Page 1 of 1
1. EDT 619708

2. To: (Receiving Organization)		3. From: (Originating Organization)		4. Related EDT No.:							
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5. Proj./Prog./Dept./Div.:		6. Design Authority/Design Agent/Cog. Engr.:		7. Purchase Order No.:							
241-AN CAM Upgrade		C. C. Scaief									
8. Originator Remarks:				9. Equip./Component No.:							
Acceptance Test Procedure, TWR-4713, to be completed prior to performing the functional test of the AMS-4 CAM.				10. System/Bldg./Facility:							
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USQ TF-98-1012/Rev. 8 FOR THIS ATP CONCLUDES THAT CHANGING TO AMS-4 CAM(S) COMPLIES WITH LCO 3.1.4 AND THAT THE SYSTEM MEETS AB REQUIREMENTS				14. Required Response Date:							
15. DATA TRANSMITTED				(F)	(G)	(H)	(I)				
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition			
1	TWR-4713		0	Acceptance Test Procedure	Q						
16. KEY											
Approval Designator (F)		Reason for Transmittal (G)			Disposition (H) & (I)						
E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7)		1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)			1. Approved 2. Approved w/comment 3. Disapproved w/comment		4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged				
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(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	Design Authority	R. S. Nicholson	9/21/99		1	1	R. G. Lee	9/21/99	55-06	
1	1	Design Agent	R. D. Freeman	9/21/99		1	1	D. Scott	9/21/99	55-04	
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1	2	Cog. Mgr.	D. G. Baide	9/21/99							
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		Safety	N/A								
1	1	Env.	T. A. Dillhoff	9/15/99							
18. Signature of EDT Originator		19. Authorized Representative for Receiving Organization		20. Design Authority/Cognizant Manager		21. DOE APPROVAL (if required)					
Rick Freeman 9/8/99		Rick Freeman 9/22/99		Rick Freeman 9/21/99		Ctrl No. _____ ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments					

S

ACCEPTANCE TEST PROCEDURE FOR AMS-4 CONTINUOUS AIR MONITORS AT 241-AN EXHAUSTERS

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Lockheed Martin Hanford Co.

Richland, WA 99352

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Abstract: This supporting document provides detailed instruction for ensuring the existing alarms and interlocks are in an acceptable condition prior to performing the functional test of the AMS-4 installation.

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ATP FOR 241-AN FARM K1/K2 CONTINUOUS AIR MONITOR
INSTALLATION

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1.0 PURPOSE AND SCOPE

1.1 PURPOSE

This procedure provides instructions to demonstrate the functional capabilities of the continuous air monitors and the associated alarms in AN-271 and remote alarm at 242-A. As the AMS-3 is removed and the AMS-4 installed, this procedure will ensure the reconnected circuits between the existing and new unit are functioning, before continuing with the functional test procedure, TF-FT-229-005. The testing will be completed prior to completion of the work document.

1.2 SCOPE

The following systems associated with the K1/K2 continuous air monitors will be tested by this Acceptance Test Procedure:

Electrical and Instrument Systems

- Continuous air monitor Flow
- K1 AN-271 Alarms
- K1 242-A Remote Alarms
- K2 AN-271 Alarms
- K2 242-A Remote Alarms
- K2 Heater Controllers
- Record Sample Vacuum Pump Interlock
- Heater and Blower Test

2.0 INFORMATION

2.1 TERMS AND DEFINITIONS

- 2.1.1 CAM - Continuous Air Monitor
- 2.1.2 242-A - 242-A Evaporator Bldg.
- 2.1.3 AN-271 AN-271 Instrument Bldg.

2.2 RESPONSIBILITIES

- 2.2.1 Each company or organization participating in this procedure will designate personnel to assume the responsibilities and duties as defined herein for their respective roles.

2.2 RESPONSIBILITIES (Cont.)

2.2.2 The Design Engineer from Equipment Engineering is responsible for designating and providing a Test Director.

2.2.3 The Cognizant Engineer is responsible for the following:

- Specifying required test sections for each assembly
- Provide technical support to Test Director during testing
- Resolving exceptions to the Acceptance Test
- Preparing and approving procedure changes required to support testing
- Approving acceptance test results

2.2.4 The Test Director is responsible for the following:

- Schedule pre-job, test date and resources required for acceptance testing
- Coordinate test date and testing changes with facility management and all involved parties
- Ensure test is executed in accordance with this procedure
- Ensure accuracy of recorded data, discrepancies, and exceptions
- Stop any test which may cause damage to the system until the test procedure has been revised
- Obtain revisions to the Acceptance Test Procedure, as necessary, to execute test
- Ensure test revisions are approved for use via the redline method before continuing test (see Section 2.4)
- Execution of the test, recording test data, maintaining record copy of test current, approving test results for each section, obtaining approvals for each section and overall test results

2.2 RESPONSIBILITIES (Cont.)

2.2.5 Quality Assurance is responsible for the following:

- Verifying that the procedure sections were performed correctly by witnessing the procedure steps as they occur. Sign at the end of each designated section and the TEST EXCEPTION SHEET.
- Post-test review of test documentation

2.3 REFERENCES

- 2.3.1 AMS-4 Vendor Information File
- 2.3.2 IP-0842, RPP Administration
- Vol. I, Section 2.11, "Technical Procedure Control and Use"
 - Vol. II, Section 4.9.1, "Lock and Tag Program"
- 2.3.3 All reference drawings are noted on ECN 646983.

2.4 GENERAL INFORMATION

- 2.4.1 This procedure is prepared to be used individually for each K1 and K2 AMS-4 installation. The two systems share common terminal boxes and have interlocks to the K1 and K2 exhausters and remote alarms.
- 2.4.2 Acceptance Criteria steps are noted by the word **VERIFY** and require a Test Director signature to ensure the step has been completed. Changes to this procedure that do not change Acceptance Criteria results can be made using the red-line method with the approval of the Test Director, Cognizant Engineer and Quality Assurance. Changes to Acceptance Criteria such as labeling and reference names on alarms and indicators can be made using this method. Changes to the Acceptance Criteria that result in a functional change will require an ECN. All changes will be incorporated in the test report.
- 2.4.3 Any non-conformance of the instrumentation or unexpected results during testing shall be logged in the TEST EXCEPTION SHEET, and thoroughly documented in the procedure at the affected step.

2.4 GENERAL INFORMATION (Cont.)

- 2.4.4 The acceptance test steps detailed in Section 5.0 shall be performed sequentially. The major subsections may be performed out of sequence per the direction of the Test Director if the intent of the test is not compromised. Any step that requires verification of data must also be recorded on the "Working Copy" of this procedure.
- 2.4.5 Individual test sections will be performed as required to facilitate each AMS-4 installation.
- 2.4.6 Quality Assurance shall ensure that the test is performed according to procedure. Quality Assurance shall sign and date at the end of each section verifying the procedure steps have been performed correctly.

2.5 RECORDS

The completed "Working Copy" of this procedure, Test Exception Sheets, and Test Logs generated by the performance of this procedure will be kept as permanent records through the document release system in the Test Report, TWR-4714.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 PERSONNEL SAFETY

- 3.1.1 A daily pretest safety briefing will be held with all test participants and documented in the Test Log.
- 3.1.2 The primary safety concerns for the performance of this procedure are related to electrical hazards. Any hazard identified during the performance of the procedure shall be reported to the Test Director.
- 3.1.3 Any other hazards, along with identified personal protective equipment will be addressed in the Job Hazard Analysis and reviewed during the pre-job safety meeting.

3.2 RADIATION AND CONTAMINATION CONTROL

- 3.2.1 When this procedure is performed in a radiological area (except for buffer and underground areas) and the area is not a High Contamination, High Radiation, or Airborne Radioactivity Area, then this is low risk radiological work, and a general Radiation Work Permit must be assigned by Radiological Control Engineering and Technical Support.

3.2 RADIATION AND CONTAMINATION CONTROL (Cont.)

- 3.2.2 When this procedure is performed in a High Contamination, High Radiation, Airborne Radioactivity Area or if a breach is made to a system or component containing radioactive material then an approved Job Control System package and a job specific Radiation Work Permit is required.

3.3 ENVIRONMENTAL COMPLIANCE

None

3.4 LIMITS

Performance of test activities shall always include safety and health aspects as delineated in the vendor manuals and as directed by the Test Director.

3.5 CABINET ALARMS

The high/low temperature light (DS8) and the white external strobe light will be illuminated/flashing whenever the cabinet temperature is high or low enough to turn on the fan or heater. This can occur on a very hot or cold day. Should this happen, these alarms will not clear. Note the alarm condition on the test exception sheet. Steps that require clearing of all alarms can be checked even though the cabinet alarm is not clear.

4.0 PREREQUISITES

4.1 SPECIAL TOOLS, EQUIPMENT, AND SUPPLIES

- 4.1.1 The following supplies may be needed to perform this procedure and will be made available prior to steps where they are used:

NOTES - The organization accomplishing the test will supply all equipment necessary, unless otherwise noted. The following list is provided as an aid and is not intended to be an all-exhaustive list. Record pertinent information such as model number, serial number and calibration information as required below and in the Test Log.

- If item will not be used, N/A that piece of equipment.
- Assorted hand tools
- Sealed Beta check source for AMS-4, minimum 10,000dpm
- Clamp-on Ammeter, 0-20 AC Amp minimum range, 10% accuracy or better
- Heat gun and circuit cooler

4.2 CONDITIONS AND ACTIONS

The following conditions must be met before this procedure may commence:

- 4.2.1 A pre-job safety meeting has been held before performing this procedure in accordance with IP-0842, Vol V, Section 4.1, PRE-JOB SAFETY MEETING FORM.
- 4.2.2 Test Director **VERIFY** Section 4.0 has been completed by signing below.

Signature
Test Director

Printed Name

Date

5.0 PROCEDURE

5.1 PERFORM K1 FUNCTIONAL TEST

PRETEST SETUP

- 5.1.1 **OBTAIN** permission from SOM to perform test.
- 5.1.2 **ENSURE** procedure 6-TF-077 has been completed on the K1 cabinet.
- 5.1.3 **ENSURE** vacuum pumps are plugged into the appropriate receptacle, - Monitoring pump "unswitched" and record sample pump "switched".
- 5.1.4 **ENSURE** continuous air monitor is plugged into AC power.
- 5.1.5 **APPLY** power to the continuous air monitor, **AND PROCEED** when the READY light turns on.
- 5.1.6 **ENSURE** K1 exhauster is not running.
- 5.1.7 **ENSURE** K1 CAM installation data sheet (ET-07245) from procedure 6-RM-168 has been completed.
- 5.1.8 **ENSURE** filter is installed in AMS-4.
- 5.1.9 **CHECK** Pretest setup is complete. ☐

TEST

- 5.1.10 **ENSURE** power is on to monitoring cabinet.
- 5.1.11 **VERIFY** record sample pump is off and monitor vacuum pump is running.

Signature
Test Director

Printed Name

Date

- 5.1.12 **VERIFY** that "Stack Operating Light" on the cabinet Connection Box is not lit.

Signature
Test Director

Printed Name

Date

- 5.1.13 **APPLY** temporary power from an unswitched outlet to the record sample vacuum pump, **AND ENSURE** the record sample pump is running.

5.1 PERFORM K1 FUNCTIONAL TEST (Cont.)

- 5.1.14 **VERIFY** that the record sample flow can be adjusted, using the regulator, to 120 (+/-12) SCFH as indicated on the rotameter.

RECORD the flow value. _____ SCFH

Signature Printed Name Date
Test Director

- 5.1.15 **VERIFY** the monitor flow is set to 2.0 (+/-0.2) CFM as indicated on the continuous air monitor display. Adjust as required using the regulator.

RECORD the flow value. _____ CFM

Signature Printed Name Date
Test Director

- 5.1.16 **IF** the appropriate flow range **CANNOT** be achieved, **STOP** the test **AND CONTACT** Engineering before continuing.

RECORD SAMPLE PUMP LOW FLOW ALARM

- 5.1.17 **ENSURE** that the AN K1 Record Sample Pump fail alarm (Faceplate 68/Block 3) at the 242-A Evaporator Monitor and Control System is clear.

- 5.1.18 **DISCONNECT** power to the record sample vacuum pump.

- 5.1.19 **VERIFY** that "Low Record Flow" light at the Local Alarm Box is lit.

Signature Printed Name Date
Test Director

- 5.1.20 **VERIFY** that AN K1 Record Sample Pump fail alarm (Faceplate 68/Block 3) at the 242-A Evaporator Monitor and Control System is activated.

Signature Printed Name Date
Test Director

- 5.1.21 **RESTORE** power to the record sample vacuum pump.

- 5.1.22 **RESET** local alarm box, **AND ACKNOWLEDGE** remote alarms.

- 5.1.23 **CHECK** that alarms and lights have cleared. ☐

5.1 PERFORM K1 FUNCTIONAL TEST (Cont.)**MONITOR SAMPLE PUMP LOW FLOW ALARM**

- 5.1.24 **ENSURE** that the AN K1 monitor sample pump fail alarm (Faceplate 68/Block 2) at the 242-A Evaporator Monitor and Control System is clear.
- 5.1.25 **ENSURE** that the AN Farm Tank Exh Rad Mon Fail (Faceplate 68/Block 1) is clear.
- 5.1.26 **ENSURE** that AN-271 ANN 103, Window 9 Primary Exh Stack CAM Failure is clear.
- 5.1.27 **REMOVE** power to the monitor sample vacuum pump.
- 5.1.28 **VERIFY** that "Low Beta Flow" light at the Local Alarm Box is lit.

Signature Printed Name Date
Test Director

- 5.1.29 **VERIFY** that continuous air monitor malfunction light is lit with an indication of Low Flow (Response time may be delayed).

Signature Printed Name Date
Test Director

- 5.1.30 **VERIFY** all alarms noted in step 5.1.24, 5.1.25 and 5.1.26 are activated.

Signature Printed Name Date
Test Director

- 5.1.31 **RESTORE** power to the monitor sample vacuum pump.
- 5.1.32 **RESET** local alarm box, **ACKNOWLEDGE** any CAM alarms, **AND** **ACKNOWLEDGE** remote alarms.
- 5.1.33 **CHECK** that alarms and lights have cleared and that CAM ready light is ON. ☐

5.1 PERFORM K1 FUNCTIONAL TEST (Cont.)HIGH RADIATION ALARMS

- 5.1.34 **ENSURE** the CAM HI Rad Alarm on Annunciator 102 at AN-271 and the 242-A Evaporator Monitor and Control System (Faceplate 68, Block 0) are clear.
- 5.1.35 **ADJUST** the continuous air monitor to a fixed flow value of 2 CFM and the beta alarm setpoint to 500 cpm.
- 5.1.36 **REMOVE** power from the monitor sample vacuum pump. (Low Beta Flow light on the local alarm box and the Evaporator flow alarm will actuate.)
- 5.1.37 **REMOVE** the filter **AND PLACE** a minimum 10,000 dpm beta check source into the continuous air monitor chamber and allow the HI Radiation alarm to actuate.
- 5.1.38 **VERIFY** that CAM HI Rad alarm on Annunciator 102 Window 10 at AN-271 and the 242-A Evaporator Monitor and Control System (Faceplate 68/Block 0) are activated.

Signature
Test Director

Printed Name

Date

- 5.1.39 **VERIFY** that HI Beta Rad light on the local alarm box is lit.

Signature
Test Director

Printed Name

Date

- 5.1.40 **REMOVE** the beta check source **AND REPLACE** the filter.
- 5.1.41 **RESTORE** power to the monitor sample vacuum pump.
- 5.1.42 **RETURN** continuous air monitor fixed flow value to normal setting.
- 5.1.43 **RETURN** continuous air monitor beta setpoint to 3000 cpm.
- 5.1.44 **RESET** local alarm box **AND ACKNOWLEDGE** remote and alarms.
- 5.1.45 **CHECK** that alarms and lights have cleared. ☐

5.1 PERFORM K1 FUNCTIONAL TEST (Cont.)HEATER AND BLOWER TEST

NOTE - THE CABINET BLOWER THERMOSTAT (LEFT SIDE OF THERMOSTAT BOX) ACTIVATES AT 95 +/-5 DEGREES F AND DEACTIVATES AT 85 +/-5 DEGREES F. THE HEATER THERMOSTAT (RIGHT SIDE OF THERMOSTAT BOX) ACTIVATES AT 65 +/-5 DEGREES F AND DEACTIVATES AT 75 +/-5 DEGREES F.

- 5.1.46 **APPLY** heat or cold as required to cabinet blower thermostat and **VERIFY** cabinet blower turns on and off.

Signature Printed Name Date
Test Director

- 5.1.47 **APPLY** heat or cold as required to heater thermostat and **VERIFY** heater turns on and off.

Signature Printed Name Date
Test Director

EXHAUSTER RECORD SAMPLE PUMP INTERLOCK

- 5.1.48 **ENSURE** record sample vacuum pump is plugged into a switched outlet.

- 5.1.49 **ENSURE** record sample vacuum pump is not running.

- 5.1.50 **OBTAIN** permission from SOM to start exhauster.

NOTE - TEST DIRECTOR TO NOTIFY SOM THAT THE CAM INTERLOCK SYSTEM WILL NOT BE DECLARED OPERATIONAL UNTIL THE FUNCTIONAL TEST HAS BEEN PERFORMED. REFER TO THE WORK PACKAGE FOR THE MONITORING REQUIREMENTS DURING THIS PERIOD.

- 5.1.51 **START** K1 exhauster **AND VERIFY** that record sample vacuum pump starts.

Signature Printed Name Date
Test Director

- 5.1.52 **RESET** the local alarm box **AND VERIFY** that "Stack Operating" light at the cabinet connection box is lit.

Signature Printed Name Date
Test Director

- 5.1.53 **CHECK** that all local and remote alarms have cleared. ☐

5.1 PERFORM K1 FUNCTIONAL TEST (Cont.)

5.1.54 Test Director **VERIFY** all steps in Section 5.1 have been completed by signing below.

Signature
Test Director

Printed Name

Date

Quality Assurance **VERIFY** that Section 5.1 has been completed by signing below.

Signature
Quality Control

Printed Name

Date

5.2 PERFORM K2 FUNCTIONAL TESTPRETEST SETUP

- 5.2.1 **OBTAIN** permission from SOM to perform test.
- 5.2.2 **ENSURE** procedure 6-TF-077 has been completed on the K2 cabinet.
- 5.2.3 **ENSURE** vacuum pumps are plugged into the appropriate receptacle, - Monitoring pump "unswitched" and record sample pump "switched".
- 5.2.4 **ENSURE** continuous air monitor is plugged into AC power.
- 5.2.5 **APPLY** power to the continuous air monitor, **AND PROCEED** when the READY light turns on.
- 5.2.6 **ENSURE** K2 exhauster is not running.
- 5.2.7 **ENSURE** K2 CAM installation data sheet (ET-07244) from procedure 6-RM-168 has been completed.
- 5.2.8 **ENSURE** filter is installed in AMS-4.
- 5.2.9 **CHECK** Pretest setup is complete. ☐

TEST

- 5.2.10 **SWITCH** power on to monitoring cabinet.
- 5.2.11 **VERIFY** record sample pump is off and monitor vacuum pump is running.

Signature
Test Director

Printed Name

Date

- 5.2.12 **VERIFY** that "Stack Operating Light" on the cabinet Connection Box is not lit.

Signature
Test Director

Printed Name

Date

- 5.2.13 **APPLY** temporary power from an unswitched outlet to the record sample vacuum pump, **AND ENSURE** that record sample pump is running.

5.2 PERFORM K2 FUNCTIONAL TEST (Cont.)

- 5.2.14 **VERIFY** that the record sample flow can be adjusted, using the regulator, to 120 (+/-12) SCFH as indicated on the rotameter.

RECORD the flow value. _____ SCFH

Signature
Test Director

Printed Name

Date

- 5.2.15 **VERIFY** the monitor flow is set to 2.0 (+/-0.2) CFM as indicated on the continuous air monitor display. Adjust as required using the regulator.

RECORD the flow value. _____ CFM

Signature
Test Director

Printed Name

Date

- 5.2.16 **IF** the appropriate flow range **CANNOT** be achieved, **STOP** the test **AND CONTACT** Engineering before continuing.

RECORD SAMPLE PUMP LOW FLOW ALARM

- 5.2.17 **ENSURE** that the AN K2 Record Sample Pump fail alarm (Faceplate 68/Block 7) at the 242-A Evaporator Monitor and Control System is clear.

- 5.2.18 **DISCONNECT** power to the record sample vacuum pump.

- 5.2.19 **VERIFY** that "Low Record Flow" light at the Local Alarm Box is lit.

Signature
Test Director

Printed Name

Date

- 5.2.20 **VERIFY** that AN K2 Record Sample Pump fail alarm at the 242-A Evaporator Monitor and Control System (Faceplate 68/Block 7) is activated.

Signature
Test Director

Printed Name

Date

- 5.2.21 **RESTORE** power to the record sample vacuum pump.

- 5.2.22 **RESET** local alarm box, **AND ACKNOWLEDGE** remote alarms.

- 5.2.23 **CHECK** alarms and lights have cleared. ☐

5.2 PERFORM K2 FUNCTIONAL TEST (Cont.)MONITOR SAMPLE PUMP LOW FLOW ALARM

- 5.2.24 **ENSURE** that the AN K1 monitor sample pump fail alarm (Faceplate 68/Block 6) at the 242-A Evaporator Monitor and Control System is clear.
- 5.2.25 **ENSURE** that the AN Farm Tank Exh Rad Mon Fail (Faceplate 68/Block 5) is clear.
- 5.2.26 **ENSURE** that AN-271 ANN 103, Window 8 Annulus Exh Stack CAM Failure is clear.
- 5.2.27 **REMOVE** power to the monitor sample vacuum pump.
- 5.2.28 **VERIFY** that "Low Beta Flow" light at the Local Alarm Box is lit.

Signature
Test Director

Printed Name

Date

- 5.2.29 **VERIFY** that continuous air monitor malfunction light is lit with an indication of Low Flow (Response time may be delayed).

Signature
Test Director

Printed Name

Date

- 5.2.30 **VERIFY** all alarms noted in step 5.2.24, 5.2.25 and 5.2.26 are activated.

Signature
Test Director

Printed Name

Date

- 5.2.31 **RESTORE** power to the monitor sample vacuum pump.
- 5.2.32 **RESET** local alarm box, **ACKNOWLEDGE** any CAM alarms, **AND** **ACKNOWLEDGE** remote alarms.
- 5.2.33 **CHECK** that alarms and lights have cleared **AND** the CAM ready light is ON. ☐

HIGH RADIATION ALARMS

- 5.2.34 **ENSURE** the CAM HI Rad Alarm on Annunciator 102 Window 9 at AN-271 and the 242-A Evaporator Monitor and Control System (Faceplate 68/Block 4) are clear.

5.2 PERFORM K2 FUNCTIONAL TEST (Cont.)

- 5.2.35 **ADJUST** the continuous air monitor to a fixed flow value of 2 CFM and the beta alarm setpoint to 500 cpm.
- 5.2.36 **REMOVE** power from the monitor sample vacuum pump. (Low Beta Flow light on the local alarm box and Evaporator flow alarm will actuate.)
- 5.2.37 **REMOVE** the filter **AND PLACE** a minimum 10,000 dpm beta check source into the continuous air monitor chamber and allow the HI Radiation alarm to actuate.
- 5.2.38 **VERIFY** that CAM HI Rad alarm on Annunciator 102 Window 9 at AN-271 and the 242-A Evaporator Monitor and Control System (Faceplate 68/Block 8) are activated.

