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Acceptance Test Report for 241-SY-101 DACS Software Upgrade to Test Strategy, Version 3.04

G. J. Gauck

WHC Hanford, Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-87RL10930

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UC: 2030

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Charge Code: N1734
Total Pages: 5/58 Kme 1/23/16

Key Words: ATR, DACS, DATA ACQUISITION AND CONTROL SYSTEM. TEST

STRATEGY SOFTWARE UPGRADE

Abstract: This Acceptance Test Report (ATR) will summarize the results of performing ATP-183 which tested the modifications to the DACS Test Strategy software.

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ACCEPTANCE TEST REPORT for 241-SY-101 DACS SOFTWARE UPGRADE TO TEST STRATEGY, VERSION 3.04

WHC-SD-WM-ATR-183
REVISION 0

SEPTEMBER 1996

ACCEPTANCE TEST REPORT 241-SY-101 DACS SOFTWARE UPGRADE TO TEST STRATEGY, VERSION 3.04

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ACCEPTANCE TEST REPORT 241-SY-101 DACS SOFTWARE UPGRADE TO TEST STRATEGY, VERSION 3.04

1.0 PURPOSE/SCOPE

The purpose of this Acceptance Test Report (ATR) is to summarize the results of the Acceptance Test Procedure (ATP) WHC-SD-WM-ATP-183, 241-SY-101 DACS Software Upgrade To Test Strategy Version 3.04.

2.0 SUMMARY OF WHC-SD-WM-ATP-183

Testing commenced on 9/3/96 and was completed on 9/4/96.

The completed procedure is contained in section 6.0 of the ATP. The associated tables contained the results and signatures verifying completion and results.

Two test exceptions were noted. See Test Exception List on next to last page of ATP.

One Engineering Change Notice (ECN) was generated. ECN 624778 to note additional testing required for FTIR ammonia instrument and PHOTO ammonia instrument as identified in the test exceptions.

Retest was required to address the two test exceptions. Retest was satisfactory.

The remainder of this Acceptance Test Report (ATR) consists of the ATP pages which describes the tests that were conducted at attest to the results that were obtained. The testing was accomplished successfully.

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ACCEPTANCE TEST REPORT 241-SY-101 DACS SOFTWARE UPGRADE TO TEST STRATEGY, VERSION 3.04

3.0 ACCEPTANCE TEST PROCEDURE FOR 241-SY-101 DACS SOFTWARE UPGRADE TO TEST STRATEGY, VERSION 3.04

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UNREVIEWED SAFETY QUESTION SCREENING/DETERMINATION FORM

(Per WHC-IP-0842)

Page 1 of 4
USQ Tracking No.
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AREA:	[] East [X	(] West	[] General			
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TITLE:	241-SY-101 (DACS SOFTW	ARE UPGRAD	E TO TES	ST STRATEGY.	VERSION 3.04

Description of the Proposed Activity/REPORTABLE OCCURRENCE or PIAB:

Upgrade the DACS Test Strategy to provide improved and definitive visual indicators for computer display screens as requested by the Operators of the Mixer Pump in West Tank Farms.

Introduction:

The proposed activity provides better Tank 241-SY-101/Data Acquisition and Control System (DACS) computer display/screen indications of alarm and abort conditions associated with operating the mixer pump to mitigate flammable gases. The new software revision (Test Stategy Version 3.04) provides for each of the DACS tags listed on the MININI and MININ2 screens but does not change or alter in any way the alarm or abort setpoints. If problems are encountered which cannot be corrected, then the new version of the software will not be installed in the DACS computers and therefore will not interrupt pump operations. Previously Acceptance Test Procedure (ATP), WHC-SD-WM-ATP-082 for Test Strategy Version 3.03, approved software will be used should the new software not pass its own ATP.

Scope:

Recent modifications/upgrades to the DACS Test Strategy software, Version 3.03A, have been requested to provide a more definitive visual indication on the MININ1 and MININ2 screens of instrument problems, alarms and abort conditions. The new revision to the software (Ver.3.04) provides the associated instrument has a problem, alarm, or abort condition. In addition, the DACS tags associated with gas monitoring have been modified to display "0.0" when the insturments fail, instead of retaining the last known good value.

Associated with these modifications is an additional problem alarm that was added for the GC2-H2 instrument. Since the GC1-H2 and GC2-H2 are both RGA-5 instruments, the GC1-INST block (including connnections) were copied to create the new GC2-INST problem alarm block. This acceptance test procedure will implement and verify the new modifications that have been developed in the updated DACS Test Strategy software (Ver. 3.04).

Authorization Basis:

LA-UR-92-3196, REV.14A, A SAFETY ASSESSMENT FOR PROPOSED PUMP MIXING OPERATIONS TO MITIGATE EPISODIC GAS RELEASES IN TANK 241-SY-101: HANFORD SITE, RICHLAND, WASHINGTON.

Conclusion:

		EDT 618266 Pa 3 of 5									
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U	REVIEWED SAFETY QUESTION SCREENING/DETERMINATION FORM (Continued)	USQ Tracking No. TF-96-0579									
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The	e revision to the software TEST Strategy is necessary to imple rator's recommendation's when pump/instrument signals indicat	ment West Tank Farm									
abo mod	abort condition. Additionally, the DACS tags associated with gas monitoring will be modified to display a "0.0" reading when those instruments fail, instead of retaining the last known good value.										
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A.	Does the PROPOSED ACTIVITY represent a change to the facility as de AUTHORIZATION BASIS?	scribed in the									
	[X] No [] Yes [] N/A										
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	${\bf Basis:}$ The proposed activity of performing WHC-SD-WM-ATP-183 previously successfully completed procedures (WHC-SD-WM-ATR-0 Authorization Basis.										
C.	Does the test or experiment represent a test or experiment not describe BASIS documentation?	ed in the AUTHORIZATION									
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D.	Does the PROPOSED ACTIVITY or REPORTABLE OCCURRENCE, impact	t:									
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	Basis: The proposed activity is not identified nor impacts th approved IOSR Compliance Implementation Plan. Does the REPORTABLE OCCURRENCE or PIAB involve analytical errors,	
	deficiencies in the AUTHORIZATION BASIS?	Unissions, and/or
	[] No [] Yes [X] N/A	
	Basis: The proposed activity does not involve analytical error deficiencies in the authorization basis. The modifications t ATP only enhances the existing operations understanding for oat Tank 241-SY-101.	o he tested under the
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1.	Could the PROPOSED ACTIVITY or USQ ISSUE significantly increase the of an accident previously evaluated in the AUTHORIZATION BASIS?	e frequency of occurrence
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	[] No [] Yes/Maybe	
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3.	Could the PROPOSED ACTIVITY or USQ ISSUE significantly increase the of a malfunction of EQUIPMENT IMPORTANT TO SAFETY previously exAUTHORIZATION BASIS?	
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	Basis:	

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UI	NREVIEWED SAFETY QUESTION SCREENING/DETERMINATION FORM (Continued)	USQ Tracking No. TF-96-0579
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4.	Could the PROPOSED ACTIVITY or USQ ISSUE significantly increase t malfunction of EQUIPMENT IMPORTANT TO SAFETY previously evalu AUTHORIZATION BASIS?	
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5.	Could the PROPOSED ACTIVITY or USQ ISSUE create the possibility of type than any previously evaluated in the AUTHORIZATION BASIS?	f an accident of a different
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7.	Could the PROPOSED ACTIVITY or USQ ISSUE reduce the margin of s defined in the AUTHORIZATION BASIS?	afety for any OSR/IOSR as
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RECORD OF REVISION

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(2) Title

2.1 01 101	DACS SOFTWARE UPGRADE TO TEST STRATEGY, VERSIO		
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(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	(5) Cog. Engr.	(6) Cog. Mgr. Date
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G. J. GAUCK

WHC, Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-87RL10930

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Org Code: 77 B31 Org Code: 77831 Charge Code: N1734 B&R Code: EW31 Z0071 Total Pages: 4847

Key Words: DATA ACQUISITION AND CONTROL SYSTEM (DACS), 101-SY, DACS LABORATORY, TEST STRATEGY, SOFTWARE UPGRADE

Abstract: This ATP will perform testing of the modifications to the

DACS Test Strategy Software.

