

5

Sta. 4  
MAY 31 1995

ENGINEERING DATA TRANSMITTAL

2. To: (Receiving Organization) CHAR. SAMPLING OPERATIONS	3. From: (Originating Organization) CHAR. PLANT ENGINEERING	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: 75210 / N4058	6. Cog. Engr.: E.J. WALDO	7. Purchase Order No.: N/A
8. Originator Remarks: FOR APPROVAL / RELEASE		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: 200 GEN
11. Receiver Remarks:		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 5/31/95

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-WM-OTP-176	ALL	0	OPERABILITY TEST PROCEDURE FOR THE ROTARY MODE CORE SAMPLING SYSTEM EXHAUSTERS 3&4	ESQ	1	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

(G)		(H)	17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)								(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.	
1	1	Cog. Eng. EJ WALDO	<i>EJ Waldo</i>	5/30/95	S7-12	CENTRAL FILES	<i>(Signature)</i>		L8-04	3		
1	1	Cog. Mgr. JS SCHOFIELD	<i>JS Schofield</i>	5/30/95	S7-12	O.S.T.I.	<i>(Signature)</i>		L8-07	3		
1	1	QA ML MCELROY	<i>M.L. McElroy</i>	5/30/95	S7-07							
1	1	Safety ME HUDA	<i>ME Huda</i>		S7-07							
1	1	Env. PJ MARTELLI	<i>PJ Martelli</i>	5-30-95	T1-30							
1	1	JS LEE	<i>JS Lee</i>	5-30-95	S7-03							
1	1	CE HANSON	<i>EJ Waldo</i>	5/30/95	H5-09							

18. Signature of EDT Originator <i>EJ Waldo</i> Date: 5/30/95	19. Authorized Representative for Receiving Organization <i>JS Lee</i> Date: 5-30-95	20. Cognizant Manager <i>JS Schofield</i> Date: 5/30/95	21. DOE APPROVAL (if required) Ctrl. No. N/A <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
---	--	---	---

## **DISCLAIMER**

**Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.**

## RELEASE AUTHORIZATION

**Document Number:** WHC-SD-WM-OTP-176, REV 0

**Document Title:** Operability Test Procedure for the Rotary Mode Core Sampling System Exhausters 3&4

**Release Date:** 5/31/95

**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

May 31, 1995

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

This report has been reproduced from the best available copy. Available in paper copy and microfiche. Printed in the United States of America. Available to the U.S. Department of Energy and its contractors from:

U.S. Department of Energy  
Office of Scientific and Technical Information (OSTI)  
P.O. Box 62  
Oak Ridge, TN 37831  
Telephone: (615) 576-8401

Available to the public from: U.S. Department of Commerce  
National Technical Information Service (NTIS)  
5285 Port Royal Road  
Springfield, VA 22161  
Telephone: (703) 487-4650

<b>SUPPORTING DOCUMENT</b>		1. Total Pages 27
<p>2. Title</p> <p>Operability Test Procedure for the Rotary Mode Core Sampling System Exhausters 3&amp;4</p>	<p>3. Number</p> <p>WHC-SD-WM-OTP-176</p>	<p>4. Rev No.</p> <p>0</p>
<p>5. Key Words</p> <p>RMCS, Exhauster, Core Sample Truck</p>	<p>6. Author</p> <p>Name: E. J. Waldo</p> <p><i>E. J. Waldo</i> 5/31/95 Signature</p> <p>Organization/Charge Code 75210/N4058</p>	
<p>7. Abstract</p> <p>This document provides a procedure for performing operability testing of the Rotary Mode Core Sampling System Exhausters 3 &amp; 4. Upon completion of testing activities an operability testing report will be issued.</p>		
<p>8. RELEASE STAMP</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>OFFICIAL RELEASE BY WHC <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">5</span></p> <p>DATE <b>MAY 31 1995</b></p> <p><i>Sta. 4</i></p> </div>		

**OPERABILITY TEST PROCEDURE**  
**FOR THE**  
**ROTARY MODE CORE SAMPLING SYSTEM**  
**EXHAUSTERS 3 & 4**

**WHC-SD-WM-OTP-176 REV 0**

**AUTHOR**

**ERIC J. WALDO**

**CHARACTERIZATION PLANT ENGINEERING**

**WESTINGHOUSE HANFORD COMPANY**

**MAY 1995**

**DISCLAIMER**

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

---

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED *ww*

**MASTER**

## TABLE OF CONTENTS

1.0	PURPOSE . . . . .	3
2.0	SCOPE . . . . .	3
3.0	RESPONSIBILITIES . . . . .	3
4.0	INFORMATION . . . . .	5
4.1	SYSTEM DESCRIPTION . . . . .	5
4.2	TEST GUIDANCE . . . . .	5
4.3	TERMS AND DEFINITIONS . . . . .	6
4.4	REFERENCES . . . . .	6
4.5	SAFETY ISSUES . . . . .	6
4.6	RADIATION AND CONTAMINATION CONTROL . . . . .	6
4.7	QUALITY ASSURANCE . . . . .	6
4.8	AUTOMATIC EXHAUSTER SYSTEM SHUTDOWN . . . . .	7
4.9	EXHAUSTER COMMON FAULT ALARMS . . . . .	7
4.10	ACCEPTANCE CRITERIA . . . . .	7
5.0	RECORDS . . . . .	8
6.0	PREREQUISITES . . . . .	8
6.1	SUPPLIES . . . . .	8
6.2	PROCEDURES . . . . .	8
7.0	EXHAUSTER #3 TEST PROCEDURE . . . . .	9
7.1	EQUIPMENT SETUP . . . . .	9
7.2	INITIAL PLACEMENT INTO STANDBY MODE . . . . .	10
7.3	STARTING EXHAUSTER FROM STANDBY MODE . . . . .	12
7.4	DATA LOGGER OPERATION AND ALARM RESPONSE . . . . .	12
7.5	PLACING EXHAUSTER BACK TO STANDBY MODE . . . . .	14
7.6	AUTOMATIC SHUTDOWN INTERFACE TO TRUCK . . . . .	14
7.7	PLACE EXHAUSTER INTO SHUTDOWN FROM STANDBY . . . . .	15
7.8	EQUIPMENT TAKE DOWN . . . . .	15
8.0	EXHAUSTER #4 TEST PROCEDURE . . . . .	17
8.1	EQUIPMENT SETUP . . . . .	17
8.2	INITIAL PLACEMENT INTO STANDBY MODE . . . . .	18
8.3	STARTING EXHAUSTER FROM STANDBY MODE . . . . .	20
8.4	DATA LOGGER OPERATION AND ALARM RESPONSE . . . . .	20
8.5	PLACING EXHAUSTER BACK TO STANDBY MODE . . . . .	22
8.6	AUTOMATIC SHUTDOWN INTERFACE TO TRUCK . . . . .	22
8.7	PLACE EXHAUSTER INTO SHUTDOWN FROM STANDBY . . . . .	23
8.8	EQUIPMENT TAKE DOWN . . . . .	23
	OTP Exception / Resolution Data Sheet . . . . .	25
	Test Completion Sign-Off Sheet . . . . .	26

## 1.0 PURPOSE

The purpose of this Operability Test Procedure is to provide instructions for operability testing of the Rotary Mode Core Sampling (RMCS) exhausters 3 & 4. The procedure follows "Operability Test Procedures and Reports", contained in WHC-CM-6-1, "Standard Engineering Practices", EP-4.2 "Testing Requirements" Rev 5, Change 1.

## 2.0 SCOPE

Operability testing of the rotary mode core sampling exhausters 3 & 4, will verify that functional and operational requirements have been met. The exhauster is a part of the rotary mode core sampling system which includes the RMCS trucks 3 & 4, and associated equipment. The testing will be performed in a simulated tank farm environment at the "Rock Slinger" test site located just south of U-Plant in the 200 West area.

## 3.0 RESPONSIBILITIES

Safety, Quality Assurance, Effluent Emissions Monitoring, Characterization Sampling Operations, Characterization Plant Engineering, and RMCS 3&4 Project Management shall approve this procedure prior to it's release. Responsibilities are identified as follows:

### Operations Test Director

Responsible for the overall performance of the OTP. Responsible for the proper conduct of operations for the entire test site as well as personnel involved in the testing. Ensures the execution of all testing activities are within the scope of the OTP. Exercises stop work authority for unsafe activities or activities not conforming to this OTP. Directs the overall conduct and sequence of testing activities. Ensures configuration management is properly maintained. Directs actions to be taken to prevent injury to employees or damage to equipment. Acts through the Operations PIC for the proper performance of all operations at the test site. Receives technical advice from the CPE Cognizant Engineer on system and equipment design parameters. Maintains cognizance of test exceptions as documented by the CPE Cognizant Engineer and the resolution of same. Concurs with all changes and with the acceptability and reliability of the equipment by signing the OTR.

### CPE Cognizant Engineer - Exhauster

Controls the sequence in which the OTP is conducted through the PIC with concurrence of the Test Director. Provides technical expertise and advice to both the PIC and Test Director as required. Maintains configuration control during testing. Approves any changes to the OTP. Responsible for obtaining additional support from engineering. Acts as the single point of contact for all engineering matters. Notes exceptions to testing on OTP Exception List". Resolves exceptions with

the concurrence of the assigned Quality Engineer for those exceptions which initially required Quality verification. Prepares and releases the OTR at conclusion of operability testing. Concurs with the acceptability and reliability by signing the OTR.

#### **RMCS 3&4 Project Management**

Reviews and approves test procedure and report. Monitors testing to ensure tests are completed in a timely manner. Resolves and project related deficiencies.

#### **Characterization Sampling Operations Management**

Responsible through the Operations Test Director for the overall testing program. Reviews and approves test procedure. Ensures effective safety meeting is held prior to test start. Monitors testing to extent approval may be given for satisfactory equipment operability and reliability.

#### **Characterization Sampling PIC**

Responsible for the assignment of personnel and directing the operation of the exhausters. Controls access to the test area in order to maintain a safe environment. Aids the Cognizant Engineer in maintaining configuration control. Approves changes to the OTP in terms of operational steps or equipment configuration with concurrence of the Test Director. Conducts a pre-job safety meeting at the start of each shift during the performance of the OTP. Briefs the personnel on testing to be performed that day and associated hazards.

#### **Characterization Sampling Operators**

Conduct testing according to this procedure as directed by the PIC. Notifies the Test Director and Operation PIC of concerns, exceptions, and off-normal conditions during testing.

#### **Quality Assurance**

Reviews and approves test procedure to assure compliance with appropriate regulations. Resolves exceptions requiring quality verification jointly with CPE Exhauster Cognizant Engineer. Quality verification of exceptions is only necessary for those exceptions relating to items which initially required Quality verification.

#### **Safety**

Reviews and approves test procedure to assure compliance with applicable regulations. Monitors testing as appropriate.

#### **Effluent Emissions Monitoring**

Reviews and approves test procedure to assure compliance with applicable regulations. Monitors testing as appropriate.



## 4.0 INFORMATION

### 4.1 SYSTEM DESCRIPTION

The exhausters are made up of a heater assembly leading into a housing containing a second pre-filter and two High Efficiency Particle Air (HEPA) filters in series, a motor driven fan, and an exhaust stack. The exhausted gases are continuously monitored for flow rate, temperature, and humidity. All information monitored is recorded on a data logger in the exhauster instrumentation cabinet.

### 4.2 TEST GUIDANCE

Testing of the exhausters will be performed in the following manner. The exhausters will be connected to a simulated waste tank riser and placed into standby mode. The exhausters may then be started and stopped at any time as Operations sees fit. Only one set of start-up and shutdown steps will be initialed and included within the OTR. While the exhauster is running, an alarm condition will be made to occur to familiarize operators with operation of the data logger. When operations is satisfied with the performance of the exhauster it will be taken down in the final test section.

Instrument calibrations will be verified by QC personnel during exhauster components acceptance testing and will not be reconfirmed for OTP testing as no advantage will be realized.

Discrepancies, deviations, or irregularities involving the test procedure and equipment performance are to be noted on the "OTP Exception / Resolution Data Sheet". These exceptions shall be jointly resolved between the Exhauster Cognizant Engineer and the assigned Quality Assurance Representative. Quality verification of exceptions is only necessary for those exceptions relating to items which initially required Quality verification. Project related OTP deficiencies shall be addressed by the Exhauster Cognizant Engineer with approval of the RMCS 3&4 Project Management. All resolutions to the exceptions must be agreed upon by the responsible personnel, documented on the exception list, and initialed.

No testing shall be done which involves faulty equipment, as determined by the Exhauster Cognizant Engineer and Characterization Sampling PIC. However, at the discretion of the Exhauster Cognizant Engineer and with approval of the Characterization Sampling PIC, tests may proceed on equipment which is not affected by faulty equipment.

If, due to circumstances, modifications of the test procedure are warranted, written changes may be made with the concurrence of the Exhauster Cognizant Engineer, and Characterization Sampling Operations Management. Quality approval of modifications is also necessary for those modifications relating to items which initially required Quality verification. Safety approval is necessary for any modifications which could affect worker safety. Amendments shall be per instructions in

WHC-CM-6-1, "Standard Engineering Practices", EP-4.2, "Testing Requirements" Rev 5, Change 1.

### 4.3 TERMS AND DEFINITIONS

ATP	- Acceptance Test Procedure
COG	- exhauster COGNIZANT engineer
CPE	- Characterization Plant Engineering
OTP	- Operability Test Procedure
OTR	- Operability Test Report
PIC	- Person In Charge
QA	- Quality Assurance
RMCS	- Rotary Mode Core Sampling
TWRS	- Tank Waste Remediation System
VFD	- Variable Frequency Drive

### 4.4 REFERENCES

- WHC-CM-6-1 REV 5 Change 1 "Standard Engineering Practices", APPENDIX L
- WHC-SD-WM-ATP-063 REV 1 "Acceptance Test Procedure for the RMCS Exhausters"
- WHC-SD-WM-OTP-174 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 3"
- WHC-SD-WM-OTP-175 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 4"

### 4.5 SAFETY ISSUES

To reduce the possibility of injury, all persons in the vicinity of the test equipment must be made aware of the following concerns:

(A Safety Awareness Session will be conducted at the test site prior to testing.)

**Warning** - Be aware of tripping hazards (cables and duct work).

**Warning** - Personal protective equipment should be used during testing, such as safety glasses, gloves, hearing protection, and safety shoes, when appropriate.

### 4.6 RADIATION AND CONTAMINATION CONTROL

All testing will be non-radioactive and stand-in materials shall be used to simulate waste tank conditions.

### 4.7 QUALITY ASSURANCE

Quality Assurance shall approve of this Operability Test Procedure prior to its release. A Quality Control representative shall verify all steps requiring QC verification during testing.

## 4.8 AUTOMATIC EXHAUSTER SYSTEM SHUTDOWN

The exhausters are designed to shut down automatically when any one of the four following conditions occur:

Tank pressure falls below -3 inches water gauge (wg).

Exhaust stack flow exceeds 250 cfm or falls below 150 cfm.

Total pressure drop across HEPA filters exceeds 5.5 inches wg.

Common Fault Alarm is received when Exhauster is in unattended mode.

When the exhausters shut down an open contact will be established with the core sample truck to inform the truck operator of the development. This contact will be tested during this procedure, concurrently with the performance of WHC-SD-WM-OTP-174 "OTP for RMCS System 3" and WHC-SD-WM-OTP-175 "OTP for RMCS System 4". All automatic shutdowns will have been previously tested during exhauster acceptance testing.

## 4.9 EXHAUSTER COMMON FAULT ALARMS

In addition to automatic shutdowns, the exhausters are equipped with four alarms which will trigger a common fault alarm strobe on the top of the instrumentation monitoring cabinet. Upon operator acknowledgement the alarm lights will extinguish until another new alarm is received. These alarms are generated by a Chessell Data Logger which monitors all exhauster functions. In the event of a data logger system error, the alarm strobe will become lit. A system error cannot be acknowledged and will require the alarming condition to be rectified in order to extinguish alarm lights. The four exhauster conditions which will activate the common fault alarm light are listed below.

HEPA filter inlet humidity above 75%.

HEPA filter inlet temperature above 195 °F.

Alpha Sample Loop Flow Variance above  $\pm 10\%$ .

Record Sample Loop Flow Variance above  $\pm 10\%$ .

The flow variance alarms will be caused by shutting off the sample vacuum pump to familiarize operators with alarm acknowledgement procedure. All alarms will have been previously tested during exhauster acceptance testing.

## 4.10 ACCEPTANCE CRITERIA

The acceptance criteria for this OTP is based on operability and reliability of the equipment as if it were being used in the field. Each step shall be evaluated and signed off by the exhauster cognizant engineer as well as Operations to verify that the equipment is acceptable for field use. Acceptable reliability based on this testing shall be determined by the judgement of the exhauster cognizant engineer

and the operations manager. The acceptance of the overall reliability of the system shall be documented by signatures on the Test Completion Sign-Off Sheet.

## 5.0 RECORDS

Pertinent operating conditions will be documented where requested in this OTP. Records for the testing of equipment (section 7 and 8) will be recorded in the tables supplied with the procedure. The operator and other test personnel requested to do so, will initial in the space provided in the left hand margin upon satisfactory completion of the designated tasks.

The Exhauster Cognizant Engineer shall prepare and release an Operability Test Report at the conclusion of OTP testing.

## 6.0 PREREQUISITES

### 6.1 SUPPLIES

The following equipment will be required to complete the RMCS exhauster testing:

- \* RMCS Exhausters 3&4 and associated equipment
- \* RMCS Trucks 3&4 and associated equipment
- \* Portable electric generator & power cables
- \* Electrical distribution trailer
- \* Support truck
- \* Volt/Ohm meter
- \* Hand levels
- \* Wood blocks

### 6.2 PROCEDURES

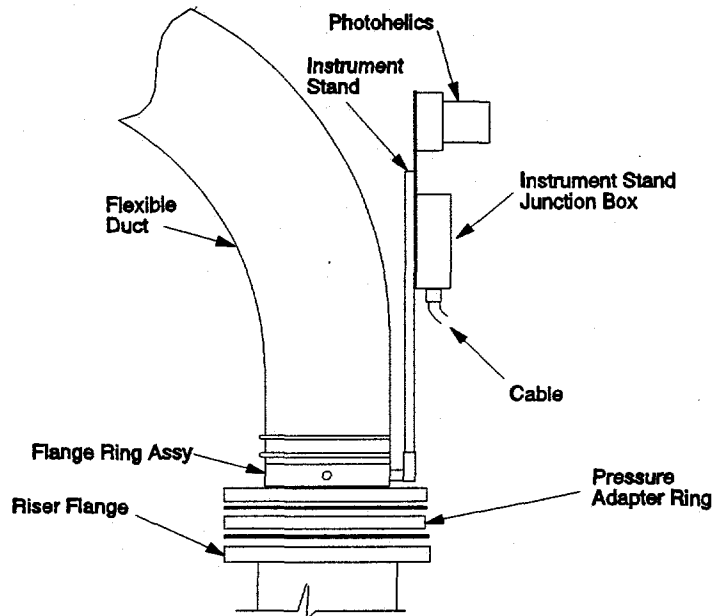
The following procedures are required to complete the Exhauster OTP / System Integration testing.

1. WHC-SD-WM-OTP-174 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 3"
2. WHC-SD-WM-OTP-175 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 4"

## 7.0 EXHAUSTER #3 TEST PROCEDURE

### 7.1 EQUIPMENT SETUP

- OP/CE \_\_\_/\_\_\_ 7.1.1 PIC REQUEST Rigger place exhauster within 20 feet of riser to allow flexible duct connection to riser.
- OP/CE \_\_\_/\_\_\_ 7.1.2 PLACE leveling jacks on wooden blocks.
- OP/CE \_\_\_/\_\_\_ 7.1.3 LEVEL exhauster.
- OP/CE \_\_\_/\_\_\_ 7.1.4 PLACE portable monitoring cabinet platform in front of monitoring cabinet doors.



- OP/CE \_\_\_/\_\_\_ 7.1.5 PLACE 12 inch gasket and pressure adapter ring on top of simulated tank riser flange.
- OP/CE \_\_\_/\_\_\_ 7.1.6 PLACE 12 inch flange ring assembly on top of pressure adapter ring.
- OP/CE \_\_\_/\_\_\_ 7.1.7 PIC REQUEST Fitter bolt flange ring assembly though pressure adapter ring to riser.

- OP/CE \_\_\_/\_\_\_ 7.1.8 **INSTALL** instrument stand on flange ring assembly.
- OP/CE \_\_\_/\_\_\_ 7.1.9 **PIC REQUEST** Instrument Technician **CONNECT** pressure shutdown cable from exhauster skid to Instrument Stand Junction Box.
- OP/CE \_\_\_/\_\_\_ 7.1.10 **PIC REQUEST** Instrument Technician **CONNECT** tubing from high port of photohelic VTP-PDI-2202B, Tank Press, to flange ring assembly.
- OP/CE \_\_\_/\_\_\_ 7.1.11 **CONNECT** flexible duct between flange ring assembly and exhauster inlet.
- OP/CE \_\_\_/\_\_\_ 7.1.12 **PLACE** support stands below flexible duct to minimize sagging and low points.
- OP/CE \_\_\_/\_\_\_ 7.1.13 **CONNECT** Seal Pot Pump outlet line to Pressure Adapter Ring.
- OP/CE \_\_\_/\_\_\_ 7.1.14 **CONNECT** Seal Pot vent line to Pressure Adaptor Ring.
- OP/CE \_\_\_/\_\_\_ 7.1.15 **PIC REQUEST** Electrician **CONNECT** Skid and platform grounding cables.
- OP/CE \_\_\_/\_\_\_ 7.1.16 **PIC REQUEST** Electrician **ENSURE** the following components are OFF:
- Rotary Exhauster 480 VAC 40 AMPS switchgear at RMCS Generator
  - VTP-DS-2201B, Var Freq Disconnect 480 V 3 PH (at exhauster)
  - VTP-DS-2202B, Htr Disconnect 480 V 3 PH (at exhauster).
- OP/CE \_\_\_/\_\_\_ 7.1.17 **PIC REQUEST** Electrician **CONNECT** 480V power cable between portable generator and exhauster.
- OP/CE \_\_\_/\_\_\_ 7.1.18 **PIC REQUEST** Electrician **PLACE** Rotary Exhauster 480 VAC 40 AMPS switchgear on portable Generator ON.

## 7.2 INITIAL PLACEMENT INTO STANDBY MODE

- OP/CE \_\_\_/\_\_\_ 7.2.1 **PERFORM** system lineup per SYSTEM LINEUP LIST (on next page)

**SYSTEM LINEUP LIST**

COMPONENT NO.	DESCRIPTION	REQUIRED CONDITION	INITIAL POSITIONER (Initials/Date)	INDEPENDENT VERIFICATION (Initials/Date)
VTP-DP-2201B	DIST PNL FOR VENT EQUIP	ALL BREAKERS ON	/	/
VTP-DS-2201B	VAR FREQ DISCONNECT 480V 3 PH	ON	/	/
VTP-DS-2202B	HTR DISCONNECT 480V 3 PH	ON	/	/
VTP-V-2211B	ALPHA SAMP FCV INLET ISO VLV	CLOSED	/	/
VTP-V-2212B	REC SAMP FCV INLET ISO VLV	OPEN	/	/
VTP-V-2213B	BETA SAMP FCV INLET ISO VLV	OPEN	/	/
VTP-V-2217B	ALPHA SAMP FCV OUTLET ISO VLV	OPEN	/	/
VTP-V-2219B	REC SAMP FCV OUTLET ISO VLV	OPEN	/	/
VTP-V-2218B	BETA SAMP FCV OUTLET ISO VLV	OPEN	/	/
VTP-SS-2201B	VAC PUMP START SW	IN	/	/
VTP-SS-2206B	VAC Pp CONT CKT PWR SW	ON	/	/
VTP-SS-2207B	FCV CKT PWR SW	ON	/	/
VTP-SS-2204B	AIR COND NO 1 PWR SW	ON	/	/
VTP-SS-2211B	SAMP FLO INST	ON	/	/
VTP-SS-2208B	AUTO SHUTDOWN BYP SW	ATTENDED	/	/
VTP-SS-2210B	ANALYZER PWR SW	ON	/	/
VTP-SS-2205B	AIR COND NO 2 PWR SW	ON	/	/
VTP-V-2209B	COND DRN VLV	OPEN	/	/
VTP-V-2232B	HEPA 2 COND DRN VLV	OPEN	/	/
VTP-V-2233B	HEPA 1 COND DRN VLV	OPEN	/	/
VTP-V-2202B	COND DRN VLV TO SEAL POT (on heater)	OPEN	/	/
VTP-V-2228B	FLT BANK INLET ISO VLV	CLOSED	/	/
VTP-V-2229B	FKT BANK OUTLET ISO VLV	CLOSED	/	/
VTP-V-2234B	SEAL POT FUNNEL ISO VLV	CLOSED	/	/
VTP-V-2210B	VTP-PI-2202B INST ISO VLV	OPEN	/	/

OP/CE \_\_\_/\_\_\_ 7.2.2 **OPEN** VTP-V-2234B, Seal Pot Funnel Iso Valve.

OP/CE \_\_\_/\_\_\_ 7.2.3 **ADD** water to Seal-Pot funnel **UNTIL** pump activates.

OP/CE \_\_\_/\_\_\_ 7.2.4 **CLOSE** VTP-V-2234B, Seal Pot Funnel Iso Valve.

OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 7.2.5 **PIC REQUEST** Instrument Technician **ENSURE** alarm setpoints are set as follows:

- VTP-PDI-2202B, Tank Press -3" WG
- VTP-PDI-2203B, Hepa Flt Total D/P 5.5" WG.

OP/CE \_\_\_/\_\_\_ 7.2.6 **TURN** on Data Logger.

### 7.3 STARTING EXHAUSTER FROM STANDBY MODE

OP/CE \_\_\_/\_\_\_

7.3.1 POSITION valves located on exhauster skid as follows:

- VTP-V-2228B, Flt Bank Inlet Iso Vlv OPEN
- VTP-V-2229B, Flt Bank Outlet Iso Vlv OPEN
- VTP-V-2209B, Cond Drn Vlv. CLOSED

OP/CE \_\_\_/\_\_\_

7.3.2 DEPRESS Stop pushbutton TWICE on VTP-PNL-2202B, Var Freq Dr Control Pnl.

OP/CE \_\_\_/\_\_\_

7.3.3 DEPRESS AND

HOLD Start pushbutton for 2 minutes, 15 seconds, on VTP-PNL-2202B, Var Freq Dr Control Pnl.

### 7.4 DATA LOGGER OPERATION AND ALARM RESPONSE

**NOTE:** Data logger's initial display mode is PLANT SUMMARY. All exhauster information is contained within 4 groups, titled OPERATION STATUS, EQUIPMENT STATUS, RUN TIME LOG, and COMMON FAULT ALARMS. In the MULTI-GROUP display mode, all exhauster channel values can be viewed simultaneously. Channel numbers are displayed on chart printout and on alarm summary screen, but not on display screen. Channels on display screen are identified by a descriptive tag and units displayed.

OP/CE \_\_\_/\_\_\_

7.4.1 PRESS the MULTI-GROUP key.

OP/CE/QC \_\_\_/\_\_\_/\_\_\_

7.4.2 RECORD values for the OPERATION STATUS group into the following table AND VERIFY values are acceptable.

OPERATION STATUS						
TAG	UNITS	CH	DESCRIPTION	RANGE	ACCEPTABLE	VALUE
STACK	SCFM	1	Stack Flow Rate	0 - 391	200 ± 10	
ALPHA	SCFM	3	Alpha Samp Flow Rate	0 - 3.00	1.53 ± .10	
RECORD	SCFM	4	Recrd Samp Flow Rate	0 - 3.00	1.53 ± .10	
BETA	SCFM	5	Beta Samp Flow Rate	0 - 3.00	1.53 ± .10	
STACK	°F	2	Stack Temperature	0 - 150	0 - 150	
SAMPLE	°F	6	Sample Temperature	0 - 150	0 - 150	
PUMP	in wg	7	Pump Static Pressure	0 - (-136)	-100 ± 10	



OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 7.4.3 RECORD values for the EQUIPMENT STATUS group into the following table AND VERIFY values are acceptable.

EQUIPMENT STATUS					
TAG	CH	DESCRIPTION	RANGE	ACCEPTABLE	VALUE
STACK	14	Stack Fan (On-Off)	ON, OFF	ON	
PUMP P1	15	Pump P1 (On-Off)	ON, OFF	One pump ON, and other pump OFF	
PUMP P2	18	Pump P2 (On-Off)	ON, OFF		
PMPFAIL	19	Pump Fail	NORMAL, FAILED	NORMAL	
HTRELEM	21	Heater Element Fail	NORMAL, FAILED	NORMAL	
HTRTEMP	22	Heater Overtemp Alm	NORMAL, OVERTMP	NORMAL	

OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 7.4.4 RECORD values for the COMMON FAULT ALARMS group into the following table AND VERIFY values are acceptable.

COMMON FAULT ALARMS						
TAG	UNITS	CH	DESCRIPTION	RANGE	ACCEPTABLE	VALUE
HUMID	%	23	HEPA Inlet Humidity	5 - 95	5 - 75	
TEMP	°F	24	HEPA Inlet Temp	32 - 212	32 - 195	
ALPHVAR	N/A	31	Alpha Samp Flow Var	NORMAL, ARMED	NORMAL	
REC VAR	N/A	33	Record Samp Flow Var	NORMAL, ARMED	NORMAL	

OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 7.4.5 VERIFY that run time and total flow values in the RUN TIME LOG are incrementing.

**NOTE:** The channels which make up the COMMON FAULT ALARMS group cause the alarm strobe on the top of the cabinet to flash when alarmed. Upon operator acknowledgement the alarm strobe will go off until another new alarm is received. When a channel alarms, it's icon will have a flashing red light indicating the alarm level. Upon acknowledgement the red light will either glow steadily if condition still exists, or disappear if the alarm condition has cleared.

OP/CE \_\_\_/\_\_\_/\_\_\_ 7.4.6 PRESS VTP-SS-2201B VAC PUMP START SW AND verify button returns to OUT position and light goes off.

**NOTE:** After approximately 5 minutes the alarm beacon will flash indicating flow variance alarms on channels 31 and 33.

**7.4.7 ACKNOWLEDGE** common fault alarm as follows:

OP/CE \_\_\_/\_\_\_

7.4.7.1 **PRESS COMMON FAULT ALARMS** group anywhere in box. Outside of box will turn yellow.

OP/CE \_\_\_/\_\_\_

7.4.7.2 **PRESS GOTO** key located at bottom right of display. **COMMON FAULT ALARMS** group will occupy entire screen.

OP/CE \_\_\_/\_\_\_

7.4.7.3 **PRESS ACK** key located at top right of screen.

OP/CE \_\_\_/\_\_\_

7.4.7.4 **VERIFY** that external alarm strobe has turned off.

OP/CE \_\_\_/\_\_\_

7.4.7.5 **PRESS MULTI-GROUP** key to return data logger screen to normal appearance.

OP/CE \_\_\_/\_\_\_

7.4.8 **PRESS VTP-SS-2201B VAC PUMP START SW AND** verify button locks into IN position and light goes on.

**NOTE:** After 90 seconds a vacuum pump will start. In approximately 5 minutes flow variance alarm conditions on channels 31 and 33 will clear.

OP/CE \_\_\_/\_\_\_

7.4.9 **VERIFY** that flow variance alarms clear.

7.4.10 **PRINT** Alarm Summary to Chart as follows:

OP/CE \_\_\_/\_\_\_

7.4.10.1 **PRESS ALARM SUMMARY** key.

OP/CE \_\_\_/\_\_\_

7.4.10.2 **PRESS Print Key** from ALARM SUMMARY menu.

OP/CE \_\_\_/\_\_\_

7.4.10.3 **PRESS MULTI-GROUP** key to return data logger screen to normal appearance.

**7.5 PLACING EXHAUSTER BACK TO STANDBY MODE**

OP/CE \_\_\_/\_\_\_

7.5.1 **DEPRESS** Stop pushbutton on VTP-PNL-2202B, Var Freq Dr Control Pnl.

OP/CE \_\_\_/\_\_\_

7.5.2 **POSITION** valves located on exhauster skid as follows:

- VTP-V-2228B, Flt Bank Inlet Iso Vlv           CLOSE
- VTP-V-2229B, Flt Bank Outlet Iso Vlv       CLOSE
- VTP-V-2209B, Cond Drn Vlv.                OPEN

**7.6 AUTOMATIC SHUTDOWN INTERFACE TO TRUCK**

**NOTE:** This section is to performed when called out within either WHC-SD-WM-OTP-174 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 3" or WHC-SD-WM-OTP-175 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 4".

- OP/CE \_\_\_/\_\_\_ 7.6.1 **START** Exhauster per section 7.3
- OP/CE \_\_\_/\_\_\_ 7.6.2 **PLACE** switch VTP-SS-2208B into UNATTENDED position.
- OP/CE \_\_\_/\_\_\_ 7.6.3 **PRESS** VTP-SS-2201B VAC PUMP START SW **AND** verify button returns to OUT position and light goes off.

**NOTE:** After approximately 5 minutes the alarm beacon will flash indicating flow variance alarms on channels 31 and 33.

- OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 7.6.4 **VERIFY** that Core Sample Truck automatically shuts down after alarm beacon flashes.

## 7.7 PLACE EXHAUSTER INTO SHUTDOWN FROM STANDBY

- OP/CE \_\_\_/\_\_\_ 7.7.1 **TURN OFF** Data Logger.
- OP/CE \_\_\_/\_\_\_ 7.7.2 **TURN** the following switches inside monitoring cabinet OFF:
- VTP-SS-2204B, Air Cond No. 1 Pwr Sw
  - VTP-SS-2211B, Samp Flo Inst
  - VTP-SS-2210B, Analyzer Pwr Sw
  - VTP-SS-2205B, Air Cond No. 2 Pwr Sw
- OP/CE \_\_\_/\_\_\_ 7.7.3 **DRAIN** seal-pot by **PRESSING** VTP-PB-2204B, Seal Pot Pp ON until seal-pot is empty.
- OP/CE \_\_\_/\_\_\_ 7.7.4 **CLOSE** the following valves:
- VTP-V-2209B, Cond Drn Vlv
  - VTP-V-2232B, HEPA 2 Cond Drn Vlv
  - VTP-V-2233B, HEPA 1 Cond Drn Vlv
- OP/CE \_\_\_/\_\_\_ 7.7.5 **PIC REQUEST** Electrician **SWITCH** the following components OFF:
- VTP-DS-2201B Var Freq Disconnect 480 V 3 Ph
  - VTP-DS-2202B Htr Disconnect 480 V 3 Ph
  - Main breaker in VTP-DP-2201B Dist Pnl For Vent Equip

## 7.8 EQUIPMENT TAKE DOWN

- 7.8.1 **PIC REQUEST** Electrician perform the following:
- OP/CE \_\_\_/\_\_\_ 7.8.1.1 **PLACE** Rotary Exhauster 480 VAC 40 AMPS switchgear at RMCS Generator to OFF.
- OP/CE \_\_\_/\_\_\_ 7.8.1.2 **DISCONNECT** 480V power cable from RMCS generator.

OP/CE \_\_\_/\_\_\_

7.8.1.3 **DISCONNECT** Skid and platform grounding cables.

7.8.2 **PIC REQUEST** Instrument Technician **PERFORM** the following:

OP/CE \_\_\_/\_\_\_

7.8.2.1 **DISCONNECT** Pressure Shutdown Cable from instrument stand on flange ring assembly.

OP/CE \_\_\_/\_\_\_

7.8.2.2 **DISCONNECT** photohelic piping from riser equipment **AND**

**CAP** or **PLUG** all openings.

OP/CE \_\_\_/\_\_\_

7.8.3 **REMOVE** instrument stand.

OP/CE \_\_\_/\_\_\_

7.8.4 **DISCONNECT** Seal-Pot drain and vent lines from riser equipment.

OP/CE \_\_\_/\_\_\_

7.8.5 **REMOVE** flexible duct support stands.

OP/CE \_\_\_/\_\_\_

7.8.6 **PIC REQUEST** Fitter **REMOVE** riser bolts from flange ring assembly.

