DISTRIBUTION SHEET

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Project Title/Work Order MIT UPGRADE ACCEPTANCE TEST PROCEDURE, WHC-SD-WM-ATP-107, REV 1		EDT No. N/A ECN No. 608868

Name	MSIN	Text With All Attach .	Text Only	Attach. / Appendi x Only	EDT/ECN Only
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ENGINEERING CHANGE NOTICE

Page 1 of 4

1. ECN 608868

Proj.
ECN

2. ECN Category (mark one) Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedeure ☐ Cancel/Void ☐		3. Originator's Name, Organization, MSIN, and Telephone No. A. C. Zuehlke / R1-51 / 373-1779		4. Date 10/28/94	
		5. Project Title/No./Work Order No. HYDROGEN MITIGATION	6. Bldg./Sys./Fac. No. N/A	7. Impact Level SQ	
		8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-ATP-107, Rev. 0	9. Related ECN No(s). N/A	10. Related PO No. N/A	
11a. Modification Work [] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)		11b. Work Package No. N/A	11c. Modification Work Complete N/A _____ Cog. Engineer Signature & Date		11d. Restored to Original Condition (Temp. or Standby ECN only) N/A _____ Cog. Engineer Signature & Date
12. Description of Change This procedure revision adds two test sections to test PLC software upgrades for the 17C MIT and the Tank Bottom and Side Thermocouples (TBSTC). The software for this equipment was changed to allow display resolution to 0.1 °F at the DACS display screens. The entire procedure was revised to Rev. 1.					
13a. Justification (mark one) Criteria Change [] Design Improvement [X] Environmental [] As-Found [] Facilitate Const. [] Const. Error/Omission [] Design Error/Omission []					
13b. Justification Details The procedure was written using information provided prior to testing. Since the procedure was approved, the decision to upgrade the 17C MIT and TBSTC software in the PLC was made. The change reflects the software program upgrades to be implemented.					
14. Distribution (include name, MSIN, and no. of copies) DIST				RELEASE STAMP OFFICIAL RELEASE (2) BY WHC DATE JAN 09 1995 <i>Stg 4</i>	

ENGINEERING CHANGE NOTICE				Page 2 of <u>4</u>	1. ECN (use no. from pg. 1) ECN-608868																																																												
15. Design Verification Required ☐ Yes ☒ No	16. Cost Impact <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;">ENGINEERING</td> <td style="width: 50%; text-align: center;">CONSTRUCTION</td> </tr> <tr> <td>Additional ☐ \$</td> <td>Additional ☐ \$</td> </tr> <tr> <td>Savings ☐ \$</td> <td>Savings ☐ \$</td> </tr> </table>			ENGINEERING	CONSTRUCTION	Additional ☐ \$	Additional ☐ \$	Savings ☐ \$	Savings ☐ \$	17. Schedule Impact (days) Improvement ☒ Delay ☐																																																							
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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.																																																																	
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UNREVIEWED SAFETY QUESTION SAFETY REVIEW FORM

(Per WHC-IP-0842, 15.9)

Page 1 of 2

REFERENCE DOCUMENT(S):

ECN No. 608868

PCA No.

Work Pkg No.

Other (Specify) MIT Upgrade Acceptance Test Procedure - WHC-SD-WM-ATP-107, Rev. 1 (draft)

TITLE: MIT Upgrade Acceptance Test Procedure**REFERENCES:**

1. Safety Assessment for Proposed Pump Operation to Mitigate Episodic Gas Releases in Tank 241-SY-101 LAUR-92-3196 REV 13, in particular chapter 6 (level I Controls for Mixer Pump Operations) and appendix Z.

Does the PROPOSED CHANGE:

A. Represent a change to the facility as described in the AUTHORIZATION BASIS documentation?

☐ N/A ☒ No ☐ Yes/Maybe

Basis: The Safety basis, as presented in References 1, evaluated the potential hazards associated with the installation of non-obtrusive hardware and software. The testing will not change the probability of containment barrier breach or failure due to heat loading in Tank 241-SY-101, high temperatures, or material degradation due to thermal loading. The permanent addition of the multiplexer will enable the thermocouples to provide more accurate waste temperature data.

B. Represent a change to procedures as described in the AUTHORIZATION BASIS?

☐ N/A ☒ No ☐ Yes/Maybe

Basis: Multiple waste temperature measurement locations are provided at Tank 241-SY-101 to monitor temperature to prevent reaching or exceeding the Maximum Waste Temperature limit of 250°F.

C. Represent a test or experiment not described in the AUTHORIZATION BASIS documentation?

☐ N/A ☒ No ☐ Yes/Maybe

Basis: The proposed activity additionally installs testing equipment for PLC software upgrades for the 17C MIT and Tank Bottom and Side Thermocouples which is identical to testing equipment used at Tank 241-SY-101.

D. Does the change impact:

- Implemented OSRs or IOSRs? ☐ N/A ☒ No ☐ Yes/Maybe

- Approved IOSR Compliance Implementation Plans? ☐ N/A ☒ No ☐ Yes/Maybe

Basis: The proposed testing activity installs test equipment to test the readiness of the DACS to provide monitoring of the MITs installed in risers 17B and 17C and Tank Bottom Side Thermocouples in Tank 241-SY-101 following planned upgrades. Existing OSRs, IOSRs, and IOSR compliance plans are unaffected by this change.

UNREVIEWED SAFETY QUESTION SAFETY REVIEW FORM
(Continued)

Page 2 of 2

Based on the above, a Safety Evaluation ☐ DOES ☒ DOES NOT
need to be performed for this change

USQE No. 1 GJ Gauck

Print Name

Signature12-27-94
Date

USQE No. 2

MF ERHART

Print Name

Signature12/27/94
Date

RELEASE AUTHORIZATION

Document Number: WHC-SD-WM-ATP-107, REV 1

Document Title: MIT UPGRADE ACCEPTANCE TEST PROCEDURE

Release Date: 1/9/95

**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

January 9, 1995

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SUPPORTING DOCUMENT		1. Total Pages 42
2. Title MIT UPGRADE ACCEPTANCE TEST PROCEDURE	3. Number WHC-SD-WM-ATP-107	4. Rev No. 1
5. Key Words DATA ACQUISITION AND CONTROL (DACS), 101-SY, GMS <div style="text-align: center; font-size: 1.2em; font-weight: bold;">APPROVED FOR PUBLIC RELEASE</div> <div style="position: absolute; left: 10%; top: 10%; font-family: cursive; font-size: 1.5em;">KMB 1/9/95</div>	6. Author Name: AC ZUEHLKE <div style="text-align: center; margin-top: 10px;"> Signature </div> Organization/Charge Code 7CH30/N2B31	
7. Abstract This procedure will test the 17B MIT sensor inputs to the DACS trailer after installation of new thermocouple multiplexers and associated computer software.		
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9. Impact Level SQ		

**MIT UPGRADE ACCEPTANCE TEST
PROCEDURE**

**WHC-SD-WM-ATP-107
REVISION 1**

NOVEMBER 1994

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

1.0 PURPOSE/SCOPE

The readiness of the Data Acquisition and Control System (DACS) to provide monitoring of the following equipment will be systematically evaluated by performance of this procedure:

- 17B MIT, after the signal processing hardware and associated DACS computer software for the 17B MIT have been upgraded.
- 17C MIT, after the PLC software for the 17C MIT has been upgraded.
- Tank Bottom and Side Thermocouples (TBSTC) installed around the 101-SY tank, after the PLC software for the TBSTC has been upgraded.
- RGA-5 Gas Monitoring System, after changes were made to the hardware and software configuration for the RGA-5.

During this test, an end-to-end verification of all thermocouple channels associated with the 17B MIT, 17C MIT, and TBSTC, and selected sensors associated with the RGA-5 shall be performed, by injecting calibrated signals in the field and observing the resulting readouts of the signals on the computer screens in the DACS trailer. The injected signals for each sensor will be adjusted for appropriate "near zero", "mid range" and "near full scale" values. All alarm and abort setpoints associated with the 17B MIT and selected RGA-5 sensors will also be verified to be correct, by injecting test signals that correspond to the required alarm and abort values.

The DACS screens which provide for the operator interface with the 17B and 17C MITs, the TBSTC, and the RGA-5 will be verified to be adequate for proper monitoring of this equipment.

The TBSTC screen that displays the TBSTC sensor readouts will also be checked for readout resolution of 0.1 °F.

2.0 REFERENCES

- 2.1 ECN # 615290
- 2.2 H-2-89467, "Multifunctional Instrument Tree Elementary Diagram"
- 2.3 H-2-89468, "Multifunctional Instrument Tree Connection Diagram"
- 2.4 H-2-89469, "Multifunctional Instrument Tree MIT-SY101-TBX-1 Assembly"

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

- 2.5 H-2-822603, "MIT Type K Thermocouple Breakout/Test Box Assy and Details", Rev. 0, Sheet 1 of 2
- 2.6 H-2-822603, "MIT Type K Thermocouple Breakout/Test Box Connection Diagram", Rev. 0, Sheet 2
- 2.7 HSR-CM, Rev. 2, Hanford Site Radiological Control Manual
- 2.8 Kaiser Engineers Hanford Construction Manual, Section CP 25, "Lock and Tag Program"
- 2.9 LAUR-92-3196, "Safety Assessment for Proposed Pump Operation to Mitigate Episodic Gas Releases in Tank 241-SY-101"
- 2.10 WHC-CM-4-3, Industrial Safety Manual, Vols 1-3
- 2.11 WHC-CM-4-15, Radiation Work Requirements and Permits Manual, Vol 2
- 2.12 WHC-CM-4-40, Industrial Hygiene Manual
- 2.13 WHC-CM-6-1, Standard Engineering Practices, EP-5.8, "Engineering Document Contents"
- 2.14 WHC-CM-6-1, Appendix M, "Acceptance Test Procedures and Reports"
- 2.15 WHC-IP-0263-TF, Westinghouse Hanford Company Building Emergency Plan, Appendix G, "S-Farm Complex"
- 2.16 WHC-IP-0842, Waste Tank Project Administration, Section 5.9.1, "Lockout/Tagout"
- 2.17 WHC-IP-0842, Waste Tank Project Administration, Section 15.3
- 2.18 WHC-SD-WM-ATP-061, "MIT Acceptance Test Procedure", Rev 0
- 2.19 WHC-SD-WM-HSP-002, Tank Farm Health and Safety Plan
- 2.20 WHC-SD-WM-MA-014, "Mitigation Test Management"

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

3.0 RESPONSIBILITIES

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

- Test Manager: The individual assigned direct responsibility for the performance, preparation, and adequacy of the test.
- Test Director: The engineer assigned shift responsibility for performance of the test.
- Test Engineer: The engineer assigned to assist and relieve the Test Director during the performance of the test.
- Field Engineer: A Test Director, Test Engineer, or Technician assigned to direct/verify testing activities outside of the DACS trailer.

Only personnel designated by the Mitigation Testing Program Test Manager are allowed to direct testing per this procedure, and perform operating and control functions using the DACS computer system.

One engineer acting as either a Test Director or as a Test Engineer is required to be present in the DACS trailer during testing. One engineer or technician acting as a Field Engineer and one or more Instrument Technicians and/or Electricians are required to inject test signals from outside of the DACS trailer.

If, during testing, any indicated parameter, control function, or screen display 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. In most cases, since actual mixer pump motor operation will not occur during this test, 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 DACS system performance shall be documented on Attachment 3, "Final Procedure Acceptance Sheet".

All changes to this procedure shall be implemented by ECN, and shall receive the approval signatures appropriate to the approval designation of the change.

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4.0 DESCRIPTION OF THE SYSTEM

The DACS, which is housed in a trailer located just outside of the north fence at the SY tank farm, receives input signals from a variety of sensors located in and around the SY-101 tank. These sensors provide information such as:

- Tank vapor space and ventilation system H₂ concentration
- Tank waste temperature
- Tank pressure
- Waste density
- Operating pump parameters such as speed, flow, rotational position, discharge pressure, and internal temperature
- Strain (for major equipment)
- Waste level

The output of these sensors is conditioned and transmitted to the DACS computers where these signals are displayed, recorded, and monitored for out-of-specification conditions.

This procedure will test signals transmitted to the DACS from:

- 17B and 17C MITs thermocouples
- TBSTC
- Selected RGA-5 Gas Monitoring System sensors

5.0 TEST CONDITIONS AND EQUIPMENT REQUIRED

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

- HSR-CM, Rev. 2, Hanford Site Radiological Control Manual
- WHC-CM-4-3, Industrial Safety Manual, Vols 1-3
- WHC-CM-4-15, Radiation Work Requirements and Permits Manual, Vol 2
- WHC-CM-4-40, Industrial Hygiene Manual
- WHC-SD-WM-HSP-002, Tank Farm Health and Safety Plan

5.2 Lock and Tag Control

Locks and Tags shall be posted as required by WHC-IP-0842, Waste Tank Project Administration, Section 5.9.1, "Lockout/Tagout"

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5.3 Jumpers and Lifted Leads

In this procedure, there are several occasions when leads are lifted and landed at various terminals. Some of these leads will be energized. Required hand and eye protection shall be worn, and insulated tools shall be used, when working on energized circuits (< 50 Vac). Testing must be conducted with energized instrument leads to correctly simulate a sensor input signal from the sensor to the DACS computers.

