	JSP 10-3-95
5	Verify proper operation of LERF Basin Transfer Pump P-43-4 logics.	Pump P-43-4 shall be operable from the ETF MCS, LCU55-M-17, and LERF local pump controls.	WHC-SD-C018H-ATP-004	JSP 10-3-95
6	Verify proper operation of the interlock between LERF Basin Transfer Pump P-43-4 and Surge Tank level.	Pump P-43-4 shall be shut down remotely and automatically on an ETF Surge Tank LSH-60A012 or LAH-60A-013.	WHC-SD-C018H-ATP-004	JSP 10-3-95
7	Verify proper operation of LERF Basin Transfer Pump P-44-4 logics.	Pump P-44-4 shall be operable from the ETF MCS, LCU55-M-17, and LERF local pump controls.	WHC-SD-C018H-ATP-004	JSP 10-3-95
8	Verify proper operation of the interlock between LERF Basin Transfer Pump P-44-4 and Surge Tank level.	Pump P-44-4 shall be shut down remotely and automatically on an ETF Surge Tank LSH-60A012 or LAH-60A-013.	WHC-SD-C018H-ATP-004	JSP 10-3-95
9	Verify proper operation of the interlock between leak detector LDE 60M01A/B/C/D or LDA-42/43/44-1 and LERF Basin Transfer Pump P-42-4.	Leak detector signals for LDE-60M01A/B/C/D or LDA-42/43/44-1 shall prevent LERF Transfer pump P-42-4 from starting or operating.	WHC-SD-C018H-ATP-004	JSP 10-3-95

Appendix A, Table A-1. Influent Collection System (60M)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
10	Verify proper operation of the interlock between leak detector LDE 60M01A/B/C/D or LDA-42/43/44-1 and LERF Basin Transfer Pump P-43-4.	Leak detector signals for LDE-60M01A/B/C/D or LDA-42/43/44-1 shall prevent LERF Transfer pump P-43-4 from starting or operating.	WHC-SD-C018H-ATP-004	JSP 10-3-95
11	Verify proper operation of the interlock between leak detector LDE 60M01A/B/C/D or LDA-42/43/44-1 and LERF Basin Transfer Pump P-44-4.	Leak detector signals for LDE-60M01A/B/C/D or LDA-42/43/44-1 shall prevent LERF Transfer pump P-44-4 from starting or operating.	WHC-SD-C018H-ATP-004	JSP 10-3-95
12	Verify proper operation of the interlock between AOV-60A055 and LERF Basin Transfer Pumps P-42/43/44-4.	AOV-60A055 "closed" position shall prevent LERF Transfer Pumps P-42/43/44-4 from starting or operating.	OSP-OTP-002	JSP 10-19-95
13	Verify proper operation of low flow trip for LERF Basin pumps.	FSL-42/43/44-1 are calibrated and interlocked to P-42/43/44-4 to shutdown pumps on low flow of 55gpm.	WHC-SD-C018H-ATP-004	JSP 10-3-95
14	Verify proper automatic operation of LV-42/43/44-1.	LV-42/43/44-1 can be operated in an automatic mode to control flow to Surge Tank at a minimum of 55gpm for Surge Tank Level control.	WHC-SD-C018H-ATP-004	JSP 10-3-95
15	Verify proper operation/interface of LCU-55M-17 with ETF and 242-A Evaporator.	LCU-55M-17 is capable of operating LERF equipment as indicated by LOGIC diagrams H-2-88815 and monitoring transfer operations from LERF to the ETF. It shall be capable of maintaining communications with the 242-A MCS and ETF MCS on a continuous basis. It shall also be capable of monitoring the status of the ETF valve position AOV-60A055, and ETF Surge Tank level, as associated with fluid transfer.	WHC-SD-C018H-ATP-004	JSP 10-3-95

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Appendix A, Table A-1. Influent Collection System (60M)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
16	Verify proper operation of the LERF Transfer Pumps at rated flow conditions without exceeding full load amps.	The LERF Transfer pumps P-42/43/44-4 shall be (individually) capable of transferring liquid from the LERF to the ETF Surge Tank at 150 gpm (+- 10 gpm) during normal operational flow conditions, while not exceeding the motor full load amperage rating. 8.9 Full load Amps.	OSP-OTP-002.	10-19-95

