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Reason	Disp.									Reason	Disp.
1	1	Cog. Eng. DA Barnes	<i>David Barnes</i>	6/6/94	IRM Manager RB Bass	<i>RB Bass</i>	6/3/94	RI-01	1	1	
1	1	Cog. Mgr. JS Schofield	<i>JS Schofield</i>	6/6/94	V&V Independent Reviewer JR Freer				1		
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		Safety									
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18. Signature of EDT Originator <i>DG Spurling</i> 6/3/94	19. Authorized Representative for Receiving Organization <i>David Barnes</i> 6/6/94	20. Cognizant/Project Engineer's Manager <i>RB Bass</i> 6/6/94	21. DOE APPROVAL (if required) Ltr. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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RELEASE AUTHORIZATION

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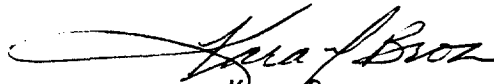
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APPROVED FOR PUBLIC RELEASE

* * * * *

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<p><i>KMB 8/25/94</i></p> <p>APPROVED FOR PUBLIC RELEASE</p>		
7. Abstract The TMACS Software Test Procedures translate the project's acceptance criteria into test steps. The TMACS Test Plan (WHC-SD-WM-TP-148) is fulfilled when all Test Cases are approved. This Test Procedure tests the TMACS Panalarm Interface functions.		
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TANK MONITOR AND CONTROL SYSTEM
(TMACS) SOFTWARE PROJECT

TEST PROCEDURE TP011:

TMACS PANALARM INTERFACE

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1.0 TEST ITEMS

This Test Procedure addresses the TMACS user interface to the Panalarm Series 90 annunciators that will be connected in the 271-A, 271-CR and 242-S facilities. The Panalarm Interface features to be tested are: graphics, data logging, real-time alarming, equipment alarms, alarm display color coding, alarm acknowledgement, and alarm logging. Some features and functions used to perform this Test Procedure are not verified here because they are verified in Test Procedure 003 and Test Procedure 001.

Table 1. Test Cases

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2.0 ACCEPTANCE CRITERIA AND REQUIREMENTS

The acceptance criteria and the Test Cases that satisfy these criteria are listed here.

2.1 New Ratio Requirements:

Panalarm panels and display windows can not be directly traced to farms, tanks and sensors in the same manner as the Acromag stations. The following combinations must be allowed:

- any number of farms per sensor
- any number of farms per cabinet
- any number of cabinets per farm
- any number of tanks per sensor
- any number of tanks per cabinet
- any number of sensors per tank, farm, and cabinet

See Step 32.

2.2 Information Display Requirements:

Make interface as familiar/simple as possible to operators, by providing the following features:

- 2.2.1 Show status of all cabinets associated with each farm on the Hanford Tank Farm Facilities (HTFF) workspace. See steps 18 to 21
- 2.2.2 Allow access to the Cabinets from the HTFF workspace. See steps 18

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to 21

- 2.2.3 Include Binary Alarm Sensors in the existing color/blinking scheme for showing the status of a tank. See steps 15 to 17
- 2.2.4 Allow access to Cabinets from each affected Tank Status Window. See steps 11 to 12
- 2.2.5 Allow access to all Cabinets from the Control Panel. See steps 1 to 5

2.3 Logging Requirements:

- 2.3.1 Log by exception (whenever either the status or value of the Binary Alarm Sensor changes). See steps 28 to 29
- 2.3.2 Log at least every 24 hours. See TP005 "Sensor Configuration, Logging, and Data Conversion"

2.4 Process Requirements:

- 2.4.1 Get time stamp on new values immediately. See steps 28 to 31
- 2.4.2 Process new values as soon as possible. See steps 28 to 31
- 2.4.3 Check the status of each sensor every time it receives a new value. See steps 30 to 31

3.0 TESTER INFORMATION/REQUIREMENTS

The TMACS system is an application built using the G2 Real-Time Expert System. The tester should be familiar with the general windows point-and-click style user interface, including mouse input.

The tester should also have a basic understanding that G2 runs under the UNIX operating system, and that sensor and event data from TMACS is logged to UNIX text files. The tester should also be aware that part of this test requires the Test Administrator to access these UNIX text files.

The instructions for using the mouse, mouse buttons, and keyboard are given below.

The majority of user control of the system involves pointing at objects on the computer screen using the POINTER. The pointer is an arrow that is pointing to the upper left of the screen. When a user moves the mouse, the pointer moves on the screen.

The G2 system treats the left and right mouse buttons as if they were a single button. Whenever the use of a mouse button is required the user is free to use either of these buttons.