5.4 Unexpected Alarms

If unexpected, non-DACS, tank farm equipment alarms or abnormal indications are received during testing at the DACS trailer or in the SY tank farm, then 101-SY testing evolutions shall be immediately suspended and actions, as prescribed in approved Tank Farms Alarm Response and Emergency Procedures, shall be taken by Tank Farms Operations personnel to place the equipment/farm in a safe, stable condition. When the reason for the unexpected condition is understood and resolved, then 101-SY testing activities may be resumed after permission to do so is received from the responsible West Area Shift Manager (WASM) and the Test Manager.

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

- 5.5.1 All of the new DACS thermocouple multiplexer hardware has been installed for the 17B MIT instrumentation and all connections have been made to the DACS.

Verified by: _____ / _____
(Test Director) Date

- 5.5.2 All required software changes for the 17B MIT, 17C MIT, and the TBSTC upgrades and the RGA-5 installation have been loaded on the DACS computers and the software has been released for testing.

Verified by: _____ / _____
(Test Director) Date

- 5.5.3 The RGA-5 Gas Monitoring System has been installed in the SY tank farm and all connections have been made to the DACS.

Verified by: _____ / _____
(Test Director) Date

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

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- 5.6.1 Omega CL-24, Thermocouple Calibrator, capable of generating a 0.397 to 3.819 mV DC (50 °F to 200 °F) signal, required for providing input signals for thermocouple sensor channels to be tested
 - 5.6.2 Insulated hand tools normally required for accessing equipment cabinets and terminal boards
 - 5.6.3 For testing at the DACS trailer and SY tank farm, anti-contamination clothing and other personnel safety equipment required for access to the SY tank farm, and to perform work on energized equipment (< 50 Vac)
 - 5.6.4 Radios (2 minimum) or other means of communications, for communicating between the DACS trailer and the SY tank farm
 - 5.6.5 MIT Type K Thermocouple Test Box (available from R. Bafus)
 - 5.6.6 Calibrating source, capable of producing a 4 - 20 mA output signal
- 5.7 Attachment 2, "Measurement and Test Equipment Record Sheet", is included in Section 8.0 for recording data associated with M & TE used during the performance of this procedure.

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

6.0 ACCEPTANCE TEST

6.1 Instrumentation End-To-End Checks (17B MIT)

NOTE: Performance of the steps in this procedure section requires that no other conflicting activities are taking place in the Control Area of the DACS trailer in conjunction with the testing to be performed, and that the computers and monitors at Stations #5, #6, and #7 are available to support this test section.

- 6.1.1 If any discrepancy is noted during testing, then record a description of the condition in Attachment 1.
 - 6.1.1.1 For each discrepancy recorded, enter an identifying number in the "EXCEPTION NUMBER" Column of Attachment 1.
 - 6.1.1.2 Reproduce Attachment 1 as needed, and attach the additional pages to this procedure, to record all discrepancies noted during testing.
- 6.1.2 At Station #5, display the "MIT17B" screen.
- 6.1.3 At Station #6, display the "TEMPALM" screen.
- 6.1.4 At Station #7, display the "SUMMARY" screen.

NOTE: Steps for testing sensors in this section are written generically. Steps shall be repeated as necessary until required testing is complete.

Sensors shall be tested one at a time, until all have been tested.

Test personnel shall familiarize themselves with the requirements for injecting signals, to ensure that the test equipment is used properly and that the test signals applied are of the proper type and strength.

Test signals shall be applied to the cable connector going to the I/O Module or DACS trailer, NOT back to the sensor.

- 6.1.5 Establish communications between field personnel in the SY tank farm and the Test Engineer in the DACS trailer.

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- 6.1.6 If testing in this section requires more than one shift to complete, then perform Steps 6.1.45 through 6.1.49 at the end of each shift.

NOTE: The Test Engineer in the DACS trailer shall direct the performance of the activities in this section.

- 6.1.7 If necessary to complete testing, disable the ABORT coils associated with any 101-SY instruments that are sending erratic signals, are out-of-service, or are inoperable, at Station #1.

NOTE: Sensors may be tested in any order, at the discretion of the Test Director.

- 6.1.8 Record the current value displayed for all 17B MIT sensors on Station #7, in the "B:" block in the "DACs READING" Column, on the appropriate data sheet.
- 6.1.9 Direct field personnel to disconnect the 17B MIT 55-pin connector at the MIT, ensure that the MIT Type K Thermocouple Test Box (test box) selector switch is in the OFF position, and connect the test box to the cable going to the GMS shack.
- 6.1.10 Direct field personnel to connect the thermocouple calibrator to the test box input jack.
- 6.1.11 Refer to the "DACs Tag" Column of the data sheets to locate the tag # of the sensors to be tested.
- 6.1.12 Locate the DACs tag # of the sensor to be tested at Stations #5, #6, and #7.
- 6.1.13 Refer to the "SELECTOR SWITCH POSITION #" Column of the data sheets, to direct field personnel in determining the correct switch position for the sensor to be tested.
- 6.1.14 Direct field personnel to position the selector switch for the sensor to be tested.
- 6.1.15 Direct field personnel to set the output of the thermocouple calibrator to the value listed in the "F:" block in the "LOW END READING" Column, on the respective data sheet.

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- 6.1.16 Observe the current value displayed at Station #7 for the sensor being tested, and record the reading in the "D:" block of the "LOW END READING" Column.
- 6.1.17 Direct field personnel to slowly increase the output of the thermocouple calibrator to the value listed in the "F:" block in the "MID RANGE READING" Column of the respective data sheet.
- 6.1.18 Observe the current value displayed at Station #7 for the sensor being tested, and record the reading in the "D:" block in the "MID RANGE READING" Column of the respective data sheet.
- 6.1.19 Direct field personnel to slowly increase the output of the thermocouple calibrator to the value listed in the "F:" block in the "HIGH END READING" Column of the respective data sheet.
- 6.1.20 Observe the current value displayed at Station #7 for the sensor being tested, and record the reading in the "D:" block in the "HIGH END READING" Column of the respective data sheet.

NOTE: Expected alarm and abort setpoints are listed in parenthesis in the "AL:" and "AB:" blocks respectively, in the ALARM/ABORT VALUES (DACS) column of the respective data sheet.

- 6.1.21 Direct field personnel to slowly reduce the output of the thermocouple calibrator to a value below the alarm setpoint (AL:), listed in the ALARM/ABORT VALUES (DACS) column of the respective data sheet for the sensor being tested.
- 6.1.22 At Station #5, ensure that any alarms associated with the sensor being tested are clear ("ALARM/EVENT SUMMARY" screen).
- 6.1.23 Direct field personnel to slowly increase the output of the thermocouple calibrator until the associated alarm is actuated.
- 6.1.24 If the setpoint at which the alarm actuated is uncertain, then repeat Steps 6.1.21 through 6.1.23 until the alarm setpoint has been satisfactorily determined, then goto Step 6.1.25.
- 6.1.25 At Station #5 verify:

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- The displayed value for the sensor being tested is approximately equal to the value listed for the sensor in parenthesis in the "AL:" block on the data sheet.
 - The displayed value is enclosed by a flashing YELLOW box.
 - A visual and audible alarm have been received for the sensor being tested.
- 6.1.26 Acknowledge the alarm to silence the audible horn.
- 6.1.27 At Station #6 verify:
- The displayed value for the sensor being tested is approximately equal to the value listed for the sensor in parenthesis in the "AL:" block on the data sheet.
 - The DACS tag # for the sensor being tested is displayed in RED letters.
- 6.1.28 At Station #7 verify that the displayed value for the sensor being tested is approximately equal to the value listed for the sensor in parenthesis in the "AL:" block on the data sheet.
- 6.1.29 Record the value at which the alarm actuated in the "AL:" block on the respective data sheet.
- 6.1.30 At Station #1, ensure that the abort coil associated with the sensor being tested is enabled.
- 6.1.31 Ensure that the E Stop circuitry is reset.
- 6.1.32 Direct field personnel to slowly increase the output of the thermocouple calibrator until the associated abort is actuated.
- 6.1.33 If the setpoint at which the abort actuated is uncertain, then reduce the output of the thermocouple calibrator to a value below the abort setpoint.
- 6.1.34 Repeat Steps 6.1.31 through 6.1.33 until the abort setpoint has been satisfactorily determined, then goto Step 6.1.35.
- 6.1.35 At Station #5 verify:

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

- The displayed value for the sensor being tested is approximately equal to the value listed for the sensor in parenthesis in the "AB:" block on the data sheet.
 - The displayed value is enclosed by a flashing YELLOW box.
 - A visual and audible alarm have been received for the sensor being tested.
- 6.1.36 Acknowledge the alarm to silence the audible horn.
- 6.1.37 At Station #6 verify:
- The displayed value for the sensor being tested is approximately equal to the value listed for the sensor in parenthesis in the "AB:" block on the data sheet.
 - The DACS tag # for the sensor being tested is displayed in RED letters.
 - A RED box is displayed to the left of the DACS tag # for the sensor being tested.
- 6.1.38 At Station #7 verify that the displayed value for the sensor being tested is approximately equal to the value listed for the sensor in parenthesis in the "AB:" block on the data sheet.
- 6.1.39 Verify that an E Stop trip has been actuated.
- 6.1.40 Record the value at which the abort actuated in the "AB:" block on the respective data sheet.
- 6.1.41 Direct field personnel to decrease the output of the thermocouple calibrator to a value below the sensor alarm setpoint.
- 6.1.42 At Station #5, verify that all alarms associated with the sensor that was tested are clear.
- 6.1.43 Initial the "INITIALS" column for the sensor that was tested, if the test was completed satisfactorily.
- 6.1.44 Repeat Steps 6.1.11 through 6.1.43, as necessary, until all 17B MIT sensors listed on the data sheets have been tested, then goto Step 6.1.45.

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- 6.1.45 Direct field personnel to ensure that the test box selector switch is in OFF and that the thermocouple calibrator has been disconnected from the test box.
- 6.1.46 Direct field personnel to disconnect the test box from the MIT 55-pin connector and to reinstall the 55-pin connector onto the 17B MIT.
- 6.1.47 Record the current value displayed on Station #7, for each sensor that was tested, in the "A:" block in the "DACS READING" Column on the appropriate data sheet.
- 6.1.48 Compare the pre-test (B:) and post-test (A:) readings taken in Step 6.1.8 and 6.1.47.
 - 6.1.48.1 If the pre-test and post-test readings are NOT consistent, then record a description of the inconsistency in Attachment 1.
- 6.1.49 Ensure that the data sheets have been initialed for all sensors that have been tested.

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

Test Engineer: _____ Date: _____

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

6.2 Instrumentation End-To-End Checks (17C MIT)

NOTE: Performance of the steps in this procedure section requires that no other conflicting activities are taking place in the Control Area of the DACS trailer in conjunction with the testing to be performed, and that the computers and monitors at Stations #5, #6, and #7 are available to support this test section.

- 6.2.1 If any discrepancy is noted during testing, then record a description of the condition in Attachment 1.
- 6.2.1.1 For each discrepancy recorded, enter an identifying number in the "EXCEPTION NUMBER" Column of Attachment 1.
- 6.2.1.2 Reproduce Attachment 1 as needed, and attach the additional pages to this procedure, to record all discrepancies noted during testing.
- 6.2.2 At Station #5, display the "MIT17C" screen.
- 6.2.3 At Station #6, display the "SUMMARY" screen.

NOTE: Steps for testing sensors in this section are written generically. Steps shall be repeated as necessary until required testing is complete.

Sensors shall be tested one at a time, until all have been tested.

Test personnel shall familiarize themselves with the requirements for injecting signals, to ensure that the test equipment is used properly and that the test signals applied are of the proper type and strength.

Test signals shall be applied to the cable connector going to the I/O Module or DACS trailer, NOT back to the sensor.

- 6.2.4 Establish communications between field personnel in the SY tank farm and the Test Engineer in the DACS trailer.
- 6.2.5 If testing in this section requires more than one shift to complete, then perform Steps 6.2.21 through 6.2.25 at the end of each shift.

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NOTES: The Test Engineer in the DACS trailer shall direct the performance of the activities in this section.

Sensors may be tested in any order, at the discretion of the Test Director.

- 6.2.6 Record the current value displayed for all 17C MIT sensors on Station #6, in the "B:" block in the "DACs READING" Column, on the appropriate data sheet.
- 6.2.7 Direct field personnel to disconnect the 17C MIT 55-pin connector at the MIT, ensure that the MIT Type K Thermocouple Test Box (test box) selector switch is in the OFF position, and connect the test box to the cable going to the GMS shack.
- 6.2.8 Direct field personnel to connect the thermocouple calibrator to the test box input jack.
- 6.2.9 Refer to the "DACs Tag" Column of the data sheets to locate the tag # of the sensors to be tested.
- 6.2.10 Locate the DACs tag # of the sensor to be tested at Stations #5 and #6.
- 6.2.11 Refer to the "SELECTOR SWITCH POSITION #" Column of the data sheets, to direct field personnel in determining the correct switch position for the sensor to be tested.
- 6.2.12 Direct field personnel to position the selector switch for the sensor to be tested.
- 6.2.13 Direct field personnel to set the output of the thermocouple calibrator to the value listed in the "F:" block in the "LOW END READING" Column, on the respective data sheet.
- 6.2.14 Observe the current value displayed at Station #6 for the sensor being tested, and record the reading in the "D:" block of the "LOW END READING" Column.
- 6.2.15 Direct field personnel to slowly increase the output of the thermocouple calibrator to the value listed in the "F:" block in the "MID RANGE READING" Column of the respective data sheet.

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- 6.2.16 Observe the current value displayed at Station #6 for the sensor being tested, and record the reading in the "D:" block in the "MID RANGE READING" Column of the respective data sheet.
- 6.2.17 Direct field personnel to slowly increase the output of the thermocouple calibrator to the value listed in the "F:" block in the "HIGH END READING" Column of the respective data sheet.
- 6.2.18 Observe the current value displayed at Station #6 for the sensor being tested, and record the reading in the "D:" block in the "HIGH END READING" Column of the respective data sheet.
- 6.2.19 Initial the "INITIALS" column for the sensor that was tested, if the test was completed satisfactorily.
- 6.2.20 Repeat Steps 6.2.9 through 6.2.19, as necessary, until all 17C MIT sensors listed on the data sheets have been tested, then goto Step 6.2.21.
- 6.2.21 Direct field personnel to ensure that the test box selector switch is in OFF and that the thermocouple calibrator has been disconnected from the test box.
- 6.2.22 Direct field personnel to disconnect the test box from the MIT 55-pin connector and to reinstall the 55-pin connector onto the 17C MIT.
- 6.2.23 Record the current value displayed on Station #7, for each sensor that was tested, in the "A:" block in the "DACS READING" Column on the appropriate data sheet.
- 6.2.24 Compare the pre-test (B:) and post-test (A:) readings taken in Step 6.2.6 and 6.2.23.
- 6.2.24.1 If the pre-test and post-test readings are NOT consistent, then record a description of the inconsistency in Attachment 1.
- 6.2.25 Ensure that the data sheets have been initialed for all sensors that have been tested.

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

Test Engineer: _____ Date: _____

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6.3 Instrumentation End-To-End Checks (Tank Bottom and Side Thermocouples)

NOTE: The steps in the following section assume that no other conflicting activities are taking place in the Control Area of the DACS trailer in conjunction with the testing to be performed, and that the computers and monitors at Stations #5, #6, and #7 are available to support this test section.

- 6.3.1 If any discrepancy is noted during testing, then record a description of the condition in Attachment 1.
 - 6.3.1.1 For each discrepancy recorded, enter an identifying number in the "EXCEPTION NUMBER" Column of Attachment 1.
 - 6.3.1.2 Reproduce Attachment 1 as needed, and attach the additional pages to this procedure, to record all discrepancies noted during testing.
- 6.3.2 At Station #5, display the "ALARM/EVENT SUMMARY" screen.

NOTES:

Steps for testing instruments in this section are written generically. Steps shall be repeated as necessary until required testing is complete.

Instruments shall be tested one at a time, until all have been tested.

Test personnel shall familiarize themselves with the requirements for injecting test signals.

The initial state of the system shall be established prior to disconnecting any field I/O. This will serve as the "BEFORE" reading for each sensor.

- 6.3.3 At Station #6, display the "TBSTC" screen.
 - 6.3.3.1 Verify that the readouts for the TBSTC sensors have a resolution of 0.1 °F.
- 6.3.4 Establish communications between field personnel in the SY tank farm and the Test Engineer in the DACS trailer.

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- 6.3.5 Refer to Section 7.0, TEST DATA SHEETS, and record "BEFORE" values in the "B:" block of the "DACS READING" Column, for all channels to be tested.
- 6.3.6 If testing in this section requires more than one shift to complete, then perform Steps 6.3.19 through 6.3.22 at the end of each shift.

NOTES:

The Test Engineer at the DACS console shall direct the performance of the activities in this section.

Thermocouple checks in this section may be performed in any order, by following the appropriate steps to conduct the test.

Field personnel shall input test signals using an Omega CL-24 or equivalent as the input source.

- 6.3.7 Refer to the "DACS Tag" Column of the data sheet and locate the tag # of the sensor to be tested.

WARNING

Required hand and eye protection shall be worn, and insulated tools shall be used, when working on or near energized electrical circuits.

- 6.3.8 Direct field personnel to lift the leads for the sensor to be tested.
- 6.3.9 At Station #6, locate the DACS tag # for the sensor being tested.
- 6.3.10 Direct field personnel to connect the thermocouple calibrator to the appropriate channel for the sensor to be tested.
- 6.3.11 Direct field personnel to set the output of the thermocouple calibrator to the value listed in the "F:" block in the "LOW END READING" Column, on the respective data sheet.
- 6.3.12 Observe the value displayed at Station #6 for the sensor being tested, and record the reading in the "D:" block of the "LOW END READING" Column.

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- 6.3.13 Direct field personnel to increase the output of the thermocouple calibrator to the value listed in the "F:" block in the "MID RANGE READING" Column of the respective data sheet.
- 6.3.14 Observe the value displayed at Station #6 for the sensor being tested, and record the reading in the "D:" block in the "MID RANGE READING" Column of the respective data sheet.
- 6.3.15 Direct field personnel to increase the output of the thermocouple calibrator to the value listed in the "F:" block in the "HIGH END READING" Column of the respective data sheet.
- 6.3.16 Observe the value displayed at Station #6 for the sensor being tested, and record the reading in the "D:" block in the "HIGH END READING" Column of the respective data sheet.
- 6.3.17 Direct field personnel to disconnect the thermocouple calibrator and re-connect the lifted leads.
- 6.3.18 Repeat Steps 6.3.7 through 6.3.17 until all 26 TBSTC listed on the data sheets have been tested or testing is being suspended for the day, then goto Step 6.3.19.
- 6.3.19 Restore the field I/O to the operational state.
- 6.3.20 After the field I/O has been restored to an operational state, record Post-Testing ("AFTER") values in the "A:" block of the "DACS READING" Column for sensors for which testing is complete.
- 6.3.21 Compare the pre-test (B:) and post-test (A:) readings taken in Step 6.3.5 and 6.3.20.
- 6.3.21.1 If the pre-test and post-test readings are NOT consistent, then record a description of the inconsistency in Attachment 1.
- 6.3.22 Initial all TBSTC data sheets for sensors that have been tested.

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

Test Engineer: _____ Date: _____

6.4 RGA-5 Gas Monitoring System Instrumentation Checks

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NOTE: The steps in the following section assume that no other conflicting activities are taking place in the Control Area of the DACS trailer in conjunction with the testing to be performed, and that the computers and monitors at Stations #5, #6, and #7 are available to support this test section.

- 6.4.1 If any discrepancy is noted during testing, then record a description of the condition in Attachment 1.
 - 6.4.1.1 For each discrepancy recorded, enter an identifying number in the "EXCEPTION NUMBER" Column of Attachment 1.
 - 6.4.1.2 Reproduce Attachment 1 as needed, and attach the additional pages to this procedure, to record all discrepancies noted during testing.
- 6.4.2 At Station #5, display the "ALARM/EVENT SUMMARY" screen.
- 6.4.3 At Station #6, display the "HVTALARM" screen.
- 6.4.4 At Station #7, display the "GASSUM" screen.

NOTES:

The Test Engineer in the DACS trailer shall direct the performance of the activities in this section.

- 6.4.5 Establish communications between field personnel in the SY tank farm and the Test Engineer in the DACS trailer.
- 6.4.6 Refer to Table A, and record "BEFORE" values in the "B:" block of the "DACs READING" Column, for DACS Tags # PDTMSY12 and NITJSY06.

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WARNING

Required hand and eye protection shall be worn, and insulated tools shall be used, when working on or near energized electrical circuits.

- 6.4.7 Direct field personnel to locate and lift the leads for DACS Tag # NITJSY06.
- 6.4.8 At Station #6 and/or Station #7, locate DACS Tag # NITJSY06.
- 6.4.9 Direct field personnel to connect the signal source to the terminals or leads for DACS Tag # NITJSY06.
- 6.4.10 Direct field personnel to set the output of the signal source to the value listed in the "F:" block in the "LOW END READING" Column, on Table A.
- 6.4.11 Observe the value displayed at Station #6 and/or Station #7 for DACS Tag # NITJSY06, and record the reading in the "D:" block of the "LOW END READING" Column.
- 6.4.12 Direct field personnel to increase the output of the signal source to the value listed in the "F:" block in the "MID RANGE READING" Column of Table A.
- 6.4.13 Observe the value displayed at Station #6 and/or Station #7 for DACS Tag # NITJSY06, and record the reading in the "D:" block in the "MID RANGE READING" Column of Table A.
- 6.4.14 Direct field personnel to increase the output of the signal source to the value listed in the "F:" block in the "HIGH END READING" Column of Table A.
- 6.4.15 Observe the value displayed at Station #6 and/or Station #7 for DACS Tag # NITJSY06, and record the reading in the "D:" block in the "HIGH END READING" Column of Table A.
- 6.4.16 Direct field personnel to slowly reduce the output of the signal source to a value below the alarm setpoint (AL:), listed in the ALARM/ABORT VALUES (DACS) column of Table A for DACS Tag # NITJSY06.
- 6.4.17 At Station #5, ensure that any alarms associated with DACS Tag # NITJSY06 are clear.

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- 6.4.18 Direct field personnel to slowly increase the output of the signal source until the associated alarm is actuated.
- 6.4.19 If the setpoint at which the alarm actuated is uncertain, then repeat Steps 6.4.16 through 6.4.18 until the alarm setpoint has been satisfactorily determined, then goto Step 6.4.20.
- 6.4.20 At Station #5 verify that a visual and audible alarm have been received for DACS Tag # NITJSY06.
- 6.4.21 Acknowledge the alarm to silence the audible horn.
- 6.4.22 At Station #6 verify:
- The displayed "Current Value" for DACS Tag # NITJSY06 is approximately equal to the value listed for DACS Tag # NITJSY06 in parenthesis in the "AL:" block on Table A.
 - The information displayed in the "TAG", "DESCRIPTION", "Alarm Limit", and "Units" columns for DACS Tag # NITJSY06 is displayed in RED letters.
- 6.4.23 At Station #7 verify that the displayed value for DACS Tag # NITJSY06 is approximately equal to the value listed for DACS Tag # NITJSY06 in parenthesis in the "AL:" block on Table A.
- 6.4.24 Record the value at which the alarm actuated in the "AL:" block on Table A.
- 6.4.25 At Station #1, ensure that abort coil # 258 is enabled.
- 6.4.26 Ensure that the E Stop circuitry is reset.
- 6.4.27 Direct field personnel to slowly increase the output of the signal source until the associated abort is actuated.
- 6.4.28 If the setpoint at which the abort actuated is uncertain, then reduce the output of the signal source to a value below the abort setpoint.
- 6.4.29 Repeat Steps 6.4.26 through 6.4.28 until the abort setpoint has been satisfactorily determined, then goto Step 6.4.30.

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

- 6.4.30 At Station #5 verify a visual and audible alarm have been received for DACS Tag # NITJSY06.
- 6.4.31 Acknowledge the alarm to silence the audible horn.
- 6.4.32 At Station #6 verify:
- The displayed value for DACS Tag # NITJSY06 is approximately equal to the value listed for DACS Tag # NITJSY06 in parenthesis in the "AB:" block on Table A.
 - The information displayed in the "TAG", "DESCRIPTION", "Alarm Limit", "Abort Limit", and "Units" columns for DACS Tag # NITJSY06 is displayed in RED letters.
- 6.4.33 At Station #7 verify that the displayed value for DACS Tag # NITJSY06 is approximately equal to the value listed for DACS Tag # NITJSY06 in parenthesis in the "AB:" block on Table A.
- 6.4.34 Verify that an E Stop trip has been actuated.
- 6.4.35 Record the value at which the abort actuated in the "AB:" block on Table A.
- 6.4.36 Direct field personnel to decrease the output of the signal source to a value below the alarm setpoint for DACS Tag # NITJSY06.
- 6.4.37 At Station #5, verify that the all alarms associated with DACS Tag # NITJSY06 are clear.
- 6.4.38 Direct field personnel to disconnect the signal source and re-connect the lifted leads.
- 6.4.39 Repeat Steps 6.4.7 through 6.4.15 and 6.4.38 for DACS Tag # PDTMSY12, then goto Step 6.4.40.
- 6.4.40 After testing is completed, record Post-Test ("AFTER") values in the "A:" block of the "DACS READING" Column for DACS Tags # NITJSY06 and PDTMSY12.
- 6.4.41 Compare the pre-test (B:) and post-test (A:) readings taken in Steps 6.4.6 and 6.4.40.
- 6.4.41.1 If the pre-test and post-test readings are NOT consistent, then record a description of the inconsistency in Attachment 1.

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

6.4.42 Initial the "INITIALS" column on Table A for DACS Tags # NITJSY06 and PDTMSY12, if testing was completed satisfactorily.