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APPENDIX L

WHC-SD-C018H-TS-008
200 AREA ETF LOSS OF PLANT ELECTRICAL OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To Distribution	From LEF Process Engineering	Page 1 of 1
		Date 7/06/95
Project Title/Work Order 200 Area Effluent Treatment Facility Loss of Plant Electrical Operational Test Specification		EDT No. 611979
		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach. / Appendix Only	EDT/ECN Only
R.B. Wurz	S6-71	X			
D.L. Flyckt	S6-71	X			
N.J. Sullivan	S6-71	X			
M.A. Tredway	S2-42	X			
M.W. Peres	S6-71	X			
L.L. Lin	S6-71	X			
R.J. Huth	S6-71	X			
S.L. Carmichael	S6-71	X			
R.B. Benton	S6-71	X			
I.G. Papp	S6-71	X			
D.K. Scully	S6-71	X			
J.M. Petty	S6-77	X			
M.J. Warn	H4-16	X			
200 Area LEF File	S6-71	X			
Central Files	A3-88	X			

(2)

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WHC-SD-ETF-OTR-001, REV. 0
Pg L-3

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT Nº 611979

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: S.L. Carmichael	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date:

15.	DATA TRANSMITTED				(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-C018H-TS-008		0	200 Area Effluent Treatment Facility Loss of Plant Electrical Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp
1	1	Cog.Eng. S.L. Carmichael		6-6-95	S6-71	Cog. Engr. T.B. Benton		6/14/95	S6-71		
1	1	Cog. Mgr. N.J. Sullivan		6-7-95	S6-71						
		QA NA									
1	1	Safety M. A. Treadway	Howell for M. Treadway	7/6/95	S2-42						
1	1	Env. D.L. Flyckt		6/26	S6-71						
1	1	Operations R. B		7/7/95	S6-71						

18.	19.	20.	21. DOE APPROVAL (if required)
Howell 7/6/95 Signature of EDT Originator Date	Authorized Representative Date for Receiving Organization	7-11-95 Cognizant Manager Date	Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

BD-7400-172-1

RELEASE AUTHORIZATION

Document Number: WHC-SD-C018H-TS-008, REV 0

Document Title: 200 Area Effluent Treatment Facility Loss of Plant Electrical Operational Test Specification

Release Date: 7/17/95

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 7/17/95

Kara M. Broz

A-6001-400.2 (09/94) WEF256

SUPPORTING DOCUMENT

1. Total Pages 5

2. Title
200 Area Effluent Treatment Facility Loss of Plant Electrical Operational Test Specification

3. Number
WHC-SD-C018H-TS-008

4. Rev No.
0

5. Key Words
OTP, Test Specification, 200 Area Effluent Treatment Facility

6. Author
Name: S.L. Carmichael
S. L. Carmichael
Signature
Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Loss of Plant Electrical operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of plant systems to a Loss of Plant Electrical.

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC (2)
DATE JUL 18 1995

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WHC-SD-C018H-TS-008, Rev 0

200 AREA EFFLUENT TREATMENT FACILITY LOSS OF PLANT ELECTRICAL OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Loss of Plant Electrical operational testing activities. As specified in the Design Construction Specification (DCS),V-C018HC1-001, contractor performed acceptance testing of the facility will perform testing to a level consistent with actual "operational testing" as defined by WHC-CM-6.1, EP-4.2. As a result, the required level of detail for WHC performed operational testing is lessened. Specifically, the purpose of operational testing will be to perform any additional testing deemed important in fully defining operational characteristics of the systems.

This test specification identifies the operational testing which demonstrates functional, operational and design requirements of plant systems to a Loss of Plant Electrical.

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted upon completion of operational testing activities for all other modules. The following list contains the initial conditions which must be met to perform Loss of Plant Electrical testing:

1) All operational testing activities are complete for Main and Secondary Treatment Trains and for the Monitoring and Control System (MCS).
2) The Effluent Treatment Facility must be in full operation.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Loss of Plant Electrical, are defined by the test requirements presented in Appendix A. Appendix A includes a table containing the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria and verification initials of the Cog Engineers.