Signature
Test Director

Printed Name

Date

- 5.2.39 **VERIFY** that HI Beta Rad light on the local alarm box is lit.

Signature
Test Director

Printed Name

Date

- 5.2.40 **REMOVE** the beta check source **AND REPLACE** the filter.
- 5.2.41 **RESTORE** power to the monitor sample vacuum pump.
- 5.2.42 **RETURN** continuous air monitor fixed flow value to normal setting.
- 5.2.43 **RETURN** continuous air monitor beta setpoint to 3000 cpm.
- 5.2.44 **RESET** local alarm box, **AND ACKNOWLEDGE** remote alarms.
- 5.2.45 **CHECK** that alarms and lights have cleared. ☐

HEATER AND BLOWER TEST

NOTE - THE CABINET BLOWER THERMOSTAT (LEFT SIDE OF THERMOSTAT BOX) ACTIVATES AT 95 +/-5 DEGREES F AND DEACTIVATES AT 85 +/-5 DEGREES F. THE HEATER THERMOSTAT (RIGHT SIDE OF THERMOSTAT BOX) ACTIVATES AT 65 +/-5 DEGREES F AND DEACTIVATES AT 75 +/-5 DEGREES F.

5.2 PERFORM K2 FUNCTIONAL TEST (Cont.)

- 5.2.46 **APPLY** heat or cold as required to cabinet blower thermostat and **VERIFY** cabinet blower turns on and off.

Signature
Test Director

Printed Name

Date

- 5.2.47 **APPLY** heat or cold as required to heater thermostat and **VERIFY** heater turns on and off.

Signature
Test Director

Printed Name

Date

EXHAUSTER RECORD SAMPLE PUMP INTERLOCK

- 5.2.48 **ENSURE** record sample vacuum pump is plugged into switched outlet.

- 5.2.49 **ENSURE** record sample vacuum pump is not running.

- 5.2.50 **OBTAIN** permission from SOM to start exhauster.

NOTE - TEST DIRECTOR TO NOTIFY SOM THAT THE CAM INTERLOCK SYSTEM WILL NOT BE DECLARED OPERATIONAL UNTIL THE FUNCTIONAL TEST HAS BEEN PERFORMED. REFER TO THE WORK PACKAGE FOR THE MONITORING REQUIREMENTS DURING THIS PERIOD.

- 5.2.51 **START** K2 exhauster and **VERIFY** that record sample vacuum pump starts.

Signature
Test Director

Printed Name

Date

- 5.2.52 **RESET** the local alarm box **AND VERIFY** that "Stack Operating" light at the cabinet connection box is lit.

Signature
Test Director

Printed Name

Date

- 5.2.53 **CHECK** that all local and remote alarms have cleared. ☐

- 5.2.54 Test Director **VERIFY** all steps in Section 5.2 have been completed by signing below.

Signature
Test Director

Printed Name

Date

5.3 TEST K2 HEATER CONTROLLERS

Quality Assurance **VERIFY** that Section 5.2 has been completed by signing below.

Signature Printed Name Date
Quality Control

- NOTES - The purpose of this test section is to check K2 heater controllers.
- In the A Exhaust Train the upper heater elements should be on whenever the fan is running. The lower heater elements are controlled by Differential Controller AN241-VTA-TDC-709. In the B Exhaust Train, the controller is not functioning and is jumpered out. Both the upper and lower elements are powered whenever the B train fan is running.

A EXHAUST TRAIN RUNNING

- 5.3.1 To test A Exhaust train, use a clamp-on ammeter and **VERIFY** that the Upper and Lower heating elements in the B Exhaust train are NOT powered.

Signature Printed Name Date
Test Director

- 5.3.2 **VERIFY** that Upper heating elements in the A Exhaust train are powered.

Signature Printed Name Date
Test Director

- 5.3.3 Using the clamp-on ammeter, **MEASURE** the current in one phase of the Lower heater in the A Exhaust train.

- 5.3.4 **VERIFY** that Differential Heater Controller setpoint can be changed to turn power on and off at the lower heater.

Signature Printed Name Date
Test Director

5.4 TEST K2 HEATER CONTROLLERS (Cont.)**B EXHAUST TRAIN RUNNING**

- 5.4.1 To test B Exhaust train, use a clamp-on ammeter and **VERIFY** that the Upper and Lower heating elements in the A Exhaust train are NOT powered.

Signature Printed Name Date
Test Director

- 5.4.2 **VERIFY** that the Upper and Lower heating elements in the B Exhaust train are powered.

Signature Printed Name Date
Test Director

- 5.4.3 Test Director **VERIFY** all steps in Section 5.3, 5.4 have been completed by signing below.

Signature Printed Name Date
Test Director

Quality Assurance **VERIFY** that Section 5.3, 5.4 has been completed by signing below.

Signature Printed Name Date
Quality Control

5.5 ACCEPTANCE CRITERIA

- 5.5.1 **VERIFY** that all acceptance criteria steps have been completed satisfactorily and exceptions resolved.

Signature
Test Director

Printed Name

Date

Signature
Cognizant Engineer

Printed Name

Date

Signature
Quality Control

Printed Name

Date

- 5.5.2 **COMPLETE** Acceptance Test Procedure Acceptance Record. ☐

TEST EXCEPTION SHEET

Test Section:		
Exception Number:		ACCEPTANCE TEST
EXCEPTION (One per page)		
Procedure Step Number	Date	Problem
Procedure Step Number	Date	Resolution

EXCEPTION RESOLUTION COMPLETE

Signature
Test Director

Printed Name

Date

Signature
Cognizant Engineer

Printed Name

Date

Signature
Quality Assurance

Printed Name

Date

TEST LOG

DATE/TIME	COMMENTS

ACCEPTANCE TEST PROCEDURE ACCEPTANCE RECORD

This Acceptance Test Procedure has been completed and the test results, including redline changes, exceptions, and exception resolutions, have been reviewed for compliance with the intent of the Purpose (Section 1.0). The test results are accepted by the undersigned:

Cognizant Engineer (Signature) (Print Name) Date

Cognizant Manager (Signature) (Print Name) Date

Tank Farms Operations (Signature) (Print Name) Date

Quality Assurance (Signature) (Print Name) Date

Test Director (Signature) (Print Name) Date

All personnel who will be performing, initialing and signing the procedure shall enter their printed name, signature and initials below.

INITIALS

[illegible]

PROCEDURE HISTORY SIGNATURE SHEET

Last Full Revision:

Release Date:

USQ Screening Number:

Approval Designator:

Current Modification:

USQ Screening Number:

Approval Designator:

PCA Incorporated:

POSITION/ORG	DELEGATE	DATE
Maint.	<u>R. Lee</u>	<u>09/14/99</u>
Mgr	<u>D. Baide</u>	<u>09/20/99</u>
QAE	<u>W. Adams</u>	<u>09/20/99</u>
Eng/TWRS Safety	<u>N/A</u>	<u> </u>
Eng	<u>R. D. Freeman</u>	<u>09/08/99</u>
Acceptance Review	<u>D. Scott</u>	<u>09/14/99</u>
Approval Authority	<u>C. C. Scaief</u>	<u>09/08/99</u>

Justification:

Summary of Changes:

Full Revision

DISTRIBUTION SHEET

To Distribution	From R. D. Freeman	Page 1 of 1
Project Title/Work Order Acceptance Test Procedure for 241-AN Farm K1/K2 Continuous Air Monitor Installation, TWR-4713		Date 09/09/99
		EDT No. 619708
		ECN No. N/A

[illegible]