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

Test Engineer: _____ Date: _____

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

Table A

DACS TAG	DESCRIPTION	SCALE/ RANGE	SIGNAL	INPUT SIGNAL CONNECTN POINTS	DACS READING	LOW END READING	MID RANGE READING	ALARM/ ABORT VALUES (DACS)	HIGH END READING	INITIALS
NITJSY06	0-10% H2 RISER 16A SHMS 1	0-10% H2	4-20 mA	GMS2, JB1, TB2- 2, LEAD TB2-1#	B:	F: 5.0 mA	F: 12.0 mA	AL: (0.56)	F: 19.0 mA	
					A:	D:	D:	AB: (0.75)	D:	
PDTMSY12	GC-3 DIFF. PRESSURE	0 - 250 INWG	4 - 20 mA	GMS2, JB1, TB1- 31, TB1- 30	B:	F: 5.0 mA	F: 12.0 mA	AL: N/A	F: 19.0 mA	
					A:	D:	D:	AB: N/A	D:	

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

7.0 TEST DATA SHEETS

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/ RANGE	SELECTOR SWITCH POSITION #	DACS READING	LOW END READING	MID RANGE READING	ALARM/ ABORT VALUES (DACS)	HIGH END READING	INITIALS
TIR17B01	TE-101-SY- 17B-01	TANK TEMP RISER 17B, LEVEL 4"	12.5 - 325 °F	1	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B02	TE-101-SY- 17B-02	TANK TEMP RISER 17B, LEVEL 16"	12.5 - 325 °F	2	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B03	TE-101-SY- 17B-03	TANK TEMP RISER 17B, LEVEL 28"	12.5 - 325 °F	3	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B04	TE-101-SY- 17B-04	TANK TEMP RISER 17B, LEVEL 52"	12.5 - 325 °F	4	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B05	TE-101-SY- 17B-05	TANK TEMP RISER 17B, LEVEL 76"	12.5 - 325 °F	5	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/ RANGE	SELECTOR SWITCH POSITION #	DACS READING	LOW END READING	MID RANGE READING	ALARM/ ABORT VALUES (DACS)	HIGH END READING	INITIALS
TIR17B06	TE-101-SY-17B-06	TANK TEMP RISER 17B, LEVEL 100"	12.5 - 325 °F	6	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B07	TE-101-SY-17B-07	TANK TEMP RISER 17B, LEVEL 112"	12.5 - 325 °F	7	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B08	TE-101-SY-17B-08	TANK TEMP RISER 17B, LEVEL 124"	12.5 - 325 °F	8	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B09	TE-101-SY-17B-09	TANK TEMP RISER 17B, LEVEL 148"	12.5 - 325 °F	9	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B10	TE-101-SY-17B-10	TANK TEMP RISER 17B, LEVEL 172"	12.5 - 325 °F	10	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B11	TE-101-SY-17B-11	TANK TEMP RISER 17B, LEVEL 196"	12.5 - 325 °F	11	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B12	TE-101-SY-17B-12	TANK TEMP RISER 17B, LEVEL 208"	12.5 - 325 °F	12	B:	F: 71	F: 105	AL: (130)	F: 139	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/RANGE	SELECTOR SWITCH POSITION #	DACS READING	LOW END READING	MID RANGE READING	ALARM/ABORT VALUES (DACS)	HIGH END READING	INITIALS
					A:	D:	D:	AB: (135)	D:	
TIR17B13	TE-101-SY-17B-13	TANK TEMP RISER 17B, LEVEL 220"	12.5 - 325 °F	13	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B14	TE-101-SY-17B-14	TANK TEMP RISER 17B, LEVEL 232"	12.5 - 325 °F	14	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B15	TE-101-SY-17B-15	TANK TEMP RISER 17B, LEVEL 244"	12.5 - 325 °F	15	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B16	TE-101-SY-17B-16	TANK TEMP RISER 17B, LEVEL 268"	12.5 - 325 °F	16	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B17	TE-101-SY-17B-17	TANK TEMP RISER 17B, LEVEL 292"	12.5 - 325 °F	17	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B18	TE-101-SY-17B-18	TANK TEMP RISER 17B, LEVEL 326"	12.5 - 325 °F	18	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/ RANGE	SELECTOR SWITCH POSITION #	DACS READING	LOW END READING	MID RANGE READING	ALARM/ ABORT VALUES (DACS)	HIGH END READING	INITIALS
TIR17B19	TE-101-SY-17B-19	TANK TEMP RISER 17B, LEVEL 340"	12.5 - 325 °F	19	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B20	TE-101-SY-17B-20	TANK TEMP RISER 17B, LEVEL 364"	12.5 - 325 °F	20	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B21	TE-101-SY-17B-21	TANK TEMP RISER 17B, LEVEL 392"	12.5 - 325 °F	21	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	
TIR17B22	TE 101-SY-17B-22	TANK TEMP RISER 17B, LEVEL 402"	12.5 - 325 °F	22	B:	F: 71	F: 105	AL: (130)	F: 139	
					A:	D:	D:	AB: (135)	D:	