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1.0 PURPOSE/SCOPE

Recent modifications/upgrades to the Data Acquisition and Control System (DACS) Test Strategy software. Version 3.03a, have been requested to provide a more definitive visual indication on the MININ1 and MININ2 screens of instrument problems, alarms, and abort conditions. The new revision to the software (Ver. 3.04) provides for each of the DACS tags listed on the MININ1 and MININ2 screen to display "RED" when the associated instrument has a problem, alarm, or abort condition. In addition, the DACS tags associated with gas monitoring have been modified to display "0.0" when those instruments fail, instead of retaining the last known good value.

Associated with these modifications is an additional problem alarm that was added for the GC2-H2 instrument. Since the GC1-H2 and GC2-H2 are both RGA-5 instruments, the GC1-INST block (including connections) were copied to create the new GC2-INST problem alarm block. This acceptance test procedure will implement and verify the new modifications that have been developed in the updated DACS Test Strategy software, version 3.04.

2.0 REFERENCES

- 2.1 LAUR-92-3196, "Safety Assessment for Proposed Pump Operation to Mitigate Episodic Gas Releases in Tank 241-SY-101"
- 2.2 WHC-SD-WM-PLN-081, Mixer Pump Long Term Operations Plan for Tank 101-SY Mitigation
- 2.3 WHC-SP-0708, WHC Conduct of Operations Manual
- 2.4 WHC-SD-WM-MA-014, Mitigation Test Management Plan
- 2.5 WHC-CM-1-10. Safety Manual
- 2.6 WHC-CM-3-10. Software Practices, SP-3.3, "Testing"
- 2.7 WHC-CM-3-10. Software Practices. SP-6.4. "Document Approvals"
- 2.8 WHC-CM-3-10. Software Practices. Appendix J. "System Test Documentation"
- 2.9 WHC-CM-4-40. Industrial Hygiene Manual
- 2.10 WHC-CM-6-1, Standard Engineering Practices, EP-1.12, "Supporting Document Requirements"
- 2.11 WHC-CM-6-1, Standard Engineering Practices, EP-4.2, "Testing Requirements"
- 2.12 WHC-IP-1026, Engineering Practice Guidelines, Appendix M, "Acceptance Test Procedures and Reports"

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3.0 RESPONSIBILITIES

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

- <u>Test Manager</u>: The individual assigned direct responsibility for the performance, preparation, and adequacy of the test.
- <u>Test Engineer</u>: The engineer assigned to assist and relieve the Test Director during the performance of the test.
- <u>System Development Engineers</u>: The engineers assigned responsibility for the development and modification of the DACS software.

Only personnel designated by the Mitigation Testing Program Test Manager are allowed to direct testing per this procedure.

A Test Director is required to be present in the DACS laboratory in the 300 Area, Building 306E during testing. No field engineering support is required for this test. The DACS trailer and associated equipment are not required to accomplish this testing.

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 this case, since software testing will occur in the DACS laboratory it will not affect actual mixer pump motor operation and 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".

Changes to this procedure to correct technical errors, numbering errors, and other discrepancies will be corrected with Direct Revision ECN and shall receive the approval signatures appropriate to the impact level of the change.

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
- Operating pump parameters such as speed, flow, rotational position, discharge pressure, and internal oil temperature
- Strain (for major equipment)

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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. If abnormal conditions are detected, then, in certain situations, the DACS automatically generates alarms and causes the system to abort pump operations.

The DACS laboratory located in the 300 Area, building 306E, contains duplicate equipment and runs the same software as in the DACS trailer. The DACS laboratory is capable of receiving the same data sent to the DACS trailer through a Remote Supervisory Station (RSS).

The portions of the system to be tested include:

- MININ1 and MININ2 screen modifications and displays in response to simulated instrument problems, alarms, and abort signals that have been previously tested and approved.
- The GASSUM tags (GC-1 H2, GC-2 H2, GC-3 H2, FTIR N20, FTIR NH3, and PHOTO NH3) revert to a display value indication of 0.0 when no file update is received within a set period of time.

The testing will be conducted in the DACS laboratory with the computers running the new version (3.04) of the Test Strategy software. Input from Operations will be provided during the conduct of this test. Testing can be accomplished in the DACS laboratory because the modifications being tested affect only the screen displays. No modifications were made to the instrument inputs, alarms, aborts, or instrument problem alarms and therefore they will not be required to be retested.

5.0 TEST CONDITIONS AND EQUIPMENT REQUIRED

- 5.1 The provisions of the following manuals apply to all work performed under this procedure:
 - WHC-CM-1-10, Safety Manual
 - WHC-CM-4-40, Industrial Hygiene Manual
- 5.2 Lock and Tag Control

No Lock and Tag is required to perform this testing.

5.3 Energized Equipment N/A

No entry into energized equipment will be required for this test.

5.4 Jumpers and Lifted Leads N/A

No leads will be required to be jumpered or lifted in this procedure.

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5.5 Unexpected Alarms

The testing will be conducted at the DACS laboratory therefore unexpected alarms are not anticipated. If the testing causes an unexpected alarm to occur, the test will be suspended until the reason for the alarm can be understood and corrected. Resumption of testing will be at the discretion of the Test Director.

- 5.6 Prior to initiation of testing, the following items shall be verified:
 - 5.6.1 As determined by the Test Director, a pre-job safety meeting, including a review of any applicable JHA, may be conducted in accordance with a Pre-Job Safety Meeting Form, per WHC-IP-0842, Waste Tank Project Administration, Section 15.3.
 - 5.6.2 The new DACS Test Strategy software, Ver. 3.04, to be tested has been loaded into the DACS laboratory computer at station #5.
 - 5.6.3 The latest approved version of the MODSOFT Programmable Logic Controller (PLC) software (Ver. 3.05) shall be loaded into the DACS laboratory computer at station #1 to support testing.
 - 5.6.4 The DACS laboratory computers at station #1 and #5 shall be verified to be available to support testing activities, prior to the start of each day or shift of testing.
 - 5.6.5 A stop watch or timer (watch) capable of measuring in seconds is available for timing the screen updates required.

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6.0 ACCEPTANCE TEST

- 6.1 Initial Instructions
 - 6.1.1 If any step in this section cannot be successfully performed or results in an abnormal condition, 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 If determined by the Test Director, complete a pre-job briefing with all personnel that will be involved in testing per this section.
 - 6.1.3 Ensure DACS laboratory computer stations #1 and #5 are operational and ready to support the testing.
 - 6.1.4 The following basic strategy will be used to test the color change of the tag print for each DACS tag on the MININ1 and MININ2 screens.

The Low alarm, High alarm, and Problem alarm will be initiated in the order given as appropriate for the tag under test. Some tags may require only one, two, or all three alarms be tested as indicated in Table 1. The LOW, HIGH, and PROBLEM ALARM can be verified from the ALARM STATUS screen.

NOTE: The abort signal is not required to be tested (except for MIP00001 which only has an abort signal) since each abort limit is beyond the High/Low alarm set point and will not provide any noticeable changes to the MININ1 or MININ2 screens beyond what was tested by the High/Low alarms.

The "PROBLEM ALARM" shall be initiated by requiring the development system personnel to "Enable" the alarm and will be cleared by requiring the development system personnel to "Clear" the alarm.

- 6.2 At DACS laboratory station #5, access the MININ1 screen.
 - 6.2.1 Request development system personnel to apply, using DACS laboratory computer #1, an input test signal within the value parameters listed in the "INPUT TO MODSOFT" column of Table 1 for each of the DACS tags found on the MININ1 screen. Each value is to be input in sequence as discussed in section 6.1.4 above.

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- 6.2.2 Wait at least the period of time given under the "Wait Time" (listed under <u>Established Parameters</u>) for each of the Dacs Tags being tested on the <u>MININI</u> screen.
- 6.2.3 Record the value displayed on the MININI screen for the tag being tested under the "MININI TAG VALUE READING" column of Table 1 and observe the "EXPECTED RESULTS".
- 6.2.4 If the "EXPECTED RESULTS" were satisfactorily observed, and the "MININ1 TAG VALUE READING" recorded was within the values given under the "INPUT TO MODSOFT" column, then initial each line in the "Initial" column as it is accomplished. Discrepancies shall be recorded in accordance with section 6.1.1 above.