The following terms are used to describe actions performed with the mouse:

- To move the pointer, slide the mouse with no buttons pressed.
- To point to a push-button or object, move the pointer to the appropriate place on the screen.

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- To click on an object, first move your mouse so that the screen pointer rests on the object. Then, press the mouse button and release immediately without moving the mouse.
- To drag an object with the mouse, first move the mouse so that the screen pointer rests on the object. Then, press the mouse button and move the mouse without releasing the button. The object moves along with the screen pointer as you move the mouse. Release the button when the object is in the desired place. To drag a window in TMACS place the mouse in a blank area around the margin of the window and drag. (Note: the drag function is not provided for all windows.)

If the G2 screen becomes unreadable or objects overwrite each other the screen can be redrawn by typing Control-C. (Hold down the "Control" key while typing the letter C).

4.0 TEST DESIGN

This test is designed to be run on one of the development workstations using simulated alarm state changes. The simulation changes the values of the Panalarm sensor to be tested to produce alarm and reset conditions as needed to test the Alarm Management items. The alarm point configuration is inspected against the configuration list provided by WHC Instrument and Control. Other "windowing" functions such as shrink, expand and hide are also tested.

This test is not designed to test the general alarm functions of TMACS, but rather to test the functionality that is specific to Panalarms. The general alarm functionality is tested in Test Procedure TP001 "TMACS Alarm Processing".

This test is not designed to test the interface between TMACS and the hardware.

5.0 PRE-TEST INSPECTION AND SETUP REQUIREMENTS

The Test Administrator (hereafter TA) will set-up the simulation so that the tester can perform the tests. The TA will start the TMACS system and initialize the simulator prior to execution of the Test Steps. The TA will set TMACS to t2-user mode and execute a 'Show Main Display' for the start of this test.

Note: Some changes between t2-user and administrator mode are required for this test, however, it is assumed that the TA will change mode as necessary so explicit change mode instructions are excluded.

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6.0 TEST STEPS

6.1 Graphics

STEP	DESCRIPTION	VERIFY
1	Verify that the bottom button on the Control Panel is the PANALARM DIRECTORY button.	JRF
2	Click on the PANALARM DIRECTORY button using the mouse. Verify that the PANALARM DIRECTORY window appears.	JRF
3	The PANALARM DIRECTORY is a window containing a Panalarm Button for each Panalarm Control Panel that is in the TMACS-KB software (Panalarm Buttons are rectangular raised buttons with no symbols on them). Each button should have text next to it that says "Control Panel..." identifying the Panalarm Control Panel associated with the button. Verify that the PANALARM DIRECTORY has multiple Panalarm Buttons on it and that they are labeled with a text that says "Control Panel ..."	JRF
4	Click on a Panalarm Button on the PANALARM DIRECTORY workspace. Verify that the correct Panalarm Control Panel appears.	JRF
5	Verify that the Panalarm Control Panel has the following: (1) a label at the top, (2) HIDE, MINIMIZE, and MAXIMIZE buttons, (3) multiple Panalarm Sensors arranged in a matrix, and (4) row and column numbers for the matrix.	JRF
6	Click on the MINIMIZE button. Verify that size of the Panalarm Control Panel is reduced.	JRF
7	Click on the MAXIMIZE button. Verify that size of the Panalarm Control Panel is increased.	JRF
8	Click on the hide window button on the Panalarm Control Panel. Verify that the Panalarm Control Panel disappears.	JRF

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9	Repeat steps 4 through 8 for each Panalarm Button on the Panalarm Directory.	JNF
10	Click on the Hide button on the PANALARM DIRECTORY. Verify that the PANALARM DIRECTORY disappears.	JNF
11	Click on one of the tanks listed in Appendix A. Verify that on the Tank Status Window that appears there is a Panalarm Button labeled with the Panalarm Control Panel name listed next to that tank in Appendix A.	JNF
12	Click on the Panalarm Button. Verify that the correct Panalarm Control Panel appears, and then hide it and the Tank Status Window.	JNF
13	Repeat steps 11 through 12 for each tank on the list in Appendix A.	JNF