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DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/ RANGE	SELECTOR SWITCH POSITION #	DACS READING	LOW END READING	MID RANGE READING	ALARM/ ABORT VALUES (DACS)	HIGH END READING	INITIALS
TIR17C01	TE-101-SY- 17C-01	TANK TEMP RISER 17C, LEVEL 4"	70 - 140 °F	1	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C02	TE-101-SY- 17C-02	TANK TEMP RISER 17C, LEVEL 16"	70 - 140 °F	2	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C03	TE-101-SY- 17C-03	TANK TEMP RISER 17C, LEVEL 28"	70 - 140 °F	3	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C04	TE-101-SY- 17C-04	TANK TEMP RISER 17C, LEVEL 52"	70 - 140 °F	4	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C05	TE-101-SY- 17C-05	TANK TEMP RISER 17C, LEVEL 76"	70 - 140 °F	5	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C06	TE-101-SY- 17C-06	TANK TEMP RISER 17C, LEVEL 100"	70 - 140 °F	6	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C07	TE-101-SY- 17C-07	TANK TEMP RISER 17C, LEVEL 112"	70 - 140 °F	7	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C08	TE-101-SY- 17C-08	TANK TEMP RISER 17C, LEVEL 124"	70 - 140 °F	8	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C09	TE-101-SY- 17C-09	TANK TEMP RISER 17C, LEVEL 148"	70 - 140 °F	9	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C10	TE-101-SY- 17C-10	TANK TEMP RISER 17C, LEVEL 172"	70 - 140 °F	10	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/RANGE	SELECTOR SWITCH POSITION #	DACS READING	LOW END READING	MID RANGE READING	ALARM/ABORT VALUES (DACS)	HIGH END READING	INITIALS
TIR17C11	TE-101-SY-17C-11	TANK TEMP RISER 17C, LEVEL 196"	70 - 140 °F	11	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C12	TE-101-SY-17C-12	TANK TEMP RISER 17C, LEVEL 208"	70 - 140 °F	12	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C13	TE-101-SY-17C-13	TANK TEMP RISER 17C, LEVEL 220"	70 - 140 °F	13	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C14	TE-101-SY-17C-14	TANK TEMP RISER 17C, LEVEL 232"	70 - 140 °F	14	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C15	TE-101-SY-17C-15	TANK TEMP RISER 17C, LEVEL 244"	70 - 140 °F	15	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C16	TE-101-SY-17C-16	TANK TEMP RISER 17C, LEVEL 292"	70 - 140 °F	16	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C17	TE-101-SY-17C-17	TANK TEMP RISER 17C, LEVEL 316"	70 - 140 °F	17	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C18	TE-101-SY-17C-18	TANK TEMP RISER 17C, LEVEL 340"	70 - 140 °F	18	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C19	TE-101-SY-17C-19	TANK TEMP RISER 17C, LEVEL 364"	70 - 140 °F	19	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C20	TE-101-SY-17C-20	TANK TEMP RISER 17C, LEVEL 392"	70 - 140 °F	20	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/ RANGE	SELECTOR SWITCH POSITION #	DACS READING	LOW END READING	MID RANGE READING	ALARM/ ABORT VALUES (DACS)	HIGH END READING	INITIALS
TIR17C21	TE-101-SY- 17C-21	TANK TEMP RISER 17C, LEVEL 402"	70 - 140 °F	21	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	
TIR17C22	TE 101-SY- 17C-22	TANK TEMP RISER 17C, LEVEL 427"	70 - 140 °F	22	B:	F: 71	F: 105	AL: N/A	F: 139	
					A:	D:	D:	AB: N/A	D:	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/RANGE	TERM. STRIP	DACS READING	LOW END READING	MID RANGE READING	HIGH END READING	INITIALS
TBSTC01	TE-101 Pr 01	TANK BOTTOM THERMOCOUPLE	50-200 °F	+1 & -1	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC02	TE-101 Pr 02	TANK BOTTOM THERMOCOUPLE	50-200 °F	+2 & -2	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC03	TE-101 Pr 03	TANK BOTTOM THERMOCOUPLE	50-200 °F	+3 & -3	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC04	TE-101 Pr 04	TANK BOTTOM THERMOCOUPLE	50-200 °F	+4 & -4	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC05	TE-101 Pr 05	TANK BOTTOM THERMOCOUPLE	50-200 °F	+5 & -5	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC06	TE-101 Pr 06	TANK BOTTOM THERMOCOUPLE	50-200 °F	+6 & -6	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC07	TE-101 Pr 07	TANK BOTTOM THERMOCOUPLE	50-200 °F	+7 & -7	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC08	TE-101- Pr 08	TANK BOTTOM THERMOCOUPLE	50-200 °F	+8 & -8	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC09	TE-101 Pr 09	TANK BOTTOM THERMOCOUPLE	50-200 °F	+9 & -9	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC10	TE-101 Pr 10	TANK BOTTOM THERMOCOUPLE	50-200 °F	+10 & -10	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC11	TE-101 Pr 11	TANK BOTTOM THERMOCOUPLE	50-200 °F	+11 & -11	B:	F: 55 °F	F: 125 °F	F: 195 °F	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/RANGE	TERM. STRIP	DACS READING	LOW END READING	MID RANGE READING	HIGH END READING	INITIALS
					A:	D:	D:	D:	
TBSTC12	TE-101 Pr 12	TANK BOTTOM THERMOCOUPLE	50-200 °F	+12 & -12	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC13	TE-101 Pr 13	TANK BOTTOM THERMOCOUPLE	50-200 °F	+13 & -13	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC14	TE-101 Pr 14	TANK BOTTOM THERMOCOUPLE	50-200 °F	+14 & -14	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC15	TE-101 Pr 15	TANK BOTTOM THERMOCOUPLE	50-200 °F	+15 & -15	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC16	TE-101 Pr 16	TANK BOTTOM THERMOCOUPLE	50-200 °F	+16 & -16	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC17	TE-101 Pr 17	TANK BOTTOM THERMOCOUPLE	50-200 °F	+17 & -17	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC18	TE-101 Pr 18	TANK BOTTOM THERMOCOUPLE	50-200 °F	+18 & -18	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC19	TE-101 Pr 19	TANK BOTTOM THERMOCOUPLE	50-200 °F	+19 & -19	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC20	TE-101- Pr 20	TANK BOTTOM THERMOCOUPLE	50-200 °F	+20 & -20	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC21	TE-101 Pr 21	TANK BOTTOM THERMOCOUPLE	50-200 °F	+21 & -21	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	

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MIT UPGRADE ACCEPTANCE TEST PROCEDURE

DACS TAG	FIELD TAG NUMBER	DESCRIPTION	SCALE/RANGE	TERM. STRIP	DACS READING	LOW END READING	MID RANGE READING	HIGH END READING	INITIALS
TBSTC22	TE-101 Pr 22	TANK BOTTOM THERMOCOUPLE	50-200 °F	+22 & -22	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC23	TE-101 Pr 23	TANK BOTTOM THERMOCOUPLE	50-200 °F	+23 & -23	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC24	TE-101 Pr 24	TANK BOTTOM THERMOCOUPLE	50-200 °F	+24 & -24	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC25	TE-101 Pr 25	TANK BOTTOM THERMOCOUPLE	50-200 °F	+25 & -25	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	
TBSTC26	TE-101 Pr 26	TANK BOTTOM THERMOCOUPLE	50-200 °F	+26 & -26	B:	F: 55 °F	F: 125 °F	F: 195 °F	
					A:	D:	D:	D:	

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8.0 ATTACHMENTS

Attachment 1, Exception List

Attachment 2, Measurement and Test Equipment Record Sheet

Attachment 3, Final Procedure Acceptance Sheet

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

[illegible]

Attachment 1: EXCEPTION LIST

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

[illegible]

Attachment 2: Measurement and Test Equipment Record Sheet

MIT UPGRADE ACCEPTANCE TEST PROCEDURE

Completion of this procedure has demonstrated that:

- The Data Acquisition and Control System (DACS) provides satisfactory monitoring of the 17B and 17C MITs, TBSTC, and selected RGA-5 Gas Monitoring System sensors, and associated instrumentation, following the upgrades.
- The DACS screens provide a satisfactory operator interface with the 17B and 17C MITs, TBSTC, and the RGA-5 Gas Monitoring System, and have been verified to be adequate.
- Each sensor associated with the 17B and 17C MITs and the TBSTC, and selected sensors associated with the RGA-5 Gas Monitoring System, have been individually verified to provide proper indication, and, as applicable, alarms and aborts at the DACS computer control stations.
- The TBSTC screen has been verified to display sensor readout values with a resolution of 0.1 °F.
- 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:

D. C. Larsen, Test Manager

Date

G. T. Bear, Test Engineering

Date

J. W. Lentsch, Program Manager

Date

Attachment 3: Final Procedure Acceptance Sheet