These test requirements demonstrate the following:

Effluent Treatment Facility and associated support equipment operate as designed in response to a loss of power.

As applicable, the control systems operate and provide facility status.

3.1 Applicable Documents

V-C018HC1-001, Design Construction Specification Project C-018H 242A Evaporator/PUREX Plant Process Condensate Treatment Facility, forms a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

The reference(s) which document the completion of each acceptance criterium is provided in the Completed By column of Appendix A. If no reference document is provided, demonstration of the test requirement in an OTP may be warranted. Upon completion of the operability test for this module, the requirement/acceptance criteria will be verified by the LEF Process Engineering system cognizant engineer. The cognizant engineer will document his verification by initialing and dating the spaces provided in the Verification column of Appendix A. The verified appendices will be included as part of the Operability Test Report.

The LEF cognizant engineer may close out a requirement based on witnessing actions to meet acceptance criteria during the performance of an approved Adtechs test procedure. The LEF cognizant engineer may also sign a requirement if technical justification can be provided without actually performing the test. The technical justification, where required, shall be included in the Operability Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be recorded to evaluate whether system(s) performance meets the acceptance criteria.

Appendix A, Table A-1. Loss of Plant Electrical

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	Verify proper response of all switchgear circuit breakers and Motor Control Center motor starters following loss of power.	Main Switchgear supply breakers remain closed. Motor Control Center supply breakers remain closed. Main Distribution Panel supply breakers remain closed. Motor Control Center motor starters will open.	Reference Internal Memo 86230-95-NJS-044	SHC 10-26-95
2	Verify proper response and operation of 30 kva UPS-1 following loss of power and upon restoration of power.	The UPS transfers to supply loads from the battery and return to standby mode upon restoration of power.	~~off~~ SHC Reference Internal Memo 86230-95-NJS-044	SHC 10-26-95
3	Verify proper operation of Facility Emergency Lighting following loss of power and upon restoration of power.	All plant emergency lighting energizes upon loss of power and returns to standby status upon restoration of power.	Tested 6-23-95 by L.E Anderlini WHC Fire Protection Engineer.	SHC 10-25-95
4	Verify failed position of selected critical power operated valves in MTT and STT.	Check actual position against designed failed position.	No Critical Power Operated Valves.	SHC 10-25-95
5	Verify proper response of system critical power operated valves upon restoration of power.	All critical power operated valves remain in fail safe position upon restoration of power.	No Critical power operated Valves.	SHC 10-25-95
6	Verify ability to place MTT and STT in shutdown mode following loss of power.	UPS will maintain the Monitoring and Control System available to allow plant controls to be placed in shutdown mode following a loss of power.	Reference Internal Memo 86230-95-NJS-044	SHC 10-26-95
7	Verify proper response of systems/equipment upon restoration of power.	Verify automatic restart of equipment occurs only as designed.	Reference Internal Memo 86230-95-NJS-094	SHC 10-26-95

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Appendix A. Table A-1. Loss of Plant Electrical

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
8	Verify proper operation of the Uninteruptable Power Supply.	Uninteruptable Power Supply System functions to produce "clean", computer grade ac power and will shift to the battery to supply system loads.	Inspection Plan 5-113-103-1 Acceptance Inspection Report 334. Wintessed Factory Logic Setting, Check-out, Testing and Startup of UPS System.	HC 10-25-95
		Perform test discharge of UPS battery.	Inspection Plan 5-113-103-1	HC 10-25-95

APPENDIX M

WHC-SD-C018H-TS-009
200 AREA ETF LOAD-IN STATION OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To Distribution	From LEF Process Engineering	Page 1 of 1
		Date 7/06/95
Project Title/Work Order 200 Area Effluent Treatment Facility Load In Station Operational Test Specification		EDT No. 611981
		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach. / Appendix Only	EDT/ECN Only
R.B. Wurz	S6-71	X			
D.L. Flyckt	S6-71	X			
N.J. Sullivan	S6-71	X			
M.A. Tredway	S2-42	X			
M.W. Peres	S6-71	X			
L.L. Lin	S6-71	X			
R.J. Huth	S6-71	X			
S.L. Carmichael	S6-71	X			
R.B. Benton	S6-71	X			
I.G. Papp	S6-71	X			
D.K. Scully	S6-71	X			
J.M. Petty	S6-77	X			
M.J. Warn	H4-16	X			
200 Area LEF File	S6-71	X			
Central Files	A3-88	X			