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6.2 Panalarm Alarms

STEP	DESCRIPTION	VERIFY
14	<p>The configuration of the sensors can be obtained from Appendix C, "Panalarm Sensor Configuration". In the next few steps the word correct is used to indicate the you should check the way the TMACS software is configured based on Appendix C.</p> <p>Verify that all of the sensors listed in Appendix C are present in the TMACS software by browsing through the PANALARM DIRECTORY panel by panel.</p>	JAF
15	<p>The Test Administrator(TA) will trip an alarm on a Panalarm sensor using the simulator.</p> <p>Verify that an alarm message appears on the MOST RECENT ALARM window within 3 seconds after the alarm is tripped.</p>	JAF
16	<p>Verify that the alarm message contains the following information:</p> <p>(a description of the alarm) TIME: (the time at which the alarm occurred) SENSOR: (the tag-name of the sensor)</p> <p>NOT ACKNOWLEDGED</p>	JAF
17	<p>Verify that the correct Tank Icons are blinking in the correct alarm-color on the Hanford Tank Farm Facilities window.</p>	JAF
18	<p>Verify that the Farm Buttons (a Farm Button is the highlighted box that appears over the label next to the farm) of the correct farms are blinking in the correct alarm-color.</p>	JAF
19	<p>Click on the Panalarm Directory button on the Control Panel.</p> <p>Verify that the Panalarm Button of the correct Panalarm Control Panel is blinking on the PANALARM DIRECTORY.</p>	Exception
20	<p>Click on each blinking Tank Icon and verify that the correct Panalarm Button is blinking on each Tank Status Window that appears.</p> <p>Hide the Tank Status Windows as necessary, and hide them all when done.</p>	JAF

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21	Click on the blinking Farm Button. Verify that the correct Panalarm Control Panel appears.	JMF
22	Verify that the Panalarm Sensor that is blinking has the correct label on it.	JRF
23	Verify that the Panalarm Sensor is blinking in the correct alarm-color.	JRF
24	Click on the Panalarm Sensor. Verify that the sensor stops blinking and hide the Panalarm Control Panel.	JMF
25	Repeat steps 15 through 24 for (5 randomly chosen, or all) Panalarm sensors.	JMF

6.3 Complete Panalarm Configuration

STEP	DESCRIPTION	VERIFY
26	<p>Have the TA generate and print a Panalarm Configuration Report by clicking on the GENERATE-CONFIGURATION-FILE button located on the CONFIGURATION subworkspace of the PANALARM-WS workspace.</p> <p>Verify that the information in the Panalarm Configuration File matches the information in Appendix C "Panalarm Sensor Configuration". Attach this report to the Test Procedure to document configuration verification.</p>	JAF
27	Verify that all of the sensors listed in Appendix C are present in the Panalarm Configuration File.	JAF

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6.4 Panalarm Logging

STEP	DESCRIPTION	VERIFY
28	<p>Note the precise times at which the TA performs the following actions:</p> <p>On a randomly chosen Panalarm Sensor, the TA will: trip an ALARM ACKNOWLEDGE the alarm RESET the alarm</p> <p>(TA: wait at least 10 seconds between each action).</p> <p>TIMES: ALARM: <u>2:47:06 pm</u> ✓ ACKNOWLEDGE: <u>2:48:36 pm</u> RESET: <u>2:48:57 pm</u></p> <p>Then the TA will display the tail of the discrete sensor history file for the current day (use 'tail filename' command).</p> <p>Verify that two records for the sensor have been written to the end of the file, and that the first record shows an ALARM state, and the second shows a NORMAL state. Also verify that the times on the records are within 2 seconds of the times you noted for the events.</p>	JRF
29	<p>The TA will show the tail of the almhist file for the current day.</p> <p>Verify that NOT ACKNOWLEDGED, <u>ALARM RESET</u>, and ALARM ACKNOWLEDGED messages have been written (in that order) to the almhist file and that the times on the events are within 2 seconds of the times you noted.</p>	JRF

30	<p>Note the precise time at which the TA performs the following actions:</p> <p>The TA will: give the sensor an UNKNOWN comm status acknowledge the (white) alarm give it a NORMAL comm status <i>GOOD</i></p> <p>(TA: wait at least 10 seconds between each action)</p> <p>TIMES: UNKNOWN: <i>2:55:12 P ✓</i> ACKNOWLEDGE: <i>2:56:1</i> NORMAL: <i>2:56:28 P ✓</i> <i>GOOD</i></p> <p>The TA will show the tail of the discrete_sensor_history file.</p> <p>Verify that the <i>last</i> two records in the file are an UNKNOWN and a NORMAL record for the sensor, and that the times in the records are within 2 seconds of the times you noted for the events.</p>	<i>JRF</i>
31	<p>The TA will show the tail of the current equip_fail file.</p> <p>Verify that the <i>last</i> two messages in the file are a NOT ACKNOWLEDGED and an ACKNOWLEDGED message for the sensor, and that the times in the messages are within 2 seconds of the times you noted for the events.</p>	<i>JRF</i>

