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Project Title/Work Order TMACS Software Release 4.1, Test Procedure Reports for TP001, TP002, TP003, TP005, TP009, TP010 / N46G1		EDT No. (xxxxxx) ECN No. 608598

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
JJ BADDEN	S5-12				ECN w/ WHC-SD-WM-TRP-114 att.
DA BARNES	R1-51				"
RB BASS	R1-01				"
TW BOHAN	S5-14				"
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ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN **608598**

Proj.
ECN

2. ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECN <input type="checkbox"/> Temporary Standby <input type="checkbox"/> Supersedeure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MSIN, and Telephone No. DG Spurling, IRM/ISS/C&WMSS, RI-01, 3-2969	4. Date 8/29/94
	5. Project Title/No./Work Order No. TMACS/N46G1	6. Bldg./Sys./Fac. No. 2750E/TMACS/200E
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-TRP-105, Rev 65 WHC-SD-WM-TRP-106, Rev 65 WHC-SD-WM-TRP-107, Rev 65 WHC-SD-WM-TRP-109, Rev 54 WHC-SD-WM-TRP-113, Rev 54 WHC-SD-WM-TRP-114, Rev 65	9. Related ECN No(s). ECN 196863 EDT 159986 EDT 600611 EDT 196862
		7. Impact Level Q
		10. Related PO No.

11a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 11b) <input checked="" type="checkbox"/> No (NA Blks. 11b, 11c, 11d)	11b. Work Package No. N46G1	11c. Modification Work Complete <div style="text-align: center;">N/A</div> Cog. Engineer Signature & Date	11d. Restored to Original Condition (Temp. or Standby ECN only) <div style="text-align: center;">N/A</div> Cog. Engineer Signature & Date
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12. Description of Change
 Four Tank Farm Surveillance System (TFSS) Change Requests were incorporated into TMACS Software Release 4.1. These include AN Farm sensor addition (temperature, pressure), C-106 instrument install (Enraf, pressure), Enraf installs (C-103, BX-106, T-102, T-107) and enhancements to the Acromag software driver.

The results of this software test are documented in each Test Report, and summarized in Test Procedure 10 (WHC-SD-WM-TRP-114).

13a. Justification (mark one) As-Found <input type="checkbox"/>	Criteria Change <input checked="" type="checkbox"/>	Design Improvement <input type="checkbox"/>	Environmental <input type="checkbox"/>
	Facilitate Const. <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

13b. Justification Details
 TMACS software development and release guidelines are governed under WHC-IP-0842, Section 12.2, Tank Farm Surveillance System Configuration Control Board, and WHC-SD-WM-CSCM-019, TMACS Software Configuration Management Plan

14. Distribution (include name, MSIN, and no. of copies) See Distribution Sheet	RELEASE STAMP <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> OFFICIAL RELEASE BY WHC DATE SEP 01 1994 </div>
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Page 2 of 2

1. ECN (use no. from pg. 1)

608598

15. Design Verification Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	16. Cost Impact <table style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">ENGINEERING</td> <td style="width: 50%; text-align: center;">CONSTRUCTION</td> </tr> <tr> <td>Additional <input type="checkbox"/> \$</td> <td>Additional <input type="checkbox"/> \$</td> </tr> <tr> <td>Savings <input type="checkbox"/> \$</td> <td>Savings <input type="checkbox"/> \$</td> </tr> </table>	ENGINEERING	CONSTRUCTION	Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$	17. Schedule Impact (days) Improvement <input type="checkbox"/> Delay <input type="checkbox"/>
ENGINEERING	CONSTRUCTION							
Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$							
Savings <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$							

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.