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pg M-3

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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT № 611981

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: E. A. McNamar	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date:

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-C018H-TS-009		0	200 Area Effluent Treatment Facility Load-In Station Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp
1	1	Cog.Eng. E.A. McNamar	E.A. McNamar	6-6-95	S6-71						
1	1	Cog. Mgr. N.J. Sullivan		6-28-95	S6-71						
		QA NA									
1	1	Safety M. A. Treadway	for M. Treadway	7/6/95	S2-42						
1	1	Env. D.L. Flyckt			S6-71						
1	1	Operations R. B. Wu		7/7/95	S6-71						

18. 7/6/95 Signature of EDT Originator Date	19. Authorized Representative Date for Receiving Organization	20. 7-7-95 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

BD-7400-172-1

PS M-4

RELEASE AUTHORIZATION

Document Number: WHC-SD-C018H-TS-009, REV 0

Document Title: 200 Area Effluent Treatment Facility Load In Station Operational Test Specification

Release Date: 7/17/95

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 7/17/95

Kara M. Broz

pg m-5

SUPPORTING DOCUMENT

1. Total Pages 6

2. Title
200 Area Effluent Treatment Facility Load In Station Operational Test Specification

3. Number
WHC-SD-C018H-TS-009

4. Rev No.
0

5. Key Words
OTP, Test Specification, 200 Area Effluent Treatment Facility

6. Author
Name: E.A. Mcnamar

E.A. McNamar 7-10
Signature

Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Load-In Station System operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Load-In Station System have been met.

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC
DATE JUL 18 1995

pg m-c

200 AREA EFFLUENT TREATMENT FACILITY LOAD-IN STATION OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Load-In Station System operational testing activities. Contractor performed acceptance testing of the facility will perform testing to a level consistent with actual "operational testing" as defined by WHC-CM-6.1, EP-4.2. As a result, the required level of detail for WHC performed operational testing is lessened. Specifically, the purpose of operational testing will be to perform any additional testing deemed important in fully defining operational characteristics of the systems.

If all test requirements listed in this document have been satisfied prior to facility turnover, no Operational Test Procedure will be required. Test requirements may be satisfied by contractor performed testing or justified as not requiring testing by the cognizant engineer.

This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Load-In Station System have been met.

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted when the Load-In Station becomes operational to demonstrate the operability of the Load-In Station. The following list contains the initial conditions which must be met to perform testing of the Load-In Station:

1) Load-In Station
   - MCS testing completed to the extent required to allow performance of this system test.
   - Electrical system is in service to the extent required to allow performance of this system test.
   - Sanitary water is available for the eyewash and hose bib.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Load-In Station are defined by the test requirements presented in Appendix A. Appendix A includes a table containing the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria and for verification initials of the Cog Engineer(s).

These test requirements demonstrate the following:

The Load-In Station system and associated support equipment operate both automatically and manually.

As applicable, the control systems operate and status the Load-In Station.

3.1 Applicable Documents

The following documents form a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

W-291H-C1, Construction Specification, 200 Areas Effluent BAT/AKART Implementation ETF Truck Load-In Facility, Work Order CR1134

W-291H-P1, Procurement Specification, Process Instruments, Work Order CR1134

W-291H-P2, Procurement Specification, Centrifugal Pumps, Work Order CR1134

W-291H-P3, Procurement Specification, Atmoshperic Tanks, Work Order CR1134

W-291H-P6, Procurement Specification, Instrumentation Panels, Work Order CR1134

4.0 ACCEPTANCE CRITERIA

The reference(s) which document the completion of each acceptance criterium is provided in the Completed By column of Appendix A. If no reference document is provided, demonstration of the test requirement in an OTP may be warranted. Upon completion of the operability test for this module, the requirement/acceptance criteria will be verified by the LEF Process Engineering system cognizant engineer. The cognizant engineer will document his verification by initialing and dating the spaces provided in the Verification column of Appendix A. The verified appendices will be included as part of the Operability Test Report.