6.5 Farm Button Display

STEP	DESCRIPTION	VERIFY
32	<p>A Farm Button is a small rectangular button positioned over the label that is next to each farm on the HTFF window. Farm Buttons are normally transparent. Farm Buttons are used to display the combined alarm status of all Panalarm Sensors associated with that farm using the color scheme used for tank icons.</p> <p>Appendix B is a table containing some key permutations of sensor states for two sensors. The TA will set up each permutation of two randomly selected sensors within one farm.</p> <p>Verify that for each permutation the Farm Button for the farm is displayed in the manner described in Appendix B.</p> <p>Note the farm and sensors chosen below:</p> <p>Farm: <u>101AY</u></p> <p>Sensor #1: <u>High pressure</u></p> <p>Sensor #2: <u>Low pressure</u></p>	JLF

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Appendix A: Installed Tank/Panel Relationship

<u>Tank</u>	<u>Panalarm Control Panel Number</u>
AX-101	Control Panel 3, 271-A
AX-102	Control Panel 3, 271-A
AX-103	Control Panel 3, 271-A
AX-104	Control Panel 3, 271-A
AY-101	Control Panel 3, 271-A
AY-102	Control Panel 3, 271-A
AZ-101	Control Panel 4, 271-A ←
AZ-102	Control Panel 4, 271-A
C-101	Control Panel 1, 271-CR
C-102	Control Panel 1, 271-CR
C-103	Control Panel 1, 271-CR
C-111	Control Panel 1, 271-CR

Appendix B: Farm Button Display

Explanation:

The states of a single sensor can be denoted as follows:

ALARM STATE/ACKNOWLEDGEMENT STATE/QUALITY STATUS

where:

ALARM STATE can be ALARM or NORMAL

ACKNOWLEDGEMENT STATE can be UNACKNOWLEDGE or ACKNOWLEDGE

QUALITY STATUS can be BAD, GOOD or UNKNOWN

i.e. ALARM/UNACK/GOOD, meaning the sensor is in alarm, has not been acknowledged and has a good quality status (meaning the TMACS communication system is working correctly).

Farm Button Display:

The farm button has two characteristics to its display. The first is that it can be blinking. The 'Blink?' column of the following table refers to this characteristic. When a farm button is blinking the display alternates between two colors. The second characteristic is the color of the button, labeled 'Farm Button Color' in the table. For blinking farm buttons, the second color is shown in the color column (preceded by a '/').

Sensor #1	Sensor #2	Blink?	Farm Button Color(s)
NORMAL/ACK/GOOD	NORMAL/ACK/GOOD	NO	TRANSPARENT
NORMAL/ACK/GOOD	ALARM/UNACK/GOOD	YES	ALARM*/TRANSPARENT
NORMAL/ACK/GOOD	ALARM/ACK/GOOD	NO	ALARM
NORMAL/ACK/GOOD	NORMAL/UNACK/GOOD	YES	GREEN/TRANSPARENT
ALARM/UNACK/GOOD	ALARM/UNACK/GOOD	NO Yes	MAX ALARM* /trans.
ALARM/UNACK/GOOD	ALARM/ACK/GOOD	YES	MAX ALARM/ TRANSPARENT
ALARM/ACK/GOOD	ALARM/ACK/GOOD	NO	MAX ALARM
NORMAL/ACK/BAD	NORMAL/ACK/GOOD	NO	WHITE
NORMAL/ACK/BAD	ALARM/UNACK/GOOD	YES	ALARM/WHITE**
NORMAL/ACK/BAD	ALARM/ACK/GOOD	YES NO	GREEN/WHITE Alarm
NORMAL/ACK/BAD	ALARM/UNACK/BAD	NO	WHITE

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- * ALARM stands for the alarm-color of the sensor that is in alarm. MAX-ALARM stands for the highest priority alarm color of the two sensors that are in alarm (priority: RED then YELLOW).
- ** COLOR/WHITE means that the button is blinking between the color COLOR and WHITE.

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Appendix C: Panalarm Sensor Configuration

X-Sun-Data-Type: text
 X-Sun-Data-Description: text
 X-Sun-Data-Name: text
 X-Sun-Content-Lines: 0

 X-Sun-Data-Type: default
 X-Sun-Data-Description: default
 X-Sun-Data-Name: binary-alarm-sensors.config
 X-Sun-Content-Lines: 484

 AX-152-LEAK-DETECTION-PIT-HIGH-WT-FACTOR
 Control Panel 3, 271-A | farm-ax | none | YELLOW

✓

 AX-152 Leak
 Detection Pit
 High Wt Factor

 101-AY-LEAK-DETECTION-PIT-101B-HIGH-WT-FACTOR
 Control Panel 3, 271-A | farm-ay | ay-101 | YELLOW