OP/CE \_\_\_/\_\_\_

7.8.7 **REMOVE** flex duct flange ring assembly with flexible duct from riser.

OP/CE \_\_\_/\_\_\_

7.8.8 **PLACE** blank flange with neoprene gasket over opening on flange ring assembly **AND**

**BOLT** pieces together hand tight.

OP/CE \_\_\_/\_\_\_

7.8.9 **REMOVE** pressure adapter ring.

OP/CE \_\_\_/\_\_\_

7.8.10 **PIC REQUEST** Fitter to remove heater adapter ring with flexible duct from exhauster heater inlet.

OP/CE \_\_\_/\_\_\_

7.8.11 **PIC REQUEST** Fitter to place blank flange with neoprene gasket on heater adapter ring **AND**

**BOLT** pieces together hand tight.

OP/CE \_\_\_/\_\_\_

7.8.12 **PIC REQUEST** Fitter to place blank flange with neoprene gasket on exhauster heater inlet **AND**

**BOLT** pieces together hand tight.

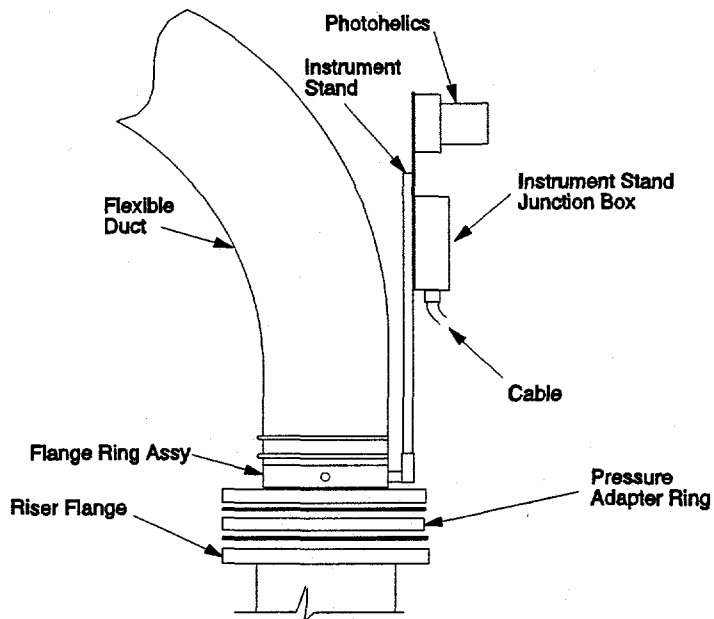
OP/CE \_\_\_/\_\_\_

7.8.13 **PIC REQUEST** Fitter **TIGHTEN** bolts hand tight.

## 8.0 EXHAUSTER #4 TEST PROCEDURE

### 8.1 EQUIPMENT SETUP

- OP/CE \_\_\_/\_\_\_ 8.1.1 PIC REQUEST Rigger place exhauster within 20 feet of riser to allow flexible duct connection to riser.
- OP/CE \_\_\_/\_\_\_ 8.1.2 PLACE leveling jacks on wooden blocks.
- OP/CE \_\_\_/\_\_\_ 8.1.3 LEVEL exhauster.
- OP/CE \_\_\_/\_\_\_ 8.1.4 PLACE portable monitoring cabinet platform in front of monitoring cabinet doors.



- OP/CE \_\_\_/\_\_\_ 8.1.5 PLACE 12 inch gasket and pressure adapter ring on top of simulated tank riser flange.
- OP/CE \_\_\_/\_\_\_ 8.1.6 PLACE 12 inch flange ring assembly on top of pressure adapter ring.
- OP/CE \_\_\_/\_\_\_ 8.1.7 PIC REQUEST Fitter bolt flange ring assembly through pressure adapter ring to riser.

- OP/CE \_\_\_/\_\_\_ 8.1.8 **INSTALL** instrument stand on flange ring assembly.
- OP/CE \_\_\_/\_\_\_ 8.1.9 **PIC REQUEST** Instrument Technician **CONNECT** pressure shutdown cable from exhauster skid to Instrument Stand Junction Box.
- OP/CE \_\_\_/\_\_\_ 8.1.10 **PIC REQUEST** Instrument Technician **CONNECT** tubing from high port of photohelic VTP-PDI-2202B, Tank Press, to flange ring assembly.
- OP/CE \_\_\_/\_\_\_ 8.1.11 **CONNECT** flexible duct between flange ring assembly and exhauster inlet.
- OP/CE \_\_\_/\_\_\_ 8.1.12 **PLACE** support stands below flexible duct to minimize sagging and low points.
- OP/CE \_\_\_/\_\_\_ 8.1.13 **CONNECT** Seal Pot Pump outlet line to Pressure Adapter Ring.
- OP/CE \_\_\_/\_\_\_ 8.1.14 **CONNECT** Seal Pot vent line to Pressure Adaptor Ring.
- OP/CE \_\_\_/\_\_\_ 8.1.15 **PIC REQUEST** Electrician **CONNECT** Skid and platform grounding cables.
- OP/CE \_\_\_/\_\_\_ 8.1.16 **PIC REQUEST** Electrician **ENSURE** the following components are OFF:
- Rotary Exhauster 480 VAC 40 AMPS switchgear at RMCS Generator
  - VTP-DS-2201C, Var Freq Disconnect 480 V 3 PH (at exhauster)
  - VTP-DS-2202C, Htr Disconnect 480 V 3 PH (at exhauster).
- OP/CE \_\_\_/\_\_\_ 8.1.17 **PIC REQUEST** Electrician **CONNECT** 480V power cable between portable generator and exhauster.
- OP/CE \_\_\_/\_\_\_ 8.1.18 **PIC REQUEST** Electrician **PLACE** Rotary Exhauster 480 VAC 40 AMPS switchgear on portable Generator ON.

## 8.2 INITIAL PLACEMENT INTO STANDBY MODE

- OP/CE \_\_\_/\_\_\_ 8.2.1 **PERFORM** system lineup per SYSTEM LINEUP LIST (on next page).

**SYSTEM LINEUP LIST**

COMPONENT NO.	DESCRIPTION	REQUIRED CONDITION	INITIAL POSITIONER (Initials/Date)	INDEPENDENT VERIFICATION (Initials/Date)
VTP-DP-2201C	DIST PNL FOR VENT EQUIP	ALL BREAKERS ON	/	/
VTP-DS-2201C	VAR FREQ DISCONNECT 480V 3 PH	ON	/	/
VTP-DS-2202C	HTR DISCONNECT 480V 3 PH	ON	/	/
VTP-V-2211C	ALPHA SAMP FCV INLET ISO VLV	CLOSED	/	/
VTP-V-2212C	REC SAMP FCV INLET ISO VLV	OPEN	/	/
VTP-V-2213C	BETA SAMP FCV INLET ISO VLV	OPEN	/	/
VTP-V-2217C	ALPHA SAMP FCV OUTLET ISO VLV	OPEN	/	/
VTP-V-2219C	REC SAMP FCV OUTLET ISO VLV	OPEN	/	/
VTP-V-2218C	BETA SAMP FCV OUTLET ISO VLV	OPEN	/	/
VTP-SS-2201C	VAC PUMP START SW	IN	/	/
VTP-SS-2206C	VAC Pp CONT CKT PWR SW	ON	/	/
VTP-SS-2207C	FCV CKT PWR SW	ON	/	/
VTP-SS-2204C	AIR COND NO 1 PWR SW	ON	/	/
VTP-SS-2211C	SAMP FLO INST	ON	/	/
VTP-SS-2208C	AUTO SHUTDOWN BYP SW	ATTENDED	/	/
VTP-SS-2210C	ANALYZER PWR SW	ON	/	/
VTP-SS-2205C	AIR COND NO 2 PWR SW	ON	/	/
VTP-V-2209C	COND DRN VLV	OPEN	/	/
VTP-V-2232C	HEPA 2 COND DRN VLV	OPEN	/	/
VTP-V-2233C	HEPA 1 COND DRN VLV	OPEN	/	/
VTP-V-2202C	COND DRN VLV TO SEAL POT (on heater)	OPEN	/	/
VTP-V-2228C	FLT BANK INLET ISO VLV	CLOSED	/	/
VTP-V-2229C	FKT BANK OUTLET ISO VLV	CLOSED	/	/
VTP-V-2234C	SEAL POT FUNNEL ISO VLV	CLOSED	/	/
VTP-V-2210C	VTP-PI-2202B INST ISO VLV	OPEN	/	/

OP/CE \_\_\_/\_\_\_ 8.2.2 **OPEN** VTP-V-2234C, Seal Pot Funnel Iso Valve.

OP/CE \_\_\_/\_\_\_ 8.2.3 **ADD** water to Seal-Pot funnel **UNTIL** pump activates.

OP/CE \_\_\_/\_\_\_ 8.2.4 **CLOSE** VTP-V-2234C, Seal Pot Funnel Iso Valve.

OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 8.2.5 **PIC REQUEST** Instrument Technician **ENSURE** alarm setpoints are set as follows:

- VTP-PDI-2202C, Tank Press -3" WG
- VTP-PDI-2203C, Hepa Flt Total D/P 5.5" WG.

OP/CE \_\_\_/\_\_\_ 8.2.6 **TURN** on Data Logger.

### 8.3 STARTING EXHAUSTER FROM STANDBY MODE

OP/CE \_\_\_/\_\_\_ 8.3.1 POSITION valves located on exhauster skid as follows:

- VTP-V-2228C, Flt Bank Inlet Iso Vlv OPEN
- VTP-V-2229C, Flt Bank Outlet Iso Vlv OPEN
- VTP-V-2209C, Cond Drn Vlv. CLOSED

OP/CE \_\_\_/\_\_\_ 8.3.2 DEPRESS Stop pushbutton TWICE on VTP-PNL-2202C, Var Freq Dr Control Pnl.

OP/CE \_\_\_/\_\_\_ 8.3.3 DEPRESS AND HOLD Start pushbutton for 2 minutes, 15 seconds, on VTP-PNL-2202C, Var Freq Dr Control Pnl.

### 8.4 DATA LOGGER OPERATION AND ALARM RESPONSE

NOTE: Data logger's initial display mode is PLANT SUMMARY. All exhauster information is contained within 4 groups, titled OPERATION STATUS, EQUIPMENT STATUS, RUN TIME LOG, and COMMON FAULT ALARMS. In the MULTI-GROUP display mode, all exhauster channel values can be viewed simultaneously. Channel numbers are displayed on chart printout and on alarm summary screen, but not on display screen. Channels on display screen are identified by a descriptive tag and units displayed.

OP/CE \_\_\_/\_\_\_ 8.4.1 PRESS the MULTI-GROUP key.

OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 8.4.2 RECORD values for the OPERATION STATUS group into the following table AND VERIFY values are acceptable.

OPERATION STATUS						
TAG	UNITS	CH	DESCRIPTION	RANGE	ACCEPTABLE	VALUE
STACK	SCFM	1	Stack Flow Rate	0 - 391	200 ± 10	
ALPHA	SCFM	3	Alpha Samp Flow Rate	0 - 3.00	1.53 ± .10	
RECORD	SCFM	4	Recrd Samp Flow Rate	0 - 3.00	1.53 ± .10	
BETA	SCFM	5	Beta Samp Flow Rate	0 - 3.00	1.53 ± .10	
STACK	°F	2	Stack Temperature	0 - 150	0 - 150	
SAMPLE	°F	6	Sample Temperature	0 - 150	0 - 150	
PUMP	in wg	7	Pump Static Pressure	0 - (-136)	-100 ± 10	



OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 8.4.3 **RECORD** values for the EQUIPMENT STATUS group into the following table **AND VERIFY** values are acceptable.

EQUIPMENT STATUS						
TAG	CH	DESCRIPTION	RANGE	ACCEPTABLE	VALUE	
STACK	14	Stack Fan (On-Off)	ON, OFF	ON		
PUMP P1	15	Pump P1 (On-Off)	ON, OFF	One pump ON, and other pump OFF		
PUMP P2	18	Pump P2 (On-Off)	ON, OFF			
PMPFAIL	19	Pump Fail	NORMAL, FAILED	NORMAL		
HTRELEM	21	Heater Element Fail	NORMAL, FAILED	NORMAL		
HTRTEMP	22	Heater Overtmp Alm	NORMAL, OVERTMP	NORMAL		

OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 8.4.4 **RECORD** values for the COMMON FAULT ALARMS group into the following table **AND VERIFY** values are acceptable.

COMMON FAULT ALARMS						
TAG	UNITS	CH	DESCRIPTION	RANGE	ACCEPTABLE	VALUE
HUMID	%	23	HEPA Inlet Humidity	5 - 95	5 - 75	
TEMP	°F	24	HEPA Inlet Temp	32 - 212	32 - 195	
ALPHVAR	N/A	31	Alpha Samp Flow Var	NORMAL, ALARMED	NORMAL	
REC VAR	N/A	33	Record Samp Flow Var	NORMAL, ALARMED	NORMAL	

OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 8.4.5 **VERIFY** that run time and total flow values in the RUN TIME LOG are incrementing.

**NOTE:** The channels which make up the COMMON FAULT ALARMS group cause the alarm strobe on the top of the cabinet to flash when alarmed. Upon operator acknowledgement the alarm strobe will go off until another new alarm is received. When a channel alarms, it's icon will have a flashing red light indicating the alarm level. Upon acknowledgement the red light will either glow steadily if condition still exists, or disappear if the alarm condition has cleared.

OP/CE \_\_\_/\_\_\_/\_\_\_ 8.4.6 **PRESS** VTP-SS-2201C VAC PUMP START SW **AND** verify button returns to OUT position and light goes off.

**NOTE:** After approximately 5 minutes the alarm beacon will flash indicating flow variance alarms on channels 31 and 33.

8.4.7 **ACKNOWLEDGE** common fault alarm as follows:

OP/CE \_\_\_/\_\_\_

8.4.7.1 **PRESS COMMON FAULT ALARMS** group anywhere in box. Outside of box will turn yellow.

OP/CE \_\_\_/\_\_\_

8.4.7.2 **PRESS GOTO** key located at bottom right of display. **COMMON FAULT ALARMS** group will occupy entire screen.

OP/CE \_\_\_/\_\_\_

8.4.7.3 **PRESS ACK** key located at top right of screen.

OP/CE \_\_\_/\_\_\_

8.4.7.4 **VERIFY** that external alarm strobe has turned off.

OP/CE \_\_\_/\_\_\_

8.4.7.5 **PRESS MULTI-GROUP** key to return data logger screen to normal appearance.

OP/CE \_\_\_/\_\_\_

8.4.8 **PRESS VTP-SS-2201C VAC PUMP START SW AND** verify button locks into IN position and light goes on.

**NOTE:** After 90 seconds a vacuum pump will start. In approximately 5 minutes flow variance alarm conditions on channels 31 and 33 will clear.

OP/CE \_\_\_/\_\_\_

8.4.9 **VERIFY** that flow variance alarms clear.

8.4.10 **PRINT** Alarm Summary to Chart as follows:

OP/CE \_\_\_/\_\_\_

8.4.10.1 **PRESS ALARM SUMMARY** key.

OP/CE \_\_\_/\_\_\_

8.4.10.2 **PRESS Print Key** from ALARM SUMMARY menu.

OP/CE \_\_\_/\_\_\_

8.4.10.3 **PRESS MULTI-GROUP** key to return data logger screen to normal appearance.

**8.5 PLACING EXHAUSTER BACK TO STANDBY MODE**

OP/CE \_\_\_/\_\_\_

8.5.1 **DEPRESS** Stop pushbutton on VTP-PNL-2202C, Var Freq Dr Control Pnl.

OP/CE \_\_\_/\_\_\_

8.5.2 **POSITION** valves located on exhauster skid as follows:

- VTP-V-2228C, Flt Bank Inlet Iso Vlv      CLOSE
- VTP-V-2229C, Flt Bank Outlet Iso Vlv      CLOSE
- VTP-V-2209C, Cond Drn Vlv.      OPEN

**8.6 AUTOMATIC SHUTDOWN INTERFACE TO TRUCK**

**NOTE:** This section is to performed when called out within either WHC-SD-WM-OTP-174 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 3" or WHC-SD-WM-OTP-175 REV 0-B "Operability Test Procedure for Rotary Mode Core Sampling System 4".

- OP/CE \_\_\_/\_\_\_ 8.6.1 **START** Exhauster per section 7.3
- OP/CE \_\_\_/\_\_\_ 8.6.2 **PLACE** switch VTP-SS-2208B into UNATTENDED position.
- OP/CE \_\_\_/\_\_\_ 8.6.3 **PRESS** VTP-SS-2201B VAC PUMP START SW **AND** verify button returns to OUT position and light goes off.

**NOTE:** After approximately 5 minutes the alarm beacon will flash indicating flow variance alarms on channels 31 and 33.

- OP/CE/QC \_\_\_/\_\_\_/\_\_\_ 8.6.4 **VERIFY** that Core Sample Truck automatically shuts down after alarm beacon flashes.

## 8.7 PLACE EXHAUSTER INTO SHUTDOWN FROM STANDBY

- OP/CE \_\_\_/\_\_\_ 8.7.1 **TURN OFF** Data Logger.
- OP/CE \_\_\_/\_\_\_ 8.7.2 **TURN** the following switches inside monitoring cabinet OFF:
- VTP-SS-2204C, Air Cond No. 1 Pwr Sw
  - VTP-SS-2211C, Samp Flo Inst
  - VTP-SS-2210C, Analyzer Pwr Sw
  - VTP-SS-2205C, Air Cond No. 2 Pwr Sw
- OP/CE \_\_\_/\_\_\_ 8.7.3 **DRAIN** seal-pot by **PRESSING** VTP-PB-2204C, Seal Pot Pp ON until seal-pot is empty.
- OP/CE \_\_\_/\_\_\_ 8.7.4 **CLOSE** the following valves:
- VTP-V-2209C, Cond Drn Vlv
  - VTP-V-2232C, HEPA 2 Cond Drn Vlv
  - VTP-V-2233C, HEPA 1 Cond Drn Vlv
- OP/CE \_\_\_/\_\_\_ 8.7.5 **PIC REQUEST** Electrician **SWITCH** the following components OFF:
- VTP-DS-2201C Var Freq Disconnect 480 V 3 Ph
  - VTP-DS-2202C Htr Disconnect 480 V 3 Ph
  - Main breaker in VTP-DP-2201C Dist Pnl For Vent Equip

## 8.8 EQUIPMENT TAKE DOWN

- 8.8.1 **PIC REQUEST** Electrician perform the following:
- OP/CE \_\_\_/\_\_\_ 8.8.1.1 **PLACE** Rotary Exhauster 480 VAC 40 AMPS switchgear at RMCS Generator to OFF.
- OP/CE \_\_\_/\_\_\_ 8.8.1.2 **DISCONNECT** 480V power cable from RMCS generator.

OP/CE \_\_\_/\_\_\_

8.8.1.3 **DISCONNECT** Skid and platform grounding cables.

8.8.2 **PIC REQUEST** Instrument Technician **PERFORM** the following:

OP/CE \_\_\_/\_\_\_

8.8.2.1 **DISCONNECT** Pressure Shutdown Cable from instrument stand on flange ring assembly.

OP/CE \_\_\_/\_\_\_

8.8.2.2 **DISCONNECT** photohelic piping from riser equipment **AND**

**CAP** or **PLUG** all openings.

OP/CE \_\_\_/\_\_\_

8.8.3 **REMOVE** instrument stand.

OP/CE \_\_\_/\_\_\_

8.8.4 **DISCONNECT** Seal-Pot drain and vent lines from riser equipment.

OP/CE \_\_\_/\_\_\_

8.8.5 **REMOVE** flexible duct support stands.

OP/CE \_\_\_/\_\_\_

8.8.6 **PIC REQUEST** Fitter **REMOVE** riser bolts from flange ring assembly.

OP/CE \_\_\_/\_\_\_

8.8.7 **REMOVE** flex duct flange ring assembly with flexible duct from riser.

OP/CE \_\_\_/\_\_\_

8.8.8 **PLACE** blank flange with neoprene gasket over opening on flange ring assembly **AND**

**BOLT** pieces together hand tight.

OP/CE \_\_\_/\_\_\_

8.8.9 **REMOVE** pressure adapter ring.

OP/CE \_\_\_/\_\_\_

8.8.10 **PIC REQUEST** Fitter to remove heater adapter ring with flexible duct from exhauster heater inlet.

OP/CE \_\_\_/\_\_\_

8.8.11 **PIC REQUEST** Fitter to place blank flange with neoprene gasket on heater adapter ring **AND**

**BOLT** pieces together hand tight.

OP/CE \_\_\_/\_\_\_

8.8.12 **PIC REQUEST** Fitter to place blank flange with neoprene gasket on exhauster heater inlet **AND**

**BOLT** pieces together hand tight.

OP/CE \_\_\_/\_\_\_

8.8.13 **PIC REQUEST** Fitter **TIGHTEN** bolts hand tight.

### OTP Exception / Resolution Data Sheet

STEP #	DESCRIPTION OF PROBLEM	RESOLUTION TO PROBLEM	COG INITIALS	QC INITIALS

## Test Completion Sign-Off Sheet

All tests have been completed as described in this OTP. All exceptions have been documented and resolved as indicated on the "OTP Exception / Resolution Sheet". The Exhausters can be operated in a safe manner and pose no unacceptable hazards to the operator.

NAME	ORGANIZATION	SIGNATURE	DATE
J. S. Lee	Core Sampling Operations		
M. L. McElroy	Quality Assurance		
M. E. Huda	Safety		
P. J. Martell	Effluent Emissions Monitoring		
J. S. Schofield	Characterization Plant Engineering		
T. D. Jarecki	Characterization Plant Engineering		
E. J. Waldo	Characterization Plant Engineering		