S

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 656000

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedure ☐ Cancel/Void ☐	D.A. Barnes, Data Development and Interpretation, R2-12, 373-3667	☒ Yes ☐ No	06/22/00
	6. Project Title/No./Work Order No. Tank Monitoring and Control System	7. Bldg./Sys./Fac. No. 2750, B105	8. Approval Designator ESQ
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-3538 Rev 3.	10. Related ECN No(s). N/A	11. Related PO No. N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Completed	12d. Restored to Original Condition (Temp. or Standby ECNs only)
☐ Yes (fill out Blk. 12b) ☒ No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? ☒ Yes ☒ No per telecon 7-7 for DB. 7-6-00

Complete revision of the Tank Monitoring and Control System (TMACS) Version Description Document (VDD). These changes reflect the installation of Software Release 12.0 on TMACS.

USQ#: TF-00-0363 Rev. 0

14a. Justification (mark one)	14b. Justification Details
Criteria Change ☐ Design Improvement ☐ Environmental ☐ Facility Deactivation ☐ As-Found ☒ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	

15. Distribution (include name, MSIN, and no. of copies)

See attached distribution sheet.

RELEASE STAMP

DATE: JUL 06 2000
STA: 4
HANFORD RELEASE
ID: 2

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): ECN 656000

16. Design Verification Required	17. Cost Impact		18. Schedule Impact (days)
	ENGINEERING	CONSTRUCTION	
☐ Yes	Additional ☐ $ _____	Additional ☐ $ _____	Improvement ☐ _____
☒ No	Savings ☐ $ _____	Savings ☐ $ _____	Delay ☐ _____

19. 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 13. Enter the affected document number in Block 20.

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

20. 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
N/A		

21. Approvals

		Signature	Date		Signature	Date
Design Authority	C.C. Scaief, III	C.C. Scaief III	6-26-00	Design Agent		
Cog. Eng.	D.A. Barnes	David Barnes	7/5/00	PE		
Cog. Mgr.	J.G. Field	J.G. Field	7/3/00	QA		
QA	W.L. Adams	W.L. Adams	6/26/00	Safety		
Safety	K.A. Cutforth	KA Cutforth	7/3/00	Design		
Environ.	J.D. Guberski	J.D. Guberski	7/3/2000	Environ.		
Other				Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

Tank Monitor and Control System (TMACS) Version Description Document (VDD)

D.A. Barnes
CH2M HILL Hanford Group, Inc.
Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-99RL14047

EDT/ECN: ECN-656000 UC: 605
Cost Center: 74B50 Charge Code: 102608EB00
B&R Code: EW3120071 Total Pages: ~~30~~ 32
07-6-00.

Key Words: Version Description Document, VDD, TMACS, Tank Monitor and Control

Abstract: This document updates the Version Description Document with the changes incorporated in the Revision 12.0 software installation on the Tank Monitor and Control System (TMACS)

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7/5/00
Release Approval Date

DATE: HANFORD RELEASE
STA. 4 ID: 2.
JUL 06 2000
Release Stamp

Approved For Public Release

RECORD OF REVISION

(1) Document Number: HNF-3538, Rev 4

Page 1

(2) Title: Tank Monitor and Control System (TMACS) Version Description Document

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) HNF-3538 (EDT 625999)	M.J. Holm	N.W. Kirch
1	Completer revision per ECN 654556	M.J.Holm	N.W. Kirch
2	Complete revision per ECN 655997	M.J. Holm	J.G. Field
3	Complete revision per ECN 657305	D.A. Barnes	J.G. Field
4 RS	Complete revision per ECN 656000	D.A. Barnes	J.G. Field
	Incl. ECN's 655999, 654989, 657308	D.A. Barnes 7/5/00	J.G. Field 7/3/00
	JA 7-6-00		

A-7320-005 (10/97)

Tank Monitor and Control System (TMACS) Version Description Document

Prepared By

Ronald R. Wandling
Lockheed Martin Services, Inc.

For

CH2M HILL Hanford Group
For
US Department of Energy
Office of River Protection
Richland, Washington

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1 INTRODUCTION

1.1 PURPOSE

This document contains configuration information for the Tank Monitor and Control System (TMACS) release 12.0. This version was installed in production on June 12, 2000.

2 DOCUMENTATION FORMAT

2.1 PROJECT IDENTIFICATION

The Tank Monitor and Control System uses a 3-layer revision descriptor. The descriptor consists of a major revision number, a minor revision number, and a "fix" number, e.g., major revision 5, minor revision 3, and fix 2 would have the identifier 5.3.2.