SDD/DD <input type="checkbox"/>	Seismic/Stress Analysis <input type="checkbox"/>	Tank Calibration Manual <input type="checkbox"/>
Functional Design Criteria <input type="checkbox"/>	Stress/Design Report <input type="checkbox"/>	Health Physics Procedure <input type="checkbox"/>
Operating Specification <input type="checkbox"/>	Interface Control Drawing <input type="checkbox"/>	Spares Multiple Unit Listing <input type="checkbox"/>
Criticality Specification <input type="checkbox"/>	Calibration Procedure <input type="checkbox"/>	Test Procedures/Specification <input type="checkbox"/>
Conceptual Design Report <input type="checkbox"/>	Installation Procedure <input type="checkbox"/>	Component Index <input type="checkbox"/>
Equipment Spec. <input type="checkbox"/>	Maintenance Procedure <input type="checkbox"/>	ASME Coded Item <input type="checkbox"/>
Const. Spec. <input type="checkbox"/>	Engineering Procedure <input type="checkbox"/>	Human Factor Consideration <input type="checkbox"/>
Procurement Spec. <input type="checkbox"/>	Operating Instruction <input type="checkbox"/>	Computer Software <input checked="" type="checkbox"/>
Vendor Information <input type="checkbox"/>	Operating Procedure <input type="checkbox"/>	Electric Circuit Schedule <input type="checkbox"/>
OM Manual <input type="checkbox"/>	Operational Safety Requirement <input type="checkbox"/>	ICRS Procedure <input type="checkbox"/>
FSAR/SAR <input type="checkbox"/>	IEFD Drawing <input type="checkbox"/>	Process Control Manual/Plan <input type="checkbox"/>
Safety Equipment List <input type="checkbox"/>	Cell Arrangement Drawing <input type="checkbox"/>	Process Flow Chart <input type="checkbox"/>
Radiation Work Permit <input type="checkbox"/>	Essential Material Specification <input type="checkbox"/>	Purchase Requisition <input type="checkbox"/>
Environmental Impact Statement <input type="checkbox"/>	Fac. Proc. Samp. Schedule <input type="checkbox"/>	<input type="checkbox"/>
Environmental Report <input type="checkbox"/>	Inspection Plan <input type="checkbox"/>	<input type="checkbox"/>
Environmental Permit <input type="checkbox"/>	Inventory Adjustment Request <input type="checkbox"/>	<input type="checkbox"/>

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
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20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog Engineer [DA Barnes] <i>[Signature]</i>	<u>02/21/94</u>	PE	
Cog. Mgr. [JS Schofield] <i>[Signature]</i>	<u>5/31/94</u>	QA	
QA [JA Warren] <i>[Signature]</i>	<u>08/31/94</u>	Safety	
Safety	<u>N/A</u>	Design	
Security	<u>N/A</u>	Environ.	
Environ.	<u>N/A</u>	Other	
Projects/Programs	<u>N/A</u>		
Tank Waste Remediation System	<u>N/A</u>		
Facilities Operations [TW Bohan] <i>[Signature]</i>	<u>8/31/94</u>	DEPARTMENT OF ENERGY	<u>N/A</u>
Restoration & Remediation	<u>N/A</u>	Signature or Letter No.	
Operations & Support Services	<u>N/A</u>		
IRM/ISS/C&WMSS [RB Bass] <i>[Signature]</i>	<u>8/31/94</u>	ADDITIONAL	<u>N/A</u>
IRM/ISS/C&WMSS [DG Spurling] <i>[Signature]</i>	<u>8/30/94</u>		
Other	<u>N/A</u>		
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RELEASE AUTHORIZATION

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Document Title: TMACS TEST PROCEDURE TP003: GRAPHICS

Release Date: 9/1/94

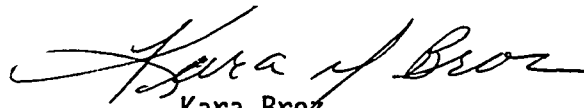
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**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

* * * * *

WHC Information Release Administration Specialist:



Kara Broz

(Signature)

9/1/94

(Date)

SUPPORTING DOCUMENT

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TMACS Test Procedure TP003: Graphics

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WHC-SD-WM-TRP-107

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6. Author

Name: P. K. Scanlan

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KRS 9/1/94

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PUBLIC RELEASE**

7. Abstract

The TMACS Software Project Test Procedures translate the project's acceptance criteria into test steps. Software releases are certified when the affected Test Procedures are successfully performed and the customers authorize installation of these changes.

This Test Procedure tests the TMACS Graphics functions.

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10.

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RECORD OF REVISION

(1) Document Number

WHC-SD-WM-TRP-107

Page 1

(2) Title
 Tank Monitor And Control System (TMACS) Software Project, Release 4.1
 Test Procedure TP003, Graphics

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release		
		(5) Cog. Engr.	(6) Cog. Mgr.	Date
0	(7) Software Release 0.0 Release Testing Released under EDT 159986, 10/15/92			
1	Software Release 1.0 Release Testing Released under ECN 196866, 1/31/93			
2	Software Release 1.1 Release Testing Released under ECN 196865, 4/30/93			
3	Software Release 2.0 Release Testing Released under ECN 196864, 10/1/93			
4	Software Release 3.0 Release Testing Released under ECN 196863, 1/15/94			
5	Software Release 4.0 Release Testing Released under ECN 196862, 5/31/94			
6 RS	Software Release 4.1 Release Testing Released under ECN 608598, 8/29/94	<i>D. Brown</i> 8/31/94	<i>John Schofer</i>	8/31/94

TANK MONITOR AND CONTROL SYSTEM
(TMACS) SOFTWARE PROJECT

TEST PROCEDURE TP003:

TMACS GRAPHICS

Patrick Scanlan
Steve Washburn

IRM Chemical & Waste Management
Software Support

SIGN OFF:

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<u>TW BOHAN</u> T Bohan TMACS User Manager	<u>TW Bohan</u> signature	<u>8/23/94</u> Date
<u>J.A. Warr</u> Software QA/V&V	<u>J.A. Warr</u> signature	<u>8/24/94</u> Date
<u>DG Spurling</u> TMACS Software Project Manager	<u>Dave Spurling</u> signature	<u>8/24/94</u> Date

1.0 TEST ITEMS

This Test Procedure addresses the graphics requirements of the TMACS. The features to be tested are the data display graphics and the graphic elements that provide for operator control and selection of displays.

Table 1. Test Cases

5.1	TEST OF THE "MASTER" TMACS WORKSTATION	6
5.1.1	Operation of the SHOW MAIN DISPLAY button	6
5.1.2	Format of the Main Display	6
5.1.3	Operation of the CURRENT ALARMS button	7
5.1.4	Format of the Current Alarms window	7
5.1.5	Operation of the SHRINK WINDOW button	8
5.1.6	Operation of the EXPAND WINDOW button	8
5.1.7	Operation of the HIDE WINDOW button	8
5.1.8	Operation of a TANK ICON button	8
5.1.9	Format of the Tank Status window	8
5.1.10	Operation of the SENSOR TREND button.	9
5.1.11	Format of the Sensor Trend window.	10
5.1.12	Operation of the TEMPERATURE TRENDS button	10
5.1.13	Format of the TEMPERATURE TRENDS window	10
5.1.15	Operation of the HIDE SENSOR TRENDS button	13
5.1.16	Operation of the PRINT SCREEN button	13
5.1.17	Operation of Tank Level Indication	14
5.2	TEST OF THE "SLAVE" TMACS WORKSTATION	15
5.2.1	Operation of the moveable window features	15
5.2.2	Operation of the HIDE SENSOR TRENDS button	16
5.2.3	Operation of the PRINT SCREEN button	16
5.2.4	Independent Display of the Slave Workstation	16

2.0 ACCEPTANCE CRITERIA AND REQUIREMENTS

The following acceptance criteria are from Section 3.0 of the TMACS Software Upgrade Project: Acceptance Criteria:

- Provide real-time display of numeric values of sensors. See Test Step 45.
- Communicate with a minimum of 2 graphics CRTs. See Test Case 5.2.
- Provide "PRINT" facility for graphic window displays. See Test Case 5.1.16.

August 16, 1994

TP003 Rev. 6

The following Change Requests were added in previous software releases:

- 92-059 Add a confirmation "Pop Up" window for the color Print Screen.
See Test Case 5.1.16
- 92-060 Add riser numbers to the Tank Status windows. See Test Step 42.
- 92-062 Position the TC sensor's readouts relative to their offsets on the Tank Status windows. See Test Step 44.
- 92-063 Modify the Riser Locator displays on the Tank Status windows to reflect the correct riser position in the tank. See Test Step 37.
- 92-064 Re-position the riser on the BY-105 Tank Status window to reflect its correct position. See Test Step 37.
- 92-066 Add independent control capability of a window's display on the main and Telewindows terminals. See Test Case 5.2.4
- 92-068 Lock out the "Print Screen" Function from the Telewindows terminal as an interim fix to the Print Screen problem.
See Test Case 5.2.3
- 93-071 Remove redundant Sensor Group Trend graphs. See Test Step 46.
- 94-007 Add description of sensor to individual sensor trend plots.
See Test Steps 49 - 54.
- 94-021 Change labels and text on the trend selectable plots.
See Test Steps 55 - 80.
- 94-005 Addition of liquid level indication to tanks.
See Test Steps 93 - 104.

The following Change Requests were added in this software release:

- 94-027 Configure Tank Farm AN.
- 94-031 Add Enraf level sensors.
- 94-034 Add Enraf level sensor, two pressure sensors to C-106.

This Test Procedure also tests certain non-deliverable items (outside the scope of the acceptance criteria). Other non-deliverable items are tested in the remaining Test Cases.

3.0 TESTER INFORMATION

The TMACS system is an application built using the G2 Real-Time Expert System. The instructions for using the mouse, mouse buttons, and keyboard are given below.

August 16, 1994

TP003 Rev. 6

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 all three mouse buttons as if they were a single button. Whenever the use of a mouse button is required the user is free to use any of the three buttons.

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

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

There are two keyboard commands that are used in TMACS. When several windows are displayed at once, a window can be lifted to the top of the screen by pointing to it with the mouse and typing `Control-T`. (Hold down the "Control" key while typing the letter T). If the 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 PRE-TEST INSPECTION AND SETUP REQUIREMENTS

This Test Procedure uses the software developed for production use. This should be running when the formal test begins, and can be identified in three parts as `"/home/G2/TMACS/prod/TMACS_Release_x_x.KB"` (where `x_x` refers to the current revision number, with only one file in the directory matching the template), `"/home/G2/BRIDGE/acromag_brg"` (which is the Acromag driver), `"/home/G2/BRIDGE/panalm_brg"` (which is the Panalarm driver) and `"/home/G2/BRIDGE/printer_brg"` (which is the Alarm Printer driver). The TMACS Software Engineer participating in the test shall demonstrate this.

The following reference materials will be needed prior to test execution:

August 16, 1994

TP003 Rev. 6

- "TMACS I/O Termination Point Listing", (WHC-SD-WM-TI-594, Rev. 0), document written by Instrument & Control (I&C), used on TMACS to determine thermocouple depths in each tank.
- "Riser Configuration Document for Single-Shell Waste Tanks", (SD-RE-TI-053, Rev. 8) -- used to verify the location of each riser on its associated single-shell tank.
- "Double-Shell Underground Waste Storage Tanks - Riser Survey", (SD-RE-TI-093, Rev. 1) -- used to verify the location of each riser on its associated double-shell tank.

See the References section for further details.

The Test Administrator should bring up TMACS in T2-User mode prior to starting this test. A Telewindows session is also needed to perform this test. For the Print Screen test, note that the main G2 window (not the telewindow) must be on the designated 'master' workstation (tfs17 or tfs12).

5.0 TEST STEPS WITH EXPECTED RESULTS

STEP	DESCRIPTION	VERIFY
5.1 TEST OF THE "MASTER" TMACS WORKSTATION		
5.1.1 Operation of the SHOW MAIN DISPLAY button		
1	Click on any enabled Tank Icon in the Hanford Tank Farm Facilities. Verify that a Tank Status window appears for the selected tank. Record selected tank here: <i>AW-101</i>	<i>JAW</i>
2	Click on the Shrink Window button (the down arrow) on the Tank Status Window to make the Control Panel visible.	<i>JAW</i>
3	Click on the Show Main Display button on the Control Panel and verify that the Tank Status window disappears.	<i>JAW</i>
4	Verify that the following windows appear on the screen: Control Panel. Most Recent Alarm. Hanford Tank Farm Facilities. (WORKING may appear if Data Recovery is still running.)	<i>JAW</i>
5.1.2 Format of the Main Display		
5	Verify that the Control Panel window is located in the upper right-hand corner.	<i>JAW</i>
6	Verify that the SHOW MAIN DISPLAY button is at the top of the Control Panel window.	<i>JAW</i>
7	Verify that the CURRENT ALARMS button is below the SHOW MAIN DISPLAY button in the Control Panel window.	<i>JAW</i>
8	Verify that the Number of Current Alarms digital display is below the CURRENT ALARMS button in the Control Panel window.	<i>JAW</i>
9	Verify that the REPORTS button is below the Number of Current Alarms display in the Control Panel window.	<i>JAW</i>
10	Verify that the HIDE SENSOR TRENDS button is below the REPORTS button in the Control Panel window.	<i>JAW</i>
11	Verify that the PRINT SCREEN button is below the HIDE SENSOR TRENDS button in the Control Panel window.	<i>JAW</i>
12	Verify that the PANALARM DIRECTORY button is below the PRINT SCREEN button in the Control Panel window.	<i>JAW</i>

August 16, 1994

TP003 Rev. 6

STEP	DESCRIPTION	VERIFY
13	Verify that a date and time display appears below the PANALARM DIRECTORY button.	JAW
14	Verify that the Most Recent Alarm window is in the lower right-hand corner.	JAW
15	Verify that the GOTO button appears at the top left of the Most Recent Alarm window.	JAW
16	Verify that the Number of Current Alarms digital display is located at the top right of the Most Recent Alarm window.	JAW
17	Verify that the Hanford Tank Farm Facilities window occupies the left portion of the screen.	JAW
18	Verify that a brown background appears behind these windows and that no other windows are visible.	JAW

5.1.3 Operation of the CURRENT ALARMS button

19	Click on the CURRENT ALARMS button and verify that the Current Alarms window appears on the left-hand side of the screen.	JAW
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5.1.4 Format of the Current Alarms window

20	Verify that the HIDE WINDOW button (with an x as a symbol) appears at the top left of the window.	JAW
21	Verify that the SHRINK WINDOW button (with a down arrow as a symbol) appears to the right of the HIDE WINDOW button at the top left of the window.	JAW
22	Verify that the EXPAND WINDOW button (with an up arrow as a symbol) appears to the right of the SHRINK WINDOW button at the top left of the window.	JAW
23	Verify that the CURRENT-ALARMS title box is displayed directly below the HIDE, SHRINK, and EXPAND windows.	JAW
24	Verify that the Number of Current Alarms digital display is located below the CURRENT-ALARMS title box.	JAW
25	Verify that the UP ONE ALARM button is located below the Number of Current Alarms display.	JAW
26	Verify that the UP ONE PAGE button is located below the UP ONE ALARM button.	JAW

August 16, 1994

TP003 Rev. 6

STEP	DESCRIPTION	VERIFY
27	Verify that the SHOW ALARMS button is located below the UP ONE PAGE button.	<i>JAW</i>
28	Verify that the DOWN ONE PAGE button is located below the SHOW ALARMS button.	<i>JAW</i>
29	Verify that the DOWN ONE ALARM button is located below the DOWN ONE PAGE button.	<i>JAW</i>
5.1.5 Operation of the SHRINK WINDOW button		
30	Click on the SHRINK WINDOW button in the Current Alarms window and verify that the Current Alarms window is reduced in size and is on the left-hand side of the screen.	<i>JAW</i>
5.1.6 Operation of the EXPAND WINDOW button		
31	Click on the EXPAND WINDOW button in the Current Alarms window and verify that the Current Alarms window is increased in size and is on the left-hand side of the screen.	<i>JAW</i>
5.1.7 Operation of the HIDE WINDOW button		
32	Click on the HIDE WINDOW button in the Current Alarms window and verify that the Current Alarms window disappears from the screen.	<i>JAW</i>
5.1.8 Operation of a TANK ICON button * Over *		
33	Click on the Tank Icon for any tank that is enabled. Verify that the Tank Status window for that tank appears.	<i>JAW</i>
5.1.9 Format of the Tank Status window		
34	Click on the EXPAND WINDOW button on the Tank Status window and verify that a tank diagram appears in the center of the window.	<i>JAW</i>
35	Verify that the window is labeled with a text block correctly identifying the tank and centered above the tank diagram.	<i>JAW</i>
36	Verify that the ACK ALARMS button appears below the text block and above the tank diagram.	<i>JAW</i>

August 16, 1994

TP003 Rev. 6

STEP	DESCRIPTION	VERIFY
37	Verify that the riser location drawing appears in the upper right-hand corner of the window with the correct placement of the riser on the tank and the riser location drawing. Refer to the appropriate Tank Riser Configuration Document (i.e., either single-shell or double-shell).	<i>JAW</i>
38	Verify that the Hide Window button (with an X as a symbol) appears at the top left of the window.	<i>JAW</i>
39	Verify that the Shrink Window button (with a down arrow as a symbol) appears to the right of the Hide Window button at the top left of the window.	<i>JAW</i>
40	Verify that the Expand Window button (with an up arrow as a symbol) appears to the right of the Shrink Window button at the top left of the window.	<i>JAW</i>
41	Verify that the Print Screen button appears below the Hide Window button.	<i>JAW</i>
42	Verify that the riser number text is displayed over the riser graphic object.	<i>JAW</i>
43	Verify that the reference thermocouple displays appear to the left of the tank. (On several tanks there are no reference TCs).	<i>JAW</i>
44	Verify that the correct thermocouples for the tank appear on the tank diagram, and are positioned in a way that approximates their physical location in the tank. (Use the document, "TMACS I/O Termination Point Listing", to verify the thermocouples for the tank).	<i>JAW</i>
45	Verify that the current values are displayed on top of the thermocouple icons.	<i>JAW</i>
46	Verify that the trend button or buttons appear in the window below the tank diagram. (Eg. LEVEL TRENDS, PRESSURE TRENDS, TEMPERATURE TRENDS, IN-TANK TCs, STRUCTURAL TCs, and REFERENCE TCs).	<i>JAW</i>

*RISEUR
-04A*

5.1.10 Operation of the SENSOR TREND button.

47	Repeat steps 48 - 53 for all continuous sensors on this tank. Use the document, "TMACS I/O Termination Point Listing", to verify correct sensors, descriptions, and sensor numbers.
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STEP	DESCRIPTION	VERIFY
48	Click on the trend icon on any sensor display (the trend icon looks like a little graph) and verify that a Sensor Trend window appears displaying a trend graph of the values of the sensor over time.	<i>JAW</i>
5.1.11 Format of the Sensor Trend window.		
49	Verify that a graph appears in the Sensor Trend window.	<i>JAW</i>
50	Verify that text appears above the trend graph that identifies the tank and the sensor type (eg. TC or TI for thermo-couple sensors) and number. (Some sensors also have the riser identified.)	<i>JAW</i>
51	Verify that the description for the sensor from the "TMACS I/O Termination Point Listing" appears below the graph.	<i>JAW</i>
52	Verify that a HIDE WINDOW button (with an x as a symbol) appears at the upper left of the window.	<i>JAW</i>
53	Verify that a digital readout of the current date and time appears below the trend graph on the right.	<i>JAW</i>
54	Click on the SHRINK WINDOW button on the Tank Status window. Lift the Control Panel to the top by clicking in the blank background on the Control Panel window. Click on the HIDE SENSOR TRENDS button and then click on the EXPAND WINDOW button to restore the Tank Status window.	<i>JAW</i>
5.1.12 Operation of the TEMPERATURE TRENDS button		
55	Verify that a TEMPERATURE TRENDS button is visible. If not, use the mouse to move other windows to make the TEMPERATURE TRENDS button visible.	<i>JAW</i>
56	Click on the TEMPERATURE TRENDS button and verify that the TEMPERATURE TRENDS window appears.	<i>JAW</i>
5.1.13 Format of the TEMPERATURE TRENDS window		
57	Verify that the trend graph for the tank appears at the upper right of the window.	<i>JAW</i>

STEP	DESCRIPTION	VERIFY
58	Verify that the trend graph label (below the x-axis of the graph) reads "TANK xx-yyy SELECTED SENSORS INDICATED BY X", where "xx-yyy" represents the name of the tank.	<i>JAW</i>
59	Verify that a text box with the name of the tank appears at the top center of the window to the left of the trend graph.	<i>JAW</i>
60	Verify that a digital display of the current date and time is displayed below the trend graph on the right.	<i>JAW</i>
61	Verify that a group of buttons appears below the trend graph with the label, "SELECT TIME INTERVAL".	<i>JAW</i>
62	Verify that buttons with the following labels appear below the "SELECT TIME INTERVAL" label: 1 hour 8 hours 24 hours 7 days 31 days.	<i>JAW</i>
63	Verify that the HIDE WINDOW button (with an x as a symbol) appears at the top left of the window.	<i>JAW</i>
64	Verify that the SHRINK WINDOW button (with a down arrow as a symbol) appears to the right of the HIDE WINDOW button at the top left of the window.	<i>JAW</i>
65	Verify that the EXPAND WINDOW button (with an up arrow as a symbol) appears to the right of the SHRINK WINDOW button at the top left of the window.	<i>JAW</i>
66	Verify that the PRINT SCREEN button appears below the HIDE WINDOW button.	<i>JAW</i>
67	Verify that the UPDATE GRAPH button appears below the graph.	<i>JAW</i>
68	Verify that the instructions for selection appear to the right of the UPDATE GRAPH button as follows: "SELECT: SENSORS AND TIME INTERVAL THEN CLICK ON UPDATE GRAPH BUTTON."	<i>JAW</i>
69	Verify that the top line of text above the group of digital readouts is "TEMPERATURE READINGS OVER".	<i>JAW</i>

STEP	DESCRIPTION	VERIFY
70	Verify that the third line of text above the group of digital readouts is "(Degrees Fahrenheit)".	JAW
71	Click on the button labeled "1 hour". Verify that the second line of text above the group of digital readouts now reads "THE LAST 1 HOUR".	JAW
72	Click on the button labeled "8 hours". Verify that the second line of text above the group of digital readouts now reads "THE LAST 8 HOURS".	JAW
73	Click on the button labeled "24 hours". Verify that the second line of text above the group of digital readouts now reads "THE LAST 24 HOURS".	JAW
74	Click on the button labeled "7 days". Verify that the second line of text above the group of digital readouts now reads "THE LAST 7 DAYS".	JAW
75	Click on the button labeled "31 days". Verify that the second line of text above the group of digital readouts now reads "THE LAST 31 DAYS".	JAW
76	Verify that a check box, sensor name, and plot symbol appear for each thermocouple and reference thermocouple on the tank. Refer to the document, "TMACS I/O Termination Point Listing", for a list of the TCs and reference TCs for each tank. <i>(Reference TCs may be on separate window.)</i>	JAW
77	Verify that a digital display labeled "CURRENT" appears for each thermocouple and each reference thermocouple on the tank.	JAW
78	Verify that a digital display labeled "LOW" appears for each thermocouple and each reference thermocouple on the tank.	JAW
79	Verify that a digital display labeled "HIGH" appears for each thermocouple and each reference thermocouple on the tank.	JAW
80	Click on the HIDE WINDOW (with an X as a symbol) button on the Temperature Trends window. Click on the HIDE WINDOW (with an X as a symbol) button on the Tank Status window.	JAW
81	Repeat steps 33 - 80 for each tank new to this release (a list should be supplied by the test administrator).	JAW

STEP	DESCRIPTION	VERIFY
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5.1.15 Operation of the HIDE SENSOR TRENDS button

82	Click on the SHOW MAIN DISPLAY button on the Control Panel at the upper right of the screen.	<i>JAW</i>
83	Click on the Tank Icon for any of the TMACS tanks and verify that the Tank Status window for that tank appears.	<i>JAW</i>
84	Click on the SHRINK WINDOW button (with a down arrow as a symbol).	<i>JAW</i>
85	Drag the Tank Status window to the upper right hand corner and verify that the Tank Status window stops at the edge of the screen when dragged to the top or to the right.	<i>JAW</i>
86	Click on the EXPAND WINDOW button (with an up arrow as a symbol).	<i>JAW</i>
87	Click on the shaded box overlaying the digital display for two different TCs and verify that the Sensor Trend windows appear for both TCs.	<i>JAW</i>
88	Point to the blank background at the top of the Tank Status window and click on it. Verify that the Tank Status window comes to the top and the Sensor Trend windows are not visible.	<i>JAW</i>
89	Click on the HIDE WINDOW button on the Tank Status window and verify that the Tank Status window disappears.	<i>JAW</i>

5.1.15 Operation of the Hide Sensor Trends button

90	Click on the HIDE SENSOR TRENDS button on the Control Panel and verify that the two Sensor Trend windows called up in step 87 disappear.	<i>JAW</i>
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5.1.16 Operation of the PRINT SCREEN button

91	Click on the PRINT SCREEN button on the Control Panel window. Verify that a confirmation window appears, requiring the operator to confirm this print request by clicking on the "CONTINUE" button.	<i>JAW</i>
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STEP	DESCRIPTION	VERIFY
92	Click on the "CONTINUE" button, initiating the print request. Verify that a hardcopy of the MASTER screen is printed on the printer located in room B-110.	JAW
5.1.17 Operation of Tank Level Indication		
93	Select a tank that is configured in TMACS with level indication. (Have the test administrator run Inspect with the command "display a table of the names and tank of every level-sensor" to find out which tanks have level indication). Record the sensor and tank names. Sensor <u>C-106-LEVEL-ENRAF</u> Tank <u>C-106</u>	JAW
94	Have the test administrator display the workspace TESTING-WKSPACES. Click on the TEST-LEVEL-INDICATOR button. Click on the HIDE WORKSPACE button on TESTING-WKSPACES.	JAW
95	On the TEST-LEVEL-INDICATOR window, enter the name of the sensor in the type-in box labeled LEVEL-SENSOR-TO-TEST.	JAW
96	Click on the button labeled "Setup level test". (Audible alarms will be inhibited during the rest of this test, alarms are tested in a separate test.)	JAW
97	Have the test administrator run Inspect with the command "display a table of the names and vertical-offset of every tc-sensor S such that S is monitoring x-yyy". Where "x-yyy" is the name of the selected tank, for example C-106.	JAW
98	For each tc-sensor in the table generated by Inspect repeat steps 99 - 100.	JAW
99	Enter the vertical offset value of the sensor in the type-in box labeled "SURFACE LEVEL" on the TEST-LEVEL-INDICATOR window.	JAW
100	Verify that the level indicator moves to the level of the sensor on the Tank Status Window.	JAW

(add) 99a should read "TC SENSOR VERTICAL OFFSET" which will display the offset

August 16, 1994

TP003 Rev. 6

Change P11 TC SENSOR VERTICAL OFFSET

STEP	DESCRIPTION	VERIFY
101	Enter a zero in the type-in box labeled "SURFACE LEVEL" on the TEST-LEVEL-INDICATOR window. Verify that the level indicator goes to the bottom of the tank on the Tank Status Window.	<i>JAW</i>
102	Enter a number greater than 1000 in the type-in box labeled "SURFACE LEVEL" on the TEST-LEVEL-INDICATOR window. Verify that the level indicator goes to the top of the tank on the Tank Status Window.	<i>JAW</i>
103	Enter a negative number in the type-in box labeled "SURFACE LEVEL" on the TEST-LEVEL-INDICATOR window. Verify that the level indicator goes to the bottom of the tank on the Tank Status Window.	<i>JAW</i>
104	Click on the button "Restore level sensor after test" on the TEST-LEVEL-INDICATOR window.	<i>JAW</i>

5.2 TEST OF THE "SLAVE" TMACS WORKSTATION

5.2.1 Operation of the moveable window features

105	Click on the SHOW MAIN DISPLAY button on the Control Panel at the upper right of the screen of the <u>Telewindows</u> session.	
106	Click on the Tank Icon for any of the TMACS tanks and verify that the Tank Status window for that tank appears.	
107	Click on the SHRINK WINDOW button (with a down arrow as a symbol). Drag the Tank Status window to the upper right hand corner. Verify that the Tank Status window stops at the edge of the screen when dragged to the top or to the right.	
108	Click on the EXPAND WINDOW button (with an up arrow as a symbol). Click on the shaded box overlaying the digital display for two different TCs. Verify that the Sensor Trend windows appear for both TCs.	
109	Click on the shaded box overlaying the digital display for two different TCs and verify that the Sensor Trend windows appear for both TCs.	
110	Point to the blank background at the top of the Tank Status window and click. Verify that the Tank Status window comes to the top and the Sensor Trend windows are not visible.	

add click on "Update History" button

STEP	DESCRIPTION	VERIFY
111	Click on the HIDE WINDOW button on the Tank Status window and verify that the Tank Status window disappears.	
5.2.2 Operation of the HIDE SENSOR TRENDS button		
112	Click on the HIDE SENSOR TRENDS button on the Control Panel and verify that the two Sensor Trend windows called up in step 108 disappear.	
5.2.3 Operation of the PRINT SCREEN button		
113	Click on the PRINT SCREEN button on the Control Panel window. Verify that a message window appears, notifying the operator that a printout can not be generated from the Slave TMACS workstation.	
114	Verify that a hardcopy of the screen is not printed on the printer located in room B-110.	
5.2.4 Independent Display of the Slave Workstation		
115	Return to the Master TMACS workstation. Verify that no windows are displayed on the screen as a result of the test steps executed in Test Case 5.2.	

August 16, 1994

TP003 Rev. 6

REFERENCES:

"Double-Shell Underground Waste Storage Tanks - Riser Survey", SD-RE-TI-093, Rev. 1, December 2, 1986.

"Riser Configuration Document for Single-Shell Waste Tanks", SD-RE-TI-053, Rev. 8, August 22, 1991.

"TMACS I/O Termination Point Listing", WHC-SD-WM-TI-594, Rev. 0, October 19, 1993.

ATTACHMENTS:

Acceptance Sheet
Exception Sheets
Data/Verification Sheet
Test Log

August 16, 1994

TP003 Rev. 6

ACCEPTANCE SHEET

TEST PROCEDURE NUMBER: TP003

DATE: 8/25/94

ORGANIZATION NAME: Chem & Waste Mgmt Software Sppt.

ORG#: 62610

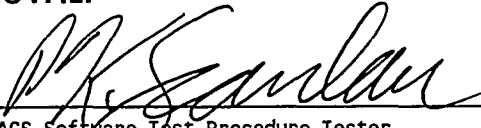
EXCEPTION SHEETS FOR THIS TEST PROCEDURE:

TESTER	WITNESS	STEP	DATE	RESOLVED
<i>None</i>				


COMMENTS:

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

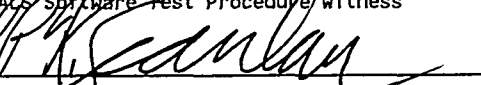
APPROVAL:


08/25/94

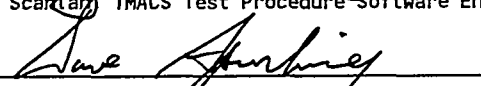
 TMACS Software Test Procedure Tester Date


08/25/94

 TMACS Software Test Procedure Witness Date


08/25/94

 PK Scantlan, TMACS Test Procedure Software Engineer Date


8/25/94

 DG Spurling, TMACS Software Project Manager Date

August 16, 1994

TP003 Rev. 6

EXCEPTION SHEET

TEST PROCEDURE NUMBER: TP003 STEP#: _____ DATE: _____

DESCRIPTION:

NONE

RESOLUTION:

DATE RESOLVED: _____

APPROVAL:

 TMACS Software Test Procedure Tester Date

 TMACS Software Test Procedure Witness Date

 PK Scanlan, TMACS Test Procedure Software Engineer Date

 DG Spurling, TMACS Software Project Manager Date

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: TP003

PK Scantlan
Tester / Organization

PKS 8/25/94
Initials Date

James a Warner
Witness / Organization

JAW 8/25/94
Initials Date

PK Scantlan
PK Scantlan, TMACS Test Procedure Software Engineer

PKS 8/25/94
Initials Date

Dave Spurling
DG Spurling, TMACS Software Project Manager

DS 8/24/94
Initials Date

Name / Organization

Initials Date

Name / Organization

Initials Date

Name / Organization

Initials Date

August 16, 1994

TP003 Rev. 6

TEST LOG

TEST PROCEDURE NUMBER: TP003

Date: 08/25/94

WITNESS: James A. Warren

TEST LOG NOTES:

Note editorial corrections on pages 12, 14, 15.

COMMENTS: