OTU.T (3)

OCT 12 1995 **ENGINEERING DATA TRANSMITTAL**

Page 1 of 1

1. EDT № 612752

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
DISTRIBUTION	TEST ENGINEERING	N/A
5. Proj./Prog./Dept./Div.:	6. Cog. Engr.:	7. Purchase Order No.:
FLAMMABLE GAS PROGRAM	J. McCLEES	WDW-XVV-281212
8. Originator Remarks: NONE – For release		9. Equip./Component No.: VTP-EF-3102 EXHAUSTER
		10. System/Bldg./Facility: 241-SY
11. Receiver Remarks: NONE		12. Major Assm. Dwg. No.: H-2-85593
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

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-WM-ATR-080	-	0	ACCEPTANCE TEST REPORT FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT	N/A	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	Proj. Cog. Eng. J McCLEES [signature] 10/10/95			
1	1	Proj. Cog. Mgr. R.W. Reed [signature] 10/10/95			
		QA			
		Safety			
		Env.			
1	1	Facility Cog. Eng. T.D. Kaiser [signature] 10/10/95			

18. J. McCLEES [signature] 10/10/95
Signature of EDT Originator — Date

19. _____ _____
Authorized Representative for Receiving Organization — Date

20. R.W. REED [signature] 10/10/95
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-WM-ATR-080, REV 0
Document Title:	Acceptance Test Report for SY Tank Farm Replacement Exhauster Unit
Release Date:	10/12/95

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 10/12/95

SUPPORTING DOCUMENT

1. Total Pages 64

2. Title	3. Number	4. Rev No.
ACCEPTANCE TEST REPORT FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT.	WHC-SD-WM-ATR-080	0

5. Key Words

SY, TANK FARM, EXHAUSTER

6. Author

Name: J. McLEES

Signature 10/10/95

Organization/Charge Code 77640/N2169

7. Abstract

THIS TEST REPORT SERVES TO DOCUMENT THE RESULTS OF ACCEPTANCE TESTING PERFORMED ON THE NEW SY TANK FARM EXHAUSTER, PER WHC-SD-WM-ATP-080, REV. 1-A.

8. RELEASE STAMP

OFFICIAL RELEASE BY WHC 3

DATE OCT 1 2 1995

Sta 4

ACCEPTANCE TEST REPORT FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

WHC-SD-WM-ATR-080
REVISION 0

OCTOBER 1995

TABLE OF CONTENTS

Summary of WHC-SD-WM-ATP-189, Rev 1-A "ACCEPTANCE TEST PROCEDURE FOR SY TANK FARM REPLACEMENT EXHAUSTER"

Testing commenced on 08/23/95 and was successfully completed on 09/12/95. The completed procedure was signed off by the Test Director, Project Engineer, and Cog Engineer on 09/27/95.

The completed procedure consists of 15 tests, which verified the correct functioning of all the alarm and control circuits associated with the exhauster which provide operating controls and/or signals to local alarm annunciator panels. Alarms, warning lights, controls, and local readouts for the exhauster were verified to be acceptable for proper operation of the exhauster. All sections of the ATP were completed or excepted with dispositions documented.

There were two ECNs written against the ATP. ECN #622553 completely revised revision 0 of the ATP to include steps for testing the added design features to the exhuaster. ECN #706709 changed pages 15 and 16 (sections 7.2.12 to 7.2.21) of the ATP to remove the duct heater shutdown on low stack flow. These steps were removed because of a design change that now derives the shutdown function from a calibrated stack flow instrument. The checks performed per steps 7.2.12 to 7.2.21 became redundant and could not be run at that specified low flow setting without bypassing the inlet high vacuum shutdown.

Twelve test exceptions were found during testing, noted on the ATP Exception Log, and dispositions/resolutions were documented accordingly. The noted exceptions did not compromise testing activities or results, and were accepted as is. Redline changes were made in various places to correct minor editorial changes. Although the Beta CAM deenergizing relay was acceptably tested per the ATP, the circuit was redesigned and testing was rolled into the Operational Test Procedure (OTP), WHC-SD-WM-OTP-189, Rev. 0-A.

The remainder of this Acceptance Test Report (ATR) consists of related ECNs, summary of test exceptions, and completed pages from the ATP. The completed ATP describes the tests that were conducted and attests to the results that were obtained. The page numbers for the ATR appear in the upper right corner of each page. The page numbers of the OTP performed are left for reference.

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

EXCEPTION NUMBER	STEP NUMBER	EXCEPTION DESCRIPTION	EXCEPTION RESOLUTION	RESOLUTION APPROVED BY:	DATE RESOLVED
1	7.1.10	High radiation shutdown did not allow motor to be started	Installed a jumper from wire 22 to wire 23 to bypass the shutdown contact. Later moved to wires 10 and 70 on TB-3 (step 7.1.16)	Jim L. Jim L.	8/23/95
2	7.1.16	Stack sampler cabinet is not available at this time. (removing butt splices)	Will keep jumper installed in steps 7.1.10 and 7.1.16 in until Air Monitor Cabinet is available, then retest those steps that were skipped. Rewiring complete, jumpers removed 8/28/95.	Jim L. Jim L.	8/23/95
3	7.1.21	The seal pot high level switch is not working	Switch by passed at it's connection box, new switch ordered. Installed 9/7/95. Tested 9.8.95 Jim L. 9-27-95	Jim L. Jim L.	8/25/95
4	7.1.21	The duct heater fuses are not installed	Fuses are to be delivered on Monday Fuses installed 9/5/95. Tested 9.9.95 Jim L. 9-27-95	Jim L. Jim L.	9/5/95

Attachment 1: Exception List

5	7.2.12	Skip steps 7.2.12 to 7.2.21	Heater shutdown on low flow has been redesigned, it now will be controlled by the Data Logger. The Data Logger uses the stackflow meter output and this instrument was calibrated by the factory rep. last week. This instrument was within 1% for 7.2.8 reading. Also the exhauster as setup cannot be run at that low of flow due to low inlet suction pressure. Function will be tested per OTP.	Jim L. Jim L.	9/5/95
6	7.15	Stack Flow Switch Redisigned	Redlined procedure to test the new design	Jim L. Jim L.	9/9/95
7	General	Minor editorial changes and 1, "Push the Reset Button" and 2, "Pump Starts Automatically"	Red lined the procedure. These changes do not impact the results of this ATP.	Jim L. Jim L.	9/9/95
8	7.8	This part of the procedure requires the fan to be off. When the fan is off, you already have a low delta-P alarm so the alarm horn is already sounding or silenced.	Note "Horn will not sound" and continue	Jim L. Jim L.	9/8/95
9	7.10	Alarms from stackmonitoring cabinet not available due to tracing the wiring	Bypass the alarms see bottom of Page 30	Jim L. Jim L.	9/8/95
10	7.13	Beta Monitor shutdown circuit did not work as installed	Changed circuit to be driven by the Data Logger. Redlined test accordingly Jim L. 9-27-95	Jim L. Jim L.	9/12/95

Attachment 1: Exception List

Excp. #	Step #	Exception Description	Exception Resolution	Resolution Approved	Date Resolved
11	7.9	Two Legs of the 4 that were tested did not have enough current to register on the current meter	Accept as is. Due to the elevated temperature and short length of heat tape, current was below the detectable level of the clamp on amp meter	Jim L JimL	9-27-95
12	7.10.3	The overtemperature controller was set too low	Reset to 160 +/- 20 F and retested	Jim L JimL	9-27-95

ENGINEERING CHANGE NOTICE

JM 9/26/95

Page 1 of 2

1. ECN No 706709

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedure ☐ Cancel/Void ☐	Jim Langdon, 74770, S2-02, 373-4701	TF-94-0330 ☐ Yes ☒ No	9-26-95
	5. Project Title/No./Work Order No.: New SY Farm Exhauster ATP . N2DBC	6. Bldg./Sys./Fac. No.: 241-SY	7. Approval Designator: SQ
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.): WHC-SD-WM-ATP-080, rev. 1	9. Related ECN No(s).: N/A	10. Related PO No.: N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Completed	11d. Restored to Original Condition (Temp. or Standby ECNs only)
☐ Yes (fill out Blk. 11b) ☒ No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

This ECN revises the Acceptance Test Procedure (ATP) for testing the replacement exhauster.

The changes are to remove the test for the duct heater shutdown on low stack flow shown in steps 7.2.12 to 7.2.21. These steps can be removed because of a design change that now derives the shutdown function from a calibrated stack flow instrument. The check done in the above mentioned steps then becomes redundant. Also, the test setup that is available could not be run at that low of flow with out bypassing the inlet high vacuum shutdown.

13a. Justification (mark one)	13b. Justification Details
Criteria Change ☐ Design Improvement ☒ Environmental ☐ Facility Deactivation ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	The replacement exhauster design was modified to improve operability and comply with safety requirements. The ATP needed updating to reflect these changes.

14. Distribution (include name, MSIN, and no. of copies)

Tom Moore	H5-09	R R True	T4-08
Jorge McClees	R1-51	Jim Kriskovich	S2-24
Ron Reed	R1-51		
Terry Kaiser	T4-07		
Steve Krogsrud	R3-08		

One Advance Copy for Jim Langdon

RELEASE STAMP

OFFICIAL RELEASE BY WHC DATE SEP 26 1995 Sta. 4

RECORD OF REVISION	(1) Document Number WHC-SD-WM-ATP-080	Page 1

(2) Title
ACCEPTANCE TEST PROCEDURE FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
O	(7) EDT-160984		
1	This Acceptance Test Procedure (ATP) has been completely revised to accommodate design changes incorporated into the new SY Farm replacement exhauster unit. ECN#622553	J. McClees	R.W. Reed
1-A RS	Steps 7.2.12 through 7.2.21 of this ATP have been deleted. The design has been changed and testing will be performed per WHC-SD-WM-OTP-189, REV.0. This revision is limited to a "Page Change" to pages 15 and 16. ECN#706709	J. McClees	R.W. Reed 26 Sep '95

SUPPORTING DOCUMENT

1. Total Pages 46

2. Title	3. Number	4. Rev No.
ACCEPTANCE TEST PROCEDURE FOR SY TANK FARM REPLACEMENT EXHAUSTER	WHC-SD-WM-ATP-080	1-A

5. Key Words	6. Author
SY TANK FARM EXHAUSTER	Name: J. MCCLEES Signature Organization/Charge Code 77640/N2DBB

7. Abstract

THIS ACCEPTANCE TEST PROCEDURE WILL VERIFY THAT THE CONTROLS, ALARMS, INTERLOCKS, AND INTERFACES WITH OTHER SY TANK FARM EQUIPMENT AND REMOTE MONITORIN STATIONS ARE ALL FUNCTIONING CORRECTLY FOR THE SY FARM REPLACEMENT EXHAUSTER UNIT.

8. RELEASE STAMP

OFFICIAL RELEASE BY WHC
DATE SEP 26 1995
Sta. 4
3

NOTE: 1) $Q = AV$ where: Q = flow rate (cfm)
A = cross-section area
V = air velocity (as measured per 7.2.7)

2) To convert to "scfm", multiply "1)" by:

$p(st)/p(a)$ Where: p(a) = air density at ambient temp.

p(st) = air density at 25 C (77°F)

p(st) and p(a) should be obtained from an Air Density chart or table.

7.2.8 Convert the velometer reading to cubic feet per minute (cfm), correct for standard, and record the corrected value.

Stack flowrate measured: _____ (scfm)

7.2.9 Verify that the corrected reading is 1000 scfm ± 100 scfm.

Verified by Test Engineer: _____ Date: _____

7.2.10 Switch the fan "ON/OFF" switch to OFF.

7.2.11 Remove the jumper installed at line 760 (H-2-85591, sht. 5) between wire 10 and 68 (STACK SAMPLE FAILURE).

~~7.2.12 Switch the fan "ON/OFF" switch to ON.~~

~~7.2.13 Push the "PUMP START/STOP" button.~~

~~7.2.14 Adjust the valve on system inlet piping until the "LOW STACK FLOW" ALARM annunciates and lock into position.~~

~~7.2.15 Using a velometer, take a 10 point traverse reading across the stack outlet.~~

~~7.2.16 Record the velometer readings in Table 4.~~

~~Table 4, Stack Transverse Velometer Readings for LOW STACK FLOW~~

~~READING NO.~~	~~POSITION~~	~~VALUE OBTAINED (FPM)~~	~~READING NO.~~	~~POSITION~~	~~VALUE OBTAINED (FPM)~~
~~1~~	~~1/4"~~		~~6~~	~~5 1/4"~~	
~~2~~	~~5/8"~~		~~7~~	~~6 1/4"~~	
~~3~~	~~1 1/8"~~		~~8~~	~~6 7/8"~~	
~~4~~	~~1 3/4"~~		~~9~~	~~7 3/8"~~	
~~5~~	~~2 3/4"~~		~~10~~	~~7 3/4"~~	
	~~subtotal~~			~~subtotal~~	

~~7.2.17 Calculate and record the average velometer reading.~~

~~Average reading: _____ (FPM).~~

~~7.2.18 Convert the velometer reading to cubic feet per minute (cfm), correct for standard air, and record the corrected value.~~

~~Stack flowrate measured: _____ (scfm)~~

~~7.2.19 Verify that the corrected reading is 750 scfm ± 50 scfm.~~

~~Verified by Test Engineer: _____ Date: _____~~

~~7.2.20 Fully open the valve on system inlet piping and lock in position.~~

~~7.2.21 Switch the fan "ON/OFF" switch to OFF.~~

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: _____ Date: _____

ENGINEERING CHANGE NOTICE

Page 1 of 49

1. ECN № 622553

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [] Direct Revision [x] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	J. McClees, 77640, R1-51, 373-4240	TF-94-0330 [] Yes [X] No	August 17, 1995
	5. Project Title/No./Work Order No. SY FARM REPLACEMENT EXHAUSTER	6. Bldg./Sys./Fac. No. 241-SY	7. Approval Designator SQ
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-ATP-080, REV. 0	9. Related ECN No(s). NA	10. Related PO No. NA

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	NA	NA Cog. Engineer Signature & Date	NA Cog. Engineer Signature & Date

12. Description of Change

THIS ECN REVISES THE ACCEPTANCE TEST PROCEDURE (ATP) FOR TESTING THE REPLACEMENT EXHAUSTER PRIOR TO INSTALLATION AT SY TANK FARM.

13a. Justification (mark one)

Criteria Change	[]	Design Improvement	[X]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

13b. Justification Details

THE REPLACEMENT EXHAUSTER DESIGN WAS MODIFIED TO IMPROVE OPERABILITY AND COMPLY WITH REGULATORY REQUIREMENTS.

14. Distribution (include name, MSIN, and no. of copies)

J McClees	R1-51
R W Reed	R1-51
T O Kaiser	T4-07
L S Krogsrud	R3-08
R R True	T4-08
J Langdon	S2-02
J R Kriskovich	S2-24

RELEASE STAMP

OFFICIAL RELEASE BY WHC DATE AUG 22 1995 Sta. # 4

A-7900-013-2 (11/94) GEF095

ENGINEERING CHANGE NOTICE

Page 2 of 46

1. ECN (use no. from pg. 1)
622553

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
NA		

20. Approvals

	Signature	Date		Signature	Date
OPERATIONS AND ENGINEERING			**ARCHITECT-ENGINEER**		
Cog. Eng. J McClees	[signature]	8/17/95	PE		
Cog. Mgr. R W Reed	D. C. Armstrong for R.W. Reed R1-51	8/19/95	QA		
QA ~~R R True~~ T J Volkman	[signature]	8/21/95	Safety		
Safety L S Krogsrud	[signature], for	8/21/95	Design		
Environ.			Environ.		
Other T D Kaiser	T D Kaiser	8/21/95	Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

SUPPORTING DOCUMENT	1. Total Pages 46

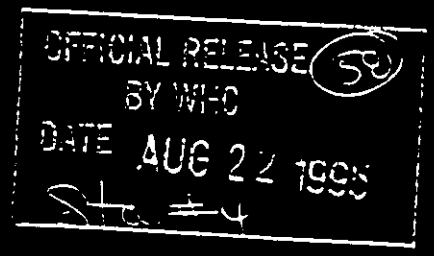
2. Title	3. Number	4. Rev No.
ACCEPTANCE TEST PROCEDURE FOR SY TANK FARM REPLACEMENT EXHAUSTER	WHC-SD-WM-ATP-080	1

5. Key Words	6. Author
SY TANK FARM EXHAUSTER	Name: J. MCCLEES Signature Orgaqization/Charge Code 77640/N2DBB

7. Abstract

THIS ACCEPTANCE TEST PROCEDURE WILL VERIFY THAT THE CONTROLS, ALARMS, INTERLOCKS, AND INTERFACES WITH OTHER SY TANK FARM EQUIPMENT AND REMOTE MONITORIN STATIONS ARE ALL FUNCTIONING CORRECTLY FOR THE SY FARM REPLACEMENT EXHAUSTER UNIT.

8. RELEASE STAMP



RECORD OF REVISION	(1) Document Number WHC-SD-WM-ATP-080	Page 1

(2) Title
ACCEPTANCE TEST PROCEDURE FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
	(7)		
1 RS	This Acceptance Test Procedure (ATP) has been completely revised to accommodate design changes incorporated into the new SY Farm replacement exhauster unit. ECN-622353	J. McClees	R. W. Reed for R.W. Reed

ACCEPTANCE TEST PROCEDURE FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

WHC-SD-WM-ATP-080
REVISION 1

AUGUST 1995

TABLE OF CONTENTS

1.0 PURPOSE/SCOPE

The proper functioning of a new 241-SY Tank Farm replacement exhauster will be acceptance tested, to establish operability and to provide an operational baseline for the equipment.

During this test, a verification of all of the alarm and control circuits associated with the exhauster, which provide operating controls and/or signals to local alarm/annunciator panels, shall be performed. Test signals for sensors that provide alarms, warnings, and/or interlocks will be applied to verify that alarm, warning, and interlock setpoints are correct.

Alarm and warning lights, controls, and local readouts for the exhauster will be verified to be adequate for proper operation of the exhauster.

Testing of this exhauster system shall be conducted in two phases. The scope of this ATP is limited ONLY to the first phase of testing, to verify alarm, warning, and interlock setpoints primarily, and will be performed in the MO-556, Kaiser Fab Shop. The second phase of testing, to verify proper operation and acceptable interface with other tank farm systems, will be conducted per a separate Operational Test Procedure (OTP) after the exhauster and all associated support and monitoring equipment have been installed in the SY Tank Farm.

2.0 REFERENCES

2.1 H-2-85591, "SY Farm K1-1 Exhauster Alarm Annunciator Panel", Sheets 1, 3, 4, 5

2.2 WHC-CM-6-1, Standard Engineering Practices Manual, EP-1.12, "Supporting Documents Requirements"

2.3 WHC-IP-1026, Engineering Practice Guidelines, EPG-1.12, "Supporting Documents"

2.4 WHC-IP-1026, Engineering Practice Guidelines, Appendix K, "Test Plans, Specifications, Procedures, and Reports"

2.5 Vendor Test 93052ATP, Rev. 1, "Acceptance Test Procedure (ATP) for 241-SY Tank Farm Replacement Exhauster Unit Specification WHC-S-0193, Rev. 0"

2.6 Vendor Test AMC W. O. #22445, "Factory Acceptance Test Procedure of Sampling/Monitoring System for 241-SY Tank Farm Replacement Exhauster Stack Westinghouse Hanford Company P. O. No. MDW-XVV-281221"

2.7 Vendor Information, "Sequence of Operation Air Sampling and Monitoring System for the 241-SY Tank Farm Exhauster Stack AMC W. O. No. 22445"

2.8 H-2-85591, "K1A Exhauster Stack Monitor Wiring Diagram", sheets 7, 8.

2.9 Vendor Drawing (Air Monitor Corporation), W22445FA, "Sample Monitoring Controls System Schematic"

2.10 H-2-85593, "General Arrangement Tank Farm Exhauster", Sheets 2, 3, 8.

2.11 Vendor Drawing (Barnebey & Sutcliffe Corp), 24592, "Process & Instrumentation Diagram Exhauster (241-SY Tank Farm)", Sheet 3 of 4, Rev. C

2.12 H-2-85591, "K1A Exhauster Duct Heater Control Cabinet" Sheet 4.

2.13 The provisions of the following manuals apply to all work performed under this procedure:

- WHC-CM-4-3, Industrial Safety Manual, Vols 1-4
- WHC-CM-4-40, Industrial Hygiene Manual
- WHC-CM-1-10, Safety Manual
- HSRCM-1, Hanford Site Radiological Control Manual
- WHC-CM-6-1, Standard Engineering Practices Manual, EP-4.2, Testing Requirements

3.0 RESPONSIBILITIES

The following personnel will be required for the performance of this procedure:

- Test Director: The engineer assigned shift responsibility for performance of the test.

Name (Print)	Signature	Initials
Jim Langdon	Jim Langdon	J.M.L.
Owen Nelson	Owen Nelson	ON

- Test Engineer: The engineer assigned to assist and relieve the Test Director during the performance of the test.

Name (Print)	Signature	Initials
JORGE MCCLEES	JMcL	JML
NA		
NA		

- Support Personnel: Fab Shop or other Craft personnel assigned to support testing activities.

The Test Director shall direct and observe testing activities, and will review, validate, and accept test data. The Test Engineer will perform and direct testing, review, validate and accept test data, as instructed by the Test Director. At least one engineer acting as a Test Director is required to be present at the exhauster skid during testing. One or more support persons could also be required to conduct testing activities.

If, during testing, any indicated parameter or control function is not correct or appears to be malfunctioning, then the engineer conducting this test shall make a determination as to the feasibility of continuing testing. If actual exhauster operation is not occurring, there will be no safety impact to continuing the test and completing corrective actions later. A record of all noted deficiencies will be kept on Attachment 1, "Exception List".

At the completion of all testing, approval of all data collected and exhauster system performance shall be documented on Attachment 3, "Final Procedure Acceptance Sheet".

Test procedure administrative or editorial changes required during testing may be accommodated as exceptions in the released test report, if the changes cannot affect operating facility safety, function, or performance and will not compromise or influence test data (see suggested test procedures/test report content and format guidelines contained in WHC-IP-1026, Appendix K). Recording provisions for handling such changes shall be established in the test procedure.

All other changes to this procedure shall be directly red-lined into this procedure, initialed and dated by the test engineer/director, and documented on the exception list at the back of this procedure.

4.0 DESCRIPTION OF THE SYSTEM

The K1A exhauster has been designed to provide approximately 1000 scfm of ventilation flow rate for SY Tank Farm. It consists of a blower, a stack, a sampling system, and a plenum housing two HEPA filters, a prefilter, a demister, and an electric duct heater. The exhauster system is mounted on a skid and will eventually be located in the SY tank farm, receives input signals from a variety of sensors mounted on the skid and associated equipment. These sensors provide information such as:

- Exhauster system inlet vacuum pressure
- Prefilter and HEPA filter differential pressures
- Exhaust stack sampler status
- Exhaust fan status
- System status (running/shut down)
- Radiation monitoring systems status

The output of these sensors is transmitted to the exhauster annunciator panel where the signals are displayed and monitored for out-of-specification conditions.

This procedure will test the signals transmitted between the exhauster skid, the annunciator panel, and the stack sampling system.

5.0 TEST CONDITIONS

5.1 The provisions of the following manuals apply to all work performed under this procedure:

- WHC-CM-4-3, Industrial Safety Manual, Vols 1-4
- WHC-CM-4-40, Industrial Hygiene Manual
- WHC-CM-1-10, Safety Manual
- HSRCM-1, Hanford Site Radiological Control Manual

5.2 Jumpers and Lifted Leads

In this procedure, there are several occasions when leads are lifted and landed at various terminals. Some of these leads must be energized to perform an adequate test. Required hand and eye protection shall be worn, and insulated tools shall be used, when working on energized circuits (> 150 Vac).

5.3 Unexpected Alarms

If unexpected, non-exhauster, alarms or abnormal indications are received during testing, then exhauster testing shall be immediately suspended and action, as prescribed in approved Building Emergency Plans, shall be taken by Kaiser personnel to place the equipment in a safe, stable condition. When the reason for the unexpected condition is understood and resolved, then exhauster testing activities may be resumed after permission to do so is received from the responsible Kaiser Maintenance Shops Supervisor.

6.0 PREREQUISITES

6.1 Prior to initiation of testing, the following items shall be verified:

6.1.1 The exhauster skid has been received in the MO-566 Fab Shop and assembled, as directed by the Test Director, to conduct testing of alarms and interlocks.

Verified by: Jim Lovejoy 8-23-95
(Test Director) Date

6.1.2 The exhauster skid has been supplied with temporary electrical power, temporary water supply, and a temporary prefilter and HEPA filters. Temporary electrical power must be grounded.

Verified by: Jim Lovejoy 8-23-95
(Test Director) Date

6.1.3 Necessary scaffolding has been erected at the exhauster skid to allow access to the stack sampling enclosure during testing.

Verified by: Jim Fowler 8-23-95
(Test Director) Date

6.1.4 Documented deficiencies (e.g., Non Conformance Reports, NEC inspection noncompliance, etc.) have been corrected and closed.

per verbal from Joe McCles

Verified by: Jim Fowler 8-23-95
(Test Director) Date

6.2 Prior to initiation of testing, the following equipment shall be available for use:

6.2.1 Insulated hand tools normally required for accessing equipment cabinets and terminal boards.

6.2.2 Calibrated velometer, capable of measuring 1100 scfm

6.2.3 Calibrated signal generator, capable of supplying 4 - 20 mA

6.2.4 Voltmeter (calibration not required); Range: 0.00 - 30.00 (nominal) Vdc, 0.00 - 500.00 (nominal) Vac

6.2.5 Calibrated Type J T/C simulator with temperature reading

6.2.6 Type J T/C with approximately 3 feet of T/C wire leads

6.2.7 Vise Grip type pliers (4 pr)

6.2.8 Calibrated probe-type thermometer, 0 - 212 °F, with accuracy to ± 1 °F

6.2.9 Clamp-On ammeter (calibration not required), capable of measuring 0.1 amps.

6.2.10 An air density chart/table for varying atmospheric temperature and pressure.

6.3 Calibration and use information for all Measuring and Test Equipment (M & TE) used during the performance of this procedure shall be recorded on Attachment 2, Measurement and Test Equipment Record Sheet.

6.4 The alarm horns and bell may be temporarily muffled during this test at the test director's discretion.

7.0 ACCEPTANCE TEST

7.0.1 If any discrepancy is noted during testing, then record a description of the condition in Attachment 1.

7.0.1.1 For each discrepancy recorded, enter an identifying number in the "EXCEPTION NUMBER" Column of Attachment 1.

7.0.1.2 Reproduce Attachment 1 as needed, and attach the additional pages to this procedure, to record all discrepancies noted during testing.

7.1 Exhauster Fan Controls Operability Check

7.1.1 Open the fill port cap on the seal pot reservoir.

7.1.2 Using any available source of water and a convenient container or hose, fill the seal pot reservoir through the fill port, to approximately half full.

7.1.3 Replace the fill port cap.

NOTE: There are 7 individual circuit breakers in the 480 Volt (EDS-DP-307) Power Distribution panel located on the exhauster skid. These circuit breakers should be OPEN/OFF prior to closing the power supply to the 480 Volt Power Distribution Panel and close as needed for the exhauster system testing.

7.1.4 Open the 480 Volt Power Distribution Panel (EDS-DP-307) doors and ensure that the 7 circuit breakers inside the panel are OPEN or OFF.

7.1.5 Close the power supply to the 480 Volt Power Distribution Panel (EDS-DP-307).

7.1.6 Close the 5 circuit breakers NOT labeled "SPARE" in the Power Distribution Panel (EDS-DP-307) one at a time, pausing after each breaker is closed, to observe the exhauster skid for unusual conditions.

7.1.7 When all 5 circuit breakers are closed, then close the Power Distribution Panel (EDS-DP-307) doors.

NOTE: When the exhauster motor is "bumped" in Step 7.1.10, the test engineer must be in a position to verify proper direction-of-rotation of the exhauster fan.

7.1.8 Remove plug on fan housing.

7.1.9 Ensure that "FAN NOT RUNNING", "POWER ON", and "SYSTEM SHUTDOWN" lights are lit.

Exception (1) Bypass High Radiation Shutdown wire 22 to 23. Jim 8-23-95

7.1.10 Switch the "FAN ON/OFF" switch to ON then quickly switch back to STOP to "bump" the exhauster fan motor.

7.1.11 Press the "SILENCE" button to silence the horn.

7.1.12 Verify that the direction-of-rotation of the exhauster fan was in the direction of the arrow on the fan housing.

Verified by Test Engineer: Jim Langdon (other corrections were made) Date: 8-23-95

7.1.13 If the exhauster fan motor direction-of-rotation was NOT correct, then stop testing and repeat Steps 7.1.10 through 7.1.12 after corrections have been made.

7.1.14 Press the "ALARM RESET" button to clear the alarm.

7.1.15 Reinstall plug on fan housing.

NOTE: The following step jumpers out the STACK SAMPLE FAILURE alarm so that the following test can be performed without starting the stack sample vacuum pumps.

Exception (2) Jim 8-23-95

7.1.16 Install a jumper at line 760 (H-2-85591) between wire 10 and 68 on TB-3 (STACK SAMPLE FAILURE).

7.1.17 Switch the exhauster "ON/OFF" switch to ON.

NOTE: The shaded sections in Table 1 indicates the INCORRECT light condition for the applicable test.

7.1.18 Verify the indicator light condition on the alarm annunciator panel per table 1 (CHECK 1) and initial the unshaded box in the "CHECK 1" column, for every light displaying the correct condition.

7.1.19 Push and hold the "TEST" button.

7.1.20 Verify the following:

- The fan is ON.
- The alarm horn is sounding.
- The (BLUE) ALARM ACTIVE light is NOT lit.
- The (BLUE) SHUTDOWN ACTIVE light is lit.
- The indicator light condition on the alarm annunciator panel per table 1 (CHECK 2).

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.1.21 Initial the unshaded box in the "CHECK 2" column, for every light displaying the correct condition.

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

Table 1

Light DESCRIPTION	INDICATOR LIGHT	CHECK 1 TEST BUTTON NOT PUSHED		CHECK 2 TEST BUTTON PUSHED	
		LIGHT ON	LIGHT OFF	LIGHT ON	LIGHT OFF
PREFILTER HI ΔP	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L.	
HEPA 1 LO ΔP	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L	
HEPA 1 HI ΔP	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L	
HEPA 1 HI HI ΔP	OK	Jim L		Jim L	
	SHUTDOWN		Jim L	Jim L	
HEPA 2 LO ΔP	OK	Jim L.		Jim L	
	ALARM		Jim L.	Jim L	
HEPA 2 HI ΔP	OK	Jim L.		Jim L	
	ALARM		Jim L.	Jim L	
HEPA 2 HI HI ΔP	OK	Jim L.		Jim L	
	SHUTDOWN		Jim L.	Jim L	
SYSTEM HI ΔP	OK	Jim L		Jim L	
	ALARM		Jim L.	Jim L	
SYSTEM HI HI ΔP	OK	Jim L.		Jim L	
	SHUTDOWN		Jim L.	Jim L	
STACK SAMPLER	OK (AA)	Jim L.		Jim L	
	OK (BD)	Jim L.		Jim L	
	SHUTDOWN		Jim L.	Jim L	
HIGH RADIATION	OK	Jim L		Jim L	
	SHUTDOWN		Jim L	Jim L	
SYSTEM INLET LO VACUUM	OK	Jim L		Jim L	
	ALARM		Jim L.	Jim L.	

Table 1, Continued

Light DESCRIPTION	INDICATOR LIGHT	CHECK 1 TEST BUTTON NOT PUSHED		CHECK 2 TEST BUTTON PUSHED	
		LIGHT ON	LIGHT OFF	LIGHT ON	LIGHT OFF
SYSTEM INLET HI VACUUM	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L	
SYSTEM INLET HI HI VACUUM	OK	Jim L		Jim L	
	SHUTDOWN		Jim L	Jim L	
ALARM ON		✓	Jim L	Jim L	
(4) DUCT HEATER LO ΔT	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L	
(4) DUCT HEATER HI ΔT	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L	
(3) SEAL POT HI LIQUID LEVEL	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L	
SEAL POT LO LIQUID LEVEL	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L.	
(2) LOW STACK FLOW	OK	Jim L		Jim L	
	ALARM		Jim L	Jim L.	

7.1.22 Depress the "TEST" button.

7.1.23 Push the "SILENCE" button to silence the alarm.

7.1.24 Press the "ALARM RESET" push button.

7.1.25 Press the "EMERGENCY STOP" button and verify the following:

- The fan stops.
- All Indicator lights turn off.
- The Dwyer & Watlow (ΔP and ΔT) displays remain running.

Verified by Test Engineer: Jim Langdon Date: Aug. 25, 1995

7.1.26 Pull out the "EMERGENCY STOP" button to restore power to the controls and verify the fan restarts.

Verified by Test Engineer: Jim Langlan Date: 8-25-95

7.1.27 Refer to Table 2 for testing the "FAIL SAFE" feature of the annunciator panel relays.

WARNING

Testing per steps 7.1.28 through 7.1.38 requires access to energized electrical components in an energized control panel. Voltages as high as 480 Vac are present inside the panel. All required safety precautions for work inside energized panels shall be followed and all required personal protective equipment shall be worn during panel access.

NOTE: During "FAIL SAFE" testing of the relays listed in Table 2, relays may be tested in any convenient order, at the direction of the Test Director. The fan starter relay will jumpered so as not to subject the fan to multiple starts.

7.1.28 Install a jumper at line 210 (H-2-85591, sht. 5) across wire 11 and 12 (on the SD relay).

7.1.29 Switch the fan "ON/OFF" switch to ON.

7.1.30 Select a relay listed in the "RELAY DESCRIPTION" column of Table 2.

7.1.31 Carefully remove the relay from the annunciator panel socket and verify:

- The associated GREEN "OK" light remains lit.
- The alarm horn is sounding.
- Verify that the "ALARM ON" light is lit.
- If the expected condition is a system SHUTDOWN, verify that the "SYSTEM SHUTDOWN" light is lit.

7.1.32 Press the alarm "SILENCE" push button.

7.1.33 Reinstall the relay in the annunciator panel socket.

7.1.34 Press the "ALARM RESET" push button.

7.1.35 Verify that the lights lit in Step 7.1.31 are NOT lit, and that the associated GREEN "OK" light is lit.

7.1.36 Initial the "INITIALS" column of Table 2 for each relay that was tested satisfactorily.

7.1.37 Repeat Steps 7.1.30 through 7.1.36 until all relays listed in Table 2 have been tested.

Table 2: Alarm and Shutdown Relays

RELAY DESCRIPTION	EXPECTED CONDITION	INITIALS
LO INLET VACUUM	ALARM ON	Jim L.
HI INLET VACUUM	ALARM ON	Jim L.
HI HI INLET VACUUM .	SYSTEM SHUTDOWN	Jim L.
HI PREFILTER ΔP	ALARM ON	Jim L
LO HEPA #1 ΔP	ALARM ON	Jim L
HI HEPA #1 ΔP	ALARM ON	Jim L.
HI HI HEPA #1 ΔP	SYSTEM SHUTDOWN	Jim L.
LO HEPA #2 ΔP	ALARM ON	Jim L
HI HEPA #2 ΔP	ALARM ON	Jim L.
HI HI HEPA #2 ΔP	SYSTEM SHUTDOWN	Jim L.
HI SYSTEM ΔP	ALARM ON	Jim L.
HI HI SYSTEM ΔP	SYSTEM SHUTDOWN	Jim L.
STACK SAMPLER SYSTEM (failure)	SYSTEM SHUTDOWN	Jim L.
HI RADIATION	SYSTEM SHUTDOWN	Jim L
HI SEAL POT LEVEL	ALARM ON	Jim L
LO SEAL POT LEVEL	ALARM ON	Jim L
STACK FLOW (low)	ALARM ON	Jim L.
HI DUCT HEATER ΔT	ALARM ON	Jim L
LO DUCT HEATER ΔT	ALARM ON	Jim L

7.1.38 Remove the jumper installed per step 7.1.28 at line 210 (H-2-85591, sht. 5) across wire 11 and 12 (on the SD relay).

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-9-95

7.2 Exhauster Unit System Flowrate Check

7.2.1 Switch the fan "ON/OFF" switch to ON.

7.2.2 Adjust valve on system inlet piping until the SYSTEM INLET VACUUM indicator reads approximately 2.5" ± .5" w.g., and lock valve in position.

7.2.3 Measure the ambient temperature and record. Temp.: 76 °F.

7.2.4 Call the weather station at 373-2716, and record the barometric pressure.: 29.376 mm Hg. (760 mm Hg = 14.7 psi = 1 atm = 101 KPa)

7.2.5 Using a velometer, take a 10-point traverse reading across the stack at the probe access port near the stack base.

7.2.6 Record the velometer readings in Table 3.

Table 3, Stack Transverse Velometer Readings

READING NO.	POSITION	VALUE OBTAINED (FPM)	READING NO.	POSITION	VALUE OBTAINED (FPM)
1	1/4"	2626	6	5 1/4"	3102
2	5/8"	3076	7	6 1/4"	3102
3	1 1/8"	3351	8	6 7/8"	3076
4	1 3/4"	3327	9	7 3/8"	2916
5	2 3/4"	3327	10	7 3/4"	2746
	subtotal	15,707		subtotal	14,942

7.2.7 Calculate and record the average velometer reading.

Average reading: 3,064.9 (FPM).

NOTE: 1) $Q = AV$ where: Q = flow rate (cfm)
A = cross-section area
V = air velocity (as measured per 7.2.7)

2) To convert to "scfm", multiply "1)" by:

$p(st)/p(a)$ Where: p(a) = air density at ambient temp.

p(st) = air density at 25 C (77°F)

p(st) and p(a) should be obtained from an Air Density chart or table.

7.2.8 Convert the velometer reading to cubic feet per minute (cfm), correct for standard, and record the corrected value.

Stack flowrate measured: 1069 (scfm)

7.2.9 Verify that the corrected reading is 1000 scfm ± 100 scfm.

Verified by Test Engineer: O. Nelson Date: 9/5/95

7.2.10 Switch the fan "ON/OFF" switch to OFF.

7.2.11 Remove the jumper installed at line 760 (H-2-85591, sht. 5) between wire 10 and 68 (STACK SAMPLE FAILURE).

– See exception #5 –
9-5-95
JmL

7.2.12 Switch the fan "ON/OFF" switch to ON.

7.2.13 Push the "PUMP START/STOP" button.

7.2.14 Adjust the valve on system inlet piping until the "LOW STACK FLOW" ALARM annunciates and lock into position.

7.2.15 Using a velometer, take a 10-point traverse reading across the stack outlet.

7.2.16 Record the velometer readings in Table 4.

Table 4, Stack Transverse Velometer Readings for LOW STACK FLOW

READING NO.	POSITION	VALUE OBTAINED (FPM)	READING NO.	POSITION	VALUE OBTAINED (FPM)
1	1/4"		6	5 1/4"	
2	5/8"		7	6 1/4"	
3	1 1/8"		8	6 7/8"	
4	1 3/4"		9	7 3/8"	
5	2 3/4"		10	7 3/4"	
	subtotal			subtotal	

7.2.17 Calculate and record the average velometer reading.

Average reading: _____ (FPM).

7.2.18 Convert the velometer reading to cubic feet per minute (cfm), correct for standard air, and record the corrected value.

Stack flowrate measured: _____ (scfm)

7.2.19 Verify that the corrected reading is 750 scfm ± 50 scfm.

Verified by Test Engineer: _____ Date: _____

7.2.20 Fully open the valve on system inlet piping and lock in position.

7.2.21 Switch the fan "ON/OFF" switch to OFF. JmL 9-5-95

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-5-95

7.3 Exhauster Unit System Inlet HI VACUUM ALARM, HI HI VAC SHUTDOWN, and LO VAC ALARM Checks

NOTE: The System Inlet HI VACUUM ALARM setpoint is 4.5" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

Note: The ATP does not call for reading the calibrated source but it was also compared as in step 7.3.6, Typical for section 7.

(7) Jim L 9-29-95 Minor Editorial Changes

7.3.1 Connect a calibrated pressure source to the System Inlet Ashcroft ΔP23 transmitter calibration port and set the pressure source at 2.5" w.g. ± .5" w.g.

7.3.2 Switch the fan "ON/OFF" switch to ON.

See exception 6.7.7 Alarm Reset 8-25-95 Jim L

7.3.3 Push the ~~"PUMP START/STOP"~~ button.

7.3.4 Slowly adjust the pressure source until the System Inlet HI VACUUM ALARM is actuated.

7.3.5 Record the SYSTEM INLET VACUUM reading when the alarm actuates.
Reading: 4.52 " w.g.

7.3.6 Verify that the reading is 4.5" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-25-95

7.3.7 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.8 Press the alarm "SILENCE" push button.

7.3.9 Verify the following:

- (RED) System Inlet HI VACUUM ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) System Inlet HI VACUUM OK light is NOT lit.
- (GREEN) System Inlet HI HI VAC OK light is lit.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.10 Slowly adjust the pressure source until the SYSTEM INLET VACUUM indicator reads approximately 2.5" w.g. ± .5" w.g.

7.3.11 Verify the following (RED) ALARM ON light is lit.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.12 Press the "ALARM RESET" button.

7.3.13 Verify the following (RED) ALARM ON light is NOT lit.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

NOTE: The System Inlet HI HI VAC SHUTDOWN setpoint is 5.9" w.g. ± .1" w.g.). Readings are taken at the applicable Dwyer digital indicator.

7.3.14 Slowly adjust the pressure source until the System Inlet HI HI VACUUM SHUTDOWN is actuated.

7.3.15 Record the SYSTEM INLET VACUUM reading when the shutdown is initiated. Reading: 5.90 " w.g.

7.3.16 Verify that the reading is 5.9" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.17 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8 29-95

Note: horn on at 4.50 " water (see exception 7 on 9/26/95)

7.3.18 Press the alarm "SILENCE" push button.

7.3.19 Verify the following:

- The fan has stopped.
- The (GREEN) System Inlet HI HI VAC OK light is NOT lit.
- The (YELLOW) SYSTEM SHUTDOWN light is lit.
- The (YELLOW) System Inlet HI HI VAC SHUTDOWN light is lit.
- The (RED) ALARM ON light is lit.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.20 Slowly adjust the pressure source until the SYSTEM INLET VACUUM indicator reads approximately 2.5" w.g. ± .5" w.g.