The LEF cognizant engineer may close out a requirement if technical justification can be provided without actually performing the test. The technical justification, where required, shall be included in the Operability Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be verified to evaluate whether system performance meets the acceptance criteria.

Appendix A, Table A-1. Load-In Station (59A)				
#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	System 59A instrumentation has been calibrated.	All system instrumentation calibrated.	WHC-SD-W291H-ATP-003	TAM 10-2-95
2	All switches and alarms associated with instrumentation shown on attached list have been verified to actuate at given set values/alarm points.	Setpoints as listed applicable ATP's.	WHC-SD-W291H-ATP-003	TAM 10-2-95
3	System 59A rotating equipment operates with no evidence of abnormal operating characteristics (high vibration, cavitation, high bearing temperature).	This equipment includes pumps 59A-P-103A, 59A-P-103B, the LCU building electric unit heater and air conditioner.	WHC-SD-W291H-ATP-003	TAM 10-2-95
4	Verify proper operation of System 59A valves.	Valves can be stroked fully open and fully closed.	WHC-SD-W291H-ATP-003	TAM 10-2-95
5	Verify proper response of System 59A components to a loss of power.	System 59A components must return to a fail safe position.	WHC-SD-W291H-ATP-003	TAM 10-2-95
6	Verify proper operation of the interlock between Pumps 59A-P-103A/B and tank level.	Pumps 59A-P-103A/B shut down at the low level setpoint of 2%.	WHC-SD-W291H-ATP-003	TAM 10-2-95
7	Verify proper operation of the permissive switch for System 59A pumps.	Pumps will operate only when the remote pump permissive switch has been enabled for the ETF control room.	WHC-SD-W291H-ATP-003	TAM 10-2-95
8	Verify proper local operation of the System 59A pumps.	Pumps 59A-P-103A/B can be operated from LCU-55C-12 and MCS.	WHC-SD-W291H-ATP-003	TAM 10-2-95
9	Verify proper status update capability of LCU-55C-12 and the MCS.	LCU-55C-12 and MCS receive indication of current operational status for pumps 59A-P-103A/B.	WHC-SD-W291H-ATP-003	TAM 10-2-95

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Appendix A, Table A-1, Load-In Station (59A)

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
10	Verify rated capacity of the System 59A pumps without exceeding rated full load amperage.	Pumps 59A-P-103A/B operate on pump curve ±10%.	OSP-OTP-008	TAM 10-19-95
11	Verify proper operation of System 59A motor operated valves from the MCS and LCU-55C-12.	Motor operated valves 59A-MV-101/105/109/113/117/123 can be operated from LCU-55C-12 or MCS.	WHC-SD-W291H-ATP-003	TAM 10-2-95
12	Verify proper manual operation of System 59A Motor Operated Valves.	Motor operated valves 59A-MV-101/105/109/113/117/123 can be operated manually.	WHC-SD-W291H-ATP-003	TAM 10-2-95
13	Verify Motor Operated Valves fail as-is on loss of power.	Motor operated valves 59A-MV-101/105/109/113/117/123 fail in last selected position.	WHC-SD-W291H-ATP-003	TAM 10-2-95
14	Verify proper position indication of Motor Operated Valves.	Valves 59A-MV-101/105/109/113/117/123 give position indication on LCU-55C-12 and MCS.	WHC-SD-W291H-ATP-003	TAM 10-2-95
15	Verify proper operation of System 59A freeze proteciton equipment.	Tanks heating panels and piping heat traces are operable.	WHC-SD-W291H-ATP-003	TAM 10-2-95
16	Verify proper operation of LCU building HVAC.	LCU building air conditioner and electric unit heater is operable.	WHC-SD-W291H-ATP-003	TAM 10-2-95
17	Verify proper system indication displayed at LCU-55C-12/21/25 and the MCS.	LCU and MCS receive and display appropriate generator signals - Can use tag list for identification of display tags.	WHC-SD-W291H-ATP-003/005/001	TAM 10-2-95