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	TABLE 1: MININ1 SCREEN TAGS	TEST			
DAGG TAG	TAIDLE TO MODEOFT	EXPECTED	EXPECTED RESULTS		
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
PIR17B04	-4.9 In. wg < INPUT < -1.5 In. wg	White	No	-1.9 mwg	Ä.
Established Parameters	INPUT ≤ -4.9 In. wg	Red	LO LAVA	-5.0 mug	\mathcal{A}
Low Alarm: -4.9 In. wg High Alarm: -1.5 In. wg	-4.9 In. wg < INPUT < -1.5 In. wg	White	No	-1.9 mwa	Ä
Problem Alarm: Yes	INPUT ≥ -1.5 In. wg	Red	HI HALM	7,2inwa	⋌ (.
Wait Time: ≥ 2 Sec.	-4.9 In. wg < INPUT < -1.5 In. wg	White	No	-1.91~W	A.
	"ENABLE" Problem Alarm ເຂເ	Red	N/A	N/A Q	A
	"CLEAR" Problem Alarm	White	N/A	N/A	_A
PIR11B01	-3.9 In. wg < INPUT < -1.5 In. wg	White	No	-3.6 mug	A
Established Paramet <u>ers</u>	INPUT ≤ -3.9 In. wg	Red	LO LAUN	-6.0 inwa	A
Low Alarm: -3.9 In. wg High Alarm: -1.5 In. wg	-3.9 In. wg < INPUT < -1.5 In. wg	White	No	-316 mwa	Å
Problem Alarm: Yes	INPUT ≥ -1.5 In. wg	Red	HI HAIN	0 1	A
Wait Time: ≥ 2 Sec.	-3.9 In. wg < INPUT < -1.5 In. wg	White	No	-3.6 mwa	1
	"ENABLE" Problem Alarm 🛛 🕫 💪	Red	N/A	N/A	A.
	"CLEAR" Problem Alarm	White	N/A	N/A	A

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	TABLE 1: MININ1 SCREEN TAGS	TEST			
DACC TAC	EXPECTED RESULTS		RESULTS	MININ1 TAG	
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
FTE50001	425 CFM < INPUT < 675	White	No	622,71 cm	L,
Established Parameters	INPUT ≤ 425 CFM LALM	Red	L0	0,00 csm	_A`
Low Alarm: 425 CFM High Alarm: 675 CFM	425 CFM < INPUT < 675	White	No	622,71 cm	4
Problem Alarm: Yes	INPUT ≥ 675 CFM HALVE	Red	HI	934.075	⅓ .
Wait Time: ≥ 6 Sec.	425 CFM < INPUT < 675	White	No	622,71cg	<u> </u>
	"ENABLE" Problem Alarm 🛛 🐧 💪	Red	N/A	N/A	Ž.
	"CLEAR" Problem Alarm	White	N/A	N/A	Ä
FTE50002	425 CFM < INPUT < 675	White	No	475,32 ch	Å
Established Parameters	INPUT ≤ 425 CFM LALM	Red	LO_	271.830	A.
Low Alarm: 425 CFM High Alarm: 675 CFM	425 CFM < INPUT < 675	White	No -	475,3 Zin	A
Problem Alarm: Yes	INPUT ≥ 675 CFM HALM	Red	HI	6781816m	A
Wait Time: ≥ 6 Sec.	425 CFM < INPUT < 675	White	No	475.326	Å
	"ENABLE" Problem Alarm 016	Red -	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	A.

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	TABLE 1: MININ1 SCREEN TAG	TEST			
DACS TAG	TAIDLET TO MODEOFT	EXPECTED	EXPECTED RESULTS		
DACS IAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
FTE50003	"ENABLE" Problem Alarm	Red	N/A	N/A	\mathcal{L}
<u>Established Parameters</u> Low Alarm: N/A					Ø.
High Alarm: N/A Problem Alarm: Yes	"CLEAR" Problem Alarm	White	N/A	N/A	A
Wait Time: ≥ 12 Sec.					
GC1-H2	"ENABLE" ZVAL Problem Alarm	Red	N/A	N/A	Å
<u>Established Parameters</u> Low Alarm: N/A	016 LALW				D
High Alarm: N/A Problem Alarm: Yes	"CLEAR" ZVAL Problem Alarm	White	N/A	N/A	1
Wait Time: ≥ 30 Sec.					Å.
GC3-H2	"ENABLE" ZVAL Problem Alarm	Red	N/A	N/A	Н
Established Parameters Low Alarm: N/A	O(b LALM.				A .
High Alarm: N/A Problem Alarm: Yes	"CLEAR" ZVAL Problem Alarm	White	N/A	N/A	A.
Wait Time: ≥ 30 Sec.					Λ··

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TABLE 1: MININ1 SCREEN TAGS TEST					
	TURKET TO MODORET	EXPECTED RESULTS		MININ1 TAG	
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
GC2-H2	"ENABLE" ZVAL Problem Alarm	Red	N/A	N/A	A
Established Parameters Low Alarm: N/A	٥١ ل				Į
High Alarm: N/A "CLEAR" ZVAL Problem Alarm Problem Alarm: Yes Wait Time: ≥ 30 Sec.		White	N/A	N/A	X.
NITKSY06	0.001% < INPUT < 0.56%	White	No	0.5%	A
Established Parameters	INPUT ≤ 0.001% _ALM	Red	LO	0,09,	A
Low Alarm: 0.001 %	0.001% < INPUT < 0.56%	White	No	0.5%	A
High Alarm: 0.56% Problem Alarm: Yes	INPUT ≥ 0.56% HACM	Red	HI	006%	A
Wait Time: ≥ 2 Sec.	0.001% < INPUT < 0.56%	White	No	0,5%	A
	"ENABLE" Problem Alarm დაც	Red	N/A	N/A	Å.
	"CLEAR" Problem Alarm	White	N/A	N/A	A.

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TABLE 1: MININ1 SCREEN TAGS TEST					
		EXPECTED RESULTS		MININ1 TAG	
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
NIRO5A01	INPUT < 0.56%	White	No	01/9	A
Established Parameters	INPUT ≥ 0.56%	Red	HI	0.690	_ <u>Å</u>
Low Alarm: N/A High Alarm: 0.56%	INPUT < 0.56%	White	No	0.5%	<u> </u>
Problem Alarm: Yes	"ENABLE" Problem_Alarm p:6	Red	N/A	N/A	A.
Wait Time: ≥ 2 Sec.	"CLEAR" Problem Alarm	White	N/A	N/A	<u> </u>
NITJSY06	INPUT < 0.56%	White	No	0.2%	Å ·
Established Parame <u>ters</u>	INPUT ≥ 0.56%	Red	IH	1.5%.	A .
Low Alarm: N/A High Alarm: 0.56%	INPUT < 0.56%	White	No	0.2%	<u> </u>
Problem Alarm: Yes	"ENABLE" Problem Alarm 💍 💪	Red	N/A	N/A	_ <u>A</u>
Wait_Time: ≥ 2 Sec.	"CLEAR" Problem Alarm	White	N/A	N/A	/ <u>A</u>
NIR17B01	INPUT < 0.56%	White	No	0.1%	<u> </u>
Established Parameters Low Alarm: N/A	INPUT ≥ 0.56% μαιν'	Red	HI	0.66	Å
	INPUT < 0.56%	White	No	0.2%	A.
High Alarm: 0.56% Problem Alarm: Yes	"ENABLE" Problem Alarm 0.00	Red	N/A	N/A	A.
Wait Time: ≥ 2 Sec	"CLEAR" Problem Alarm	White	N/A	N/A	A

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TABLE 1: MININ1 SCREEN TAGS TEST					
DACE TAG	DACS TAG INPUT TO MODSOFT		EXPECTED RESULTS		
DACS TAG FT-NH3C	238 G	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
FT-NH3C	0 PPM < INPUT < 3000	White	No	100 ppm.	À.
Established Parameters	INPUT ≤ 0.0 PPM Lain	Red	L0	Oppn	Ä.
Low Alarm: 0.0 PPM High Alarm: 3000 PPM	0.0 PPM < INPUT 3000	White	No	160 ppm	k·
Problem Alarm: No	INPUT ≥ 3000 PPM HALM	Red	HI	3061ppm	
Wait Time: ≥ 30 Sec.	0.0 PPM < INPUT < 3000	White	No	100 ppm	X ·
PHO-NH3	"ENABLE" Problem Alarm	Red	N/A	N/A	A.
Established Parameters Low Alarm: N/A High Alarm: N/A Problem Alarm: Yes Wait Time: ≥ 12 Sec.	"CLEAR" Problem Alarm	White	N/A	N/A	À.

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TABLE 1: MININ1 SCREEN TAGS TEST					
		EXPECTED RESULTS		MININ1 TAG	
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
₽	0.0 PPM < INPUT < 3000	White*	No	100 ppm	2
FT-NH3C	INPUT ≤ 0.0 PPM	Red	LO	OPPM	X.
Established Parameters Low Alarm: 0.0 PPM	0.0 PPM < INPUT < 3000	White	No	100 PPM	2
High Alarm: 3000 PPM	INPUT ≥ 3000 PPM	Red	HI	30018PM	Â.
Problem Alarm: Yes (DACS Tag "FT-INST")	0.0 PPM < INPUT < 3000	White	No	100 PPM	A
Wait Time: > 30 Sec.	"ENABLE" Problem Alarm	Red	N/A	N/A	A
walt itilie. 2 30 Sec.	"CLEAR" Problem Alarm	White	N/A	N/A	A
PHO-NH3	0.0 PPM < INPUT < 1000	White	No	50 ppm	4
Established Parameters	INPUT > 1000 PPM	Red	HI	1000 PPM	4
Low Alarm: N/A High Alarm: 1000 PPM	0.0 PPM < INPUT < 1000	White	No	50 PPM	Ĵ
(NH3-STACK) Problem Alarm: Yes	"ENABLE" Problem Alarm	- Red	N/A	N/A	L
Wait Time: ≥ 12 Sec.	"CLEAR" Problem Alarm	White	N/A	N/A	Å.

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TABLE 1: MININ1 SCREEN TAGS TEST					
	INPUT TO MODSOFT	EXPECTED	EXPECTED RESULTS		
DACS TAG		TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
	0.0 PPM < INPUT < 3000	White €	No	100 ppn	4
FT-NH3C	INPUT ≤ 0.0 PPM	Red	LO	OPPM	A
Established Parameters	0.0 PPM < INPUT < 3000	White	No	100 PPM	2
Low Alarm: 0.0 PPM High Alarm: 3000 PPM	INPUT ≥ 3000 PPM	Red	HI	3001 PPM	A.
Problem Alarm: Yes (DACS Tag "FT-INST")	0.0 PPM < INPUT < 3000	White	No	100 PPM	A
	"ENABLE" Problem Alarm	Red	N/A	N/A	2
Wait Time: ≥ 30 Sec.	"CLEAR" Problem Alarm	White	N/A	N/A	A
PHO-NH3	0.0 PPM < INPUT < 1000	White	No	50 ppn	4
Established Parameters	INPUT > 1000 PPM	Red	HI	1000 ppm	4
Low Alarm: N/A High Alarm: 1000 PPM	0.0 PPM < INPUT < 1000	White	No	50 PPM	A
(NH3-STACK) Problem Alarm: Yes	"ENABLE" Problem Alarm	- Red	N/A	N/A	4,
Wait Time: ≥ 12 Sec.	"CLEAR" Problem Alarm	White	N/A	N/A	À.

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	TABLE 1: MININ1 SCREEN TAGS TEST						
DACC TAC	INPUT TO MODSOFT	EXPECTED RESULTS				MININ1 TAG	
DACS TAG	INPUL TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS		
WIR1BA01	-317 μIn/In < INPUT < +317 μIn/In	White	No	- c.Z ~"/"	A		
Established_Parameters	INPUT ≤ -317 μIn/In μαιν	Red	L0	-513 m"/"	_A		
Low Alarm: -317 μIn/In High Alarm: +317 μIn/In	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0.2m"/"	4		
Problem Alarm: Yes	INPUT ≥ +317 µIn/In HALM	Red	HI	451.8/1/"	A .		
Wait Time: ≥ 6 Sec.	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0.2m"/"	<u> </u>		
	"ENABLE" Problem Alarm werigaci	Red	N/A	N/A	<u> </u>		
	"CLEAR" Problem Alarm	White	N/A	N/A	A		
WIR1BA02	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0.20"/"			
Established Parameters	INPUT ≤ -317 µIn/In LALV	Red	LO	-513 w"/"	Å.		
Low Alarm: -317 μIn/In High Alarm: +317 μIn/In	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0,20"/"	<i>k</i>		
Problem Alarm: Yes	INPUT ≥ +317 μIn/In μλιμ	Red	ΗI	451.8n"/"	A		
Wait Time: ≥ 6 Sec.	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0.20"/"	\mathcal{A}		
	"ENABLE" Problem Alarm with 18402	Red	N/A	N/A	Ä		
	"CLEAR" Problem Alarm	White	N/A	N/A	Ži .		

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	TABLE 1: MININ1 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTED	EXPECTED RESULTS			
DACS TAIG	INPUL TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS	
WIR1BA03	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0.2m"/"	Å,	
Established Parameters	INPUT ≤ -317 µIn/In LALM	Red	LO	-513m"/"	A	
Low Alarm: -317 µÎn/În High Alarm: +317 µÎn/În	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0.2 m"/"	A	
Problem Alarm: Yes	INPUT ≥ +317 µIn/In HALV	Red	HI	451.8~"/"	A	
Wait Time: ≥6 Sec.	-317 μIn/In < INPUT < +317 μIn/In	White	No	-0.2m"/"	4	
	"ENABLE" Problem Alarm wakibAob	Red	N/A	N/A	4.	
	"CLEAR" Problem Alarm	White	N/A	N/A	A	
WIR17C01	-267 μIn/In < INPUT < +267 μIn/In	White	No	-0:2u"/"	1	
Established Parameters	INPUT ≤ -267 µIn/In Lain	Red	LO	-513m"/"	Ä,	
Low Alarm: -267 μIn/In High Alarm: +267 μIn/In	-267 μIn/In < INPUT < +267 μIn/In	White	No	-0.2n"/"	Ä.	
Problem Alarm: Yes	-INPUT ≥ +267 μIn/In +4cm	Red	HI	45/1841/	A	
Wait Time: ≥ 6 Sec.	-267 μIn/In < INPUT < +267 μIn/In	White	No	_0.Zu"/"	A	
	"ENABLE" Problem Alarm المجمعية (Enable Problem Alarm المجمعة المعادية)	Red	N/A	N/A	A	
	"CLEAR" Problem Alarm	White	N/A	N/A	A	

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TABLE 1: MININ1 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTE	D RESULTS	MININ1 TAG	
5.30	XIII OT TO HOUSE!	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
WIR17C02	-267 μIn/In < INPUT < +267 μIn/In	White	No	-0.2m"/"	A
Established Parameters	INPUT ≤ -267 μIn/In iacm	Red	LO	-513 4"/"	A.
Low Alarm: -267 μIn/In High Alarm: +267 μIn/In	-267 μIn/In < INPUT < +267 μIn/In	White	No	-0.20"	B
Problem Alarm: Yes	INPUT ≥ +267 µIn/In 4Acm	Red	HI	451.8 1/1"	A
Wait Time: ≥ 6 Sec.	-267 μIn/In < INPUT < +267 μIn/In	White	No	-0.2a"/"	L
	"ENABLE" Problem Alarm ப்புக்கும்	Red	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	A
WIR12A01	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0,2u"/"	A
Established Parameters	INPUT ≤ -145.5 µIn/In LALA	Red	LO	-513 u"/"	Á
Low Alarm: -145.5 µIn/In High Alarm: +145.5 µIn/In	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0.24"	A
Problem Alarm: Yes	INPUT ≥ +145.5 µIn/In HACM.	Red	HI	451182"/"	A
Wait Time: ≥ 6 Sec.	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0.zu"/"	A·
	"ENABLE" Problem Alarm warde,	Red	N/A	N/A	2
	"CLEAR" Problem Alarm	White	N/A	N/A	A·

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TABLE 1: MININ1 SCREEN TAGS TEST					
	EXPECTED RESULTS		MININ1 TAG		
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
WIR12A02	$-145.5 \mu In/In < INPUT < +145.5 \mu In/In$	White	No	-0:Zx"/"	A .
Established Parameters	INPUT ≤ -145.5 μIn/In	Red	L0	-513/1"	<u>\$</u> .
Low Alarm: -145.5 μIn/In	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0.20"/"	1/4
High Alarm: +145.5 μIn/In Problem Alarm: Yes	INPUT ≥ +145.5 µIn/In HACM	Red	HI	451180"/"	A
Wait Time: ≥ 6 Sec.	-145.5 μ In/In < INPUT < +145.5 μ In/In	White	No	-0,20"/"	Å
	"ENABLE" Problem Alarm เมษาแบนอ	Red	N/A	N/A	<u>~</u>
	"CLEAR" Problem Alarm	White	N/A	N/A	Z.
WIR12A03	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0, Zu'	A
Established Parameters	INPUT ≤ -145.5 µIn/In LAGY.	Red	L0	-513 m"/"	A
Low Alarm: -145.5 μIn/In	-145.5 μ In/In < INPUT < +145.5 μ In/In	White	No	-0.2n"/"	A
High Alarm: +145.5 μIn/In Problem Alarm: Yes	INPUT ≥ +145.5 μIn/In μAch	Red	HI	451.8~"/"	3
Wait Time: ≥ 6 Sec.	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0.2 u'/"	A
	"ENABLE" Problem Alarm بعيلادين	Red	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	4

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	TABLE 1: MININ1 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT EXPECTED RESULTS		RESULTS	MININ1 TAG		
	THE OF TO HOUSE!	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS	
WIR12A04	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0.Zu"/"	A.	
Established Parameters	INPUT ≤ -145.5 μIn/In ωιΜ	Red	L0	-513 m"/"	2	
Low Alarm: -145.5 µIn/In High Alarm: +145.5 µIn/In	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0.Zn"/"	A	
Problem Alarm: Yes	INPUT ≥ +145.5 µIn/In	Red	HI	451.8 11"/"	A:	
Wait Time: ≥ 6 Sec.	-145.5 μIn/In < INPUT < +145.5 μIn/In	White	No	-0.2 n"/"	4.	
	"ENABLE" Problem Alarm અરપારવાન	Red	N/A	N/A	Ä	
	"CLEAR" Problem Alarm	White	N/A	N/A	A_{\cdot}	
ENRAF	"ENABLE" Problem Alarm	Red	N/A	N/A		
Established Parameters Low Alarm: N/A	EZNAF				A .	
High Alarm: N/A Problem Alarm: Yes	"CLEAR" Problem Alarm	White	N/A	N/A	Ž.	
Wait Time: ≥ 6 Sec.					C.1.	

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	TABLE 1: MININ1 SCREEN TAGS	TEST			
DACC TAG	TAIDLIT TO MODEOUT	EXPECTED	EXPECTED RESULTS		
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
TIR17B01	70.01 °F < INPUT < 130 °F	White	No	100.0°F	1
Established Parameters	INPUT ≤ 70.01 °F TERITOR	Red	LO	70.0°F	A
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100,0°F	A.
Problem Alarm: Yes	INPUT ≥ 130 °F HALM	Red	HI	131,0°F	A .
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.00€	A
	"ENABLE" Problem Alarm	Red	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	A.
TIR17B02	70.01 °F < INPUT < 130 °F	White	No	1000F	×
Established Parameters	۱۸۶۵ ≤ INPUT ≤ 70.01°F	Red	LO	70.0°F	K
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0.F	£.
Problem Alarm: Yes	INPUT ≥ 130 °F HALM	Red	HI	13/.0° F	A
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A
	"ENABLE" Problem Alarm	Red	N/A	N/A	Ź
	"CLEAR" Problem Alarm	White	N/A	N/A	1

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TABLE 1: MININ1 SCREEN TAGS TEST									
		EXPECTED RESULTS		MININ1 TAG					
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS				
TIR17B03	70.01 °F < INPUT < 130 °F	White	No	100.0°F	<i>∕</i> &.				
Established Parameters Low Alarm: 70.01°F High Alarm: 130°F Problem Alarm: Yes Wait Time: ≥ 6 Sec.	۱۸۹۵ ≤ 70.01°F مرید	Red	L0	70.0°F	4				
	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Ą				
	INPUT ≥ 130 °F Hain	Red	HI	136°F	A				
	70.01 °F < INPUT < 130 °F	White	No	100°F	A.				
	"ENABLE" Problem Alarm	Red	N/A	N/A	Sy.				
	"CLEAR" Problem Alarm	White	N/A	N/A	A				
TIR17B04	70.01 °F < INPUT < 130 °F	White	No	1000°F	A.				
Established Parameters Low Alarm: 70.01°F High Alarm: 130°F Problem Alarm: Yes Wait Time: ≥ 6 Sec.	INPUT ≤ 70.01 °F LAUN	Red	LO	70.8F	Å				
	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A				
	INPUT ≥ 130 °F HALM	Red	HI	13/0°F	4 -				
	70.01 °F < INPUT < 130 °F	White	No	100.0°F	1				
	"ENABLE" Problem Alarm	Red	N/A	N/A	A				
	"CLEAR" Problem Alarm	White	N/A	N/A	<u> </u>				

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	TABLE 1: MININ1 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTED RESULTS		MININ1 TAG		
DACS TAIG	INPUL TO MUDSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS	
TIR17B05	70.01 °F < INPUT < 130 °F	White	No	100.3F	A	
Established Parameters	INPUT ≤ 70.01 °F 10.6	Red	LO	70.0°F	Å	
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.005	A	
Problem Alarm: Yes	INPUT ≥ 130 °F باغریام	Red	HI	131.0°F	A	
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.09	A.	
	"ENABLE" Problem Alarm	Red	N/A	N/A	14	
	"CLEAR" Problem Alarm	White	· N/A	N/A	A.	
TIR17B06	70.01 °F < INPUT < 130 °F	White	No	1008F	Ä	
Established Parameters	INPUT ≤ 70.01 °F 1 ALL	Red	LO	70.0°F	Z	
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No .	100.0°F	Â.	
Problem Alarm: Yes	INPUT ≥ 130 °F HULM	Red	HI	131,0°F	A.	
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	L	
	"ENABLE" Problem Alarm	Red	N/A	N/A	2	
	"CLEAR" Problem Alarm	White	N/A	N/A	A	

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TABLE 1: MININ1 SCREEN TAGS TEST					
DACS TAG	EXPECTED RESULTS		RESULTS	MININ1 TAG	
DAG TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
TIR17B07	70.01 °F < INPUT < 130 °F	White	No	100.8F	/4·
<u>Established Parameters</u>	INPUT ≤ 70.01 °F	Red	LO	70.0°F	A
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A
Problem Alarm: Yes	INPUT ≥ 130 °F HALM	Red	HI	131.0°F	Ä
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	1
	"ENABLE" Problem Alarm	Red	N/A	N/A	A.
	"CLEAR" Problem Alarm	White	N/A	N/A	1.
TIR17B08	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A.
Established Parameters	INPUT ≤ 70.01 °F PAIN	Red	LO	70.0°F	Å
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	£.
Problem Alarm: Yes	INPUT ≥ 130 °F Hacm	Red	HI	131.0°F	Å
Wait Time: ≥ 6 Sec.	. 70.01 °F < INPUT < 130 °F	White	No	100.0°F	L
	"ENABLE" Problem Alarm	Red	N/A	N/A	L
	"CLEAR" Problem Alarm	White	N/A	N/A	1.

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TABLE 1: MININ1 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTED	RESULTS	MININ1 TAG	
DNC3 ING	INFOT TO HOUSUFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
TIR17B09	70.01 °F < INPUT < 130 °F	White	No	100.0°F	<u>L</u> .
Established Parameters	INPUT ≤ 70.01 °F OLG	Red	LO	70.0°F	2
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Ä
Problem Alarm: Yes	INPUT ≥ 130 °F	Red	IH	131.0°F	
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Å
	"ENABLE" Problem Alarm	Red	N/A	N/A	A
Wilf· * = "Hi" means received	"CLEAR" Problem Alarm	White	N/A	N/A	71/4"

NOTE: * = "HI" means received HIGH alarm, "LO" means received LOW alarm, "No" means no alarm signal received. "N/A" means not applicable.

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6.2.5 Verify the MININ1 screen displayed appropriate colors for values as listed in Table 1: 1

Verified by: Alex-U 19-3-96 (Test Director) Date

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- 6.3 At DACS laboratory computer station #5, access the MININ2 screen.
 - 6.3.1 Request development system personnel to apply, using DACS laboratory computer #1, an input test signal within the value parameters listed in the "INPUT TO MODSOFT" column of Table 2 for each of the DACS tags found on the MININ2 screen (See NOTE below). Each value is to be input in sequence as discussed in section 6.1.4 above.

NOTE: MIP00001 tag - For this tag, the MININ2 screen color is toggled by an abort coil and there are no associated HIGH, LOW, or PROBLEM alarms. Toggling the abort coil will adequately test the MININ2 screen response of MIP00001.

PCR12A01 tag - For this tag, the MININ2 screen color is toggled by the PIR12A01 tag. To properly test the MININ2 screen response of PCR12A01, then toggle PIR12A01.

VR232050, VR232040, and ZIMPE112 tags - The status of these tags are based on the pump running and therefore they do not toggle to Red on the MININ2 screen. There is no function or response to test on these tags.

ARMGAMMA tag - For this tag, the MININ2 screen color is toggled by tripping any or all of the following three coils; ARMALARM, ARMABORT. and ARMFAIL.

- 6.3.2 Wait at least the period of time given under the "Wait Time" (listed under <u>Established Parameters</u>) for each of the Dacs Tags being tested on the MININ2 screen.
- 6.3.3 Record the value displayed on the MININ2 screen for the tag being tested under the "MININ2 TAG VALUE READING" column of Table 2 and observe the "EXPECTED RESULTS".
- 6.3.4 If the "EXPECTED RESULTS" were satisfactorily observed, and the "MININ2 TAG VALUE READING" recorded was within the values given under the "INPUT TO MODSOFT" column, then initial each line in the "Initial" column as it is accomplished. Discrepancies shall be recorded in accordance with section 6.1.1 above.

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TABLE 2: MININ2 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTED RESULTS		MININ2 TAG VALUE	
DAGS TAG	THEOL TO HOUSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	READING	INITIALS
TIR17B10	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Ä.
Established Parameters	INPUT ≤ 70.01 °F Lyun	Red	L0	70.0°F	Å.
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A
Problem Alarm: Yes	INPUT ≥ 130 °F بىلىنىر	Red	IH	131.0°F	A
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	_A
	"ENABLE" Problem Alarm	Red	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	<u> </u>
TIR17B11	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A ·
Established Parameters	INPUT ≤ 70.01 °F 616	Red	L0	70.0°F	A .
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A
Problem Alarm: Yes	INPUT ≥ 130 °F	Red	HI	131,0°F.	- £ .
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Å
	"ENABLE" Problem Alarm	Red	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	

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TABLE 2: MININ2 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTED RESULTS		MININ2 TAG VALUE	
DACS TAG	THEOL TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	READING	INITIALS
TIR17B12	70.01 °F < INPUT < 130 °F	White	No	100%F	2
Established Parameters	INPUT ≤ 70.01 °F 126m	Red	LO	70.04	8
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F.	2
Problem Alarm: Yes	INPUT ≥ 130 °F +Aun	Red	HI	131.0°F	Å
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Z,
	"ENABLE" Problem Alarm	Red	N/A	N/A	1
	"CLEAR" Problem Alarm	White	N/A	N/A	1
TIR17B13	70.01 °F < INPUT < 130 °F	White	No	100.0°F	2.
Established Parameters	INPUT ≤ 70.01 °F 116	Red	L0	70.0°F	A
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A
Problem Alarm: Yes	INPUT ≥ 130 °F +LALLAN	Red	HI	131.0°F	2
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	*
	"ENABLE" Problem Alarm	Red	N/A	N/A	Å
	"CLEAR" Problem Alarm	White	N/A	N/A	

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	TABLE 2: MININ2 SCREEN TAGS TEST					
	THRUT TO HODGOET	EXPECTED RESULTS		MININ2 TAG VALUE		
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	READING	INITIALS	
TIR17B14	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Å	
Established Parameters	INPUT ≤ 70.01 °F LALL	Red	LO	70.0°F	4	
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	,00.0°F	4.	
Problem Alarm: Yes	INPUT ≥ 130 °F	Red	HI	131,0°F	\$.	
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No No	(000F	4	
	"ENABLE" Problem Alarm	Red	N/A	N/A	Z	
	"CLEAR" Problem Alarm	White	N/A	N/A	A.	
TIR17B15	70.01 °F < INPUT < 130 °F	White	No	100,09	A	
Established Parameters	INPUT ≤ 70.01 °F 444	Red	L0	70.0°F	₹ .	
Low Alarm: 70.01 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	7	
High Alarm: 130 °F Problem Alarm: Yes	INPUT ≥ 130 °F HALIN	Red	HI	131.0°F	A	
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White_	No	100.0°F	\mathcal{J}_{i}	
	"ENABLE" Problem Alarm	Red	N/A	N/A	Δ	
	"CLEAR" Problem Alarm	White	N/A	N/A	14.	

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TABLE 2: MININ2 SCREEN TAGS TEST					
DACC TAC	TAIDLE TO MODEOFT	EXPECTED RESULTS		MININ2 TAG	
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
TIR17B16	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A
Established Parameters	INPUT ≤ 70.01 °F LLLM	Red	L0	70.0°F	Α,
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Ä,
Problem Alarm: Yes	INPUT ≥ 130 °F warm	Red	HI	31.0°F	
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Å
	"ENABLE" Problem Alarm	Red	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	\mathcal{A}
TIR17B17	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A.
Established Parameters	INPUT ≤ 70.01 °F	Red	LO	70.0°F	21.
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No No	100.0°F	A.
Problem Alarm: Yes	INPUT ≥ 130 °F	Red	HI	131,0°F.	5
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Z
	"ENABLE" Problem Alarm	Red	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	\mathcal{A} -

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TABLE 2: MININ2 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTED	RESULTS	MININ2 TAG	
DAGS TAG	THEO TO HOUSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
TIR17B18	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Å
Established Parameters	INPUT ≤ 70.01 °F www.	Red	L0	70°F	A
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	4.
Problem Alarm: Yes	INPUT ≥ 130 °F KALM	Red	HI	131.0°F	A.
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	1000°F	A
	"ENABLE" Problem Alarm	Red	N/A	N/A	X,
	"CLEAR" Problem Alarm	White	N/A	N/A	A,
TIR17B19	70.01 °F < INPUT < 130 °F	White	No	100.0°F	A
Established Parameters	INPUT ≤ 70.01 °F 41m	Red	LO	70.0°F	Å
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	
Problem Alarm: Yes	INPUT ≥ 130 °F	Red	HI	131.0°F	\mathcal{A}
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White ·	No	100,0°F	\mathcal{A}
	"ENABLE" Problem Alarm	Red	N/A	N/A	\mathcal{A}
	"CLEAR" Problem Alarm	White	N/A	N/A	1

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TABLE 2: MININ2 SCREEN TAGS TEST					
DAGG #40	THOUT TO HODGOET	EXPECTED	RESULTS	MININ2 TAG VALUE	
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	READING	INITIALS
TIR17B20	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Д
Established Parameters	INPUT ≤ 70.01 °F 016	Red	L0	70.09	2
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F.	<u> </u>
Problem Alarm: Yes	INPUT ≥ 130 °F ; www.	Red	HI	131,0°F	<u> </u>
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100,0°F	<u></u>
	"ENABLE" Problem Alarm	Red	N/A	N/A	.A
	"CLEAR" Problem Alarm	White	N/A	N/A	<u> </u>
TIR17B21	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Å.
Established Parameters	INPUT ≤ 70.01 °F 144	Red	L0	70.0°F	× .
Low Alarm: 70.01 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	Æ.
High Alarm: 130 °F Problem Alarm: Yes	INPUT ≥ 130 °F when	Red	HI	131,0°F	A
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White.	No	100.0°F	* *
	"ENABLE" Problem Alarm	Red .	N/A	N/A	A
	"CLEAR" Problem Alarm	White	N/A	N/A	A

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TABLE 2: MININ2 SCREEN TAGS TEST					
DACS TAG	INPUT TO MODSOFT	EXPECTED	RESULTS	MININ2 TAG	
DALS TAG	TAPOL TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
TIR17B22	70.01 °F < INPUT < 130 °F	White	No	106.0°F	4
Established Parameters	INPUT ≤ 70.01 °F a16	Red	LO	70.0°F	4
Low Alarm: 70.01 °F High Alarm: 130 °F	70.01 °F < INPUT < 130 °F	White	No	100.0°F	4
Problem Alarm: Yes	INPUT ≥ 130 °F	Red	HI	131.04	4
Wait Time: ≥ 6 Sec.	70.01 °F < INPUT < 130 °F	White	No	100,0°F	A
	"ENABLE" Problem Alarm	Red	N/A	N/A	H
	"CLEAR" Problem Alarm	White	N/A	N/A	A .
PCR12A01	"CLEAR" PIR12A01 coil	White	N/A	N/A	μ
Established Parameters Low Alarm: N/A High Alarm: 1.2 x (Expected PSID Value for speed set					A.
point) Problem Alarm: No	"ENABLE" PIR12A01 coil	Red	N/A	N/A	A.
Wait Time: ≥ 6 Sec.					
NOTE: Enabling PIR12A01	الله الله الله الله الله الله الله الله				
will toggle this MININ2 screen tag to red.	"CLEAR" PIR12A01 coil	White	N/A	N/A	A

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TABLE 2: MININ2 SCREEN TAGS TEST					
DACS TAG	THRUT TO MODERET	EXPECTED	RESULTS	MININ2 TAG	
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS
MIP00001	Turn coil OFF	White	N/A	N/A	4
Established Parameters Low Alarm: N/A High Alarm: N/A Abort: ON signal		letters with Green Dot			A
Problem Alarm: No Wait Time: ≥ 6 Sec.	Turn coil ON	Red letters and Dot	N/A	N/A	4
NOTE: This tags color is changed by toggling it's	m Pacoci	1			A ·
changed by togging it's associated ABORT coil.	Turn coil OFF	White letters with Green Dot	N/A	N/A	Ä,

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TABLE 2: MININ2 SCREEN TAGS TEST						
DACS TAG	INPUT TO MODSOFT	EXPECTED	RESULTS	MININ2 TAG		
DNCS TAG	TWO TO HOUSE!	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS	
TIR12A01	32.1 °F < INPUT < 190 °F	White	No	134.9°F	A	
Established Parameters	INPUT ≤ 32.1 °F Di6	Red	LO	32.0° F	Å	
Low Alarm: 32.1 °F High Alarm: 190 °F	32.1 °F < INPUT < 190 °F	White	No	134,9°F	Å	
Problem Alarm: Yes	INPUT ≥ 190 °F	Red	IH	237.7℃	A	
Wait Time: ≥ 6 Sec.	32.1 °F < INPUT < 190 °F нит.	White	No	134.9°F	<i>A</i>	
	"ENABLE" Problem Alarm	Red	N/A	N/A	A	
	"CLEAR" Problem Alarm	White	N/A	N/A	A -	
TIR12A02	32.1 °F < INPUT < 190 °F	White	No	134,9°F	Å .	
Established Parameters	INPUT ≤ 32.1 °F	Red	L0	32.0°F	\mathcal{A}	
Low Alarm: 32.1 °F High Alarm: 190 °F	32.1 °F < INPUT < 190 °F	White	No	134.9°F	A.	
Problem Alarm: Yes	INPUT ≥ 190 °F	Red	IH	237,7°F	A.	
Wait Time: ≥ 6 Sec.	32.1 °F < INPUT < 190 °F	White	No	\$4.96-134,9°F	A	
	"ENABLE" Problem Alarm	Red	N/A	N/A	\mathcal{A}	
	"CLEAR" Problem Alarm	White	N/A	N/A	4	

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	TABLE 2: MININ2 SCREEN	TAGS TEST			
DACS TAG	INPUT TO MODSOFT	EXPECTED	RESULTS	MININ2 TAG VALUE	
DACS TAG	TUPOL TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	READING	INITIALS
VR232050	N/A	N/A	N/A	N/A	N/A
. <u>Established Parameters</u>					
NOTE: Does not turn red on MININ2 screen. No function to test.					
VR232040	N/A	N/A	N/A	N/A	N/A
Established Parameters					
NOTE: Does not turn red on MININ2 screen. No function to test.					
ZIMPE142	9.0 psig < INPUT < 24.9 psig	White	No	11, 1 psig	4.
Established Parameters	INPUT ≤ 9.0 psig Laun	Red	L0	7.30512	Å
Low Alarm: 9 psig High Alarm: 24.9 psig	9.0 psig < INPUT < 24.9 psig	White	No	(LLIPSID)	<i>A.</i>
Problem Alarm: Yes	INPUT ≥ 24.9 psig	Red	HI	15.00 53 Feb. 3	A
Wait Time: ≥ 6 Sec.	9.0 psig < INPUT < 24.9 psig #www	White	No	11,18513.	A
	"ENABLE" Problem Alarm	Red	N/A	N/A O	λ
	"CLEAR" Problem Alarm	White	N/A	N/A	A

000	Helt	MD.		"Test of the first		NEVISION	PAGE NO.	
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	TABLE 2: MININ2 SCREEN	TAGS TEST				
DACS TAG	TAIDLET TO MODEOUT	EXPECTED	RESULTS	MININ2 TAG		
DACS TAG	INPUT TO MODSOFT	TAG DISPLAY COLOR	HI/LO ALARM *	VALUE READING	INITIALS	
ZIMPE112	N/A	N/A	N/A	N/A	N/A	
Established Parameters						
NOTE: Does not turn red on MININ2 screen. No function to test.						
ARMGAMMA Established Parameters	"CLEAR" the following three coils: ARMALARM, ARMABORT, and ARMFAIL	White	N/A	N/A	A -	
Low Alarm: N/A High Alarm: N/A	"ENABLE" ARMALARM Coil	Red	N/A	N/A	A	
Problem Alarm: No	"CLEAR" ARMALARM Coil	White	N/A	N/A	$\Box \emptyset$	
Wait Time: ≥ 12 Sec.	"ENABLE" ARMABORT Coil	Red	N/A	N/A	A .	
NOTE: This tag fails on initiation of ARMALARM.	"CLEAR" ARMABORT Coil	White	N/A	N/A	LA	
ARMABORT, or ARMFAIL	"ENABLE" ARMFAIL Coil	Red ·	N/A	N/A	A	
VOTE: * = "HI" magns received b	"CLEAR" ARMFAIL Coil	White	N/A	N/A		

IE: * = "HI" means received HIGH alarm, "LO" means received LOW alarm, "No" means no alarm signal received. "N/A" means not applicable.

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6.3.5 Verify the MININ2 screen displayed appropriate colors for values as listed in Table 2: $\frac{1}{2}$

Verified by: And 19-4-96

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- 6.4 Access the GASSUM screen at DACS laboratory computer station #5. Perform the following steps (6.4.1 to 6.4.9) for each of the GASSUM tags listed in table 3. Omit steps 6.4.5 through 6.4.8 for FTIR N2O.
 - 6.4.1 Request development system personnel to apply, using DACS laboratory computer #1, the following input test signals for GASSUM tags listed in Table 3:

NOTE: After the FILE NAME has updated on the GASSUM screen the Delay Timer starts timing out for the length of time listed under <u>Established Parameters</u>. Time Delay for each of the tags. Steps 6.4.1.3 through 6.4.3 should be accomplished before the Delay Timer times out.

- 6.4.1.1 Development system personnel assign FILE NAME = "1".
- 6.4.1.2 Wait 30 to 60 seconds for FILENAME to update. When the FILE NAME updates on the GASSUM screen, start the stop watch or timer and begin timing the Delay Timer.
- 6.4.1.3 Development system personnel input VALUE of approximately 50 PPM.
- 6.4.2 Wait for SY-101 GAS SUMMARY table on the GASSUM screen on computer station #5 to update to the approximate 50 PPM value assigned (around 30 to 60 seconds).
- 6.4.3 Record whether displayed value on GASSUM screen is approximately 50 PPM in Table 3 for the appropriate tag being tested.
- 6.4.4 Wait for the given time as listed in Table 3 under <u>Established</u>
 <u>Parameters</u>. Delay Time, for the appropriate tag being tested. After
 the Delay Time has elapsed, observe that the appropriate tag value
 goes to 0.0 PPM. Record whether observed GASSUM value displayed is
 0.0 PPM for tag being tested in Table 3.

NOTE: Omit steps 6.4.5 through 6.4.8 for GASSUM tag FTIR N2O.

- Access the MININ1 screen on computer station #5 and observe whether the appropriate DACS tag under test has turned red in color. Record observations in Table 3.
- 6.4.6 Request development system personnel to apply, using DACS laboratory computer #1, the following input test signals for the appropriate GASSUM tag being tested:
 - 6.4.6.1 Development system personnel assign FILE NAME = "2".
 - 6.4.6.2 Wait 30 to 60 seconds for FILENAME to update on GASSUM screen.

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6.4.6.3	Development PPM.	system	personnel	input	VALUE	of	approximately	50
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- 6.4.7 Wait for the GASSUM screen on computer station #5 to update to the approximate 50 PPM value assigned (around 30 to 60 seconds).
- 6.4.8 Within 5 minutes of observing the GASSUM screen tag under test update to approximately 50 PPM, access the MININ1 screen on computer station #5 and observe the appropriate DACS tag has turned white in color.
- 6.4.9 Verify observations recorded in Table 3 for the GASSUM Tag tested are all marked "Y" (Yes) and Initial and date the appropriate block. Discrepancies shall be recorded in accordance with section 6.1.1 above.

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	TABLE 3: GASSUM TAGS TEST							
GASSUM TAG	INPUT TO		OBSERVA	TION RESULTS		INITIALS AND		
(MININ1 TAG)	MODSOFT	GASSUM VALUE FROM STEP 6.4.3 IS ~50 PPM (Y/N)	GASSUM VALUE FROM STEP 6.4.4 IS 0.0 PPM (Y/N)	IS MININ1 TAG RED IN COLOR FROM STEP 6.4.5 (Y/N)	IS MININ1 TAG WHITE IN COLOR FROM STEP 6.4.8 (Y/N)	DATE		
GC-1 H2 (GC1-H2) <u>Established Parameters</u>	FILE NAME: 1 Imput ~ 50 PPM	Ý	V (Y	N/A	9-4-96		
Time Delay: 450 Sec. +/- 60 Sec. (7.5 Min. +/- 1 Min.)	FILE NAME: 2 Input ~ 50 PPM	N/A	N/A	N/A	Y	A 9-4-90.		
GC-2 H2 (GC2-H2) Established Parameters	FILE NAME: 1 Input ~ 50 PPM	>-)	<i>V</i> –	N/A	9-4-96		
Time Delay: 450 Sec. +/- 60 Sec. (7.5 Min. +/- 1 Min.)	FILE NAME: 2 Input ~ 50 PPM	N/A	N/A	N/A	T	9-4-96.		
GC-3 H2 (GC3-H2) Established Parameters	FILE NAME: 1 .Input ~ 50 PPM	Y	7	Y	N/A	A 9-4-96		
Time Delay: 450 Sec. +/- 60 Sec. (7.5 Min. +/- 1 Min.)	FILE NAME: 2 Input ~ 50 PPM	N/A	N/A	N/A	7	9-4-96		

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		TABLE 3: GASSUM	TAGS TEST			
GASSUM TAG	INPUT TO		OBSERVA	TION RESULTS		INITIALS AND
(MININI TAG)	MODSOFT	GASSUM VALUE FROM STEP 6.4.3 IS ~50 PPM (Y/N)	GASSUM VALUE FROM STEP 6.4.4 IS 0.0 PPM (Y/N)	IS MININ1 TAG RED IN COLOR FROM STEP 6.4.5 (Y/N)	IS MININ1 TAG WHITE IN COLOR FROM STEP 6.4.8 (Y/N)	DATE
FTIR N20 (N/A) Established Parameters Time Delay: 1200 Sec. +/- 6 Sec. (20 Min. +/- 1 Min.)	FILE NAME: 1 Input ~ 50 PPM	Y	4	N/A	N/A	J 9-4-96.
FTIR NH3 (FT-NH3C) Established Parameters	FILE NAME: 1 Input ~ 50 PPM	7	7	4.	N/A	A 9-4-96.
Time Delay: 1200 Sec. +/- 6 Sec. (20 Min. +/- 1 Min.)	0 FILE NAME: 2 Input ~ 50 PPM	N/A	N/A	N/A	4	Å 9-4-96.
PHOTO NH3 (PHO-NH3) Established Parameters	FILE NAME: 1 Input ~ 50 PPM	Y	7	4	N/A	9-4-96
Time Delay: 450 Sec. +/- 6 Sec. (7.5 Min. +/- 1 Min.)) FILE NAME: 2 Input ~ 50 PPM	N/A	N/A	N/A	Y	9-4-96

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6.4.10 Verify the observed GASSUM tags and MININ1 tags displayed appropriate values and colors as for each tag listed in Table 3:

Verified by: Alauch 19-4-96 (Test Director) Date

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7.0 ATTACHMENTS

Attachment 1. Exception List

Attachment 2, Final Procedure Acceptance Sheet

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EXCEPTION NUMBER	STEP NUMBER	EXCEPTION DESCRIPTION	EXCEPTION RESOLUTION	RESOLUTION APPROVED BY:	DATE RESOLVED
83 0	Table 1 DACS TAG PHO-NH3	HIGH ALARM 1000 PPM IS ASSOCIATED.	ADDED ADDITIONAL STEPS FOR INPUT TO MODER TO TEST HIGH AMONIACONC	L.J. Lank	9-6-96
2	TAble I DACS TAG FT-NH3C	A Problem ALARM FOR INSTRUMENT Problem is NOT Provided as "FT-INST"	ADDED ADDITIONAL STEPS FOR INPUT TO MODED ADDITIONAL STEPS FOR INPUT TO MODED ADDITIONAL STEPS FOR INPUT TO MODED FOR TO TEST INSTRUMENT PROGRAMM	on S. J. Lunch	9-6-96.
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Attachment 1: Exception List

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Completion of this procedure has demonstrated that:

- The MININ1 and MININ2 tags turn red in color from an alarm, abort, or problem signal and reset to white when condition clears.
- GC2-H2 tag added responds appropriately to alarm, abort, and problem conditions.
- The following GASSUM tags display 0.0 PPM on failure to receive an update from the associated instrumentation instead of retaining the last known good value and the corresponding MININ1 screen tag turns red indicating instrument failure; GC-1 H2, GC-2 H2, GC-3 H2, FTIR N20, FTIR NH3, and PHOTO NH3.
- Test Strategy software, Version 3.04 has been adequately tested and is ready for installation into the DACS trailer computers.
- 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. M. Gauck. Test Director

<u>9-6-96.</u> Date

T. A. Erickson, SY Tank Farm Manager

9/6/96

Attachment 2: Final Procedure Acceptance Sheet

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