7.3.21 Press the "ALARM RESET" push button.

7.3.22 Verify the following:

- The (YELLOW) SYSTEM SHUTDOWN light is NOT lit.
- The (GREEN) System Inlet HI HI VAC OK light is lit.
- The (RED) System Inlet HI VACUUM ALARM light is NOT lit.
- The (YELLOW) System Inlet HI HI VAC SHUTDOWN light is NOT lit.
- The (RED) ALARM ON light is NOT lit.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

NOTE: The System Inlet LO VACUUM ALARM setpoint is 0.25" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.3.23 Switch the fan "ON/OFF" switch to ON.

see exception for Alarm Reset 8.25.95 JimL

7.3.24 Push the ~~"PUMP START/STOP"~~ button.

7.3.25 Slowly adjust the pressure source until the System Inlet LO VACUUM ALARM actuates.

7.3.26 Record the SYSTEM INLET VACUUM reading when the alarm is actuated.
Reading: .25 " w.g.

7.3.27 Verify that the reading is 0.25" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.28 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.29 Press the alarm "SILENCE" push button.

7.3.30 Verify the following:

- (RED) System Inlet LO VACUUM ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) System Inlet LO VACUUM OK light is NOT lit.
- The exhauster fan is still running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.31 Slowly adjust the pressure source until the SYSTEM INLET VACUUM indicator reads 2.5" w.g. ± .5" w.g.

7.3.32 Verify that the (RED) ALARM ON light is lit.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.33 Press the "ALARM RESET" push button and verify the following:

- (RED) System Inlet LO VACUUM ALARM light is NOT lit.
- (RED) ALARM ON light is NOT lit.
- (GREEN) System Inlet LO VACUUM OK light is lit.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.3.34 Switch the fan "ON/OFF" switch to OFF.

7.3.35 Disconnect the pressure source installed per step 7.3.1 and return Ashcroft transmitter to its original configuration.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 8-29-95

7.4 Prefilter HIGH ΔP ALARM Check

7.4.1 Connect a calibrated pressure source to the PREFILTER Ashcroft ΔP transmitter calibration port and set the pressure source at .5" w.g. ± .5" w.g.

7.4.2 Switch the fan "ON/OFF" switch to ON.

7.4.3 Push the ~~"PUMP START/STOP" button~~. Alarm Reset 8-29-95 Jim L
See exception 6 & 7 9-26-95

NOTE: The PREFILTER HI ΔP ALARM setpoint is 1.5" w.g. ± .1" w.g. Readings are taken at the applicable Dywer indicator.

7.4.4 Slowly adjust the pressure source until the PREFILTER HI ΔP ALARM is actuated.

7.4.5 Record the PREFILTER ΔP reading when the alarm is actuated.
Reading: 1.50 " w.g.

7.4.6 Verify that the reading is 1.5" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.4.7 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.4.8 Press the alarm "SILENCE" push button.

7.4.9 Verify the following:

- (RED) PREFILTER HI ΔP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) PREFILTER HI ΔP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.4.10 Switch the fan "ON/OFF" switch to OFF.

7.4.11 Disconnect the calibrated pressure source installed per 7.4.1 and restore the the PREFILTER ΔP Ashcroft transmitter to its original configuration.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 8-29-95

7.5 **HEPA 1 LO ΔP ALARM, HI ΔP ALARM, and HI HI ΔP SHUTDOWN Checks**

7.5.1 Connect a calibrated pressure source to the HEPA 1 Ashcroft ΔP transmitter calibration port and set the pressure source at 2.5" w.g. ± .5" w.g.

7.5.2 Press the "ALARM RESET" button.

7.5.3 Switch the fan "ON/OFF" switch to ON.

Alarm Reset 8-29-95 Jim

7.5.4 Push the "~~PUMP START/STOP~~" button. See exception 7 9/26/95

NOTE: The HEPA 1 LO ΔP ALARM setpoint is 0.3" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.5.5 Slowly adjust the pressure source until the HEPA 1 LO ΔP ALARM actuates.

7.5.6 Record the HEPA 1 ΔP reading when the alarm is actuated. Reading: .30 " w.g.

7.5.7 Verify that the reading is 0.3" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.5.8 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.5.9 Press the alarm "SILENCE" push button.

7.5.10 Verify the following:

- (RED) HEPA 1 LO ΔP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) HEPA 1 LO ΔP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

(7) Minor Editorial Changes

7.5.11 Slowly adjust the ~~signal generator~~ Pressure Source Jim L. 9-27-95 output until the HEPA 1 ΔP indicator reads 2.0" w.g. ± .5" w.g.

7.5.12 Press the "ALARM RESET" push button.

NOTE: The HEPA 1 HI ΔP ALARM setpoint is 4.0" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.5.13 Slowly adjust the pressure source until the HEPA 1 HI ΔP ALARM actuates.

7.5.14 Record the HEPA 1 ΔP reading when the alarm is actuated. Reading: 4.03 " w.g.

7.5.15 Verify that the reading is 4.0" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.5.16 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.5.17 Press the alarm "SILENCE" push button.

7.5.18 Verify the following:

- (RED) HEPA 1 HI ΔP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) HEPA 1 HI ΔP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.5.19 Slowly adjust the pressure source until the HEPA 1 ΔP indicator reads 2.0" w.g. ± .5" w.g.

7.5.20 Press the "ALARM RESET" push button.

NOTE: The HEPA 1 HI HI ΔP SHUTDOWN setpoint is 4.5" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.5.21 Slowly adjust the pressure source until the HEPA 1 HI HI ΔP shutdown is initiated.

7.5.22 Record the HEPA 1 ΔP reading when the shutdown is initiated. Reading: 4.50 " w.g.

7.5.23 Verify that the reading is 4.5" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-28-95

7.5.24 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-28-95

Note: Alarm sounded at 4.6" (See exception 7 of 9/26/95)

7.5.25 Press the alarm "SILENCE" push button.

7.5.26 Verify the following:

- (RED) ALARM ON light is lit.
- (YELLOW) HEPA 1 HI HI ΔP SHUTDOWN light is lit.
- (GREEN) HEPA 1 HI HI ΔP OK light is NOT lit.
- (YELLOW) SYSTEM SHUTDOWN light is lit.
- The exhauster fan is NOT running.

Verified by Test Engineer: Jim Langdon Date: 8-28-95

Turn Fan to off J.M.L. 8-29-95 (See exception 7 9/26/95)

7.5.27 Press the "ALARM RESET" push button.

7.5.28 Disconnect the calibrated pressure source installed per step 7.5.1 and restore the HEPA 1 ΔP Ashcroft transmitter to its original configuration.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 8-29-95

7.6 HEPA 2 LO ΔP ALARM, HI ΔP ALARM, and HI HI ΔP SHUTDOWN Checks

7.6.1 Connect a calibrated pressure source to the HEPA 2 Ashcroft ΔP transmitter calibration port and set the pressure source at 2.5" w.g. ± .5" w.g.

7.6.2 Press the "ALARM RESET" button.

7.6.3 Switch the fan "ON/OFF" switch to ON.

7.6.4 ~~Push the "PUMP START/STOP" button.~~ 8-29-95 (See exception 7 9/26/95) JML

NOTE: The HEPA 2 LO ΔP ALARM setpoint is 0.3" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.6.5 Slowly adjust the pressure source until the HEPA 2 LO ΔP ALARM actuates.

7.6.6 Record the HEPA 2 ΔP reading when the alarm is actuated. Reading: .28 " w.g.

7.6.7 Verify that the reading is 0.3" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.6.8 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.6.9 Press the alarm "SILENCE" push button.

7.6.10 Verify the following:

- (RED) HEPA 2 LO ΔP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) HEPA 2 LO ΔP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.6.11 Slowly adjust the signal generator output until the HEPA 2 ΔP indicator reads 2.0" w.g. ± .5" w.g.

7.6.12 Press the "ALARM RESET" push button.

NOTE: The HEPA 2 HI ΔP ALARM setpoint is 4.0" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.6.13 Slowly adjust the pressure source until the HEPA 2 HI ΔP ALARM actuates.

7.6.14 Record the HEPA 2 ΔP reading when the alarm is actuated. Reading: 4.01 " w.g.

7.6.15 Verify that the reading is 4.0" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.6.16 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.6.17 Press the alarm "SILENCE" push button.

7.6.18 Verify the following:

- (RED) HEPA 2 HI ΔP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) HEPA 2 HI ΔP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 8-28-95

7.6.19 Slowly adjust the pressure source until the HEPA 2 ΔP indicator reads 2.0" w.g. ± .5" w.g.

7.6.20 Press the "ALARM RESET" push button.

NOTE: The HEPA 2 HI HI ΔP SHUTDOWN setpoint is 4.5" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.6.21 Slowly adjust the pressure source until the HEPA 2 HI HI ΔP shutdown is initiated.

7.6.22 Record the HEPA 2 ΔP reading when the shutdown is initiated.
Reading: 4.50 " w.g.

7.6.23 Verify that the reading is 4.5" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-28-95

7.6.24 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

Note: Alarm sounded at 4.00 (see exception 7 TR 9/26/95)

7.6.25 Press the alarm "SILENCE" push button.

7.6.26 Verify the following:

- (RED) ALARM ON light is lit.
- (YELLOW) HEPA 2 HI HI ΔP SHUTDOWN light is lit.
- (GREEN) HEPA 2 HI HI ΔP OK light is NOT lit.
- (YELLOW) SYSTEM SHUTDOWN light is lit.
- The exhauster fan is NOT running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

Turn Fan to off Jim L. 8-29-95 (see exception 7 9/26/95 TR)

7.6.27 Press the "ALARM RESET" push button.

7.6.28 Disconnect the calibrated pressure source installed per step 7.6.1 and restore the HEPA 2 ΔP Ashcroft transmitter to its original configuration.

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 8-29-95

7.7 SYSTEM HI ΔP ALARM and HI HI ΔP SHUTDOWN Checks

7.7.1 Connect a calibrated pressure source to the SYSTEM Ashcroft ΔP transmitter calibration port and set the pressure source at 2.5" w.g. ± .5" w.g.

7.7.2 Press the "ALARM RESET" button.

7.7.3 Switch the fan "ON/OFF" switch to ON.

7.7.4 ~~Push the "PUMP START/STOP" button.~~ 8-29-95 JimL (See exception 7 ER 9/26/95)

NOTE: The SYSTEM HI ΔP ALARM setpoint is 4.5" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.7.5 Slowly adjust the pressure source until the SYSTEM HI ΔP ALARM actuates.

7.7.6 Record the SYSTEM ΔP reading when the alarm is actuated. Reading: 4.51 " w.g.

7.7.7 Verify that the reading is 4.5" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.7.8 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.7.9 Press the alarm "SILENCE" push button.

7.7.10 Verify the following:

- (RED) SYSTEM HI ΔP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) SYSTEM HI ΔP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.7.11 Slowly adjust the pressure source until the SYSTEM ΔP indicator reads 2.0" w.g. ± .5" w.g.

7.7.12 Press the "ALARM RESET" push button.

NOTE: The SYSTEM HI HI ΔP SHUTDOWN setpoint is 5.9" w.g. ± .1" w.g. Readings are taken at the applicable Dwyer digital indicator.

7.7.13 Slowly adjust the pressure source until the SYSTEM HI HI ΔP shutdown is initiated.

7.7.14 Record the SYSTEM ΔP reading when the shutdown is initiated.
Reading: 5.91 " w.g.

7.7.15 Verify that the reading is 5.9" w.g. ± .1" w.g.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.7.16 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 8-29-95
Note: Alarm went off at 4.5 (See exception 7 9/26/95 JF)

7.7.17 Press the alarm "SILENCE" push button.

7.7.18 Verify the following:

- (RED) ALARM ON light is lit.
- (YELLOW) SYSTEM HI HI ΔP SHUTDOWN light is lit.
- (GREEN) SYSTEM HI HI ΔP OK light is NOT lit.
- (YELLOW) SYSTEM SHUTDOWN light is lit.
- The exhauster fan is NOT running.

Verified by Test Engineer: Jim Langdon Date: 8-29-95

7.7.19 Press the "ALARM RESET" push button. turn the Fan to OFF Jim L. 8-29-95 (See exception 7 JF 9/26/95)

7.7.20 Disconnect the calibrated pressure source installed per step 7.7.1 and restore the SYSTEM ΔP Ashcroft transmitter to its original configuration.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 8-29-95

7.8 Exhauster Unit Mist Eliminator Spray-Down System and Seal Pot Hi and Lo Liquid Level Alarm Checks

NOTE: The following tests are performed without starting the exhauster fan.

7.8.1 Close the main water supply valve (V-3103B).

7.8.2 Ensure Seal Pot valve alignment as follows:

- Valve V-3183 Closed High Level
- Valve V-3184 Closed Low Level
- Valve V-3185 Open Drain

7.8.3 Connect water to water supply connection on exhauster.

7.8.4 Close both the upstream and downstream Mist Eliminator water supply valves (V-3105A and V-3105B).

7.8.5 Open the main water supply valve (V-3103B).

7.8.6 Open the Mist Eliminator upstream water supply valve (V-3105A).

7.8.7 Verify that water is flowing from the drain line and that the pressure gauge (PI-3101) indicates water pressure.

Verified by Test Engineer: Jim Langdon Date: 8-30-95

7.8.8 Close the Mist Eliminator upstream water supply valve (V-3105A) and open the downstream water supply valve (V-3105B).

7.8.9 Verify that water is flowing from the drain line and that the pressure gauge (PI-3102) indicates water pressure.

Verified by Test Engineer: Jim Langdon Date: 8-30-95

7.8.10 Open the Mist Eliminator upstream water supply valve (V-3105A).

7.8.11 Verify that an increased amount of water is flowing from the drain line.

Verified by Test Engineer: Jim Langdon Date: 8 30 95

7.8.12 Close the Seal Pot drain line valve (V-3185).

7.8.13 When the SEAL POT HI LIQUID LVL ALARM actuates, quickly close the main water supply valve.

Exception # 8

7.8.14 ~~Verify that the horn is sounding~~. Horn will not sound without the fan running. JWL 9-8-95

Verified by Test Engineer: Jim Langdon Date: 9-8-95

7.8.15 Press the alarm "SILENCE" push button.

7.8.16 Verify the following:

- (GREEN) SEAL POT HI LIQUID LVL OK light is NOT lit.
- The (RED) SEAL POT HI LIQUID LVL ALARM light is lit.
- The (RED) ALARM ON light is lit.

Verified by Test Engineer: Jim Langdon Date: 9-8-95

7.8.17 Open the seal pot overflow line valve (V-3183) and verify that water begins to flow from the overflow drain line.

7.8.18 Press the "ALARM RESET" push button.

7.8.19 Verify the following:

- (RED) SEAL POT HI LIQUID LVL ALARM light is NOT lit.
- The (RED) ALARM ON light is lit.
- The (GREEN) SEAL POT HI LIQUID LVL OK light is lit.

Verified by Test Engineer: Jim Langdon Date: 9-8-95

7.8.20 Open valve (V-3185) to drain water from the seal pot reservoir.

7.8.21 Verify that the horn is sounding.

(8)

Verified by Test Engineer: Alarm will not sound without the fan running. Jim L 9-8-95 Date: _____

7.8.22 Press the alarm "SILENCE" push button.

7.8.23 Verify the following:

- (GREEN) SEAL POT LO LIQUID LVL OK light is NOT lit.
- (RED) SEAL POT LO LIQUID LVL ALARM light is lit.
- (RED) ALARM ON light is lit.

Verified by Test Engineer: Jim Langdon Date: 8-30-95

7.8.24 Close Seal Pot drain valve (V-3185).

7.8.25 Open main supply valve to fill the Seal Pot approximately half full.

7.8.26 Press the "ALARM RESET" push button.

7.8.27 Verify the following:

- The (RED) SEAL POT LO LIQUID LVL ALARM light is NOT lit.
- The (RED) ALARM ON light is NOT lit.
- The (GREEN) SEAL POT LO LIQUID LVL OK light is lit.

Verified by Test Engineer: Jim Langdon Date: 8-30-95

7.8.28 Open valve (V-3185) to drain water from the seal pot reservoir.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-8-95

7.9 Exhaustor Unit Heat Tracing System Checks

7.9.1 Record the initial setpoint value for the heat tracing system thermostat: 44 °F.

7.9.2 Adjust the thermostat to at least 5°F over ambient temperature.

7.9.3 Methodically place a clamp-on ammeter on every accessible heat traced ~~drain line~~ and and verify that current is flowing through the heat tracing Jim L 8-31-95 see exception 7 TR 9/26/95

Verified by Test Engineer: Jim Langdon Date: 8-31-95

Note: only found indications on 2 out of 4 available, readings very low (temp > 85°F)

7.9.4 Record any exceptions on attachment 1. total was ≈ 5 Amps Jim L 8-31-95 See exception 8 TR 9/26/95

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Reset thermostat to 44 of Jim L. 8-31-95 See exception 7 TR 9/26/95

Test Director: Jim Langdon Date: 8-31-95

7.10 Exhaustor Unit Duct Heat System Checks

NOTE: The following tests TC1 and TC2. The heater cycles on and off with a 4 second period. The voltmeter reading will also be cycling up and down.

7.10.1 Connect a voltmeter in parallel with the wire between Fuse 1 and SCR terminal L1.

Exception 9

Note: the Stack Monitoring Cabenet is not available durring this test (section 7.10) due to wiring tracing for as-building the drawings. The High Radition, Stack Monitor Failure, and Low Stack Flow Alarms/Shutdowns will be bypassed. This will not impact any step in this section. Jim L 9-8-95 See exception 7 TR 9/26/95

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

7.10.2 Verify that the heater is not working by observing approximately ~~480~~ volts on the voltmeter. see exception 7 of 9/26/95 268V J.m.L. 9-9-95

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.3 Switch the fan "ON/OFF" switch to ON.

7.10.4 ~~Push the "PUMP START/STOP" button.~~ Jim L 9-9-95 See note exception 7 of 9/26/95

7.10.5 Verify that the heater is working by observing approximately zero volts on the voltmeter. 3 volts

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.6 Switch the fan "ON/OFF" switch to OFF.

7.10.7 Disconnect T/C wires to terminals C3 and C4.

7.10.8 Connect a Type J T/C simulator to terminals C3 and C4.

Jim L 9-22-95 see exception 7 of 9/26/95

NOTE: Heater Overtemperature TC2 ~~alarm~~ Controller setpoint is 160 °F ± 20 °F), raising.

7.10.9 Set T/C simulator to simulate 120 °F ± 20 °F.

7.10.10 Switch the fan "ON/OFF" switch to ON.

~~7.10.11 Push the "PUMP START/STOP" button.~~ 9-9-95 Jim L see exception 7 of 9/26/95

7.10.12 Slowly raise simulator output from approximately 120 °F ± 20 °F, observing voltmeter. see exception 7 of 9/26/95

(12) 7.10.13 Record simulated temperature when the HEATER OVERTEMP ALARM actuates, as observed on the voltmeter. Temperature: ~~130~~ 154 °F Controller Jim L. 9-9-95

Note: Setting had to be readjusted.

7.10.14 Verify the temperature recorded is 160 °F ± 20 °F.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.15 Switch the fan "ON/OFF" switch to OFF.

7.10.16 Remove simulator installed per step 7.10.8 and reconnect T/C wires.

7.10.17 Disconnect T/C wires to terminals C1 and C2.

7.10.18 Connect a Type J T/C simulator to terminals C1 and C2.

NOTE: Heater Overtemp Shutdown TC1 setpoint is 190 °F ± 20 °F, raising.

7.10.19 Set T/C simulator to simulate 150 °F ± 20 °F.

7.10.20 Switch the fan "ON/OFF" switch to ON.

~~7.10.21 Push the "PUMP START/STOP" button.~~ 9-9-95 Jim L See exception 7 on 9/26/95

7.10.22 Slowly raise simulator output from approximately 150 °F ± 20 °F, observing voltmeter.

7.10.23 Record simulated temperature when the heater stops working, as observed on the voltmeter. Temperature: 190 °F

7.10.24 Verify the temperature recorded is 190 °F ± 20 °F.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.25 Set T/C simulator to simulate 150 °F ± 20 °F.

7.10.26 Press the HEATER RESET push button in the heater control cabinet.

7.10.27 Verify the heater is working.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.28 Switch the fan "ON/OFF" switch to OFF.

7.10.29 Remove simulator installed per step 7.10.18 and reconnect T/C wires.

7.10.30 Remove voltmeter installed per step 7.10.1.

7.10.31 Disconnect the T/C wires T/C terminal board, terminals C5, C6, C7, and C8.

7.10.32 Connect a Type J T/C simulator to terminals C5 and C6 and set the simulator to simulate 110 °F ± 5 °F.

7.10.33 Connect a second Type J T/C simulator to terminals C7 and C8 and set the simulator to simulate 100 °F ± 5 °F.

NOTE: The HI DUCT ΔT ALARM setpoint is 25 °F ± 5 °F.

7.10.34 Switch the fan "ON/OFF" switch to ON.

7.10.35 ~~Push the "PUMP START/STOP" button.~~ Push Reset Button Jim L. 9-9-95 See exception 7 on 9/26/95

7.10.36 Adjust T/C simulator (of terminals C5 and C6) until the HI DUCT ΔT ALARM actuates.

7.10.37 Record the difference between the two T/C simulators when the alarm is actuated. DUCT ΔT Reading: 25°F °F.

7.10.38 Verify that the reading is 25 °F ± 5 °F.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.39 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.40 Press the alarm "SILENCE" push button.

7.10.41 Verify the following:

- (RED) DUCT HEATER HI TEMP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) DUCT HEATER HI TEMP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.42 Set the T/C simulator (on terminals C5 and C6) to simulate 110 °F ± 5 °F.

7.10.43 Press the "ALARM RESET" push button.

NOTE: The LO DUCT ΔT ALARM setpoint is 15 °F ± 5 °F.

7.10.44 Adjust T/C simulator (of terminals C5 and C6) until the LO DUCT ΔT ALARM actuates.

7.10.45 Record the difference between the two T/C simulators when the alarm is actuated. DUCT ΔT Reading: 10 °F.

7.10.46 Verify that the reading is 15 °F ± 5 °F.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.47 Verify that the horn is sounding at the annunciator panel.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.48 Press the alarm "SILENCE" push button.

7.10.49 Verify the following:

- (RED) DUCT HEATER LO TEMP ALARM light is lit.
- (RED) ALARM ON light is lit.
- (GREEN) DUCT HEATER LO TEMP OK light is NOT lit.
- The fan is still running.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.10.50 Switch the fan "ON/OFF" switch to OFF.

7.10.51 Disconnect the Type J T/C simulators installed per steps 7.10.32 and 7.10.33 and reconnect T/C terminal C5, C6, C7, and C8.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-9-95

7.11 Sample Vacuum Pumps Operability Check

7.11.1 Install a jumper at line 39 (H-2-85591, sht. 7), across TB1-12 and TB1-13, to simulate Exhuaster Fan ON.

7.11.2 Ensure that "PUMP 1 ON LEAD" light is lit.

7.11.3 Press the "PUMP START/STOP" button to start PUMP #1.

7.11.4 Verify the following:

- (GREEN) "POWER ON" light is lit.
- (GREEN) "PUMP 1 ON" light is lit.
- (GREEN) "PUMP 1 ON LEAD" light is lit.
- (GREEN) "PUMP 2 ON" light is NOT lit.
- (RED) "COMMON FAULT ALARM" is NOT lit.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.5 Verify that PUMP #1 stays ON.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.6 Press the "PUMP SWAP" button.

7.11.7 Verify that PUMP #1 stops and PUMP #2 automatically starts.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.8 Verify the following:

- (GREEN) "POWER ON" light is lit.
- (GREEN) "PUMP 2 ON" light is lit.
- (GREEN) "PUMP 1 ON LEAD" light is not lit.
- (GREEN) "PUMP 1 ON" light is NOT lit.
- (RED) "COMMON FAULT ALARM" is NOT lit.

Jim 8-31-95 See exception 7 OK 9/26/95 (we switched them in step 7.11.6)

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.9 Verify that PUMP #2 stays ON.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.10 Press the "PUMP SWAP" button.

7.11.11 Verify that PUMP #2 stops and PUMP #1 automatically starts.

Verified by Test Engineer: Jim Langdon Date: _____

7.11.12 Verify the following:

- (GREEN) "POWER ON" light is lit.
- (GREEN) "PUMP 1 ON" light is lit.
- (GREEN) "PUMP 1 ON LEAD" light is lit.
- (GREEN) "PUMP 2 ON" light is NOT lit.
- (RED) "COMMON FAULT ALARM" is NOT lit.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.13 Verify that PUMP #1 stays ON.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.14 Press the "PUMP START/STOP" button to stop "PUMP #1".

7.11.15 Verify that "PUMP #1" stops.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.16 Replace the pressure signal from PUMP 1 to PS-1 with a test pressure source and calibrated gage.

7.11.17 Set the pressure source to 5.0 ± 0.5 psig.

7.11.18 Press the "PUMP START/STOP" button to start PUMP #1.

NOTE: Record the pressure at which PUMP #1 turns OFF.

7.11.19 Slowly DECREASE the pressure source until PUMP #1 stops.

7.11.20 Verify that PUMP #2 automatically starts.

Verified by Test Engineer: Jim Langdon Date: 8-31-95

7.11.21 RECORD the pressure at ~~with~~ which power is automatically switched from PUMP #1 to PUMP #2: .46 psig. See exception 7 CR 9/26/95

.463 - .465 on 3 tries

.499 - .500 close on 3 tries

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

7.11.22 Verify that the pressure recorded is 0.5 ± 0.2 psig.

Verified by Test Engineer: Jim Langdon Date: 9-1-95

7.11.23 Press the "PUMP START/STOP" button to stop PUMP #2.

7.11.24 Remove the calibrated pressure source and restore PS-1 to its original configuration.

7.11.25 Replace the pressure signal from PUMP 1 to PS-2 with a test pressure source and calibrated gage.

7.11.26 Set the pressure source to 5.0 ± 0.5 psig.

~~7.11.27 Ensure that "PUMP 1 ON LEAD" light is lit.~~

~~7.11.28 Press the "PUMP START/STOP" button to start PUMP #1.~~

~~7.11.29 Press the "PUMP SWAP" button to start PUMP #2.~~

all ready on pump 2 JimL 9-1-95 see exception

NOTE: Be sure to record the pressure at which PUMP #2 turns OFF.

7.11.30 Slowly DECREASE the pressure source until PUMP #2 stops.

7.11.31 Verify that PUMP #1 automatically starts.

Verified by Test Engineer: Jim Langdon Date: 9-1-95

7.11.32 RECORD the pressure at with power is automatically switched from PUMP #2 to PUMP #1: .36 psig.

7.11.33 Verify that the pressure recorded is 0.5 ± 0.2 psig.

Verified by Test Engineer: Jim Langdon Date: 9-1-95

7.11.34 Press the "PUMP START/STOP" button to stop PUMP #1.

7.11.35 Remove the calibrated pressure source and restore PS-2 to its original configuration.

7.11.36 Remove the jumper on line 39 (H-2-85591, sht. 7), installed per step 7.11.1.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-1-95

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

7.12 Exhauster Fan Status Shutdown Check

7.12.1 Press the "ALARM RESET" push button.

7.12.2 Ensure "PUMP 1 ON LEAD" light is lit.

7.12.3 Turn the exhauster FAN switch to "ON".

7.12.4 Press the "PUMP START/STOP" button to start PUMP #1.

7.12.5 Press the "EMERGENCY STOP" button.

7.12.6 Verify that PUMP #1 STOPS.

Verified by Test Engineer: Jim Langdon Date: 9-1-95

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-1-95

7.13 Stack Sampler (Beta Monitor) Failure Shutdown Check

NOTE: This section also tests the Beta monitor deenergizing relay.

Exception 10

~~Note: Line 111 has only [illegible]~~

7.13.1 ~~Install a line switch (Closed Circuit) at line 111 (H-2-85591, sht. 8) of the FT-4 Terminal Board. (BETA Monitor)~~
Fail the monitor by closing the Beta Flow Controller Isolation valve

7.13.2 Turn the exhauster FAN switch to "ON". JimL 9-12-95

7.13.3 ~~Press the "PUMP START/STOP" button to start PUMP #1.~~ Automatically starts
Push the reset button JimL 9-12-95

7.13.4 Open the circuit of line 111 per switch of step 7.13.1.

7.13.5 Verify the following

- The audible HORN is sounding at the exhauster alarm panel.
- The audible HORN is sounding at the Air Monitor cabinet.
- The AMBER BEACON on the Air Monitor cabinet is lit.
- The Beta Monitor has been deenergized.

Verified by Test Engineer: Jim Langdon Date: 9-12-95

7.13.6 Press the alarm "SILENCE" push button on the exhauster alarm panel.

7.13.7 Press the "HORN ALARM ACKNOWLEDGE" on the Air Monitor cabinet to silence the alarm.

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

7.13.8 Verify the following:

(At the Exhauster)

- The fan has stopped.
- (GREEN) Stack Sampler OK (both) lights are NOT lit. No
- (YELLOW) Stack Sampler SHUTDOWN light is lit. No
- (YELLOW) System SHUTDOWN light is lit.
- (RED) ALARM ON light is lit.

5 both clears to OK mode when everything shut down. Jim L 9-12-95 See exception 10 OR 9/26/95

(At the Air Monitor cabinet)

- The audible HORN has silenced.
- The sample pumps have stopped.
- ~~(GREEN) POWER ON light is NOT lit.~~ No only power affects this. Jim L 9-12-95
- (GREEN) PUMP 1 ON light light is NOT lit. Yes
- (GREEN) PUMP 2 ON light light is NOT lit. Yes
- (RED) COMMON FAULT Alarm light is lit. No: not programmed to be on See exception 10 OR 9/26/95

Verified by Test Engineer: Jim Langdon Date: 9-12-95

7.13.9 Close the jumper switch of step 7.13.1.

"Alarm Acknowledge" on the Data Logger Jim L 9-12-95 See exception 7 OR 9/26/95

7.13.10 Depress the "~~HORN ALARM ACKNOWLEDGE~~" button and verify:

- (GREEN) Stack Sampler OK (both) lights are NOT lit. No2 Now No2 Latching
- (YELLOW) Stack Sampler SHUTDOWN light is lit.
- (YELLOW) System SHUTDOWN light is lit.
- (RED) ALARM ON light is lit.
- The HORN on the Air Monitor cabinet is silent

Jim L 9-12-95 See exception 10 OR 9/26/95

Verified by Test Engineer: Jim Langdon Date: 9-12-95

Turn Data Logger off then on Jim L 9-12-95 See exception 7 OR 9/26/95

7.13.11 Press the "ALARM RESET" button on the exhauster.

7.13.12 Turn the exhauster FAN switch to "ON".

Pumps automatically start Jim L 9-12-95 See exception 7 OR 9/26/95

7.13.13 ~~Press the "PUMP START/STOP" button~~ and verify:

- The fan is ON.
- PUMP #1 is ON.
- (GREEN) Stack Sampler OK (both) lights are lit.
- (YELLOW) Stack Sampler SHUTDOWN light is NOT lit.
- (YELLOW) System SHUTDOWN light is NOT lit.
- (RED) ALARM ON light is NOT lit. It is ON because the heater low ΔT alarm. It cleared after a few minutes Jim L 9-12-95

Verified by Test Engineer: Jim Langdon Date: 9-12-95

7.13.14 Turn the exhauster FAN switch to "OFF".

See exception 7 OR 9/26/95

7.13.15 Remove the jumper switch installed per step 7.13.1 and restore line 111 (H-2-85591, sht. 8) to its original configuration.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-12-95

7.14 HI Radiation Shutdown Check

7.14.1 ~~Install a jumper switch (Open Circuit) at line 79 (H-2-85591, sht. 8) (BETA Monitor).~~ Will pull wire off as needed

7.14.2 Turn the exhauster FAN switch to "ON". Jim L. 9-8-95 See exception 7 OK 9/26/95

7.14.3 ~~Press the "PUMP START/STOP" button to START "PUMP #1".~~ automatically starts Jim L. 9-8-95 See exception 7 OK 9/26/95

7.14.4 Close the jumper switch of step 7.14.1.

7.14.5 Verify the following

- The audible HORN is sounding at the annunciator panel.
- The audible BELL is sounding at the Air Monitor cabinet.
- The RED BEACON on the Air Monitor cabinet is lit.

Verified by Test Engineer: Jim Langdon Date: 9-8-95

7.14.6 Press the alarm "SILENCE" push button on the exhauster alarm panel. ~~Acknowledge~~ reset OK 9/26/95

7.14.7 Press the "BELL ALARM ~~ACKNOWLEDGE~~" on the Air Monitor cabinet to silence the alarm.

7.14.8 Verify the following:

(At the Exhauster)

- The fan has stopped.
- (GREEN) High Radiation OK light is NOT lit.
- (YELLOW) High Radiation SHUTDOWN light is lit.
- (YELLOW) System SHUTDOWN light is lit.
- (RED) ALARM ON light is lit.

(At the Air Monitor cabinet)

- The audible BELL has silenced
- The sample pumps have stopped.
- (GREEN) PUMP 1 ON light light is NOT lit.
- (GREEN) PUMP 2 ON light light is NOT lit.
- (RED) COMMON FAULT Alarm light is lit.

Verified by Test Engineer: Jim Langdon Date: 9-8-95

7.14.9 Open the jumper switch of step 7.14.1.

7.14.10 Depress the "BELL ALARM ACKNOWLEDGE" button.

7.14.11 Press the "ALARM RESET" push button.

7.14.12 Turn the exhauster FAN switch to "ON". ~~If circuit is~~ turn fan off then on.

7.14.13 ~~Press the "PUMP START/STOP" button to START "PUMP #1".~~ Jim L 9-8-95 see exception 7 & 9/26/95

7.14.14 Verify the following:

- The fan is ON.
- PUMP #1 is ON.
- (GREEN) High Radiation OK light is lit.
- (YELLOW) High Radiation SHUTDOWN light is NOT lit.
- (YELLOW) System SHUTDOWN light is NOT lit.
- (RED) ALARM ON light is NOT lit.

Verified by Test Engineer: Jim Langdon Date: 9-8-95

7.14.15 Turn the exhauster FAN switch to "OFF".

7.14.16 Remove the jumper switch installed per step 7.14.1 and restore line 79 (H-2-85591, sht. 8) to its original configuration.

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Langdon Date: 9-8-95

7.15 Stack LOW FLOW Heater Shutdown Check

7.15.1 Connect a calibrated 4-20 mA (milliamp) signal generator between line 91 and 92 (H-2-85591, sht. 8) of the Stack Flow FT-1 terminal board in the Air Monitor cabinet.

exception 6 9/26/95

(6) Stack Flow Switch was rewired on 9-6-95, it is now controlled by the Data Logger in the Stack monitor cabinet. Set point is 750 SCFM, calibration is from FT-1. This test is will change the set point at the data logger to test the circuit. Jim L 9-9-95

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

7.15.2 Set the signal generator to (17.3 mA ± .1 mA), to simulate an air flow of 1000 scfm (standard cubic feet per minute). attach a voltmeter to terminals H1 and H2 in the Heater Control Cabin

7.15.3 Turn the exhauster FAN switch to "ON". Jim L 9-9-95 See exception 6 9/26/95

7.15.4 Press the "PUMP START/STOP" button to START "PUMP #1".

7.15.5 Press the "ALARM RESET" push button.

NOTE: Be sure to record the displayed milliamp signal at which the LOW STACK FLOW relay shuts down the Duct heater. The LOW STACK FLOW heater shutdown is set at 450 FPM or 750 scfm.

7.15.6 Verify the heater is working by reading 480 Volts across the H1 and H2 Slowly decrease the milliamp signal of step 7.15.1. Jim L 9-9-95

7.15.7 Record the displayed milliamp signal at which the LOW Flow relay shuts down the Duct heater, _____ mA, and verify that the signal is 14 mA ± .1 mA. Set the set point for channel 1 alarm to a value above the reading on FT-1 FT-1 = about 1030 set channel 1 alarm at 1100 Jim L
Verified by Test Engineer: Jim Langdon Date: 9-9-95 9-9-95

7.15.8 Verify the following:

- The sample pump in the Air Monitor cabinet is ON.
- The exhauster fan is ON.
- The (GREEN) STACK FLOW OK light is NOT lit.
- The (RED) LOW STACK FLOW light is lit.
- The DUCT HEATER is OFF.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

see exception 6 9/26/95

7.15.9 Set the signal generator to (17.3 mA ± .1 mA), to simulate an air flow of 1000 scfm. Reset the channel 1 alarm to 750 SCFM. Jim L 9-9-95

7.15.10 Verify the DUCT HEATER is ON.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.15.11 Press the "ALARM RESET" push button.

7.15.12 Verify the following:

- The sample pump in the Air Monitor cabinet is ON.
- The exhauster fan is ON.
- The (GREEN) STACK FLOW OK light is lit.
- The (RED) LOW STACK FLOW light is NOT lit.

Verified by Test Engineer: Jim Langdon Date: 9-9-95

7.15.13 Turn the exhauster FAN switch to "OFF".

7.15.14 Remove the calibrated milliamp source of step 7.15.1 and restore line 91 and 92 (H-2-85591, sht. 8) to their original configuration. Remove Voltmeter from Heater Control Cabinet. See exception 6 Jim L 9-9-95 JC 9/9/95

Testing as directed by this procedure section has been completed, and any descrepancies, listed on Attachment 1, Exception List, have been resolved.

Test Director: Jim Longhurst Date: 9-9-95

8.0 ATTACHMENTS

Attachment 1: Exception List

Attachment 2: Measurement and Test Equipment Record Sheet

Attachment 3: Final Procedure Acceptance Sheet

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

EXCEPTION NUMBER	STEP NUMBER	EXCEPTION DESCRIPTION	EXCEPTION RESOLUTION	RESOLUTION APPROVED BY:	DATE RESOLVED
1	7.1.10	High radiation shutdown did not allow motor to be started	Installed a jumper from wire 22 to wire 23 to bypass the shutdown contact. Later moved to wires 10 and 70 on TB-3 (step 7.1.16)	Jim L. Jim L.	8/23/95
2	7.1.16	Stack sampler cabinet is not available at this time. (removing butt splices)	Will keep jumper installed in steps 7.1.10 and 7.1.16 in until Air Monitor Cabinet is available, then retest those steps that were skipped. Rewiring complete, jumpers removed 8/28/95.	Jim L. Jim L.	8/23/95
3	7.1.21	The seal pot high level switch is not working	Switch by passed at it's connection box, new switch ordered. Installed 9/7/95. Tested 9-8-95 Jim L. 9-27-95	Jim L. Jim L.	8/25/95
4	7.1.21	The duct heater fuses are not installed	Fuses are to be delivered on Monday Fuses installed 9/5/95. Tested 9-9-95 Jim L. 9-27-95	Jim L. Jim L.	9/5/95

Attachment 1: Exception List

5	7.2.12	Skip steps 7.2.12 to 7.2.21	Heater shutdown on low flow has been redesigned, it now will be controlled by the Data Logger. The Data Logger uses the stackflow meter output and this instrument was calibrated by the factory rep. last week. This instrument was within 1% for 7.2.8 reading. Also the exhauster as setup cannot be run at that low of flow due to low inlet suction pressure. Function will be tested per OTP.	Jim L. Jim L.	9/5/95
6	7.15	Stack Flow Switch Redisigned	Redlined procedure to test the new design	Jim L. Jim L.	9/9/95
7	General	Minor editorial changes and 1, "Push the Reset Button" and 2, "Pump Starts Automatically"	Red lined the procedure. These changes do not impact the results of this ATP.	Jim L. Jim L.	9/9/95
8	7.8	This part of the procedure requires the fan to be off. When the fan is off, you already have a low delta-P alarm so the alarm horn is already sounding or silenced.	Note "Horn will not sound" and continue	Jim L. Jim L.	9/8/95
9	7.10	Alarms from stackmonitoring cabinet not available due to tracing the wiring	Bypass the alarms see bottom of Page 30	Jim L. Jim L.	9/8/95
10	7.13	Beta Monitor shutdown circuit did not work as installed	Changed circuit to be driven by the Data Logger. Redlined test accordingly. Jim L. 9-20-95	Jim L. Jim L.	9/12/95

Attachment 1: Exception List

Excp. #	Step #	Exception Description	Exception Resolution	Resolution Approved	Date Resolved
11	7.9	Two Legs of the 4 that were tested did not have enough current to register on the current meter	Accept as is. Due to the elevated temperature and short length of heat tape, current was below the detectable level of the clamp on amp meter	Jim L Jim L	9-27-95
12	7.10.3	The overtemperature controller was set too low	Reset to 160 +/- 20 F and retested	Jim L Jim L	9-27-95

		Serial No.	Calibration Due Date	Calibration Tracking Code	Use Description
FLUKE	8024 B MULTIMETER	3685020 MT+E#0341	N/A	950-45-08-010	TESTING HEATER CONTROL CABINET POWER
FLUKE	23 MULTIMETER	41090735 MT+E#0004	3-21-96	954-45-08-004	GENERAL POWER TESTING SY EXHAUSTER
AMPROBE	ULTRA	MT+E#0800	12-5-95	950-45-02-038	GENERAL POWER TESTING SY EXHAUSTER
TRANSMATION	PPS DIGITAL 1040	1040117387 MT+E#0166	4-7-96	953-13-20-001	THERMOCOUPLE TESTING
TRANSMATION	PPS DIGITAL 1040	104002758 SP MT+E#0103	4-28-96	988-13-20-002	THERMOCOUPLE TESTING
BIDDLE	VERSA-CAL	3148 MT+E#0947	2-28-96	950-13-55-002	THERMOCOUPLE TESTING
Druck	DPI 701 Digital Manometer	70122430088, MT+E 0753	3-31-96	950-35-40-001	ΔP Testing
Neotronics (Velometer)	MP 20SR Micromanometer	NA	5-1-96	799-28-09-009	Stack Flowrate

ATP FOR SY TANK FARM REPLACEMENT EXHAUSTER UNIT

Completion of this procedure has demonstrated that:

- Each sensor that provides an audible and/or visual alarm has been verified to actuate the alarm at the proper setpoint, and the alarm function has been verified to be correct at the annunciator panel.
- The exhauster unit has been tested for proper operation of all controls and instrumentation.
- The exhauster unit components have been tested for proper operation (airflow, differential pressure, operating temperature, seal pot level, etc.).
- A record of all noted deficiencies was kept on Attachment 1, Exception List, and all recorded exceptions have been resolved and the resolutions approved.

Approved by:

Jim Langdon, Test Director — 9-22-95 ~~9-14-95~~ JmL 9-22-95 Date

J. McClees, Project Engineer
Plant Start-Up and Testing — 9/27/95 ~~9/26/95~~ 9/27/95 JM. Date

R. W. Reed, Manager
Plant Start-Up and Testing — 9/27/95 ~~26 Sep '95~~ Jorge McClees, FOR. Date

T. D. Kaiser, Cog Engineer
West Plant Engineering — 9/27/95 ~~9/26/95~~ K 9-27-95 Date

Attachment 3: Final Procedure Acceptance Sheet