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APPENDIX N

WHC-SD-C018H-TS-010
200 AREA ETF SAMPLE PREP ROOM OPERATIONAL TEST SPECIFICATION

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DISTRIBUTION SHEET

To Distribution	From LEF Process Engineering	Page 1 of 1 Date 7/06/95
Project Title/Work Order 200 Area Effluent Treatment Sample Prep Room Operational Test Specification		EDT No. 611978 ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
R.B. Wurz	S6-71	X			
D.L. Flyckt	S6-71	X			
N.J. Sullivan	S6-71	X			
M.A. Tredway	S2-42	X			
M.W. Peres	S6-71	X			
L.L. Lin	S6-71	X			
R.J. Huth	S6-71	X			
S.L. Carmichael	S6-71	X			
R.B. Benton	S6-71	X			
I.G. Papp	S6-71	X			
D.K. Scully	S6-71	X			
J.M. Petty	S6-77	X			
M.J. Warn	H4-16	X			
200 Area LEF File	S6-71	X			

Sta 4 (2)

JUL 06 1995

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT № 611978

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) LEF Process Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: LEF 200 AREA ETF	6. Cog. Engr.: R. Clinton/	7. Purchase Order No.: NA
8. Originator Remarks: NA		9. Equip./Component No.: NA
		10. System/Bldg./Facility: 200 AREA ETF
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date:

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-C018H-TS-010		0	200 Area Effluent Treatment Facility Sample Prep Room Operational Test Specification	ES	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp
1	1	Cog.Eng. R. Clinton		6/5/95	S6-71						
1	1	Cog. Mgr. N.J. Sullivan		6-5-95	S6-71						
		QA NA									
1	1	Safety M. A. Treadway	MA	6-13-95	S2-42						
1	1	Env. D.L. Flyckt		6/27/95	S6-71						
1	1	Operations R. B. Wurz		6/27/95	S6-71						

18. ZJ Howell 7/6/95
Signature of EDT Originator Date

19.
Authorized Representative Date for Receiving Organization

20. 7/6/95
Cognizant Manager Date

21. DOE APPROVAL (if required)
Ctrl. No.
☐ Approved
☐ Approved w/comments
☐ Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

BD-7400-172-1

Pg N-4

RELEASE AUTHORIZATION

Document Number:	WHC-SD-C018H-TS-010, REV 0
Document Title:	200 Area Effluent Treatment Facility Sample Prep Room Operational Test Specification
Release Date:	7/6/95

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 L Broz

Kara M. Broz

July 6, 1995

SUPPORTING DOCUMENT

1. Total Pages 5

2. Title
200 Area Effluent Treatment Facility Sample Prep Room Operational Test Specification

3. Number
WHC-SD-C018H-TS-010

4. Rev No.
0

5. Key Words
OTP, Test Specification, 200 Area Effluent Treatment Facility

6. Author
Name: R. Clinton
Signature
Organization/Charge Code 86230/A2654

7. Abstract

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Sample Prep Room System operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Sample Prep Room Systems have been met.

8. RELEASE STAMP

OFFICIAL RELEASE ②
BY WHC
DATE JUL 06 1995
Sta 4

C018H-22316
WHC-SD-~~ETF~~-TS-010. Rev 0

200 AREA EFFLUENT TREATMENT FACILITY SAMPLE PREP ROOM OPERATIONAL TEST SPECIFICATION

1.0 PURPOSE

This document shall identify the test requirements for the 200 Area Effluent Treatment Facility (200 Area ETF) Sample Prep Room System operational testing activities. This test specification identifies the operational testing which demonstrates functional, operational and design requirements of the Sample Prep Room Systems (listed below) have been met.

1) Demineralized Water System
2) Sample Hood Vacuum System
3) Sample Prep Room Cold Water System
4) Sample Hood Vent Fans

2.0 INITIAL FACILITY CONDITIONS

Testing will be conducted to demonstrate the operability of the Sample Prep Room systems. The following list contains the initial conditions which must be met to perform testing of the Sample Prep Room systems:

- Electrical system is in service to the extent required to allow performance of this system test.
- Sanitary Water System is in service to the extent required to allow performance of this system test.
- RCA HVAC System is in service to support Lab Hood fan testing.
- Sump Tank 2 is available with suffcient capacity to receive test water.

3.0 TEST REQUIREMENTS

The technical requirements for operational testing of the Effluent Treatment Facility Sample Prep Room Equipment are defined by the test requirements presented in Appendix A. Appendix A includes a table containing the test requirements and acceptance criteria for each requirement. Space will be provided to record the document(s) used to satisfy the acceptance criteria and verification initials of the Cog Engineer(s).