2.2 SYSTEM OVERVIEW

TMACS was established in 1991 under the Tank Farm Instrument Upgrade project to monitor temperatures and surface levels in the Hanford 200 area "watch list" tanks.

2.3 REFERENCED/RELATED DOCUMENTS

System Functional Requirements	WHC-SD-WM-SFR-006, Rev 1
TMACS As-Built Design Document	WHC-SD-WM-SDD-079, Rev 0
System Configuration Management Plan	HNF-SD-CSCM-019, Rev 1
Functional Requirements for the Acromag[1] I/O Processor Interface to the Tank Monitor and Control System (TMACS)	HNF-2708, Rev. 0
Functional Requirements for the Enraf[2] Gauge Interface to the Tank Monitor and Control System (TMACS)	HNF-2791, Rev. 0
Functional Requirements for the Panalarm[3] Annunciator System Interface to the Tank Monitor and Control System (TMACS)	HNF-3053, Rev. 0
Functional Requirement for the Westronics[4] Interface to the Tank Monitor and Control System (TMACS)	HNF-2607, Rev. 0

[1]Acromag is a trademark of Acromag Incorporated, Wixom, Michigan.
[2]Enraf is a registered trademark of Enraf, B.V.
[3]Panalarm is a registered trademark of Ametek, Inc.
[4]Westronics is a registered trademark of Westronics, Inc.

2.4 VERSION DESCRIPTION

2.4.1 Software

The main processing performed by TMACS is built using the G2[5] software product from Gensym. The knowledge bases used are in Appendix A.

Interfaces to field equipment use services written in Microsoft[6] Visual C[7]. The serial port hardware and software were purchased from Digi[8] International Incorporated. The source code files are listed in Appendix B through Appendix F. The executable files are listed in Appendix H.

2.4.2 Database

None.

2.4.3 Client Operating System and Environment

The client workstations run WindowsNT[9] workstation 4.0.

2.4.4 Server Operating System and Environment

The WindowsNT™ server containing the G2® software product from Gensym and the interfaces to field equipment runs WindowsNT™ Server 4.0 with service pack 3 installed.

2.4.5 COTS

Telewindows[10] Revision 4.0 Release 2 is used for remote display of TMACS. It runs on the client workstations.
G2® Revision 4.1 Release 1 is used to run the main TMACS processing.

2.4.6 Metadata

None.

2.4.7 Notes

Controlled source files are kept in SourceSafe on the \\UDO computer.

2.5 CHANGE DESCRIPTION

The following are the service request incorporated in TMACS revision 12.0

SR #	Abbreviated Description
455	Make Unit of Measure for Enrafs consistent
711	Correct the Acromag remote procedure "Write Digital"

[5]G2 is a registered trademark of the Gensym Corporation.
[6]Microsoft is a registered trademark of the Microsoft Corporation.
[7]Visual C is a trademark of the Microsoft Corporation.
[8]Digi is a trademark of Digi International Incorporated.
[9]WindowsNT is a trademark of Microsoft Corporation.
[10]Telewindows is a registered trademark of the Gensym Corporation.

SR #	Abbreviated Description
878	Fix Suspect Station IO Report Abort Problem
879	Fix Reports So The Number Found Matches The Number Displayed
880	Make Unacknowledge Alarms Stop Blinking when Alarm Processing is Disabled
884	Fix Remote Procedure Calls So Limit Of 4096 Is Not Reached
885	Create a function to raise the CIU Enraf displacers on a routine basis
889	200 Inch Acromag Conversion Formula
890	Configure Enraf CIUs For Tank SY101
891	Change Instrument Limits for SY103
892	Support the transfer of CASS Alarms to TMACS
899	Move RAWDATA Insert Process onto TMACSPROD
902	Modify TMACS to insert SACS nightly readings directly.
914	Change Gauge Address for Enrafs in Tanks AX101 – AX104 , AY101 and AY102
915	Add Enrafs To Tanks AZ102, AZ151, B101-B112, and B201-B204
916	Change Gauge Address for Enraf in Tank AZ101

2.6 INSTALLATION INSTRUCTION

TMACS bridges are installed as services on the TMACSPROD server.
The G2® executable is installed as a program on the TMACSPROD server.
TMACS G2® code is kept in a series of knowledge bases that are transferred to TMACSPROD for operation.
Telewindows® software is installed on the client workstations and requires a hardware key. A new version of Telewindows® is installed when a new, vendor-supplied release of G2® is installed.

Appendix A. TMACS Knowledge

These files are stored in the $/TMACS/Release Files/11.1/KnowledgeBases directory.

********** g2-database.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** sys-mod.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** uilroot.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** data-recovery.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** level.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** printer-root.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** surveillance-limit-root.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** TMACS_Main.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** gensym-raised-buttons.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** gfi-mod.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** panalarm-root.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** tmacs-definitions.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** acromag-root.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'

Label comment:

********** odbc-root.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** point-process.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** tmacs-lib.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** westronics-root.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** enraf-root.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** htff.kb **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

Appendix B. Acromag™ Bridge Code

The following is the Microsoft Developer Studio Project File acro_main.dsp that contains the setup and files used to build the Acromag™ Bridge. The project file and that other files that make up Acromag™ Bridge are stored in the directory $/TMACS/Bridges/Acromag directory.

```
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Console Application" 0x0103

CFG=acro_main - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "acro_main.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "acro_main.mak" CFG="acro_main - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "acro_main - Win32 Release" (based on "Win32 (x86) Console
Application")
!MESSAGE "acro_main - Win32 Debug" (based on "Win32 (x86) Console Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "acro_main - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
```

```
# PROP Intermediate_Dir "Release"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /D
"_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /machine:I386
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /pdb:"Release/acromag_drvr.exe"
/machine:I386 /out:"Release/acromag_driver.exe" /libpath:"..\gsi32\\"
# SUBTRACT LINK32 /pdb:none

!ELSEIF  "$(CFG)" == "acro_main - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
```

```
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /debug /machine:I386 /pdbtype:sept
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /profile /debug /machine:I386
/nodefaultlib:"libc.lib" /out:"Debug/acromag_drvr.exe" /libpath:"..\gsi32\\"

!ENDIF

# Begin Target

# Name "acro_main - Win32 Release"
# Name "acro_main - Win32 Debug"
# Begin Source File

SOURCE=.\acro_bridge.c
# End Source File
# Begin Source File

SOURCE=.\acro_link.c
# End Source File
# Begin Source File

SOURCE=.\acro_main.c
# End Source File
# Begin Source File

SOURCE=.\acro_rpcs.c
# End Source File
# Begin Source File

SOURCE=.\acromessage.rc
# End Source File
# Begin Source File

SOURCE=.\gsi_utils.c
# End Source File
# Begin Source File

SOURCE=.\mf_functions.c
# End Source File
# Begin Source File

SOURCE=.\SERVICE.C
# End Source File
```

```
# Begin Source File

SOURCE=.\servicemain.c
# End Source File
# Begin Source File

SOURCE=.\servicemsg.mc
# End Source File
# Begin Source File

SOURCE=.\set_check_init.c
# End Source File
# Begin Source File

SOURCE=.\set_physio_nt.c
# End Source File
# End Target
# End Project
```

Appendix C. Enraf® Bridge Code

The following is the Microsoft Developer Studio Project File enraf_main.dsp that contains the setup and files used to build the Enraf® Bridge. The project file and that other files that make up Enraf® Bridge are stored in the directory $/TMACS/Bridges/Enraf directory.

```
# Microsoft Developer Studio Project File - Name="enraf_main" - Package Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Console Application" 0x0103

CFG=enraf_main - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "enraf_main.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "enraf_main.mak" CFG="enraf_main - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "enraf_main - Win32 Release" (based on "Win32 (x86) Console
Application")
!MESSAGE "enraf_main - Win32 Debug" (based on "Win32 (x86) Console
Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "enraf_main - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
```

```
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
# PROP Intermediate_Dir "Release"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /D
"_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /machine:I386
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /machine:I386
/out:"Release/enraf_driver.exe" /libpath:"..\gsi32\\"

!ELSEIF  "$(CFG)" == "enraf_main - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
```

```
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /debug /machine:I386 /pdbtype:sept
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /debug /machine:I386
/nodefaultlib:"libc.lib" /out:"Debug/enraf_driver.exe" /pdbtype:sept /libpath:"..\gsi32\\"

!ENDIF

# Begin Target

# Name "enraf_main - Win32 Release"
# Name "enraf_main - Win32 Debug"
# Begin Source File

SOURCE=.\check_enraf_init.c
# End Source File
# Begin Source File

SOURCE=.\enraf.rc
# End Source File
# Begin Source File

SOURCE=.\enraf_bridge.c
# End Source File
# Begin Source File

SOURCE=.\enraf_functions.c
# End Source File
# Begin Source File

SOURCE=.\enraf_link.c
# End Source File
# Begin Source File

SOURCE=.\enraf_main.c
# End Source File
# Begin Source File

SOURCE=.\enraf_rpcs.c
# End Source File
# Begin Source File

SOURCE=.\enraf_utils.c
```

```
# End Source File
# Begin Source File

SOURCE=.\SERVICE.C
# End Source File
# Begin Source File

SOURCE=.\servicemain.c
# End Source File
# Begin Source File

SOURCE=.\servicemsg.mc
# End Source File
# Begin Source File

SOURCE=.\set_physio_nt.c
# End Source File
# End Target
# End Project
```

Appendix D. Panalarm® Bridge Code

The following is the Microsoft Developer Studio Project File gsi_main.dsp that contains the setup and files used to build the Panalarm® Bridge. The project file and that other files that make up Panalarm® Bridge aree stored in the directory $/TMACS/Bridges/Panalarm directory.

$/TMACS/Bridges/Panalarm

```
# Microsoft Developer Studio Project File - Name="gsi_main" - Package Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Console Application" 0x0103

CFG=gsi_main - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "gsi_main.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "gsi_main.mak" CFG="gsi_main - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "gsi_main - Win32 Release" (based on "Win32 (x86) Console Application")
!MESSAGE "gsi_main - Win32 Debug" (based on "Win32 (x86) Console Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "gsi_main - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
```

```
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
# PROP Intermediate_Dir "Release"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /D
"_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /machine:I386
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /machine:I386
/out:"Release/panalm_driver.exe" /libpath:"..\gsi32"

!ELSEIF  "$(CFG)" == "gsi_main - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
```

```
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /debug /machine:I386 /pdbtype:sept
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /debug /machine:I386
/nodefaultlib:"libc.lib" /out:"Debug/panalm_driver.exe" /pdbtype:sept /libpath:"..\gsi32"

!ENDIF

# Begin Target

# Name "gsi_main - Win32 Release"
# Name "gsi_main - Win32 Debug"
# Begin Source File

SOURCE=.\gsi_main.c
# End Source File
# Begin Source File

SOURCE=.\gsi_utils.c
# End Source File
# Begin Source File

SOURCE=.\panalarm.rc
# End Source File
# Begin Source File

SOURCE=.\panalm_bridge.c
# End Source File
# Begin Source File

SOURCE=.\panalm_functions.c
# End Source File
# Begin Source File

SOURCE=.\panalm_link.c
# End Source File
# Begin Source File

SOURCE=.\panalm_rpc.c
# End Source File
# Begin Source File

SOURCE=.\panalm_utils.c
```

```
# End Source File
# Begin Source File

SOURCE=.\SERVICE.C
# End Source File
# Begin Source File

SOURCE=.\servicemain.c
# End Source File
# Begin Source File

SOURCE=.\set_check_init.c
# End Source File
# Begin Source File

SOURCE=.\set_physio_nt.c
# End Source File
# End Target
# End Project
```

Appendix E. Printer Driver Bridge Code

The following is the Microsoft Developer Studio Project File printer_main.dsp that contains the setup and files used to build the Printer Bridge. The project file and that other files that make up Printer Bridge are stored in the directory $/TMACS/Bridges/Printer directory.

```
# Microsoft Developer Studio Project File - Name="printer_main" - Package Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Console Application" 0x0103

CFG=printer_main - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "printer_main.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "printer_main.mak" CFG="printer_main - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "printer_main - Win32 Release" (based on "Win32 (x86) Console
Application")
!MESSAGE "printer_main - Win32 Debug" (based on "Win32 (x86) Console
Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "printer_main - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
```

```
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
# PROP Intermediate_Dir "Release"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/D "_MBCS" /YX /FD /c
# ADD CPP /nologo /G6 /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/D "_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /machine:I386
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /machine:I386
/out:"Release/tmacs_printer_driver.exe" /libpath:"..\gsi32"

!ELSEIF  "$(CFG)" == "printer_main - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
```

```
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /debug /machine:I386 /pdbtype:sept
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /debug /machine:I386
/nodefaultlib:"libc.lib" /out:"Debug/tmacs_printer_driver.exe" /pdbtype:sept
/libpath:"..\gsi32"

!ENDIF

# Begin Target

# Name "printer_main - Win32 Release"
# Name "printer_main - Win32 Debug"
# Begin Source File

SOURCE=.\alarmprinter.rc
# End Source File
# Begin Source File

SOURCE=.\gsi_utils.c
# End Source File
# Begin Source File

SOURCE=.\printer_bridge.c
# End Source File
# Begin Source File

SOURCE=.\printer_main.c
# End Source File
# Begin Source File

SOURCE=.\SERVICE.C
# End Source File
# Begin Source File

SOURCE=.\servicemain.c
# End Source File
# End Target
# End Project
```

Appendix F. Westronics® Bridge Code

The following is the Microsoft Developer Studio Project File west_main.dsp that contains the setup and files used to build the Westronics® Bridge. The project file and that other files that make up Westronics® Bridge are stored in the directory $/TMACS/Bridges/Westronics® directory.

```
# Microsoft Developer Studio Project File - Name="west_main" - Package Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

# TARGTYPE "Win32 (x86) Console Application" 0x0103

CFG=west_main - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "west_main.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "west_main.mak" CFG="west_main - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "west_main - Win32 Release" (based on "Win32 (x86) Console
Application")
!MESSAGE "west_main - Win32 Debug" (based on "Win32 (x86) Console
Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
RSC=rc.exe

!IF  "$(CFG)" == "west_main - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
```

```
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "Release"
# PROP Intermediate_Dir "Release"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /D
"_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /machine:I386
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /machine:I386
/out:"Release/westronic_driver.exe" /libpath:"..\gsi32"

!ELSEIF  "$(CFG)" == "west_main - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "Debug"
# PROP Intermediate_Dir "Debug"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD CPP /nologo /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
```

```
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:console /debug /machine:I386 /pdbtype:sept
# ADD LINK32 libgsi.lib libtcp.lib wsock32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:console /debug /machine:I386
/nodefaultlib:"libc.lib" /out:"Debug/westronic_driver.exe" /pdbtype:sept
/libpath:"..\gsi32"

!ENDIF

# Begin Target

# Name "west_main - Win32 Release"
# Name "west_main - Win32 Debug"
# Begin Source File

SOURCE=.\gsi_utils.c
# End Source File
# Begin Source File

SOURCE=.\mf_functions.c
# End Source File
# Begin Source File

SOURCE=.\SERVICE.C
# End Source File
# Begin Source File

SOURCE=.\servicemain.c
# End Source File
# Begin Source File

SOURCE=.\set_check_init.c
# End Source File
# Begin Source File

SOURCE=.\set_physio_nt.c
# End Source File
# Begin Source File

SOURCE=.\west_bridge.c
# End Source File
# Begin Source File

SOURCE=.\west_link.c
```

```
# End Source File
# Begin Source File

SOURCE=.\west_main.c
# End Source File
# Begin Source File

SOURCE=.\west_rpcs.c
# End Source File
# Begin Source File

SOURCE=.\westronic.rc
# End Source File
# End Target
# End Project
```

Appendix G. Windows NT Common Code

These Files are stored in the $/TMACS/Bridges/WinNT Common Code directory.

********** MSG00001.bin **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

********** servicemsg.aps **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

********** servicemsg.h **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

********** servicemsg.mc **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

********** servicemsg.rc **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

********** SERVICE.C **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

********** servicemain.c **********

Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

********** set_physio_nt.c **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 2:03p
Labeled '12.0'
Label comment:

Appendix H. Bridge Code Executable Files

These files are stored in the $/TMACS/Release Files/12.0/Bridge Executables directory.

********** enraf_driver.exe **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** panalm_driver.exe **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** tmacs_printer_driver.exe **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** westronic_driver.exe **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

********** acromag_driver.exe **********
Label: 12.0
User: Steve Date: 6/14/:0 Time: 3:22p
Labeled '12.0'
Label comment:

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Data Development & Interpretation	Date 6/22/2000
Project Title/Work Order: Tank Monitor and Control System (TMACS) Version Description Document		EDT No.
		ECN No. 656000

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
D.A. Barnes	R2-12	X			
J.S. Bryce	S5-07	X			
S.C. Cantrell	R1-01	X			
T. Erickson	R2-33	X			
J.G. Field	R2-12	X			
W.A. Adams	S6-15	X			
W.J. Kennedy	S5-07	X			
P.G. Miller	R1-51	X			
C.C. Scaief, III	R3-83	X			
P.L. Smith	H8-43	X			
R.R. Wandling	R1-01	X			
D.D. Scott	H8-43	X			
D.T. Heimberger	R2-12	X			
Central Files	B1-07	X			

A-6000-135 (10/97)