✓

 101-AY Leak
 Detection Pit
 101B High Wt
 Factor

 101-102-AY-DASC-HIGH-TEMP
 Control Panel 3, 271-A | farm-ay | ay-101_ay-102 | YELLOW

✓

 101/102-AY
 DASC
 High Temp

 104-AX-LEAK-DETECTION-PIT-HIGH-LIQ-LEVEL
 Control Panel 3, 271-A | farm-ax | ax-104 | YELLOW

✓

 104-AX Leak
 Detection Pit
 High Liquid Level

 104-AX-LEAK-DETECTION-PIT-HIGH-RADIATION
 Control Panel 3, 271-A | farm-ax | ax-104 | YELLOW

✓

 104-AX Leak
 Detection Pit
 High Radiation

 102-AY-ANNULUS-RECORD-SAMPLER-LOW-FLOW-CAM-SYS-FAILURE
 Control Panel 3, 271-A | farm-ay | ay-102 | YELLOW

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 102-AY Annulus
 Record Sampler
 Low Flow Cam
 Sys Failure

✓ 102-AY-AIRLIFT-CIRCULATORS-LOW-FLOW
 Control Panel 3, 271-A | farm-ay | ay-102 | YELLOW

102-AY Airlift
 Circulators Low
 Flow

-RECORD-SAMPLER-LOW-FLOW-CAM-SYS-FAILURE
 Control Panel 3, 271-A | farm-ay | ay-101 | YELLOW

-----101-AY-ANNULUS

✓ 101-AY Annulus
 Record Sampler
 Low Flow Cam
 Sys Failure

TECTION-PIT-101B-HIGH-RADIATION
 Control Panel 3, 271-A | farm-ay | ay-101 | YELLOW

-----101-AY-LEAK-DE

✓ 101-AY Leak
 Detection Pit
 101B High
 Radiation

-CIRCULATORS-LOW-AIR-FLOW
 Control Panel 3, 271-A | farm-ay | ay-101 | YELLOW

-----101-AY-AIRLIFT

✓ 101-AY Airlift
 Circulators Low
 Air Flow

TECTION-PIT-HIGH-LIQ-LEVEL
 Control Panel 3, 271-A | farm-ax | ax-103 | YELLOW

-----103-AX-LEAK-DE

✓ 103-AX Leak
 Detection Pit
 High Liquid Level

TECTION-PIT-HIGH-RADIATION
 Control Panel 3, 271-A | farm-ax | ax-103 | YELLOW

-----103-AX-LEAK-DE

✓ 103-AX Leak
 Detection Pit
 High Radiation

TECTION-PIT-102-HIGH-WT-FACTOR

-----102-AY-LEAK-DE

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Control Panel 3, 271-A | farm-ay | ay-102 | YELLOW

X 102-AY Leak
Detection Pit
102 High Wt
Factor

-----101-AY-LEAK-DE

TECTION-PIT-101A-HIGH-WT-FACTOR
Control Panel 3, 271-A | farm-ay | ay-101 | YELLOW