These test requirements demonstrate the proper operation of the Sample Prep Room equipment.

Testing will utilize Operational Test Procedure(s) to demonstrate operability of the ETF Sample Prep Room Systems.

3.1 Applicable Documents

V-C018HC1-001, Design Construction Specification Project C-018H 242A Evaporator/PUREX Plant Process Condensate Treatment Facility, forms a part of the Basis of Design to the extent specified in the applicable sections of this document. In the event of conflict between documents referenced herein and the requirements of this specification, the requirements of this specification shall take precedence.

4.0 ACCEPTANCE CRITERIA

Completion of the test requirements and acceptance criteria presented in Appendix A will demonstrate that the technical requirements identified in Section 3.0 have been met. Completion of each test requirement/acceptance criteria will be verified by the LEF Process Engineering Cognizant Engineer or his representative. Space will be provided in Appendix A for a signature for verification of compliance with the acceptance criteria. The verification block of the appendix will be signed as part of the Operational Test Report.

4.1 Data Required:

As a minimum, those parameters called out in the acceptance criteria section of Appendix A will be recorded to evaluate whether system(s) performance meets the acceptance criteria.

Appendix A, Table A-1, Sample Prep Room Systems

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
1	D.I. Water Pump 2025E-5B-P-1 operates with no evidence cavitation or high bearing temperature.	No signs of cavitation (rapidly fluctuating discharge pressure). Bearing temperatures <180°F.		
2	Verify D.I. Water Pump low low level trip	D.I. Water Pump trips at 10 inches WC ± 1 inch.		
3	Verify D.I. Water Pump capacity and discharge pressure.	Pump flow rate within the limits established by the operating curve and pump discharge pressure within ±10% of the rated pressure of the operating curve.		
4	Verify logics for temperature interlock for D.I. Water Cooler initiation and D.I. IX Column bypass valve operation.	Cooling water flow is established to the D.I. Water Cooler when the temperature of the D.I. Water leaving the cooler is ≥70°F. D.I. IX Columns are bypassed when the temperature of the D.I. Water leaving the cooler is ≥85°F.		
5	Verify that water quality meets Type II Reagent grade standards.	Resistivity ≥1.0 megohm/cm;		
6	Verify proper operation of Evaporator Still low level cutout probe.	Evaporator Still low level cutout probe de-energizes heaters when level is below the probe as indicated on LI-5B030.		
7	Verify proper response of Evaporator Still to D.I. Storage Tank level.	Evaporator starts at 20"WC ±1 inch above the bottom of tank and stops at 4"WC ±1 inch from the top of tank.		
8	Verify capacity of Evaporator Still.	Evaporator Still produces approximately 80gpd ±10% of distilled water.		

Appendix A, Table A-1, Sample Prep Room Systems

#	Test Requirement	Acceptance Criteria	Completion Reqd By (Document)	Verification Initials/Date
9	The sample hood Vacuum Pump operates at capacity with no evidence of high bearing temperature.	Capable of pulling ≥18" Hg vacuum at each sample hood. Bearing temperature <180°F.		/10-1
10	Verify available supply of D.I. water and cold water at each sample hood.	Establish flow from each system at each sample hood.		
11	Verify proper operation of all Solenoid and motor operated valves.	Verify all SOV's and MOV's in D.I. Water and Evaporator systems can be fully opened and closed.		
12	Verify fan motor operation with normal motor current.	45A-F-16 (Lab Hood Fan) ≤ Name Plate Full Load Amps 45A-F-17 (Lab Hood Fan) ≤ Name Plate Full Load Amps 45A-F-18 (Lab Hood Fan) ≤ Name Plate Full Load Amps		
13	VERIFY Sample Hood Vent fans operate at listed design flowrates.	45A-F-16 (Lab Hood Fan) 1000 CFM ± 10% 45A-F-17 (Lab Hood Fan) 1000 CFM ± 10% 45A-F-18 (Lab Hood Fan) 1000 CFM ± 10%	RCA HVAC Flow Balance Y-S-1691-028	/10-25-95

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