X 101-AY Leak
Detection Pit
101-A High Wt
Factor

-----102-AX-LEAK-DE

TECTION-PIT-HIGH-LIQ-LEVEL
Control Panel 3, 271-A | farm-ax | ax-102 | YELLOW

X 102-AX Leak
Detection Pit
High Liquid Level

-----102-AX-LEAK-DE

TECTION-PIT-HIGH-RADIATION
Control Panel 3, 271-A | farm-ax | ax-102 | YELLOW

X 102-AX Leak
Detection Pit
High Radiation

-----102-AY-ANNULUS

-VENT-SYSTEM-HIGH-RADIATION
Control Panel 3, 271-A | farm-ay | ay-102 | RED

X 102-AY Annulus
Vent System High
Radiation

-----102-AY-LEAK-DE

TECTION-PIT-102-HIGH-RADIATION
Control Panel 3, 271-A | farm-ay | ay-102 | RED

X 102-AY Leak
Detection Pit
102 High
Radiation

-----102-AY-SLUICE-

PIT-02B-LEAK-DETECTED
Control Panel 3, 271-A | farm-ay | ay-102 | YELLOW

X 102-AY Sluice
Pit 02B Leak
Detected

-----102-AY-LOW-PRE

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SSURE

Control Panel 3, 271-A | farm-ay | ay-102 | RED

✓ 102-AY Tank
Low Pressure

-----101-AY-ANNULUS
-VENT-SYSTEM-HIGH-RADIATION

Control Panel 3, 271-A | farm-ay | ay-101 | RED

✓ 101-AY Annulus
Vent Sys High
Radiation

-----101-AY-LEAK-DE
TECTION-PIT-101A-HIGH-RADIATION

Control Panel 3, 271-A | farm-ay | ay-101 | YELLOW

✓ 101-AY Leak
Detection Pit
101-A High
Radiation

-----101-AY-SLUICE-
PIT-01B-LEAK-DETECTED

Control Panel 3, 271-A | farm-ay | ay-101 | YELLOW

✓ 101-AY Sluice
Pit 01B Leak
Detected

-----101-AY-LOW-PRE
SSURE

Control Panel 3, 271-A | farm-ay | ay-101 | RED

✓ 101-AY Tank
Low Pressure

-----101-AX-LEAK-DE
TECTION-PIT-HIGH-LIQ-LEVEL

Control Panel 3, 271-A | farm-ax | ax-101 | YELLOW

✓ 101-AX Leak
Detection Pit
High Liquid Level

-----101-AX-LEAK-DE
TECTION-PIT-HIGH-RADIATION

Control Panel 3, 271-A | farm-ax | ax-101 | YELLOW

✓ 101-AX Leak
Detection Pit
High Radiation

-----102-AY-PUMP-PI
T-02A-LEAK-DETECTED

Control Panel 3, 271-A | farm-ay | ay-102 | YELLOW

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- ✓ 102-AY Pump
Pit 02A Leak
Detected

-----102-AY-HIGH-PR

ESSURE
Control Panel 3, 271-A | farm-ay | ay-102 | RED
- ✓ 102-AY Tank
High Pressure

-----101-AY-HIGH-PR

ESSURE
Control Panel 3, 271-A | farm-ay | ay-101 | RED
- ✓ 101-AY Tank
High Pressure

-----PRESS-AND-FLOW

-SW-DISCHARGE-LINES-COLD-AND-WARM-WATER-SUMPS
Control Panel 4, 271-A | farm-az_farm-ay | none | YELLOW
- ✓ Press & Flow SW
Discharge Lines
Cold and Warm
Water Sumps

-----STM-CONDENSATE

-DIVERSION-SYS-HI-RADIATION
Control Panel 4, 271-A | farm-ay_farm-az | none | YELLOW
- ✓ STM Condensate
Diversion Sys
High Radiation

-----401-A-DIVERTER

-CAISSON-LEAK-DETECTED
Control Panel 4, 271-A | farm-az | none | YELLOW
- ✓ 401-A Diverter
Caisson Leak
Detected

-----401-A-CONDENSE

R-COOLING-WATER-LOW-SMPL-FLOW
Control Panel 4, 271-A | farm-az_farm-ay | none | YELLOW
- ✓ 401-A Condenser
Cooling Water
Low Smp1 Flow

-----401-A-CONDENSE

R-COOLING-WATER-RAD-MONITOR-SYSTEM-FAILURE
Control Panel 4, 271-A | farm-az_farm-ay | none | YELLOW
- ✓ 401-A Condenser
Cooling Water
Rad Monitor

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System Failure

-----401-A-CONDENSE

R-COOLING-WATER-HIGH-RADIATION

Control Panel 4, 271-A | farm-az_farm-ay | none | RED

X 401-A Condenser

Cooling Water

High Radiation

-----A-AX-AY-FARMS-

PIT-LEAK-ALL-XFER-PUMPS-SHUTDOWN-LDT33

Control Panel 4, 271-A | farm-a_farm-ax_farm-ay | none | YELLOW

✓ A, AX, AY Farms

Pit Leak All

Xfer Pumps

Shutdown-LDT33

-----RAW-WATER-LOW-

PRESSURE

Control Panel 4, 271-A | farm-az_farm-ay | none | YELLOW

✓ Raw Water Low

Pressure

-----241-AZ-151-CAT

CH-TANK-LEAK-DETECTED

Control Panel 4, 271-A | farm-az | none | YELLOW

✓ 241-AZ-151

Catch Tank

Leak Detected

-----AY-AZ-FARM-LEA

K-DET-SYSTEM-AND-FARM-PUMP-SHUTDOWN-LDT44

Control Panel 4, 271-A | farm-az_farm-ay | none | YELLOW

✓ AY & AZ Farm

Leak Det System

and Farm Pump

Shutdown-LDT44

-----AZ-101-102-ANN

ULUS-VENT-CAM-SYSTEM-FAILURE

Control Panel 4, 271-A | farm-az | az-101_az-102 | YELLOW

✓ 101/102-AZ

Annulus Vent

Cam System

Failure

-----AZ-101-102-ENC

ASE-LEAK-DET-PIT-101-102-HIGH-RADIATION

Control Panel 4, 271-A | farm-az | az-101_az-102 | YELLOW

✓ 101/102-AZ

Encase Leak

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✓ Det Pit 101/102
High Radiation
-----AZ-102-ANNULUS
-VENT-SYSTEM-HIGH-RADIATION
Control Panel 4, 271-A | farm-az | az-102 | RED

102-AZ Annulus
✓ Vent System
High Radiation
-----AZ-102-LEAK-DE
TECTION-PIT-102-LEAK-DETECTED
Control Panel 4, 271-A | farm-az | az-102 | YELLOW

102-AZ Leak
✓ Detection Pit 102
Leak Detected
-----AZ-102-LEAK-DE
TECTION-PIT-102-HIGH-WT-FACTOR
Control Panel 4, 271-A | farm-az | az-102 | YELLOW

102-AZ Leak
✓ Detection Pit 102
High Wt Factor
-----241-AZ-162-CHE
CK-VALVE-CAISSON-HIGH-RADIATION
Control Panel 4, 271-A | farm-az | none | RED

✓ 241-AZ-162 Chk
Valve Caisson
High Radiation
-----AZ-102-AIRLIFT
-CIRCULATORS-LOW-AIR-FLOW
Control Panel 4, 271-A | farm-az | az-102 | YELLOW

✓ 102-AZ Tank
Airlift Circulators
Low Air Flow
-----AZ-102-HIGH-LE
VEL
Control Panel 4, 271-A | farm-az | az-102 | YELLOW

✓ 102-AZ Tank
High Level
-----AZ-102-LOW-PRE
SSURE
Control Panel 4, 271-A | farm-az | az-102 | RED

✓ 102-AZ Tank
Low Pressure
-----AZ-102-HIGH-PR
ESSURE

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Control Panel 4, 271-A | farm-az | az-102 | RED

✓ 102-AZ Tank
High Pressure

-----AZ-101-TANK-AN

NULUS-VENT-SYSTEM-HIGH-RADIATION

Control Panel 4, 271-A | farm-az | az-101 | RED

✓ 101-AZ Annulus
Vent System
High Radiation

-----AZ-101-LEAK-DE

TECTION-PIT-101-HIGH-RADIATION

Control Panel 4, 271-A | farm-az | az-101 | YELLOW

✓ 101-AZ Leak
Detection Pit 101
High Radiation

-----AZ-101-LEAK-DE

TECTION-PIT-101-HIGH-WT-FACTOR

Control Panel 4, 271-A | farm-az | az-101 | YELLOW

✓ 101-AZ Leak
Detection Pit 101
High Wt Factor

-----241-AZ-161-CHE

CK-VALVE-CAISSON-HIGH-RADIATION

Control Panel 4, 271-A | farm-az | none | RED

✓ 241-AZ-161 Chk
Valve Caisson
High Radiation

-----AZ-101-AIRLIFT

-CIRCULATORS-LOW-AIR-FLOW

Control Panel 4, 271-A | farm-az | az-101 | YELLOW

✓ 101-AZ Tank
Airlift Circulators
Low Air Flow

-----AZ-101-LOW-PRE

SSURE

Control Panel 4, 271-A | farm-az | az-101 | RED

✓ 101-AZ Tank
Low Pressure

-----AZ-101-HIGH-PR

ESSURE

Control Panel 4, 271-A | farm-az | az-101 | RED

✓ 101-AZ Tank
High Pressure

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-----AZ-FARM-MONITO

R-AZ-1-HIGH-RADIATION
Control Panel 7, 271-A | farm-az | none | YELLOW

4 AZ Farm Area
Monitor AZ-1
High Radiation

-----AY-FARM-MONITO

R-AY-1-HIGH-RADIATION
Control Panel 7, 271-A | farm-ay | none | YELLOW

4 AY Farm Area
Monitor AY-1
High Radiation

-----CR-VAULT-EXH-F

AN-FILTER-DP-LOW
Control Panel 1, 271-CR | farm-c | none | YELLOW

4 CR-Vault Exh.
Fan Filter D/P
Low

-----LOW-LEVEL-TK-C

R-003
Control Panel 1, 271-CR | farm-c | c-103 | YELLOW

4 Low Level
Tank CR-003

-----HIGH-LEVEL-TK-

CR-003
Control Panel 1, 271-CR | farm-c | c-103 | YELLOW

4 High Level
Tank CR-003

-----HIGH-LEVEL-SUM

P-TK-CR-002
Control Panel 1, 271-CR | farm-c | c-102 | YELLOW

4 High Level
Sump CR-002

-----LOW-LEVEL-TK-C

R-002
Control Panel 1, 271-CR | farm-c | c-102 | YELLOW

4 Low Level
Tank CR-002

-----HIGH-LEVEL-TK-

CR-002
Control Panel 1, 271-CR | farm-c | c-102 | YELLOW

4 High Level
Tank CR-002

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-----HIGH-LEVEL-SUM

P-TK-CR-001
Control Panel 1, 271-CR | farm-c | c-101 | YELLOW

+ High Level
Sump CR-001

-----LOW-LEVEL-TK-C

R-001
Control Panel 1, 271-CR | farm-c | c-101 | YELLOW

4 Low Level
Tank CR-001

-----HIGH-LEVEL-TK-

CR-001
Control Panel 1, 271-CR | farm-c | c-101 | YELLOW

+ High Level
Tank CR-001

-----HIGH-LEVEL-SUM

P-TK-CR-011
Control Panel 1, 271-CR | farm-c | c-111 | YELLOW

4 High Level
Sump CR-011

-----LOW-LEVEL-TK-C

R-011
Control Panel 1, 271-CR | farm-c | c-111 | YELLOW

4 Low Level
Tank CR-011

-----HIGH-LEVEL-TK-

CR-011
Control Panel 1, 271-CR | farm-c | c-111 | YELLOW

+ High Level
Tank CR-011

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EXCEPTION SHEET

TEST PROCEDURE NUMBER: TP011 STEP#: 19 DATE: 5/27/94

DESCRIPTION:

Alarm announcement on the panelarm
directory window failed - due to initialization
error failure

RESOLUTION: DATE RESOLVED: 5/27/94

at startup activate the "panelarm-directory-window"
before invoking the init-relations procedure.
The order of statements in the startup procedure
will need to be changed.

APPROVAL:

<u>[Signature]</u>	<u>5/27/94</u>
TMACS Software Test Procedure Tester	Date
<u>[Signature]</u>	<u>5/27/94</u>
TMACS Software Test Procedure Witness	Date
<u>[Signature]</u>	<u>5/27/94</u>
SJ Washburn, TMACS Test Procedure Software Engineer	Date
<u>[Signature]</u>	<u>5/27/94</u>
DG Spurling, TMACS Software Project Manager	Date

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ACCEPTANCE SHEET

TEST PROCEDURE NUMBER: TP011 DATE: 5/27/94
 ORGANIZATION NAME: Chem + Waste Mgt S/W SPT ORG#: 62610

EXCEPTION SHEETS FOR THIS TEST PROCEDURE:

TESTER	WITNESS	STEP	DATE	RESOLVED
	JNF	19	5/27/94	yes 5/27/94

COMMENTS:

All of the test steps of this test procedure have been tested and exception sheets for this test procedure have been resolved.

APPROVAL:

Melissa J. Holm Melissa J. Holm 5-27-94
 TMACS Software Test Procedure Tester Date

John Freer JNF 5/27/94
 TMACS Software Test Procedure Witness Date

Steven J. Washburn 5-27-94
 SJ Washburn, TMACS Test Procedure Software Engineer Date

Dave Spurling 5/27/94
 DG Spurling, TMACS Software Project Manager Date

P. C. Scaief 6-7-94
 CC Scaief, TMACS Program Engineer Date

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DATA/VERIFICATION SHEET

This Sheet provides a record of Personnel who are involved in testing, data recording, verifying, and evaluating the Test Procedure. This form needs to be completed before a formal test is begun.

DIRECTIONS:

Print the name, sign, initial, and date the below lines of the participants.

TEST PROCEDURE NUMBER: TP011

<u>Melissa J Holm</u>	<u>Melissa Holm</u>	<u>MJH</u>	<u>5-27-94</u>
Tester / Organization		Initials	Date

<u>John Freer</u>	<u>Requirements Integration</u>	<u>JRF</u>	<u>5/27/94</u>
Witness / Organization		Initials	Date

<u>Steven J Washburn</u>		<u>SJW</u>	<u>5/27/94</u>
SJ Washburn, TMACS Test Procedure Software Engineer		Initials	Date

<u>Dave Spurling</u>		<u>DS</u>	<u>5/27/94</u>
DG Spurling, TMACS Software Project Manager		Initials	Date

_____ Name / Organization	_____ Initials	_____ Date
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_____ Name / Organization	_____ Initials	_____ Date
------------------------------	-------------------	---------------

_____ Name / Organization	_____ Initials	_____ Date
------------------------------	-------------------	---------------

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TEST LOG

TEST PROCEDURE NUMBER: TP011

Date: 5-26-94

TESTER: Melissa J Holm

WITNESS: JRP

TEST LOG NOTES:

Step 32 Appendix B table needed to
be corrected as noted

Label on white storm station & channel
needed to be ~~re~~ replaced w/
more appropriate text

COMMENTS:

