Feb 14 1997

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 161644

2. To: (Receiving Organization) WRAP 1		3. From: (Originating Organization) WRAP 1		4. Related EDT No.: N/A	
5. Proj./Prog./Dept./Div.: W026/Solid Waste Construction		6. Design Authority/ Design Agent/Cog. Engr.: TL Watson		7. Purchase Order No.: N/A	
8. Originator Remarks: For release				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: N/A	
11. Receiver Remarks: 11A. Design Baseline Document? ☐ Yes ☒ No				12. Major Assm. Dwg. No.: N/A	
				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: N/A	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	HNF-SD-W026-ATP-022		0	Plant Control System Hardware Plan	Q	2	1	
2	HNF-SD-W026-ATR-022		0	Plant Control System Hardware Report	Q	2	1	

16. KEY					
Approval Designator (F)		Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	Proj. Mgr.: DR Lucas	<i>[Signature]</i>	1/16/97	T4-02						
1	1	Proj. Engr.: JB Payne	<i>[Signature]</i>	1/16/97	T4-02						
1	1	Cog.Eng.: JR Weident	<i>[Signature]</i>	1/16/97	T4-52						
1	1	Cog. Mgr.: RJ Bottenus	<i>[Signature]</i>	1/16/97	T4-52						
1	1	QA: JR McGee	<i>[Signature]</i>	1/16/97	T4-02						
		Safety									
		Egw.									
18.		19.		20.		21. DOE APPROVAL (if required) Ctrl. No.					
JB Payne Signature of EDT Originator		RJ Bottenus Authorized Representative for Receiving Organization		RJ Bottenus Design Authority/Cognizant Manager		☒ Approved ☐ Approved w/comments ☐ Disapproved w/comments					

W-026, Acceptance Test Report Plant Control System Hardware (Submittal # 220.C)

TL Watson

Westinghouse Hanford, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 16 1644 UC: 506
Org Code: 04E00 Charge Code: PIJF18
B&R Code: 39EW3130020 Total Pages: 282 283 KMB 2/14/97

Key Words: WRAP1, PCS, Hardware, Control, PLC, Allen-Bradley, OIU, X-Terminal, Server, Program, LCU, HP, LAN, DMS, CNS, Bar Code

Abstract: Acceptance Testing of the WRAP1 Plant Control System Hardware was conducted throughout the construction of WRAP1 with the final testing on the Process Area hardware being completed in November 1996. The hardware tests were broken out by the following functional areas; Local Control Units, Operator Control Stations in the WRAP Control Room, DMS Server, PCS Server, Operator Interface Units, printers, DMS terminals, WRAP Local Area Network/Communications, and bar code equipment. This document contains a completed copy of each of the hardware tests along with the applicable test logs and completed test exception reports.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: WMC/BCS Document Control Services, P.O. Box 1970, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

Kara J. Bior 2/14/97
Release Approval Date

Approved for Public Release

Allen-Bradley is a trademark of Allen-Bradley

Hewlett-Packard is a trademark of Hewlett-Packard Company

HP is a trademark of Hewlett-Packard Company

Envizex is a trademark of Hewlett-Packard Company

Intecolor is a trademark of Intelligent Systems Corp.

Islatrol is a trademark of Control Concepts Corporation

Leviton is a trademark of Leviton Manufacturing Co., Inc.

Fluke is a trademark of Fluke Corporation

OS9000 is a trademark of Microware Systems Corporation

Procomm Plus is a trademark of Datastorm Technologies, Inc.

UNIX is a trademark licensed exclusively through X/Open Co. Ltd.

ICOM is a trademark of Inoue Communication Equipment Corporation

Cabletron is a trademark of Cabletron System, Inc.

EPSON is a trademark of Epson Corporation

Vectra is a trademark of Hewlett-Packard Company

Check-it is a trademark of Check it Electronic Corp.

Teklogix is a trademark of Teklogic Limited

IBM is a trademark of IBM Corporation

DEC is a trademark of Digital Equipment Corporation

WinLogic is a trademark of ICOM, Inc.

DEC 09 1996

~~ICF KH~~ WRAP 1

To .. FLOR DANIEL NORTHWEST
HANO DELIVERED

Date 12.9.96

Attention PAUL McElroy.....

Re: HANFORD WRAP MODULE ONE

Our Job No. 5701007

Transmittal No.

Spec. Section

Gentlemen:

We are submitting/returning (under separate cover) the following documents which are:

☐ Reviewed

☐ For Your Approval

☐ Preliminary

☐ Reviewed as Noted

☒ For Your Records

☐ Revised

☐ **Revise and Resubmit**

For Your Information

☐ As Built[illegible]

Remarks: THE TEST PROCEDURE COVER SHEET (HAPP-10BP, TABLE 6.0.C ONLY) IS COMPLETE AND NEEDS PROPER RWT & FOWN SIGNATURES. HAPP-10, PS-1 NEEDS RWOT'S SIGNATURE CONTAINING THAT TEST STEP 1-19 IS N/A. HAPP-10, EXERCISE #1 IS COMPLETE & NEEDS PROPER RWOT & FOWN SIGNATURES. PLEASE MARK THESE DOCUMENTS SIGNED AS NOTED ABOVE & RETURN THE ORIGINALS WITH THE RETURNED SUBMITTALS (POL'S COPY).

Thanks,

Per Carol Linkster

ATR
220.C

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
REV. 1.3
PAGE 1 of 19

TEST LOCATION/TYPE:

☐	Seller Factory-SF
--------------------------	-------------------

☐	Buyer Factory-BF
--------------------------	------------------

☐	Seller Plant-SP
--------------------------	-----------------

☒	Buyer Plant-BP
-------------------------------------	----------------

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
Project Number W-026

Prepared By
Systems Interface Inc.

For Westinghouse Hanford Company

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
 LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 2 of 19

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-1

Revision Number: 1.3

Execution Number: 1

Start Date-Time: 4-17-96/08:00 am

Test Operator: DAVE DANIEL

End Date-Time: 4-18-96/12:00 pm

Witness: JIM POPELLA

Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☒ Yes ☐ No

COMMENTS:

TEST SHOULD BE STATUSED AS SUCCESSFUL
BASED ON CLEARING ALL OPEN ETRs

SRW 9-17-96

TEST PROCEDURE APPROVAL

TEST ☐ Successful ☒ Unsuccessful

Contractor (Company): Systems Interface Inc.

Contractor Representative:

Cory Bantley
SRW
SRW

Date: 9/17/96

WHC Projects Representative:

Date: 9-17-96

WHC NFS Representative:

Date: 9-17-96

(NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative:

Paul S. McSherry

Date: 9-17-96

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101**

4/17/96
REV. 1.3
PAGE 3 of 19

1.0 PURPOSE AND SCOPE

This Hardware Acceptance Test Procedure has been prepared to demonstrate that the Shipping/Receiving/NDA/NDE Local Control Unit functions as required by project criteria.

2.0 REFERENCES

Vendor information including Allen Bradley Product Data Bulletins:

- "1771 Allen-Bradley Discrete I/O AC Input and Output Modules",
- "1771 Allen-Bradley Discrete I/O Relay Contact Output Modules",
- "1771 Allen-Bradley Analog Input Module".

2.1 DRAWINGS

Obtain and work with the latest revisions of the following drawings:

940823-HWD-A2301	"Control Panel Layout and Bill of Material"
940820-HWD-01301	"PMS System Architecture"
940823-HWD-01301	"PMS System Architecture"
940823-HWD-A4101	"CNR-12-101 Control Power Distribution and Rack Schedule"
940823-HWD-A4301	"CNR-12-101 120 VAC Digital Inputs, Rack 0, Group 6,7"
940823-HWD-A4302	"CNR-12-101 120 VAC Digital Inputs, Rack 1, Group 0,1"
940823-HWD-A4303	"CNR-12-101 120 VAC Digital Inputs, Rack 1, Group 2,3"
940823-HWD-A4304	"CNR-12-101 120 VAC Digital Inputs, Rack 1, Group 4,5"
940823-HWD-A4305	"CNR-12-101 120 VAC Digital Inputs, Rack 1, Group 6,7"
940823-HWD-A4401	"CNR-12-101 Relay Output Card, Rack 2, Group 0"
940823-HWD-A4402	"CNR-12-101 Relay Output Card, Rack 2, Group 1"
940823-HWD-A4403	"CNR-12-101 Relay Output Card, Rack 2, Group 2"
940823-HWD-A4404	"CNR-12-101 Relay Output Card, Rack 2, Group 3"
940823-HWD-A4405	"CNR-12-101 Relay Output Card, Rack 2, Group 4"
940823-HWD-A4501	"CNR-12-101 Analog Input Card, Rack 0, Group 4"

2.2 SPECIFICATIONS

Obtain and work with the most current revisions of the following documents:

- UE&C Specification Section 13461-all sections
- UE&C Specification Section 13462-2.04.B
- Westinghouse Hanford Company Hardware Requirements Matrix

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 4 of 19

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - b. If device being calibrated is not data sheet associated, at least four times greater than the specified device tolerance.

120 VAC Jumper (small alligator clips and or "scrap" wire)

Digital Multimeter (DMM)

Laptop computer with Allen-Bradley on-line programming software

4-20 mA current source

Vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
 - 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 5 of 19

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 *VERIFY* Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 RECORD test equipment name, equipment number, and calibration expiration date on Data Sheet.
- 5.6 *VERIFY* that fuses and terminal blocks listed in the data sheets match those within the Local Control Unit.

6.0 SETUP

- 6.1 Connect a laptop computer to the PLC serial port located within the Local Control Unit and execute Rockwell PLC programming software (Winlogix or 6200). Select the data table monitoring and forcing screen from the Tools - Data Files menu (or hit Ctrl-D). This table will be used to monitor internal PLC registers to ensure the appropriate input changes from off to on when power is applied (see section 7.2); to "force" PLC outputs on to verify the output contacts close (see section 7.3); and to monitor PLC analog inputs to verify proper wiring, operation, accuracy (see section 7.4). The data table will display a 1 or 0 corresponding to whether the I/O point is on or off. The data table will also display the tag name for the point (if defined) on both the far right column and on an information line at the bottom of the screen.

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.1.1 *Verify* Steps 1 through 14 on Data Sheet 7.1.
- 7.1.2 *Verify* Steps 15 through end on Data Sheet 7.1, (that the requirements of the PMS Hardware Requirements matrix are met).
- 7.1.3 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 DIGITAL INPUT TESTING

- 7.2.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.2:
- 7.2.2 Place a jumper across the pair of inputs specified on the Data Sheet.
- 7.2.3 The corresponding input indicator on the card illuminates.
- 7.2.4 The associated data monitoring table tagname on the laptop computer display follows the input status change (from 0 to 1).
- 7.2.5 Look at all other inputs on the same input card and ensure no other input indicators illuminates, also review the data monitoring table for the input to ensure no other inputs are set to 1. This step ensures that no cross-wiring or wire short circuits exist.
- 7.2.6 Remove the jumper.
- 7.2.7 The input indicator on the card extinguishes.
- 7.2.8 The associated data monitoring table tagname on the laptop computer display reverts to its previous state (from 1 to 0).

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 6 of 19

- 7.2.9 For each group of 16 Inputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground. *0.1 gp*
 7.2.10 Check either "Pass" or "Fail", and initial the Data Sheet.

7.3 RELAY OUTPUT TESTING

- 7.3.1 Perform the following steps for each pair of outputs listed on Data Sheet 7.3:
 7.3.2 Check voltage across card outputs specified on the Data Sheet - should be full voltage (120 VAC).
 7.3.3 Using the laptop programming interface computer, force the output tagname to 1 (on).
 7.3.4 The output indicator on the card lights. Ensure all other output indicators on the card are off. *0.1 gp*
 7.3.5 Check the resistance across the output terminals - should be less than 0.01 ohms.
 7.3.6 Check the resistance across all of the other output terminals on the card. They all should have infinite (> 100,000 ohms) resistance. This ensures that no wires are crossed or shorting. *0.1 gp*
 7.3.7 Using the laptop computer, release the output tagname (set to 0). *if field wiring is installed? gp*
 7.3.8 The output indicator on the card extinguishes.
 7.3.9 Check the resistance across the output terminals - should be infinite (or > 100,000).
 7.3.10 For each group of 16 Outputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground.
 7.3.11 Check either "Pass" or "Fail", and initial the Data Sheet. *if field wiring is installed? gp*

7.4 ANALOG INPUT TESTING

- 7.4.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.4:
 7.4.2 Connect a 4-20 mA source to card inputs specified on the Data sheet.
 7.4.3 Set current source to 4 mA.
 7.4.4 Check the tagname reading in PLC using laptop computer. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between -0.25 and +0.25
 7.4.5 Check all other tagnames on that Analog Input card. Verify that all other readings display a value of 0.00 (between -0.25 and +0.25)
 7.4.6 Set source to 12 mA.
 7.4.7 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 49.75 and 50.25.
 7.4.8 Set source to 20 mA.
 7.4.9 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 99.75 and 100.25.
 7.4.10 Check all other tagnames on that Analog Input card. Verify that all other readings continue to display a value of 0.00 (between -0.25 and +0.25). This ensures that there are no short circuits or crossed wires. *0.1 gp*
 7.4.11 For each Analog Input, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground.
 7.4.12 For each Analog Input, check fused loop power supply and neutral for 24 VDC (+/- 10%).
 7.4.13 Check either "Pass" or "Fail", and initial the Data Sheet.

8.0 RESTORATION

- 8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.
 8.2 RESTORE system to normal configuration.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
 LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 7 of 19

- 8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

- 9.1 The acceptance criteria of all steps contained within Section 7.0 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

Test Director	<u>10/17/96</u> Date	Test Recorder	<u>4-19-96</u> Date
Test Operator	<u>10/17/96</u> Date	Witness	<u>4-19-96</u> Date

Witness

Date

Witness

Date

Comments:

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101**

4/17/96
REV. 1.3
PAGE 8 of 19

Test Procedure ID: _____

DATA SHEET 7.1

Date Tested: 4/17/96

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Atelc 4-20 mA Source Tester	MOB 334 S/N 172696	11/96			
Fluke 80 Multimeter	S/N 62760217	11/96			

7.1. Pre-Test and Inspection

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		JP
1.2	Component Legend Plates installed; Fuse replacement labels installed	✓		
1.3	PLC hardware installed per schematics and module dip switches set properly	✓		
1.4	Terminal strips labeled and common jumpers installed on panel side	✓		
1.5	Correct fuses (no greater than maximum specified) or Circuit Breakers installed	✓		
1.6	Motor Overloads correct	NA		
1.7	Wire AWG size, labeled, and color correct	✓		
1.8	Door mounted devices installed properly and secure	✓		
1.9	All terminals tight, perform wire pull tests.	✓		
1.10	Check Main grounding lug, grounding integrity, separate grounds	✓	✓	JP
1.11	Verify ~ infinite resistance between isolated ground bus and chassis ground bus (see comments)	✓		
1.12	Apply power and check AC control circuits for proper voltage	✓		
1.13	Check DC power circuits; verify correct voltage	✓		
1.14	Check AC outlets and lights; verify correct voltage and operation	✓		
1.15	Verify requirements 5.1, 15.8, and 15.9 as called for in the Hardware Requirements matrix are met by cycling power to the Programmable Logic Controller (PLC). The PLC should have the actual WRAP program loaded with all databases and be in a "Run" condition prior to the power cycle. The PLC should return the "Run" condition with no errors upon power-up. All data registers should be preserved. Remove the PLC battery (with power applied) and verify that the low battery light illuminates and PLC status register S.100 denotes low battery.	✓		
1.16	Verify specification requirement 5.2 as called for in the Hardware Requirements matrix is met by forcing an output on, verifying the closed contact, turning power off, verifying the now open contact, and then restoring power. After restoration of power, unforce the output.	✓		
1.17	Verify specification requirement 15.10 as called for in the Hardware Requirements matrix is met by monitoring processor status words S8 (last scan) and S9 (max scan) for program scan time in milliseconds. The scan time should not exceed 200 milliseconds.	✓		
1.18	Verify specification requirements 15.28 and 15.29 as called for in the Hardware Requirements matrix are met by monitoring the 24 VDC power output on the termination blocks. While monitoring the voltage, disconnect incoming power on one of the two 24 VDC power supplies. The voltage at the termination blocks should not vary outside of +22 VDC to +30 VDC. Additionally, verify the appropriate PLC input (found on the electrical schematics) activates upon failure of this power supply. Perform this procedure for both 24 VDC power supplies.	✓		
1.19	Verify specification requirement 15.37 as called for in the Hardware Requirements matrix is met by accessing random "N" registers within the PLC via the Data Table Access Module (DTAM) mounted on the front of the Local Control Unit. Verify Read and Write operations occur properly though monitoring the data registers on the laptop computer after the read / write. Verify password is required and must be correctly entered before data change accepted.	✓	✓	JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
REV. 1.3
PAGE 9 of 19

Test Procedure ID: _____

Date Tested: 4/17/96

DATA SHEET 7.2

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Attok 4-20mA source tester	Model 334 S/N 172696	11/96			
Fluke 87 Multimeter	S/N 62760207	11/96			

7.2. 120 VAC Digital Inputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 0, Groups 6,7					
1.1	12-RHS-510	FU1 TB2-1	Health Physics NDE/NDA Alpha HI Alarm	✓		JP
1.2	12-XS-510	FU2 TB2-2	Health Physics NDE/NDA Alpha Instr Trouble			
1.3	12-RHS-514	FU3 TB2-3	Health Physics NDE/NDA Beta HI Alarm			
1.4	12-XS-514	FU4 TB2-4	Health Physics NDE/NDA Beta Instr Trouble			
1.5	12-RHS-511	FU5 TB2-5	Health Physics Ship/Rec Alpha HI Alarm			
1.6	12-XS-511	FU6 TB2-6	Health Physics Ship/Rec Alpha Instr Trouble			
1.7	12-RHS-515	FU7 TB2-7	Health Physics Ship/Rec Beta HI Alarm			
1.8	12-XS-515	FU8 TB2-8	Health Physics Ship/Rec Beta Instr Trouble			
1.9	HS-201A	FU9 TB2-9	CV-09-101A NDE Drum Xfer Conveyor			
1.10	SPARE	FU10 TB2-10	SPARE			
1.11	XS-201A,B	FU11 TB2-11	CV-09-101A NDE Drum Xfer Conveyor			
1.12	ZS-201C	FU12 TB2-12	CV-09-101A NDE Drum Xfer Conveyor			
1.13	ZS-201D	FU13 TB2-13	CV-09-101A NDE Drum Xfer Conveyor			
1.14	ZS-201A	FU14 TB2-14	CV-09-101A NDE Drum Xfer Conveyor			
1.15	SPARE	FU15 TB2-15	SPARE			
1.16	SPARE	FU16 TB2-16	SPARE			
1.17	HS-202A	FU17 TB2-21	CV-09-101B NDE Drum Xfer Conveyor	✓		
1.18	SPARE	FU18 TB2-22	SPARE			
1.19	XS-202A,B	FU19 TB2-23	CV-09-101B NDE Drum Xfer Conveyor			
1.20	ZS-202C	FU20 TB2-24	CV-09-101B NDE Drum Xfer Conveyor			
1.21	ZS-202D	FU21 TB2-25	CV-09-101B NDE Drum Xfer Conveyor			
1.22	ZS-202A	FU22 TB2-26	CV-09-101B NDE Drum Xfer Conveyor			
1.23	SPARE	FU23 TB2-27	SPARE			
1.24	HS-203A	FU24 TB2-28	CV-09-101C PAN Drum Xfer Conveyor			
1.25	SPARE	FU25 TB2-29	SPARE			
1.26	XS-203A,B	FU26 TB2-30	CV-09-101C PAN Drum Xfer Conveyor			
1.27	ZS-203C	FU27 TB2-31	CV-09-101C PAN Drum Xfer Conveyor			
1.28	ZS-203D	FU28 TB2-32	CV-09-101C PAN Drum Xfer Conveyor			
1.29	ZS-203A	FU29 TB2-33	CV-09-101C PAN Drum Xfer Conveyor			
1.30	SPARE	FU30 TB2-34	SPARE			
1.31	SPARE	FU31 TB2-35	SPARE			
1.32	SPARE	FU32 TB2-38	SPARE	✓		JP
1.33		IG Bus TB2-17	Check shield ground resistance (< 0.01 ohms)	✓		
1.34		IG Bus TB2-37	Check shield ground resistance (< 0.01 ohms)	✓		

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 10 of 19

Test Procedure ID: _____

Date Tested: 4/17/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
2.0	Rack 1, Groups 0,1					
2.1	HS-204A	FU33 TB241	CV-09-101D PAN Drum xfer Conveyor	✓		JP
2.2	SPARE	FU34 TB2-44	SPARE	✓		
2.3	XS-204A,B	FU35 TB2-43	CV-09-101D PAN Drum xfer Conveyor	✓		
2.4	ZS-204C	FU36 TB2-44	CV-09-101D PAN Drum xfer Conveyor	✓		
2.5	ZS-204D	FU37 TB2-45	CV-09-101D PAN Drum xfer Conveyor	✓		
2.6	ZS-204A	FU38 TB2-46	CV-09-101D PAN Drum xfer Conveyor	✓		
2.7	SPARE	FU39 TB2-47	SPARE	✓		
2.8	SPARE	FU40 TB2-48	SPARE	✓		
2.9	HS-205A	FU41 TB2-49	CV-09-101E GEA Drum xfer Conveyor	✓		
2.10	SPARE	FU42 TB2-50	SPARE	✓		
2.11	XS-205A,B	FU43 TB2-51	CV-09-101E GEA Drum xfer Conveyor	✓		
2.12	ZS-205C	FU44 TB2-52	CV-09-101E GEA Drum xfer Conveyor	✓		
2.13	ZS-205D	FU45 TB2-53	CV-09-101E GEA Drum xfer Conveyor	✓		
2.14	ZS-205A	FU46 TB2-54	CV-09-101E GEA Drum xfer Conveyor	✓		
2.15	SPARE	FU47 TB2-55	SPARE	✓		
2.16	SPARE	FU48 TB2-56	SPARE	✓		
2.17	HS-207A	FU49 TB2-61	CV-09-101F GEA Drum xfer Conveyor	✓		
2.18	SPARE	FU50 TB2-62	SPARE	✓		
2.19	XS-207A,B	FU51 TB2-63	CV-09-101F GEA Drum xfer Conveyor	✓		
2.20	ZS-207C	FU52 TB2-64	CV-09-101F GEA Drum xfer Conveyor	✓		
2.21	ZS-207D	FU53 TB2-65	CV-09-101F GEA Drum xfer Conveyor	✓		
2.22	ZS-207A	FU54 TB2-66	CV-09-101F GEA Drum xfer Conveyor	✓		
2.23	SPARE	FU55 TB2-67	SPARE	✓		
2.24	SPARE	FU56 TB2-68	SPARE	✓		
2.25	HS-208A	FU57 TB2-69	CV-09-105A NDE Drum Storage Conveyor	✓		
2.26	SPARE	FU58 TB2-70	SPARE	✓		
2.27	XS-208A,B	FU59 TB2-71	CV-09-105A NDE Drum Storage Conveyor	✓		
2.28	ZS-208C	FU60 TB2-72	CV-09-105A NDE Drum Storage Conveyor	✓		
2.29	ZS-208D	FU61 TB2-73	CV-09-105A NDE Drum Storage Conveyor	✓		
2.30	ZS-208A	FU62 TB2-74	CV-09-105A NDE Drum Storage Conveyor	✓		
2.31	SPARE	FU63 TB2-75	SPARE	✓		
2.32	SPARE	FU64 TB2-76	SPARE	✓		
2.33		IG Bus TB2-57	Check shield ground resistance (< 0.01 ohms)	✓		JP
2.34		IG Bus TB2-77	Check shield ground resistance (< 0.01 ohms)	✓		

10 ohms
 JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
 LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 11 of 19

Test Procedure ID: _____

Date Tested: 4/17/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
3.0	Rack 1 Groups 2,3					
3.1	HS-210A	FU65 TB2-81	CV-09-105B Drum Storage Conveyor	✓	c	JP
3.2	SPARE	FU66 TB2-82	SPARE	✓		
3.3	XS-210A,B	FU67 TB2-83	CV-09-105B Drum Storage Conveyor	✓		
3.4	ZS-210C	FU68 TB2-84	CV-09-105B Drum Storage Conveyor	✓		
3.5	ZS-210D	FU69 TB2-85	CV-09-105B Drum Storage Conveyor	✓		
3.6	ZS-210A	FU70 TB2-86	CV-09-105B Drum Storage Conveyor	✓		
3.7	SPARE	FU71 TB2-87	SPARE	✓		
3.8	SPARE	FU72 TB2-88	SPARE	✓		
3.9	HS-219A	FU73 TB2-89	CV-09-106 Box Conveyor/Scale	✓		
3.10	XS-219A,B	FU74 TB2-90	CV-09-106 Box Conveyor/Scale	✓		
3.11	ZS-219	FU75 TB2-91	CV-09-106 Box Conveyor/Scale	✓		
3.12	SPARE	FU76 TB2-92	SPARE	✓		
3.13	ND-06-104A/AS	FU77 TB2-93	ND-06-104A NDE Controller	✓		
3.14	ND-06-104A/CS	FU78 TB2-94	ND-06-104A NDE Controller	✓		
3.15	ND-06-104A/EC	FU79 TB2-95	ND-06-104A NDE Controller	✓		
3.16	ND-06-104A/DC	FU80 TB2-96	ND-06-104A NDE Controller	✓		
3.17	ND-06-104A/ES	FU81 TB2-101	ND-06-104A NDE Controller	✓		
3.18	ND-06-104A/IF	FU82 TB2-102	ND-06-104A NDE Controller	✓		
3.19	ND-06-104A/PS	FU83 TB2-103	ND-06-104A NDE Controller	✓		
3.20	ND-06-104A/RD	FU84 TB2-104	ND-06-104A NDE Controller	✓		
3.21	ND-06-104B/AS	FU85 TB2-105	ND-06-104B NDE Controller	✓		
3.22	ND-06-104B/CS	FU86 TB2-106	ND-06-104B NDE Controller	✓		
3.23	ND-06-104B/EC	FU87 TB2-107	ND-06-104B NDE Controller	✓		
3.24	ND-06-104B/ES	FU88 TB2-108	ND-06-104B NDE Controller	✓		
3.25	ND-06-104B/IF	FU89 TB2-109	ND-06-104B NDE Controller	✓		
3.26	ND-06-104B/PS	FU90 TB2-110	ND-06-104B NDE Controller	✓		
3.27	ND-06-104B/RD	FU91 TB2-111	ND-06-104B NDE Controller	✓		
3.28	ND-06-104B/DC	FU92 TB2-112	ND-06-104B NDE Controller	✓		
3.29	HS-106A	FU93 TB2-113	CV-05-101A Drum Infeed Conveyor	✓		
3.30	HS-106B/ST	FU94 TB2-114	CV-05-101A Drum Infeed Conveyor	✓		
3.31	HS-106B/SP	FU95 TB2-115	CV-05-101A Drum Infeed Conveyor	✓		
3.32	HS-106C	FU96 TB2-116	CV-05-101A Drum Infeed Conveyor	✓		JP
3.33	IG	TB2-97	Check shield ground resistance (< 0.01 ohms)	✓		
3.34	IG	TB2-117	Check shield ground resistance (< 0.01 ohms)	✓		

1 ohm
 JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
REV. 1.3
PAGE 12 of 19

Test Procedure ID: _____

Date Tested: 4/17/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
4.0	Rack 1 Groups 4,5					
4.1	XS-106A	FU97 TB2-121	CV-05-101A Drum Infeed Conv	✓		JP
4.2	ZS-106	FU98 TB2-122	CV-05-101A Drum Infeed Conv			
4.3	CV-05-101A/S	FU99 TB2-123	CV-05-101A Drum Infeed Conv			
4.4	SPARE	FU100 TB2-124	SPARE			
4.5	HS-108A	FU101 TB2-125	CV-05-101B Drum Infeed Conv			
4.6	HS-108B	FU102 TB2-126	CV-05-101B Drum Infeed Conv			
4.7	XS-108A,B	FU103 TB2-127	CV-05-101B Drum Infeed Conv			
4.8	ZS-108A	FU104 TB2-128	CV-05-101B Drum Infeed Conv			
4.9	ZS-108B	FU105 TB2-129	CV-05-101B Drum Infeed Conv			
4.10	ZS-108C	FU106 TB2-130	CV-05-101B Drum Infeed Conv			
4.11	SPARE	FU107 TB2-131	SPARE			
4.12	CV-05-101B/S	FU108 TB2-132	CV-05-101B Drum Infeed Conv			
4.13	SPARE	FU109 TB2-133	SPARE			
4.14	HS-109A	FU110 TB2-134	CV-05-102 Drum Discharge Conv			
4.15	HS-109B	FU111 TB2-135	CV-05-102 Drum Discharge Conv			
4.16	XS-109A	FU112 TB2-136	CV-05-102 Drum Discharge Conv	✓		
4.17	ZS-109A	FU113 TB2-141	CV-05-102 Drum Discharge Conv			
4.18	ZS-109B	FU114 TB2-142	CV-05-102 Drum Discharge Conv			
4.19	ZS-109C	FU115 TB2-143	CV-05-102 Drum Discharge Conv			
4.20	SPARE	FU116 TB2-144	SPARE			
4.21	CV-05-102/S	FU117 TB2-145	CV-05-102 Drum Discharge Conv			
4.22	SPARE	FU118 TB2-146	SPARE			
4.23	HS-107A	FU119 TB2-147	CV-05-103A Drum Scale/Conv			
4.24	HS-107B	FU120 TB2-148	CV-05-103A Drum Scale/Conv			
4.25	XS-107A,B	FU121 TB2-149	CV-05-103A Drum Scale/Conv			
4.26	ZS-107	FU122 TB2-150	CV-05-103A Drum Scale/Conv			
4.27	CV-05-103A/S	FU123 TB2-151	CV-05-103A Drum Scale/Conv			
4.28	SPARE	FU124 TB2-152	SPARE			
4.29	HS-110A	FU125 TB2-153	CV-05-103A Drum Scale/Conv			
4.30	HS-110B	FU126 TB2-154	CV-05-103A Drum Scale/Conv			
4.31	XS-110A,B	FU127 TB2-155	CV-05-103A Drum Scale/Conv			
4.32	ZS-110B	FU128 TB2-156	CV-05-103A Drum Scale/Conv	✓		
4.33		IG Bus TB2-137	Check shield ground resistance (< 0.01 ohms)	✓		
4.34		IG Bus TB2-157	Check shield ground resistance (< 0.01 ohms)	✓		JP

11 ohms
JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 13 of 19

Test Procedure ID: _____

Date Tested: 4/17/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
5.0	Rack 1 Groups 6,7					
5.1	CV-05-103B/S	FU129 TB2-161	CV-05-103B Drum Scale/Conv	✓		JP
5.2	SPARE	FU130 TB2-162	SPARE	✓		
5.3	HS-117A	FU131 TB2-163	CV-05-105 Empty Dr Infeed Conv	✓		
5.4	HS-117B	FU132 TB2-164	CV-05-105 Empty Dr Infeed Conv	✓		
5.5	XS-117A,B	FU133 TB2-165	CV-05-105 Empty Dr Infeed Conv	✓		
5.6	ZS-117A	FU134 TB2-166	CV-05-105 Empty Dr Infeed Conv	✓		
5.7	ZS-117B	FU135 TB2-167	CV-05-105 Empty Dr Infeed Conv	✓		
5.8	SPARE	FU136 TB2-168	SPARE	✓		
5.9	CV-05-105/FS	FU137 TB2-169	CV-05-105 Empty Dr Infeed Conv	✓		
5.10	CV-05-105/RS	FU138 TB2-170	CV-05-105 Empty Dr Infeed Conv	✓		
5.11	SPARE	FU139 TB2-171	SPARE	✓		
5.12	HS-117D/FR	FU140 TB2-172	CV-09-204 Empty Dr Staging Conv	✓		
5.13	HS-117D/SP	FU141 TB2-173	CV-09-204 Empty Dr Staging Conv	✓		
5.14	HS-117D/ST	FU142 TB2-174	CV-09-204 Empty Dr Staging Conv	✓		
5.15	SPARE	FU143 TB2-175	SPARE <i>wired</i>	✓		
5.16	SPARE	FU144 TB2-176	SPARE	✓		
5.17	HS-104	FU145 TB2-181	NDE/NDA Isolation Door	✓		
5.18	ZS-105	FU146 TB2-182	NDE/NDA Isolation Door	✓		
5.19	ZSC-104	FU147 TB2-183	NDE/NDA Isolation Door	✓		
5.20	ZSO-104	FU148 TB2-184	NDE/NDA Isolation Door	✓		
5.21	CRA	FU149 TB2-185	24 VDC Power Supply #1 Failure	✓		
5.22	CRB	FU150 TB2-186	24 VDC Power Supply #2 Failure	✓		
5.23	ND-05-105/CF	FU151 TB2-187	ND-06-105 Box NDE Controller	✓		
5.24	ND-05-105/PS	FU152 TB2-188	ND-06-105 Box NDE Controller	✓		
5.25	ND-05-105/ES	FU153 TB2-189	ND-06-105 Box NDE Controller	✓		
5.26	ND-05-105/AS	FU154 TB2-190	ND-06-105 Box NDE Controller	✓		
5.27	ND-05-105/IF	FU155 TB2-191	ND-06-105 Box NDE Controller	✓		
5.28	ND-05-105/EC	FU156 TB2-192	ND-06-105 Box NDE Controller	✓		
5.29	ND-05-105/RD	FU157 TB2-193	ND-06-105 Box NDE Controller	✓		
5.30	ND-05-105/DC	FU158 TB2-194	ND-06-105 Box NDE Controller	✓		
5.31	SPARE	FU159 TB2-195	SPARE	✓		
5.32	SPARE	FU160 TB2-196	SPARE	✓		
5.33		IG Bus TB2-177	Check shield ground resistance (< 0.01 ohms)	✓		
5.34		IG Bus TB2-197	Check shield ground resistance (< 0.01 ohms)	✓		JP

1 ohms
JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
 LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 14 of 19

Test Procedure ID: _____ DATA SHEET 7.3

Date Tested: 4/18/96

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Aitek 4-20 mA Source/Tester	Model 334 SN 172696	11/96			
Fluke 87 Multimeter	SN 62760217	11/96			

7.3. Relay Outputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 2, Group 0					
1.1	PC-12-400/RA	FU161 TB3-1	NDE/NDA Health Physics Monitoring	✓		JP
1.2	PC-12-120/RA	FU162 TB3-2	Shipping / Receiving Health Physics Monitoring	✓		
1.3	ZY-201A	FU163 TB3-3	CV-09-101A NDE Drum Tr Conv	✓		
1.4	SPARE	FU164 TB3-4	SPARE	✓		
1.5	CV-09-101A/F	FU165 TB3-5	CV-09-101A NDE Drum Tr Conv	✓		
1.6	CV-09-101A/R	FU166 TB3-6	CV-09-101A NDE Drum Tr Conv	✓		
1.7	ZY-202A	FU167 TB3-7	CV-09-101B NDE Drum Tr Conv	✓		
1.8	SPARE	FU168 TB3-8	SPARE	✓		
1.9	CV-09-101B/F	FU169 TB3-9	CV-09-101B NDE Drum Tr Conv	✓		
1.10	CV-09-101B/R	FU170 TB3-10	CV-09-101B NDE Drum Tr Conv	✓		
1.11	ZY-203A	FU171 TB3-11	CV-09-101C PAN Drum Tr Conv	✓		
1.12	SPARE	FU172 TB3-12	SPARE	✓		
1.13	CV-09-101C/F	FU173 TB3-13	CV-09-101C PAN Drum Tr Conv	✓		
1.14	CV-09-101C/R	FU174 TB3-14	CV-09-101C PAN Drum Tr Conv	✓		
1.15	ZY-204A	FU175 TB3-15	CV-09-101D PAN Drum Tr Conv	✓		
1.16	ZY-204B	FU176 TB3-16	CV-09-101D PAN Drum Tr Conv	✓		
		IG Bus TB3-17	Check shield ground resistance (< 0.81 ohms)	✓		JP

1 ohms
JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
 LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 15 of 19

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
2.0	Rack 2 Group 1					
2.1	CV-09-101D/F	FU177 TB3-21	CV-09-101D PAN Drum Tr Conv	✓		JP
2.2	CV-09-101D/R	FU178 TB3-22	CV-09-101D PAN Drum Tr Conv	✓		
2.3	ZY-205A	FU179 TB3-23	CV-09-101E GEA Drum Tr Conv	✓		
2.4	CV-09-106/F	FU180 TB3-24	Box NDE Box Transfer Conv/Scale	✓		
2.5	CV-09-101E/F	FU181 TB3-25	CV-09-101E GEA Drum Tr Conv	✓		
2.6	CV-09-101E/R	FU182 TB3-26	CV-09-101E GEA Drum Tr Conv	✓		
2.7	ZY-207A	FU183 TB3-27	CV-09-101F GEA Drum Tr Conv	✓		
2.8	CV-09-106/SP	FU184 TB3-28	Box NDE Box Transfer Conv/Scale	✓		
2.9	CV-09-101F/F	FU185 TB3-29	CV-09-101F GEA Drum Tr Conv	✓		
2.10	CV-09-101F/R	FU186 TB3-30	CV-09-101F GEA Drum Tr Conv	✓		
2.11	ZY-208A	FU187 TB3-31	CV-09-105A Drum Sto. Conv.	✓		
2.12	CV-09-106/R	FU188 TB3-32	Box NDE Box Transfer Conv/Scale	✓		
2.13	CV-09-105A/F	FU189 TB3-33	CV-09-105A Drum Sto. Conv.	✓		
2.14	CV-09-105A/R	FU190 TB3-34	CV-09-105A Drum Sto. Conv.	✓		
2.15	CV-09-105B/F	FU191 TB3-35	CV-09-105B Drum Sto. Conv	✓		
2.16	ZY-210A	FU192 TB3-36	CV-09-105B Drum Sto. Conv	✓		
		IG Bus TB3-37	Check shield ground resistance (< 0.01 ohms)	✓		JP

1 ohm
 JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
 LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 16 of 19

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
3.0	Rack 2 Group 2						
3.1	SPARE	FU193	TB3-41	SPARE	✓		JP
3.2	CV-09-105B/R	FU194	TB3-42	CV-09-105B Drum Sto. Conv.	✓		
3.3	ND-06-104A/CE	FU195	TB3-43	ND-06-104A NDE Controller	✓		
3.4	ND-06-104A/PD	FU196	TB3-44	ND-06-104A NDE Controller	✓		
3.5	ND-06-104A/QD	FU197	TB3-45	ND-06-104A NDE Controller	✓		
3.6	ND-06-104A/SP	FU198	TB3-46	ND-06-104A NDE Controller	✓		
3.7	ND-06-104A/ST	FU199	TB3-47	ND-06-104A NDE Controller	✓		
3.8	ND-06-104A/TF	FU200	TB3-48	ND-06-104A NDE Controller	✓		
3.9	ND-06-104B/CE	FU201	TB3-49	ND-06-104B NDE Controller	✓		
3.10	ND-06-104B/PD	FU202	TB3-50	ND-06-104B NDE Controller	✓		
3.11	ND-06-104B/QD	FU203	TB3-51	ND-06-104B NDE Controller	✓		
3.12	ND-06-104B/SP	FU204	TB3-52	ND-06-104B NDE Controller	✓		
3.13	ND-06-104B/ST	FU205	TB3-53	ND-06-104B NDE Controller	✓		
3.14	ND-06-104B/TF	FU206	TB3-54	ND-06-104B NDE Controller	✓		
3.15	ZEV-106	FU207	TB3-55	CV-05-101A Drum Infeed Conv	✓		
3.16	CV-05-101A/F	FU208	TB3-56	CV-05-101A Drum Infeed Conv	✓		
		IG Bus	TB3-57	Check shield ground resistance (< 0.01 ohms)	✓		JP

1 ohm
 JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 17 of 19

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
4.0	Rack 2 Group 3						
4.1	ZEV-108	FU209	TB3-61	CV-05-101B Drum Infeed Conv.	✓		JP
4.2	ZY-108C	FU210	TB3-62	CV-05-101B Drum Infeed Conv	✓		
4.3	SPARE	FU211	TB3-63	SPARE	✓		
4.4	CV-05-101B/F	FU212	TB3-64	CV-05-101B Drum Infeed Conv	✓		
4.5	ZEV -109	FU213	TB3-65	CV-05-102 Drum Discharge Conv	✓		
4.6	ZY-109C	FU214	TB3-66	CV-05-102 Drum Discharge Conv	✓		
4.7	SPARE	FU215	TB3-67	SPARE	✓		
4.8	CV-05-102/F	FU216	TB3-68	CV-05-102 Drum Discharge Conv	✓		
4.9	XL -107	FU217	TB3-69	CV-05-103A Drum Scale Conv	✓		
4.10	CV-05-103A/F	FU218	TB3-70	CV-05-103A Drum Scale Conv	✓		
4.11	CV-05-103B/F	FU219	TB3-71	CV-05-103B Drum Scale/Conv	✓		
4.12	XL -110	FU220	TB3-72	CV-05-103B Drum Scale/Conv	✓		
4.13	ZEV -117B	FU221	TB3-73	CV-05-105 Empty Dr Infeed Conv	✓		
4.14	ZY-117B	FU222	TB3-74	CV-05-105 Empty Dr Infeed Conv	✓		
4.15	SPARE	FU223	TB3-75	SPARE	✓		
4.16	CV-05-105/F	FU224	TB3-76	CV-05-105 Empty Dr Infeed Conv	✓		
		IG Bus	TB3-77	Check shield ground resistance (< 0.01 ohms)	✓		JP

1 ohms
 JP.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
 LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
 REV. 1.3
 PAGE 18 of 19

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
5.0	Rack 2 Group 4						
5.1	CV-05-105/R	FU225	TB3-81	CV-05-105 Empty Dr Infeed Conv	✓		JP
5.2	HS-104/	FU226	TB3-82	NDE/NDA Isolation Door	✓		
5.3	HS-104/	FU227	TB3-83	NDE/NDA Isolation Door	✓		
5.4	ND-06-105-/QD	FU228	TB3-84	ND-06-105 Box NDE Controller	✓		
5.5	ND-06-105-/CE	FU229	TB3-85	ND-06-105 Box NDE Controller	✓		JP
5.6	ND-06-105-/SP	FU230	TB3-86	ND-06-105 Box NDE Controller	✓		
5.7	ND-06-105-/CR	FU231	TB3-87	ND-06-105 Box NDE Controller	✓		
5.8	ND-06-105-/CS	FU232	TB3-88	ND-06-105 Box NDE Controller	✓		
5.9	SPARE	FU233	TB3-89	SPARE	✓		JP
5.10	SPARE	FU234	TB3-90	SPARE	✓		
5.11	SPARE	FU235	TB3-91	SPARE	✓		
5.12	SPARE	FU236	TB3-92	SPARE	✓		
5.13	SPARE	FU237	TB3-93	SPARE	✓		JP
5.14	SPARE	FU238	TB3-94	SPARE	✓		
5.15	SPARE	FU239	TB3-95	SPARE	✓		
5.16	SPARE	FU240	TB3-96	SPARE	✓		
5.17		IG	TB3-97	Check shield ground resistance (< 0.01 ohms)	✓		JP

#022
 10Ω

1.0 ohm
 JP.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-1
LOCAL CONTROL UNIT 104-CNR-12-101

4/17/96
REV. 1.3
PAGE 19 of 19

Test Procedure ID: _____ DATA SHEET 7.4

Date Tested: 4/19/96

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Attek 4-20mA Source / Tester	Model 234 S/N 172696	4/96			
Fluke 87 multimeter	S/N 62760217	11/96			

7.4. Analog Inputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 0, Group 4					
1.1	RITA-510	TB4-1 TB4-2	Health Physics NDA/NDE Alpha Cam	✓		JP
1.2	RITA-514	TB4-5 TB4-6	Health Physics NDA/NDE Beta Cam	✓		
1.3	RITA-511	TB4-9 T6-10	Health Physics Shipping / Receiving Alpha Cam	✓		
1.4	RITA-515	TB4-13 TB4-14	Health Physics Shipping / Receiving Beta CAM	✓		
1.5	SPARE	TB4-17 TB4-18	SPARE	✓		
1.6	SPARE	TB4-21 TB4-22	SPARE	✓		
1.7	SPARE	TB4-25 TB4-26	SPARE	✓		
1.8	SPARE	TB4-29 TB4-30	SPARE	✓		
1.9	IG	TB4-3	Check shield ground resistance (< 0.01 ohms)	✓		1.0 ohms
1.10	IG	TB4-7	Check shield ground resistance (< 0.01 ohms)	✓		off
1.11	IG	TB4-11	Check shield ground resistance (< 0.01 ohms)	✓		
1.12	IG	TB4-15	Check shield ground resistance (< 0.01 ohms)	✓		
1.13	IG	TB4-19	Check shield ground resistance (< 0.01 ohms)	✓		
1.14	IG	TB4-23	Check shield ground resistance (< 0.01 ohms)	✓		
1.15	IG	TB4-27	Check shield ground resistance (< 0.01 ohms)	✓		
1.16	IG	TB4-31	Check shield ground resistance (< 0.01 ohms)	✓		
1.17	FU242	TB4-4	Verify 24 VDC Available (+/- 2 volts)	✓		
1.18	FU243	TB4-8	Verify 24 VDC Available (+/- 2 volts)	✓		
1.19	FU244	TB4-12	Verify 24 VDC Available (+/- 2 volts)	✓		
1.20	FU245	TB4-16	Verify 24 VDC Available (+/- 2 volts)	✓		
1.21	FU246	TB4-20	Verify 24 VDC Available (+/- 2 volts)	✓		
1.22	FU247	TB4-24	Verify 24 VDC Available (+/- 2 volts)	✓		
1.23	FU248	TB4-28	Verify 24 VDC Available (+/- 2 volts)	✓		
1.24	FU249	TB4-32	Verify 24 VDC Available (+/- 2 volts)	✓		JP

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:

Test: HATP-1

Step: 1.10 Equipment Tag #: 104-CNR-12-101

Spec. Section: 16450

Exception: 1

Revision: 1.3

Execution: 1

Test Operator: Dave Daniel

Test Witness/Author: Jim Popella

Date: 4-17-96

Time: 8:30 am

Responsible Contractor: PCL

Responsible Subcontractor: Plateau

Responsible Individual:

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

The isolated (signal/technical) ground bus bar should be connected separately to the facility ground grid by an insulated ground cable. An insulated ground cable for the isolated ground bus is not provided.

EXCEPTION RESOLUTION:

Re. RFI No. 5366-PCL1386. Raytheon approves the grounding config. used by SII - one connection to facility ground and a single jumper between the two ground bus bars. A 14 AWG jumper has been installed.

Exception Closed By:

Date: 9/5/96

APPROVAL OF RESOLUTION

Contractor Representative:

WHC Projects Representative:

WHC NFS Representative:
(NFS = New Facility Startup)

ICF KEH Representative:

Date: 9-16-96

Date: 9/12/96

Date: 9-16-96

Date: 9-17-96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:
 Test: HATP-1
 Step: N/A * Equipment Tag #: 104-CNR-12-101
 Spec. Section: HATP-1

Exception: 2
 Revision: 1.3
 Execution: 1

Test Operator: Dave Daniel
 Test Witness/Author: Jim Popella

Date: 4-17-96
 Time: 8:30 am

Responsible Contractor: PCL
 Responsible Subcontractor: SII
 Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

All signal shields are to be connected to the isolated bus bar including the AC discrete inputs/outputs. The 120 VAC discrete input/output shields are connected to the bonded bus bar. Either the specification (Ref. 13461-2.04.B.3.a.2) should be changed or the shields should be rewired (to the isolated bus).

*Exception was noted during Pre-Test and Inspection.

EXCEPTION RESOLUTION:

Re. RFI No. 5366-PCL1385. Raytheon approves the change to the 13461 spec. section and to ~~rewire~~ ~~the~~ tying the 120 VAC control signal shields to the common bus bar.

Exception Closed By:

Date: 9/5/96

APPROVAL OF RESOLUTION

Contractor Representative:
 WHC Projects Representative:
 WHC NFS Representative:
 (NFS = New Facility Startup)

Date: 9-16-96
 Date: 9/12/96
 Date: 9-16-96

ICF KEH Representative:

Date: 9-17-96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:

Test: HATP-1

Step: 1.19 Equipment Tag #: 104-CNR-12-101

Spec. Section: HATP-1

Exception: 3

Revision: 1.3

Execution: 1

Test Operator: Dave Daniel

Test Witness/Author: Jim Popella

Date: 4-17-96

Time: 10:00 am

Responsible Contractor: PCL

Responsible Subcontractor: SII

Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

A security program with password is required at the DTAM before data can be changed. No DTAM security screen is provided and a password function is not implemented.

EXCEPTION RESOLUTION:

SECURITY PASSWORD INSTALLED

Exception Closed By:

Date: 8/22/96

APPROVAL OF RESOLUTION

Contractor Representative:

WHC Projects Representative:

WHC NFS Representative:
(NFS = New Facility Startup)

ICF KEH Representative:

Date: 8/23/96

Date: 8-27-96

Date: 8/22/96

Date: 8/27/96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:
 Test: HATP-1
 Step: N/A* Equipment Tag #: 104-CNR-12-101
 Spec. Section: 16152

Exception: 4
 Revision: 1.3
 Execution: 1

Test Operator: Dave Daniel
 Test Witness/Author: Jim Popella

Date: 4-19-96
 Time: 10:30 am

Responsible Contractor: PCL
 Responsible Subcontractor: Plateau
 Responsible Individual:

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

A maximum of two conductors are permitted per terminal. Several terminals have three signal conductors or shield wires connected to them on the plant side of the terminal blocks including, but not limited to: FU165, FU169, FU173, FU177, FU182, FU185, FU191.

*Exception was noted during Post-Test Inspection.

EXCEPTION RESOLUTION:

3rd conductors were removed.

Exception Closed By:

Jim Popella

Date: *9/12/96*

APPROVAL OF RESOLUTION

Contractor Representative:
 WHC Projects Representative:
 WHC NFS Representative:
 (NFS = New Facility Startup)

WRW
J. Popella
WRW
Paul S. McElroy

Date: *9-16-96*
 Date: *9/12/96*
 Date: *9-16-96*
 Date: *9-17-96*

ICF KEH Representative:

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
REV. 1.1
PAGE 1 of 31

TEST LOCATION/TYPE:

☐ Seller Factory-SF☐ Buyer Factory-BF☐ Seller Plant-SP☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
Project Number W-026

Prepared By
Systems Interface Inc.

For Westinghouse Hanford Company

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 2 of 31

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-2 Revision Number: 1.1
 Execution Number: 1 Start Date-Time: 4/17/96
 Test Operator: MIKE SCHNEIDER End Date-Time: 4/18/96
 Witness: STANLEY NELSON Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☒ Yes ☐ No

COMMENTS:

TEST SHOULD BE STATUED AS SUCCESSFUL

BASED ON CLEARING OF ALL EATS

W R W 11-7-96

TEST PROCEDURE APPROVAL

TEST ☐ Successful ☒ Unsuccessful

Contractor (Company): Systems Interface Inc.

Contractor Representative: Mike Schmidt

Date: 9-26-96

WHC Projects Representative: W R W

Date: 10-25-96

WHC NFS Representative: ms/lin

Date: 10/21/96

(NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative: J. L. Leland

Date: 10/15/96

P MODULE 1 - PLANT MANAGEMENT SYSTEM
HWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 3 of 31

PURPOSE AND SCOPE

This Hardware Acceptance Test Procedure has been prepared to demonstrate that the LLW Processing and Process Area Internal Transport Local Control Unit functions as required by project criteria.

REFERENCES

Vendor information including Allen Bradley Product Data Bulletins:

- "1771 Allen-Bradley Discrete I/O AC Input and Output Modules",
- "1771 Allen-Bradley Discrete I/O Relay Contact Output Modules",
- "1771 Allen-Bradley Analog Input Module".

2.1 DRAWINGS

Obtain and work with the latest revisions of the following drawings:

940823-HWD-B2301	"Control Panel Layout and Bill of Material"
940820-HWD-01301	"PMS System Architecture"
940823-HWD-01301	"PMS System Architecture"
940823-HWD-B4101	"CNR-12-102 Control Power Distribution and Rack Schedule"
940823-HWD-B4102	"CNR-12-102 Control Power Distribution and Rack Schedule"
940823-HWD-B4301	"CNR-12-102 120 VAC Digital Inputs, Rack 1, Group 0,1"
940823-HWD-B4302	"CNR-12-102 120 VAC Digital Inputs, Rack 1, Group 2,3"
940823-HWD-B4303	"CNR-12-102 120 VAC Digital Inputs, Rack 1, Group 4,5"
940823-HWD-B4304	"CNR-12-102 120 VAC Digital Inputs, Rack 1, Group 6,7"
940823-HWD-B4305	"CNR-12-102 120 VAC Digital Inputs, Rack 2, Group 0,1"
940823-HWD-B4306	"CNR-12-102 120 VAC Digital Inputs, Rack 2, Group 2,3"
940823-HWD-B4307	"CNR-12-102 120 VAC Digital Inputs, Rack 2, Group 4,5"
940823-HWD-B4308	"CNR-12-102 120 VAC Digital Inputs, Rack 2, Group 6,7"
940823-HWD-B4309	"CNR-12-102 120 VAC Digital Inputs, Rack 3, Group 0,1"
940823-HWD-B4310	"CNR-12-102 120 VAC Digital Inputs, Rack 3, Group 2"
940823-HWD-B4311	"CNR-12-102 120 VAC Digital Inputs, Rack 3, Group 3"
940823-HWD-B4401	"CNR-12-102 Relay Output Card, Rack 4, Group 0"
940823-HWD-B4402	"CNR-12-102 Relay Output Card, Rack 4, Group 1"
940823-HWD-B4403	"CNR-12-102 Relay Output Card, Rack 4, Group 2"
940823-HWD-B4404	"CNR-12-102 Relay Output Card, Rack 4, Group 3"
940823-HWD-B4405	"CNR-12-102 Relay Output Card, Rack 4, Group 4"
940823-HWD-B4406	"CNR-12-102 Relay Output Card, Rack 4, Group 5"
940823-HWD-B4407	"CNR-12-102 Relay Output Card, Rack 4, Group 6"
940823-HWD-B4408	"CNR-12-102 Relay Output Card, Rack 4, Group 7"
940823-HWD-B4409	"CNR-12-102 Relay Output Card, Rack 5, Group 0"
940823-HWD-B4410	"CNR-12-102 Relay Output Card, Rack 5, Group 1"
940823-HWD-B4501	"CNR-12-102 Analog Input Card, Rack 0, Group 6"

2.2 SPECIFICATIONS

Obtain and work with the most current revisions of the following documents:

- UE&C Specification Section 13461-all sections
- UE&C Specification Section 13462-2.04.B
- Westinghouse Hanford Company Hardware Requirements Matrix

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 4 of 31

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - b. If device being calibrated is not data sheet associated, at least four times greater than the specified device tolerance.

120 VAC Jumper (small alligator clips and or "scrap" wire)
 Digital Multimeter (DMM)
 Laptop computer with Allen-Bradley on-line programming software
 4-20 mA current source
 Vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:

- 1) Turn off the power source.
- 2) Do not approach the victim until the source of the power has been turned off.
- 3) Drag the victim clear, if necessary.
- 4) Administer Artificial Respiration or CPR if necessary.
- 5) Treat for shock.
- 6) Check for other injuries and seek Medical help.
- 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.

- 4.2 Inform the Test Director IMMEDIATELY if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 5 of 31

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 VERIFY Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 RECORD test equipment name, equipment number, and calibration expiration date on Data Sheet.
- 5.6 VERIFY that fuses and terminal blocks listed in the data sheets match those within the Local Control Unit.

6.0 SETUP

- 6.1 Connect a laptop computer to the PLC serial port located within the Local Control Unit and execute Rockwell PLC programming software (Winlogix or 6200). Select the data table monitoring and forcing screen from the Tools - Data Files menu (or hit Cntrl-D). This table will be used to monitor internal PLC registers to ensure the appropriate input changes from off to on when power is applied (see section 7.2); to "force" PLC outputs on to verify the output contacts close (see section 7.3); and to monitor PLC analog inputs to verify proper wiring, operation, accuracy (see section 7.4). The data table will display a 1 or 0 corresponding to whether the I/O point is on or off. The data table will also display the tag name for the point (if defined) on both the far right column and on an information line at the bottom of the screen.

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.1.1 Verify Steps 1 through 14 on Data Sheet 7.1.
- 7.1.2 Verify Steps 15 through end on Data Sheet 7.1, (that the requirements of the PMS Hardware Requirements matrix are met).
- 7.1.3 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 DIGITAL INPUT TESTING

- 7.2.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.2:
- 7.2.2 Place a jumper across the pair of inputs specified on the Data Sheet.
- 7.2.3 The corresponding input indicator on the card illuminates.
- 7.2.4 The associated data monitoring table tagname on the laptop computer display follows the input status change (from 0 to 1).
- 7.2.5 Look at all other inputs on the same input card and ensure no other input indicators illuminate, also review the data monitoring table for the input to ensure no other inputs are set to 1. This step ensures that no cross-wiring or wire short circuits exist.
- 7.2.6 Remove the jumper.
- 7.2.7 The input indicator on the card extinguishes.
- 7.2.8 The associated data monitoring table tagname on the laptop computer display reverts to its previous state (from 1 to 0).

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 6 of 31

7.2.9 For each group of 16 Inputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground. *11 JP*

7.2.10 Check either "Pass" or "Fail", and initial the Data Sheet.

7.3 RELAY OUTPUT TESTING

7.3.1 Perform the following steps for each pair of outputs listed on Data Sheet 7.3:

7.3.2 Check voltage across card outputs specified on the Data Sheet - should be full voltage (120 VAC).

7.3.3 Using the laptop programming interface computer, force the output tagname to 1 (on).

7.3.4 The output indicator on the card lights. Ensure all other output indicators on the card are off.

7.3.5 Check the resistance across the output terminals - should be less than 0.01 ohms.

7.3.6 Check the resistance across all of the other output terminals on the card. They all should have infinite (~~> 100,000 ohms~~) resistance. This ensures that no wires are crossed or shorting.

7.3.7 Using the laptop computer, release the output tagname (set to 0).

7.3.8 The output indicator on the card extinguishes.

7.3.9 Check the resistance across the output terminals - should be infinite (or > 100,000)..

7.3.10 For each group of 16 Outputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground.

7.3.11 Check either "Pass" or "Fail", and initial the Data Sheet.

7.4 ANALOG INPUT TESTING

7.4.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.4:

7.4.2 Connect a 4-20 mA source to card inputs specified on the Data sheet.

7.4.3 Set current source to 4 mA.

7.4.4 Check the tagname reading in PLC using laptop computer. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between -0.25 and +0.25

7.4.5 Check all other tagnames on that Analog Input card. Verify that all other readings display a value of 0.00 (between -0.25 and +0.25)

7.4.6 Set source to 12 mA.

7.4.7 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 49.75 and 50.25.

7.4.8 Set source to 20 mA.

7.4.9 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 99.75 and 100.25.

7.4.10 Check all other tagnames on that Analog Input card. Verify that all other readings continue to display a value of 0.00 (between -0.25 and +0.25). This ensures that there are no short circuits or crossed wires.

7.4.11 For each Analog Input, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground. *11 JP*

7.4.12 For each Analog Input, check fused loop power supply and neutral for 24 VDC (+/- 10%).

7.4.13 Check either "Pass" or "Fail", and initial the Data Sheet.

8.0 RESTORATION

8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.

8.2 RESTORE system to normal configuration.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 7 of 31

- 8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

- 9.1 The acceptance criteria of all steps contained within Section 7.0 HAVE ☒ (HAVE NOT ☐ circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

<u>Mike Schmidt</u>	<u>8-27-96</u>	<u>x. Stanley E. Nelson</u>	<u>8-27-96</u>
Test Director	Date	Test Recorder	Date

<u>Mike Schmidt</u>	<u>8-27-96</u>	<u>x. Stanley E. Nelson</u>	<u>8-27-96</u>
Test Operator	Date	Witness	Date

_____	_____	_____	_____
Witness	Date	Witness	Date

Comments:

* ETRs 1-4 resolved 9-25-96

Stanley E. Nelson

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 8 of 31

Test Procedure ID: _____

Date Tested: 4-18-96**DATA SHEET 7.1**

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
<i>Fluke 87 multimeter</i>	<i>SN 62760217</i>	<i>11/96</i>			

7.1. Pre-Test and Inspection

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		SN
1.2	Component Legend Plates installed; Fuse replacement labels installed	✓		SN
1.3	PLC hardware installed per schematics and module dip switches set properly	✓		SN
1.4	Terminal strips labeled and common jumpers installed on panel side	✓		SN
1.5	Correct fuses (no greater than maximum specified) or Circuit Breakers installed	✓		SN
1.6	Motor Overloads correct	NA		SN
1.7	Wire AWG size, labeled, and color correct	✓		SN
1.8	Door mounted devices installed properly and secure	✓		SN
1.9	All terminals tight, perform wire pull tests.	✓		SN
1.10	Check Main grounding lug, grounding integrity, separate grounds		✓	SN
1.11	Verify ~ infinite resistance between isolated ground bus and chassis ground bus	✓		SN
1.12	Apply power and check AC control circuits for proper voltage	✓		SN
1.13	Check DC power circuits; verify correct voltage	✓		SN
1.14	Check AC outlets and lights; verify correct voltage and operation	✓		SN
1.15	Verify requirements 5.1, 15.8, and 15.9 as called for in the Hardware Requirements matrix are met by cycling power to the Programmable Logic Controller (PLC). The PLC should have the actual WRAP program loaded with all databases and be in a "Run" condition prior to the power cycle. The PLC should return the "Run" condition with no errors upon power-up. All data registers should be preserved. Remove the PLC battery (with power applied) and verify that the low battery light illuminates and PLC status register S:10/0 denotes low battery.	✓		SN
1.16	Verify specification requirement 5.2 as called for in the Hardware Requirements matrix is met by forcing an output on, verifying the closed contact, turning power off, verifying the now open contact, and then restoring power. After restoration of power, unforce the output.	✓		SN
1.17	Verify specification requirement 15.10 as called for in the Hardware Requirements matrix is met by monitoring processor status words S8 (last scan) and S9 (max scan) for program scan time in milliseconds. The scan time should not exceed 200 milliseconds.	✓		SN
1.18	Verify specification requirements 25.38 and 15.29 as called for in the Hardware Requirements matrix are met by monitoring the 24 VDC power output on the termination blocks. While monitoring the voltage, disconnect incoming power on one of the two 24 VDC power supplies. The voltage at the termination blocks should not vary outside of +22 VDC to +30 VDC. Additionally, verify the appropriate PLC input (found on the electrical schematics) activates upon failure of this power supply. Perform this procedure for both 24 VDC power supplies.	✓		SN
1.19	Verify specification requirement 15.37 as called for in the Hardware Requirements matrix is met by accessing random "N" registers within the PLC via the Data Table Access Module (DTAM) mounted on the front of the Local Control Unit. Verify Read and Write operations occur properly though monitoring the data registers on the laptop computer after the read / write. Verify password is required and must be correctly entered before data change accepted.		✓	SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 9 of 31

Test Procedure ID: _____

Date Tested: 4-18-96**DATA SHEET 7.2**

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
FLUKE 87	62760217	11/96			

7.2. 120 VAC Digital Inputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 1, Groups 0,1					
1.1	09-HS-211A	FU1	TB2-1 CV-09-103A DRUM TRANSF CONV	✓		SN
1.2	09-XS-211A	FU2	TB2-2 CV-09-103A DRUM TRANSF CONV	✓		SN
1.3	09-ZS-211A	FU3	TB2-3 CV-09-103A DRUM TRANSF CONV	✓		SN
1.4	SPARE	FU4	TB2-4 SPARE	✓		SN
1.5	09-ZS-211C	FU5	TB2-5 CV-09-103A Drum Transf Conv	✓		SN
1.6	09-ZS-211D	FU6	TB2-6 CV-09-103A Drum Transf Conv	✓		SN
1.7	09-HS-212A	FU7	TB2-7 CV-09-103B Drum Transf Conv	✓		SN
1.8	09-XS-212A	FU8	TB2-8 CV-09-103B Drum Transf Conv	✓		SN
1.9	09-ZS-212A	FU9	TB2-9 CV-09-103B Drum Transf Conv	✓		SN
1.10	SPARE	FU10	TB2-10 SPARE	✓		SN
1.11	09-ZS-212C	FU11	TB2-11 CV-09-103B Drum Transf Conv	✓		SN
1.12	09-ZS-212D	FU12	TB2-12 CV-09-103B Drum Transf Conv	✓		SN
1.13	09-HS-213A	FU13	TB2-13 CV-09-104A Drum Airlock Conv	✓		SN
1.14	09-XS-213A	FU14	TB2-14 CV-09-104A Drum Airlock Conv	✓		SN
1.15	09-ZS-213A	FU15	TB2-15 CV-09-104A Drum Airlock Conv	✓		SN
1.16	09-ZS-213B	FU16	TB2-16 CV-09-104A Drum Airlock Conv.	✓		SN
1.17	09-HS-214A	FU17	TB2-21 CV-09-104B Drum Airlock Conv	✓		SN
1.18	09-XS-214A	FU18	TB2-22 CV-09-104B Drum Airlock Conv	✓		SN
1.19	09-ZS-214A	FU19	TB2-23 CV-09-104A Drum Airlock Conv.	✓		SN
1.20	09-ZS-214B	FU20	TB2-24 CV-09-104B Drum Airlock Conv	✓		SN
1.21	09-HS-215A	FU21	TB2-25 CV-09-201A Drum Transf Conv	✓		SN
1.22	09-XS-215A	FU22	TB2-26 CV-09-201A Drum Transf Conv	✓		SN
1.23	09-ZS-215A	FU23	TB2-27 CV-09-201A Drum Transf Conv	✓		SN
1.24	SPARE	FU24	TB2-28 SPARE	✓		SN
1.25	09-ZS-215C	FU25	TB2-29 CV-09-201A Drum Transf Conv	✓		SN
1.26	09-ZS-215D	FU26	TB2-30 CV-09-201A Drum Transf Conv	✓		SN
1.27	09-HS-216A	FU27	TB2-31 CV-09-201B Drum Transf Conv	✓		SN
1.28	09-XS-216A	FU28	TB2-32 CV-09-201B Drum Transf Conv	✓		SN
1.29	09-ZS-216A	FU29	TB2-33 CV-09-201B Drum Transf Conv	✓		SN
1.30	SPARE	FU30	TB2-34 SPARE	✓		SN
1.31	09-ZS-216C	FU31	TB2-35 CV-09-201B Drum Transf Conv	✓		SN
1.32	09-ZS-216D	FU32	TB2-36 CV-09-201B Drum Transf Conv	✓		SN
1.33		IG Bus	TB2-17 Check shield ground resistance (< 0.04 ohms)	✓		SN
1.34		IG Bus	TB2-37 Check shield ground resistance (< 0.04 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 10 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
2.0	Rack 1, Groups 2,3					
2.1	09-HS-217A	FU33 TB241	NDE/NDA Airlock Inlet Door 1	✓		SN
2.2	09-ZS-217	FU34 TB2-44	NDE/NDA Airlock Inlet Door 1	✓		SN
2.3	09-ZSC-217	FU35 TB2-43	NDE/NDA Airlock Inlet Door 1	✓		SN
2.4	09-ZSO-217	FU36 TB2-44	NDE/NDA Airlock Inlet Door 1	✓		SN
2.5	09-HS-251A	FU37 TB2-45	NDE/NDA Airlock Outlet Door 2	✓		SN
2.6	09-ZS-251	FU38 TB2-46	NDE/NDA Airlock Outlet Door 2	✓		SN
2.7	09-ZSC-251	FU39 TB2-47	NDE/NDA Airlock Outlet Door 2	✓		SN
2.8	09-ZSO-251	FU40 TB2-48	NDE/NDA Airlock Outlet Door 2	✓		SN
2.9	09-HS-252A	FU41 TB2-49	Process Airlock Inlet Door 2	✓		SN
2.10	09-ZS-252	FU42 TB2-50	Process Airlock Inlet Door 2	✓		SN
2.11	09-ZSC-252	FU43 TB2-51	Process Airlock Inlet Door 2	✓		SN
2.12	09-ZSO-252	FU44 TB2-52	Process Airlock Inlet Door 2	✓		SN
2.13	09-HS-218A	FU45 TB2-53	Process Airlock Outlet Door 1	✓		SN
2.14	09-ZS-218	FU46 TB2-54	Process Airlock Outlet Door 1	✓		SN
2.15	09-ZSC-218	FU47 TB2-55	Process Airlock Outlet Door 1	✓		SN
2.16	09-ZSO-218	FU48 TB2-56	Process Airlock Outlet Door 1	✓		SN
2.17	09-ZS-225A	FU49 TB2-61	LT-09-201A RWM LLW Lir Table	✓		SN
2.18	09-HS-227A	FU50 TB2-62	LT-09-201D RWM LLW Lir Table	✓		SN
2.19	09-HS-227B	FU51 TB2-63	LT-09-201D RWM LLW Lir Table	✓		SN
2.20	09-HS-227B	FU52 TB2-64	LT-09-201D RWM LLW Lir Table	✓		SN
2.21	09-HS-227C	FU53 TB2-65	LT-09-201D RWM LLW Lir Table	✓		SN
2.22	09-HS-227C	FU54 TB2-66	LT-09-201D RWM LLW Lir Table	✓		SN
2.23	09-HS-227D	FU55 TB2-67	LT-09-201D RWM LLW Lir Table	✓		SN
2.24	09-ZS-227A	FU56 TB2-68	LT-09-201D RWM LLW Lir Table	✓		SN
2.25	09-XS-227A	FU57 TB2-69	LT-09-201D RWM LLW Lir Table	✓		SN
2.26	SPARE	FU58 TB2-70	SPARE	✓		SN
2.27	09-ZS-227C	FU59 TB2-71	LT-09-201D RWM LLW Lir Table	✓		SN
2.28	09-ZS-227D	FU60 TB2-72	LT-09-201D RWM LLW Lir Table	✓		SN
2.29	09-ZS-227E	FU61 TB2-73	LT-09-201D RWM LLW Lir Table	✓		SN
2.30	09-ZS-227F	FU62 TB2-74	LT-09-201D RWM LLW Lir Table	✓		SN
2.31	09-ZS-227G	FU63 TB2-75	LT-09-201D RWM LLW Lir Table	✓		SN
2.32	SPARE	FU64 TB2-76	SPARE	✓		SN
2.33		IG Bus TB2-57	CHECK SHIELD GROUND RESISTANCE < 0.1 Ω	✓		SN
2.34		IG Bus TB2-77	CHECK SHIELD GROUND RESISTANCE < 0.1 Ω	✓		SN

SN 4-18-96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 11 of 31

Test Procedure ID: _____

Date Tested: 4-19-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
3.0	Rack 1 Groups 4,5						
3.1	SPARE	FU65	TB2-81	SPARE	✓		SN
3.2	09-HS-229A	FU66	TB2-82	LT-09-201E RWM LLW Lift Table	✓		SN
3.3	09-HS-229B	FU67	TB2-83	LT-09-201E RWM LLW Lift Table	✓		SN
3.4	09-HS-229B	FU68	TB2-84	LT-09-201E RWM LLW Lift Table	✓		SN
3.5	09-HS-229C	FU69	TB2-85	LT-09-201E RWM LLW Lift Table	✓		SN
3.6	09-HS-229C	FU70	TB2-86	LT-09-201E RWM LLW Lift Table	✓		SN
3.7	09-HS-229D	FU71	TB2-87	LT-09-201E RWM LLW Lift Table	✓		SN
3.8	09-XS-229A	FU72	TB2-88	LT-09-201E RWM LLW Lift Table	✓		SN
3.9	09-ZS-229A	FU73	TB2-89	LT-09-201E RWM LLW Lift Table	✓		SN
3.10	SPARE	FU74	TB2-90	SPARE	✓		SN
3.11	09-ZS-229C	FU75	TB2-91	LT-09-201E RWM LLW Lift Table	✓		SN
3.12	09-ZS-229D	FU76	TB2-92	LT-09-201E RWM LLW Lift Table	✓		SN
3.13	09-ZS-229E	FU77	TB2-93	LT-09-201E RWM LLW Lift Table	✓		SN
3.14	09-ZS-229F	FU78	TB2-94	LT-09-201E RWM LLW Lift Table	✓		SN
3.15	09-ZS-229G	FU79	TB2-95	LT-09-201E RWM LLW Lift Table	✓		SN
3.16	SPARE	FU80	TB2-96	SPARE	✓		SN
3.17	SPARE	FU81	TB2-101	SPARE	✓		SN
3.18	09-HS-231A	FU82	TB2-102	LT-09-201F RWM LLW Lift Table	✓		SN
3.19	09-HS-231B	FU83	TB2-103	LT-09-201F RWM LLW Lift Table	✓		SN
3.20	09-HS-231B	FU84	TB2-104	LT-09-201F RWM LLW Lift Table	✓		SN
3.21	09-HS-231C	FU85	TB2-105	LT-09-201F RWM LLW Lift Table	✓		SN
3.22	09-HS-231C	FU86	TB2-106	LT-09-201F RWM LLW Lift Table	✓		SN
3.23	09-HS-231D	FU87	TB2-107	LT-09-201F RWM LLW Lift Table	✓		SN
3.24	09-XS-231A	FU88	TB2-108	LT-09-201F RWM LLW Lift Table	✓		SN
3.25	09-ZS-231A	FU89	TB2-109	LT-09-201F RWM LLW Lift Table	✓		SN
3.26	SPARE	FU90	TB2-110	SPARE	✓		SN
3.27	09-ZS-231C	FU91	TB2-111	LT-09-201F RWM LLW Lift Table	✓		SN
3.28	09-ZS-231D	FU92	TB2-112	LT-09-201F RWM LLW Lift Table	✓		SN
3.29	09-ZS-231E	FU93	TB2-113	LT-09-201F RWM LLW Lift Table	✓		SN
3.30	09-ZS-231F	FU94	TB2-114	LT-09-201F RWM LLW Lift Table	✓		SN
3.31	09-ZS-231G	FU95	TB2-115	LT-09-201F RWM LLW Lift Table	✓		SN
3.32	SPARE	FU96	TB2-116	SPARE	✓		SN
3.33		IG	TB2-97	Check shield ground resistance (< 0.64 ohms)	✓		SN
3.34		IG	TB2-117	Check shield ground resistance (< 0.64 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 12 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
4.0	Rack 1 Groups 6,7					
4.1	SPARE	FU97 TB2-121	SPARE	✓		SN
4.2	09-HS-233A	FU98 TB2-122	LT-09-202A Proc LLW Lift Table	✓		SN
4.3	DO-07-105/CS	FU99 TB2-123	DO-07-105 LLW Sort. Bagless Xfer Port	✓		SN
4.4	DO-07-105/OS	FU100 TB2-124	DO-07-105 LLW Sort. Bagless Xfer Port	✓		SN
4.5	DO-07-201/CS	FU101 TB2-125	DO-07-201 LLW RWM Bagless Xfer Port	✓		SN
4.6	DO-07-202/OS	FU102 TB2-126	DO-07-201 LLW RWM Bagless Xfer Port	✓		SN
4.7	SPARE	FU103 TB2-127	SPARE	✓		SN
4.8	09-XS-233A	FU104 TB2-128	LT-09-202A Proc LLW Lift Table	✓		SN
4.9	09-ZS-233A	FU105 TB2-129	LT-09-202A Proc LLW Lift Table	✓		SN
4.10	SPARE	FU106 TB2-130	SPARE	✓		SN
4.11	09-ZS-233C	FU107 TB2-131	LT-09-202A Proc LLW Lift Table	✓		SN
4.12	09-ZS-233D	FU108 TB2-132	LT-09-202A Proc LLW Lift Table	✓		SN
4.13	09-ZS-233E	FU109 TB2-133	LT-09-202A Proc LLW Lift Table	✓		SN
4.14	09-ZS-233F	FU110 TB2-134	LT-09-202A Proc LLW Lift Table	✓		SN
4.15	09-ZS-233G	FU111 TB2-135	LT-09-202A Proc LLW Lift Table	✓		SN
4.16	SPARE	FU112 TB2-136	SPARE	✓		SN
4.17	SPARE	FU113 TB2-141	SPARE	✓		SN
4.18	09-HS-237A	FU114 TB2-142	LT-09-202C Proc TRU Lift Table	✓		SN
4.19	SPARE	FU115 TB2-143	SPARE	✓		SN
4.20	SPARE	FU116 TB2-144	SPARE	✓		SN
4.21	SPARE	FU117 TB2-145	SPARE	✓		SN
4.22	SPARE	FU118 TB2-146	SPARE	✓		SN
4.23	SPARE	FU119 TB2-147	SPARE	✓		SN
4.24	09-XS-237A	FU120 TB2-148	LT-09-202C Proc TRU Lift Table	✓		SN
4.25	09-ZS-237A	FU121 TB2-149	LT-09-202C Proc TRU Lift Table	✓		SN
4.26	SPARE	FU122 TB2-150	SPARE	✓		SN
4.27	09-ZS-237C	FU123 TB2-151	LT-09-202C Proc TRU Lift Table	✓		SN
4.28	09-ZS-237D	FU124 TB2-152	LT-09-202C Proc TRU Lift Table	✓		SN
4.29	09-ZS-237E	FU125 TB2-153	LT-09-202C Proc TRU Lift Table	✓		SN
4.30	09-ZS-237F	FU126 TB2-154	LT-09-202C Proc TRU Lift Table	✓		SN
4.31	09-ZS-237G	FU127 TB2-155	LT-09-202C Proc TRU Lift Table	✓		SN
4.32	SPARE	FU128 TB2-156	SPARE	✓		SN
4.33	IG Bus	TB2-137	Check shield ground resistance ($< 0.94 \text{ ohms}$)	✓		SN
4.34	IG Bus	TB2-157	Check shield ground resistance ($< 0.94 \text{ ohms}$)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 13 of 31

Test Procedure ID: _____

Date Tested: 4-13-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
5.0	Rack 2 Groups 0.1						
5.1	SPARE	FU129	TB2-161	SPARE	✓		NS
5.2	09-HS-241A	FU130	TB2-162	LT-09-203A Proc LLW Lift Table	✓		NS
5.3	PC-07-001/C	FU131	TB2-163	DH-07-101 Drum Lifter	✓		NS
5.4	PC-07-001/O	FU132	TB2-164	DH-07-101 Drum Lifter	✓		NS
5.5	SPARE	FU133	TB2-165	SPARE	✓		NS
5.6	CRA	FU134	TB2-166	CNR-12-102 - Local Control Panel	✓		NS
5.7	CRB	FU135	TB2-167	CNR-12-102 - Local Control Panel	✓		NS
5.8	09-ZS-241A	FU136	TB2-168	LT-09-203A Proc LLW Lift Table	✓		NS
5.9	09-ZS-241A	FU137	TB2-169	LT-09-203A Proc LLW Lift Table	✓		NS
5.10	SPARE	FU138	TB2-170	SPARE	✓		NS
5.11	09-ZS-241C	FU139	TB2-171	LT-09-203A Proc LLW Lift Table	✓		NS
5.12	09-ZS-241D	FU140	TB2-172	LT-09-203A Proc LLW Lift Table	✓		NS
5.13	09-ZS-241E	FU141	TB2-173	LT-09-203A Proc LLW Lift Table	✓		NS
5.14	09-ZS-241F	FU142	TB2-174	LT-09-203A Proc LLW Lift Table	✓		NS
5.15	09-ZS-241G	FU143	TB2-175	LT-09-203A Proc LLW Lift Table	✓		NS
5.16	SPARE	FU144	TB2-176	SPARE	✓		NS
5.17	09-XA-303	FU145	TB2-181	HU-07-303 Compt Hydr Pwr Unit	✓		NS
5.18	09-ZS-702A	FU146	TB2-182	CR-07-101A Monorail Hoist	✓		NS
5.19	09-ZS-702B	FU147	TB2-183	CR-07-101A Monorail Hoist	✓		NS
5.20	09-ZS-702C	FU148	TB2-184	CR-07-101A Monorail Hoist	✓		NS
5.21	PC-07-001/D	FU149	TB2-185	CR-07-101A Monorail Hoist	✓		NS
5.22	PC-07-001/F2S	FU150	TB2-186	CR-07-101A Monorail Hoist	✓		NS
5.23	PC-07-001/F3S	FU151	TB2-187	CR-07-101A Monorail Hoist	✓		NS
5.24	PC-07-001/F4S	FU152	TB2-188	CR-07-101A Monorail Hoist	✓		NS
5.25	PC-07-001/F5S	FU153	TB2-189	CR-07-101A Monorail Hoist	✓		NS
5.26	PC-07-001/FLS	FU154	TB2-190	CR-07-101A Monorail Hoist	✓		NS
5.27	PC-07-001/R2S	FU155	TB2-191	CR-07-101A Monorail Hoist	✓		NS
5.28	PC-07-001/R3S	FU156	TB2-192	CR-07-101A Monorail Hoist	✓		NS
5.29	PC-07-001/R4S	FU157	TB2-193	CR-07-101A Monorail Hoist	✓		NS
5.30	PC-07-001/R5S	FU158	TB2-194	CR-07-101A Monorail Hoist	✓		NS
5.31	PC-07-001/RLS	FU159	TB2-195	CR-07-101A Monorail Hoist	✓		NS
5.32	PC-07-001/U	FU160	TB2-196	CR-07-101A Monorail Hoist	✓		NS
5.33		IG Bus	TB2-177	Check shield ground resistance (< 0.04 ohms)	✓		NS
5.34		IG Bus	TB2-197	Check shield ground resistance (< 0.04 ohms)	✓		NS

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 14 of 31

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
6.0	Rack 2 Groups 2,3					
6.1	ZSC-704	FU161 TB2-201	DH-07-101 Drum Lifter	✓		SN
6.2	ZSO-704	FU162 TB2-202	DH-07-101 Drum Lifter	✓		
6.3	ZS-331	FU163 TB2-203	DH-07-102 Drum Transfer Assembly	✓		
6.4	PS-703	FU164 TB2-204	DO-07-101 Drum Entry/Exit Port	✓		
6.5	ZS-703A	FU165 TB2-205	DO-07-101 Drum Entry/Exit Port	✓		
6.6	ZS-703B	FU166 TB2-206	DO-07-101 Drum Entry/Exit Port	✓		
6.7	ZS-703C	FU167 TB2-207	DO-07-101 Drum Entry/Exit Port	✓		
6.8	ZS-711	FU168 TB2-208	DO-07-101 Drum Entry/Exit Port	✓		
6.9	ZSC-700A	FU169 TB2-209	DO-07-101 Drum Entry/Exit Port	✓		
6.10	ZSC-700B	FU170 TB2-210	DO-07-101 Drum Entry/Exit Port	✓		
6.11	ZSC-701	FU171 TB2-211	DO-07-101 Drum Entry/Exit Port	✓		
6.12	ZSO-701	FU172 TB2-212	DO-07-101 Drum Entry/Exit Port	✓		
6.13	PSL-700	FU173 TB2-213	DO-07-102 Sphincter Entry Port	✓		
6.14	PSLL-701	FU174 TB2-214	DO-07-102 Sphincter Entry Port	✓		
6.15	ZSC-705	FU175 TB2-215	DO-07-102 Sphincter Entry Port	✓		
6.16	ZSO-705	FU176 TB2-216	DO-07-102 Sphincter Entry Port	✓		
6.17	PDISL-333	FU177 TB2-221	GB-07-101 LLW Entry G.B.	✓		
6.18	XS-302A	FU178 TB2-222	GB-07-101 LLW Entry G.B.	✓		
6.19	XS-302B	FU179 TB2-223	GB-07-101 LLW Entry G.B.	✓		
6.20	XA-302	FU180 TB2-224	HU-07-101 Hydr Power Unit	✓		
6.21	ZS-710	FU181 TB2-225	TC-07-101 Drum Transfer Car	✓		
6.22	HS-316	FU182 TB2-226	TE-12-103 Suite DMS Pedestal	✓		
6.23	ZS-763A	FU183 TB2-227	CR-07-101D GB Monorail Hoist	✓		
6.24	ZS-763B	FU184 TB2-228	CR-07-101D GB Monorail Hoist	✓		
6.25	ZS-763C	FU185 TB2-229	CR-07-101D GB Monorail Hoist	✓		
6.26	ZS-763D	FU186 TB2-230	CR-07-101D GB Monorail Hoist	✓		
6.27	PC-07-004D	FU187 TB2-231	CR-07-101D GB Monorail Hoist	✓		
6.28	PC-07-004/F2S	FU188 TB2-232	CR-07-101D GB Monorail Hoist	✓		
6.29	PC-07-004/F3S	FU189 TB2-233	CR-07-101D GB Monorail Hoist	✓		
6.30	PC-07-004/F4S	FU190 TB2-234	CR-07-101D GB Monorail Hoist	✓		
6.31	PC-07-004/F5S	FU191 TB2-235	CR-07-101D GB Monorail Hoist	✓		
6.32	PC-07-004/FLS	FU192 TB2-236	CR-07-101D GB Monorail Hoist	✓		
6.33		IG Bus TB3-12	Check Shield ground Resistance (<0.01 ohms)	✓		SN
6.34		IG Bus TB3-32	Check Shield ground Resistance (<0.01 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 15 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
7.0	Rack 2 Groups 4,5						
7.1	PC-07-004/R2S	FU193	TB2-241	CR-07-101D Monorail Hoist	✓		SW
7.2	PC-07-004/R3S	FU194	TB2-242	CR-07-101D Monorail Hoist	✓		
7.3	PC-07-004/R4S	FU195	TB2-243	CR-07-101D Monorail Hoist	✓		
7.4	PC-07-004/R5S	FU196	TB2-244	CR-07-101D Monorail Hoist	✓		
7.5	PC-07-004/RLS	FU197	TB2-245	CR-07-101D Monorail Hoist	✓		
7.6	PC-07-004/U	FU198	TB2-246	CR-07-101D Monorail Hoist	✓		
7.7	ZS-762	FU199	TB2-247	CV-07-101 Compact Conveyor	✓		
7.8	ZSC-766	FU200	TB2-248	DH-07-104 Comp Drum Lifter	✓		
7.9	ZSO-766	FU201	TB2-249	DH-07-104 Comp Drum Lifter	✓		
7.10	ZS-761A	FU202	TB2-250	DO-07-106 Drum Entry/Exit Port	✓		
7.11	ZS-761B	FU203	TB2-251	DO-07-106 Drum Entry/Exit Port	✓		
7.12	ZS-761C	FU204	TB2-252	DO-07-106 Drum Entry/Exit Port	✓		
7.13	ZSC-760	FU205	TB2-253	DO-07-106 Drum Entry/Exit Port	✓		
7.14	PS-704	FU206	TB2-254	DO-07-106 Drum Entry/Exit Port	✓		
7.15	ZS-764	FU207	TB2-255	DO-07-106 Drum Entry/Exit Port	✓		
7.16	ZSC-765A	FU208	TB2-256	DO-07-106 Drum Entry/Exit Port	✓		
7.17	ZSC-765B	FU209	TB2-261	DO-07-106 Drum Entry/Exit Port	✓		
7.18	ZSO-760	FU210	TB2-262	DO-07-106 Drum Entry/Exit Port	✓		
7.19	XS-313A	FU211	TB2-263	GB-07-105 Glovebox	✓		
7.20	XS-313B	FU212	TB2-264	GB-07-105 Glovebox	✓		
7.21	PDISL-353	FU213	TB2-265	GB-07-105 LLW Exit GB	✓		
7.22	HS-318	FU214	TB2-266	TE-12-103 Suite DMS Pedestal	✓		
7.23	HS-315	FU215	TB2-267	TE-12-103 Suite DMS Pedestal	✓		
7.24	ZS-332A	FU216	TB2-268	DH-07-103 Drum Tipper	✓		
7.25	ZS-332B	FU217	TB2-269	DH-07-103 Drum Tipper	✓		
7.26	ZS-333	FU218	TB2-270	DH-07-103 Drum Tipper	✓		
7.27	ZS-720A	FU219	TB2-271	DH-07-103 Drum Tipper	✓		
7.28	ZS-720B	FU220	TB2-272	DH-07-103 Drum Tipper	✓		
7.29	ZS-335	FU221	TB2-273	DH-07-103/M1 Hyd. Power Pack	✓		
7.30	ZS-334A	FU222	TB2-274	DO-07-103 X-ray Door	✓		
7.31	ZS-334B	FU223	TB2-275	DO-07-103 X-ray Door	✓		
7.32	ZS-715A	FU224	TB2-276	EM-07-101 Waste Manipulator	✓		SW
7.33		IG Bus	TB2-527	Check shield ground resistance (<0.01 ohms)	✓		SW
7.34		IG Bus	TB2-527	Check shield ground resistance (<0.01 ohms)	✓		SW

SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 16 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
8.0	Rack 2 Groups 6,7						
8.1	ZS-715B	FU225	TB2-281	EM-07-101 Waste Manipulator	✓		SD
8.2	ZS-715C	FU226	TB2-282	EM-07-101 Waste Manipulator	✓		
8.3	ZS-715D	FU227	TB2-283	EM-07-101 Waste Manipulator	✓		
8.4	PDISL-341	FU228	TB2-284	GB-07-102 LLW Sorting Glovebox	✓		
8.5	XS-314	FU229	TB2-285	GB-07-102 LLW Sorting Glovebox	✓		
8.6	XS-315A	FU230	TB2-286	GB-07-102 LLW Sorting Glovebox	✓		
8.7	XS-315B	FU231	TB2-287	GB-07-102 LLW Sorting Glovebox	✓		
8.8	ZS-724A	FU232	TB2-288	RT-07-101 Dr Delid/Relid Assembly	✓		
8.9	ZS-724B	FU233	TB2-289	RT-07-101 Dr Delid/Relid Assembly	✓		
8.10	ZS-726A	FU234	TB2-290	RT-07-101 Dr Delid/Relid Assembly	✓		
8.11	ZS-726B	FU235	TB2-291	RT-07-101 Dr Delid/Relid Assembly	✓		
8.12	ZS-727A	FU236	TB2-292	RT-07-101 Dr Delid/Relid Assembly	✓		
8.13	ZS-727B	FU237	TB2-293	RT-07-101 Dr Delid/Relid Assembly	✓		
8.14	ZS-728A	FU238	TB2-294	RT-07-101 Dr Delid/Relid Assembly	✓		
8.15	ZS-728B	FU239	TB2-295	RT-07-101 Dr Delid/Relid Assembly	✓		
8.16	ZS-719A	FU240	TB2-296	RT-07-101 Dr Delid/Relid Assembly	✓		
8.17	ZS-719B	FU241	TB2-301	RT-07-101 Dr Delid/Relid Assembly	✓		
8.18	ZS-721	FU242	TB2-302	RT-07-101 Dr Delid/Relid Assembly	✓		
8.19	FSL-378	FU243	TB2-303	RT-07-101 Dr Delid/Relid Assembly	✓		
8.20	PSL-378	FU244	TB2-304	RT-07-101 Dr Delid/Relid Assembly	✓		
8.21	ZS-716A	FU245	TB2-305	ST-07-101 Sorting Table	✓		
8.22	ZS-716B	FU246	TB2-306	ST-07-101 Sorting Table	✓		
8.23	ZS-717A	FU247	TB2-307	ST-07-101 Sorting Table	✓		
8.24	ZS-717B	FU248	TB2-308	ST-07-101 Sorting Table	✓		
8.25	ZS-717C	FU249	TB2-309	ST-07-101 Sorting Table	✓		
8.26	ZS-729A	FU250	TB2-310	ST-07-101 Sorting Table	✓		
8.27	ZS-729B	FU251	TB2-311	ST-07-101 Sorting Table	✓		
8.28	ZS-718A	FU252	TB2-312	ST-07-101 Sorting Table	✓		
8.29	ZS-718B	FU253	TB2-313	ST-07-101 Sorting Table	✓		
8.30	ZS-725A	FU254	TB2-314	TC-07-101 Transfer Car	✓		
8.31	ZS-725B	FU255	TB2-315	TC-07-101 Transfer Car	✓		
8.32	ZS-725C	FU256	TB2-316	TC-07-101 Transfer Car	✓		SD
8.33	IG Bus	TB2-297		Check shield ground resistance (<0.64 ohms)	✓		SD
8.34	IG Bus	TB2-317		Check shield ground resistance (<0.64 ohms)	✓		SD

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 17 of 31

Test Procedure ID: _____

Date Tested: 4.18.96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
9.0	Rack 3 Groups 0.1						
9.1	HS-317	FU257	TB2-321	TE-12-103 Suite DMS Pedestal	✓		SW
9.2	SPARE	FU258	TB2-322	SPARE	✓		
9.3	SPARE	FU259	TB2-323	SPARE	✓		
9.4	SPARE	FU260	TB2-324	SPARE	✓		
9.5	ZS-900A	FU261	TB2-325	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.6	ZSC-909	FU262	TB2-326	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.7	ZSC-908B	FU263	TB2-327	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.8	ZSC-910B	FU264	TB2-328	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.9	PS-900	FU265	TB2-329	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.10	ZS-907	FU266	TB2-330	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.11	ZSC-908A	FU267	TB2-331	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.12	ZSO-909	FU268	TB2-332	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.13	PS-901	FU269	TB2-333	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.14	ZS-913	FU270	TB2-334	DO-07-203 LLW RWM Drum Entry/Exit Port	✓		
9.15	ZSC-910A	FU271	TB2-335	DO-07-203 LLW RWM Drum Entry/Exit Port	✓		
9.16	ZSO-911	FU272	TB2-336	DO-07-203 LLW RWM Drum Entry/Exit Port	✓		
9.17	ZS-912A	FU273	TB2-341	DO-07-203 LLW RWM Drum Entry/Exit Port	✓		
9.18	ZS-912B	FU274	TB2-342	DO-07-203 LLW RWM Drum Entry/Exit Port	✓		
9.19	ZS-912C	FU275	TB2-343	DO-07-203 LLW RWM Drum Entry/Exit Port	✓		
9.20	ZSC-911	FU276	TB2-344	DO-07-203 LLW RWM Drum Entry/Exit Port	✓		
9.21	ZS-920A	FU277	TB2-345	EM-07-201 Waste Manipulator	✓		
9.22	ZS-920B	FU278	TB2-346	EM-07-201 Waste Manipulator	✓		
9.23	ZS-920C	FU279	TB2-347	EM-07-201 Waste Manipulator	✓		
9.24	ZS-920D	FU280	TB2-348	EM-07-201 Waste Manipulator	✓		
9.25	XS-305A	FU281	TB2-349	GB-07-201 LLW RWM Glovebox	✓		
9.26	XS-305B	FU282	TB2-350	GB-07-201 LLW RWM Glovebox	✓		
9.27	PC-07-004/O	FU283	TB2-351	GB-07-201 LLW RWM Glovebox	✓		
9.28	PC-07-004/C	FU284	TB2-352	GB-07-201 LLW RWM Glovebox	✓		
9.29	ZS-900B	FU285	TB2-353	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.30	ZS-900C	FU286	TB2-354	DO-07-202 LLW RWM Drum Entry/Exit Port	✓		
9.31	PDISL-393	FU287	TB2-355	GB-07-201 LLW RWM Glovebox	✓		
9.32	SPARE	FU288	TB2-356	SPARE	✓		SW
9.33		IG Bus	TB2-337	Check shield ground resistance (< 0.01 ohms)	✓		SW
9.34		IG Bus	TB2-357	Check shield ground resistance (< 0.01 ohms)	✓		SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 18 of 31

Test Procedure ID: _____

Date Tested: 4-13-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
10.0	Rack 3 Groups 2						
10.1	SPARE	FU465	TB2-361	SPARE	✓		SN
10.2	SPARE	FU466	TB2-362	SPARE	✓		
10.3	ZS-730C	FU467	TB2-363	CR-07-101C Trolley Hoist	✓		
10.4	PEV-716	FU468	TB2-364	Vacuum Isolation Solenoid Valve	✓		
10.5	ZSO-767A	FU469	TB2-365	DO-07-106 LLW Entry/Exit Port	✓		
10.6	ZSO-767B	FU470	TB2-366	DO-07-106 LLW Entry/Exit Port	✓		
10.7	PS-768	FU471	TB2-367	DO-07-106 LLW Entry/Exit Port	✓		
10.8	ZSO-914A	FU472	TB2-368	DO-07-202 LLW RWM Entry/Exit Port	✓		
10.9	PS-916	FU473	TB2-369	DO-07-202 LLW RWM Entry/Exit Port	✓		
10.10	ZSO-915A	FU474	TB2-370	DO-07-202 LLW RWM Entry/Exit Port	✓		
10.11	PS-917	FU475	TB2-371	DO-07-202 LLW RWM Entry/Exit Port	✓		
10.12	ZSO-914B	FU476	TB2-372	DO-07-202 LLW RWM Entry/Exit Port	✓		
10.13	ZSO-915B	FU477	TB2-373	DO-07-202 LLW RWM Entry/Exit Port	✓		
10.14	SPARE	FU478	TB2-374	SPARE	✓		
10.15	SPARE	FU479	TB2-375	SPARE	✓		
10.16	SPARE	FU480	TB2-376	SPARE	✓		SN
10.17	SPARE	IG Bus	TB2-377	Check shield ground resistance (< 0.01ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 19 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
11.0	Rack 3 Groups 3						
11.1	SPARE	FU481	TB2-381	SPARE	✓		SW
11.2	SPARE	FU482	TB2-382	SPARE	✓		
11.3	SPARE	FU483	TB2-383	SPARE	✓		
11.4	SPARE	FU484	TB2-384	SPARE	✓		
11.5	SPARE	FU485	TB2-385	SPARE	✓		
11.6	SPARE	FU486	TB2-386	SPARE	✓		
11.7	SPARE	FU487	TB2-387	SPARE	✓		
11.8	SPARE	FU488	TB2-388	SPARE	✓		
11.9	SPARE	FU489	TB2-389	SPARE	✓		
11.10	SPARE	FU490	TB2-390	SPARE	✓		
11.11	SPARE	FU491	TB2-391	SPARE	✓		
11.12	SPARE	FU492	TB2-392	SPARE	✓		
11.13	SPARE	FU493	TB2-393	SPARE	✓		
11.14	SPARE	FU494	TB2-394	SPARE	✓		
11.15	SPARE	FU495	TB2-395	SPARE	✓		
11.16	SPARE	FU496	TB2-396	SPARE	✓		SW
11.17	SPARE	IG Bus	TB2-397	Check shield ground resistance (< 0.01 ohms)	✓		SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 20 of 31

Test Procedure ID: _____ DATA SHEET 7.3

Date Tested: 4-18-96

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Fluke 87 Multimeter	SN 62760217	11/96			

7.3. Relay Outputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 4, Group 0					
1.1	CV-09-103A/R	FU289 TB3-1	CV-09-103A Drum Transfer Conv.	✓		SN
1.2	CV-09-103A/F	FU290 TB3-2	CV-09-103A Drum Transfer Conv.	✓		
1.3	ZY-211A	FU291 TB3-3	CV-09-103A Drum Transfer Conv.	✓		
1.4	HU-07-101/R/F	FU292 TB3-4	DRUM TIPPER JOYSTICK CONTROL	✓		
1.5	CV-09-103B/R	FU293 TB3-5	CV-09-103B Drum Transfer Conv.	✓		
1.6	CV-09-103B/F	FU294 TB3-6	CV-09-103B Drum Transfer Conv.	✓		
1.7	ZY-212A	FU295 TB3-7	CV-09-103B Drum Transfer Conv.	✓		
1.8	SPARE	FU296 TB3-8	SPARE	✓		
1.9	CV-09-104A/R	FU297 TB3-9	CV-09-104A Drum Airlock Conv.	✓		
1.10	CV-09-104A/F	FU298 TB3-10	CV-09-104A Drum Airlock Conv.	✓		
1.11	CV-09-104B/R	FU299 TB3-11	CV-09-104B Drum Airlock Conv.	✓		
1.12	CV-09-104B/F	FU300 TB3-12	CV-09-104B Drum Airlock Conv.	✓		
1.13	CV-09-201A/R	FU301 TB3-13	CV-09-201A Drum Transfer Conv.	✓		
1.14	CV-09-201A/F	FU302 TB3-14	CV-09-201A Drum Transfer Conv.	✓		
1.15	ZY-215A	FU303 TB3-15	CV-09-201A Drum Transfer Conv.	✓		
1.16	SPARE	FU304 TB3-16	SPARE	✓		SN
1.17		IG Bus TB3-17	Check shield ground resistance (<8.5Ω)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 21 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
2.0	Rack 4 Group 1						
2.1	CV-09-201B/R	FU305	TB3-21	CV-09-201B Drum Transfer Conv.	✓		SN
2.2	CV-09-201B/F	FU306	TB3-22	CV-09-201B Drum Transfer Conv.	✓		
2.3	ZY-216A	FU307	TB3-23	CV-09-201B Drum Transfer Conv.	✓		
2.4	SPARE	FU308	TB3-24	SPARE	✓		
2.5	HS-217B	FU309	TB3-25	NDE/NDA Airlock Inlet Door 1	✓		
2.6	HS-217B	FU310	TB3-26	NDE/NDA Airlock Inlet Door 1	✓		
2.7	HS-251B	FU311	TB3-27	NDE/NDA Airlock Outlet Door 2	✓		
2.8	HS-251B	FU312	TB3-28	NDE/NDA Airlock Outlet Door 2	✓		
2.9	HS-252B	FU313	TB3-29	Process Airlock Inlet Door 2	✓		
2.10	HS-252B	FU314	TB3-30	Process Airlock Inlet Door 2	✓		
2.11	HS-218B	FU315	TB3-31	Process Airlock Outlet Door 1	✓		
2.12	HS-218B	FU316	TB3-32	Process Airlock Outlet Door 1	✓		
2.13	SPARE	FU317	TB3-33	SPARE	✓		
2.14	ZY-227A	FU318	TB3-34	LT-09-201D RWM LLW Lift Table	✓		
2.15	ZL-227D	FU319	TB3-35	LT-09-201D RWM LLW Lift Table	✓		
2.16	LT-09-201D/R	FU320	TB3-36	LT-09-201D RWM LLW Lift Table	✓		SN
2.17		IG Bus	TB3-37	Check shield ground resistance (<0.04-ohms)	✓		SN

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102**

4/17/96
REV. 1.1
PAGE 22 of 31

Test Procedure ID: _____

Date Tested: 11/18/96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
3.0	Rack 4 Group 2						
3.1	LT-09-201D/F	FU321	TB3-41	LT-09-201D RWM LLW Lift Table	✓		SA
3.2	ZL-227C	FU322	TB3-42	LT-09-201D RWM LLW Lift Table	✓		
3.3	LT-09-201E/F	FU323	TB3-43	LT-09-201E RWM LLW Lift Table	✓		
3.4	ZY-229A	FU324	TB3-44	LT-09-201E RWM LLW Lift Table	✓		
3.5	09-ZL-229D	FU325	TB3-45	LT-09-201E RWM LLW Lift Table	✓		
3.6	LT-09-201E/R	FU326	TB3-46	LT-09-201E RWM LLW Lift Table	✓		
3.7	ZL-229C	FU327	TB3-47	LT-09-201E RWM LLW Lift Table	✓		
3.8	LT-09-201F/R	FU328	TB3-48	LT-09-201F RWM LLW Lift Table	✓		
3.9	ZY-231A	FU329	TB3-49	LT-09-201F RWM LLW Lift Table	✓		
3.10	09-ZL-231D	FU330	TB3-50	LT-09-201F RWM LLW Lift Table	✓		
3.11	LT-09-201F/F	FU331	TB3-51	LT-09-201F RWM LLW Lift Table	✓		
3.12	SPARE	FU332	TB3-52	SPARE	✓		
3.13	SPARE	FU333	TB3-53	SPARE	✓		
3.14	LT-09-202A/F	FU334	TB3-54	LT-09-202A Proc LLW Lift Table	✓		
3.15	ZY-233A	FU335	TB3-55	LT-09-202A Proc LLW Lift Table	✓		
3.16	09-ZL-233D	FU336	TB3-56	LT-09-202A Proc LLW Lift Table	✓		SA
3.17		IG Bus	TB3-57	Check shield ground resistance (<0.01 ohms)	✓		SA

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 23 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
4.0	Rack 4 Group 3						
4.1	LT-09-202A/R	FU337	TB3-61	LT-09-202A Proc LLW Lift Table	✓		SN
4.2	ZL-233C	FU338	TB3-62	LT-09-202A Proc LLW Lift Table	✓		
4.3	LT-09-202C/F	FU339	TB3-63	LT-09-202C Proc TRU Lift Table	✓		
4.4	ZY-237A	FU340	TB3-64	LT-09-202C Proc TRU Lift Table	✓		
4.5	FEV-305	FU341	TB3-65	DO-07-106 LLW Entry/Exit Port	✓		
4.6	LT-09-202C/R	FU342	TB3-66	LT-09-202C Proc TRU Lift Table	✓		
4.7	ZY-241A	FU343	TB3-67	LT-09-203A Proc LLW Lift Table	✓		
4.8	09-ZL-237D	FU344	TB3-68	LT-09-203C Proc LLW Lift Table	✓		
4.9	09-ZL-241D	FU345	TB3-69	LT-09-203A Proc LLW Lift Table	✓		
4.10	SPARE	FU346	TB3-70	SPARE	✓		
4.11	LT-09-203A/R	FU347	TB3-71	LT-09-203A Proc LLW Lift Table	✓		
4.12	LT-09-203A/F	FU348	TB3-72	LT-09-203A Proc LLW Lift Table	✓		
4.13	PC-07-001/S2	FU349	TB3-73	CR-07-101A Monorail Hoist	✓		
4.14	PC-07-001/S3	FU350	TB3-74	CR-07-101A Monorail Hoist	✓		
4.15	PC-07-001/S4	FU351	TB3-75	CR-07-101A Monorail Hoist	✓		
4.16	PC-07-001/S5	FU352	TB3-76	CR-07-101A Monorail Hoist	✓		SN
4.17		IG Bus	TB3-77	Check shield ground resistance (< 0.01 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 24 of 31

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
5.0	Rack 4 Group 4						
5.1	PC-07-001/SD	FU353	TB3-81	CR-07-101A Monorail Hoist	✓		SN
5.2	PC-07-001/SF	FU354	TB3-82	CR-07-101A Monorail Hoist	✓		
5.3	PC-07-001/SR	FU355	TB3-83	CR-07-101A Monorail Hoist	✓		
5.4	PC-07-001/SU	FU356	TB3-84	CR-07-101A Monorail Hoist	✓		
5.5	PC-07-001/ES	FU357	TB3-85	CR-07-101A Monorail Hoist	✓		
5.6	PC-07-001/P1	FU358	TB3-86	CR-07-101A Monorail Hoist	✓		
5.7	PC-07-001/P2	FU359	TB3-87	CR-07-101A Monorail Hoist	✓		
5.8	PC-07-001/P3	FU360	TB3-88	CR-07-101A Monorail Hoist	✓		SN
5.9	PC-07-001/US	FU361	TB3-89	CR-07-101A Monorail Hoist	✓		SN
5.10	SPARE	FU362	TB3-90	SPARE	✓		
5.11	SPARE	FU363	TB3-91	SPARE	✓		
5.12	PC-07-001/CS	FU364	TB3-92	DH-07-101 Drum Lifter	✓		
5.13	PC-07-001/OS	FU365	TB3-93	DH-07-101 Drum Lifter	✓		
5.14	FEV-303	FU366	TB3-94	DO-07-101 Drum Entry/Exit Port	✓		
5.15	FEV-701A	FU367	TB3-95	DO-07-101 Drum Entry/Exit Port	✓		
5.16	FEV-701B	FU368	TB3-96	DO-07-101 Drum Entry/Exit Port	✓		SN
5.17		IG Bus	TB3-97	Check shield ground resistance (<0.04)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 25 of 31

Test Procedure ID: _____

Date Tested: _____

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
6.0	Rack 4 Group 6						
6.1	PDA-333	FU369	TB3-101	GB-07-101 LLW Entry G.B.	✓		SN
6.2	FEV-375B	FU370	TB3-102	Pneum Valve Mani - 20 PSI	✓		
6.3	FEV-375A	FU371	TB3-103	Pneum Valve Mani - 80 PSI	✓		
6.4	FEV-701	FU372	TB3-104	SP-07-102 Pneu Valve Manifold	✓		
6.5	PC-07-004/S2	FU373	TB3-105	CR-07-101D Monorail Hoist	✓		
6.6	PC-07-004/S3	FU374	TB3-106	CR-07-101D Monorail Hoist	✓		
6.7	PC-07-004/S4	FU375	TB3-107	CR-07-101D Monorail Hoist	✓		
6.8	PC-07-004/S5	FU376	TB3-108	CR-07-101D Monorail Hoist	✓		
6.9	PC-07-004/SD	FU377	TB3-109	CR-07-101D Monorail Hoist	✓		
6.10	PC-07-004/SF	FU378	TB3-110	CR-07-101D Monorail Hoist	✓		
6.11	PC-07-004/SR	FU379	TB3-111	CR-07-101D Monorail Hoist	✓		
6.12	PC-07-004/SU	FU380	TB3-112	CR-07-101D Monorail Hoist	✓		
6.13	PC-07-004/ES	FU381	TB3-113	CR-07-101D Monorail Hoist	✓		
6.14	PC-07-004/P1	FU382	TB3-114	CR-07-101D Monorail Hoist	✓		
6.15	PC-07-004/P2	FU383	TB3-115	CR-07-101D Monorail Hoist	✓		
6.16	PC-07-001/P3	FU384	TB3-116	CR-07-101D Monorail Hoist	✓		SN
6.17		IG Bus	TB3-117	Check shield ground resistance (< 0.01-ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 26 of 31

Test Procedure ID: _____

Date Tested: 4-13-90

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
7.0	Rack 4 Group 6						
7.1	PC-07-004/P4	FU385	TB3-121	CR-07-101D Monorail Hoist	✓		SW
7.2	PC-07-004/P5	FU386	TB3-122	CR-07-101D Monorail Hoist	✓		
7.3	PC-07-004/US	FU387	TB3-123	CR-07-101D Monorail Hoist	✓		
7.4	CV-07-101/M1	FU388	TB3-124	CV-07-101M1 Compact Conveyor	✓		
7.5	SPARE	FU389	TB3-125	SPARE	✓		
7.6	PC-07-004/O	FU390	TB3-126	DH-07-104 Drum Lifter	✓		
7.7	PC-07-004/C	FU391	TB3-127	DH-07-104 Drum Lifter	✓		
7.8	FEV-304	FU392	TB3-128	DO-07-106 Drum Entry/Exit Port	✓		
7.9	FEV-762A	FU393	TB3-129	DO-07-106 Drum Entry/Exit Port	✓		
7.10	FEV-762B	FU394	TB3-130	DO-07-106 Drum Entry/Exit Port	✓		
7.11	PDA-353	FU395	TB3-131	GB-07-105 LLW Exit GB	✓		
7.12	FEV-301	FU396	TB3-132	Pneu Valve Manifold	✓		
7.13	FEV-770	FU397	TB3-133	Bagless Xfer Port Controller	✓		
7.14	DH-07-103M1/SD	FU398	TB3-134	DH-07-101 Drum Tipper	✓		
7.15	DH-07-103M1/SU	FU399	TB3-135	DH-07-101 Drum Tipper	✓		
7.16	FEV-396C	FU400	TB3-136	DH-07-101 Drum Tipper	✓		
7.17		IG Bus	TB3-137	Check shield ground resistance (<0.01)	✓		SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 27 of 31

Test Procedure ID: _____

Date Tested: 4-16-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
8.0	Rack 4 Group 7						
8.1	FEV-396C	FU401	TB3-141	DH-07-103 Drum Tipper	✓		JW
8.2	FEV-396D	FU402	TB3-142	DH-07-103 Drum Tipper	✓		
8.3	FEV-396E	FU403	TB3-143	DH-07-103 Drum Tipper	✓		
8.4	FEV-396E	FU404	TB3-144	DH-07-103 Drum Tipper	✓		
8.5	FEV-396F	FU405	TB3-145	DH-07-103 Drum Tipper	✓		
8.6	FEV-396F	FU406	TB3-146	DH-07-103 Drum Tipper	✓		
8.7	PDA-341	FU407	TB3-147	GB-07-102 LLW Sorting G.B.	✓		
8.8	FEV-321	FU408	TB3-148	HU-07-102 Manip. HPU 80 PSIG	✓		
8.9	FEV-376B	FU409	TB3-149	Pneu. Valve Manifold 20 PSI	✓		
8.10	FEV-376A	FU410	TB3-150	Pneu. Valve Manifold 80 PSI	✓		
8.11	FEV-378A	FU411	TB3-151	RT-07-101 Drum Lid/Delid Assem.	✓		
8.12	FEV-378B	FU412	TB3-152	RT-07-101 Drum Lid/Delid Assem.	✓		
8.13	TC-07-101/ST	FU413	TB3-153	RT-07-101 Drum Lid/Delid Assem.	✓		
8.14	FEV-324A	FU414	TB3-154	DO-07-202 Drum Entry/Exit Port	✓		
8.15	FEV-913A	FU415	TB3-155	DO-07-202 Drum Entry/Exit Port	✓		
8.16	FEV-913B	FU416	TB3-156	DO-07-202 Drum Entry/Exit Port	✓		JW
8.17		IG Bus	TB3-157	Check shield ground resistance (< 0.04 ohms)	✓		JW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 28 of 31

Test Procedure ID: _____

Date Tested: 4-15-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
9.0	Rack 5 Group 0						
9.1	FEV-324B	FU417	TB3-161	DO-07-203 Drum Entry/Exit Port	✓		SN
9.2	FEV-913C	FU418	TB3-162	DO-07-203 Drum Entry/Exit Port	✓		
9.3	FEV-913D	FU419	TB3-163	DO-07-203 Drum Entry/Exit Port	✓		
9.4	PDA-393	FU420	TB3-164	GB-07-201 LLW RWM Glovebox	✓		
9.5	FEV-323	FU421	TB3-165	Pneumatic Valve Manifold - 80 PSI	✓		
9.6	FEV-325A	FU422	TB3-166	DO-07-202 RWM Entry/Exit Port	✓		
9.7	FEV-325B	FU423	TB3-167	DO-07-203 RWM Entry/Exit Port	✓		
9.8	SPARE	FU424	TB3-168	SPARE	✓		
9.9	DO-07-105/C	FU425	TB3-169	DO-07-105 LLW Sort. Bagless Xfer Port	✓		
9.10	DO-07-105/O	FU426	TB3-170	DO-07-105 LLW Sort. Bagless Xfer Port	✓		
9.11	DO-07-201/C	FU427	TB3-171	DO-07-201 RWM Bagless Xfer Port	✓		
9.12	DO-07-201/O	FU428	TB3-172	DO-07-201 RWM Bagless Xfer Port	✓		
9.13	SPARE	FU429	TB3-173	SPARE	✓		
9.14	SPARE	FU430	TB3-174	SPARE	✓		
9.15	SPARE	FU431	TB3-175	SPARE	✓		
9.16	SPARE	FU432	TB3-176	SPARE	✓		SN
9.17		IG Bar	TB3-177	Check shield ground resistance (< 0.04- ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 29 of 31

Test Procedure ID: _____

Date Tested: 4-13-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
10.0	Rack 5 Group 1						
10.1	SPARE	FU433	TB3-181	SPARE	✓		SN
10.2	SPARE	FU434	TB3-182	SPARE	✓		}
10.3	SPARE	FU435	TB3-183	SPARE	✓		
10.4	SPARE	FU436	TB3-184	SPARE	✓		
10.5	SPARE	FU437	TB3-185	SPARE	✓		
10.6	SPARE	FU438	TB3-186	SPARE	✓		}
10.7	SPARE	FU439	TB3-187	SPARE	✓		
10.8	SPARE	FU440	TB3-188	SPARE	✓		
10.9	SPARE	FU441	TB3-189	SPARE	✓		
10.10	SPARE	FU442	TB3-190	SPARE	✓		}
10.11	SPARE	FU443	TB3-191	SPARE	✓		
10.12	SPARE	FU444	TB3-192	SPARE	✓		
10.13	SPARE	FU445	TB3-193	SPARE	✓		
10.14	SPARE	FU446	TB3-194	SPARE	✓		}
10.15	SPARE	FU447	TB3-195	SPARE	✓		
10.16	SPARE	FU448	TB3-196	SPARE	✓		
10.17		IG Bar	TB3-197	Check shield ground resistance (→0.01 ←) مست	✓			مست

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
 LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 30 of 31

Test Procedure ID: _____

Date Tested: _____

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
11.0	Rack 5 Group 2						
11.1	SPARE	FU449	TB3-201	SPARE			
11.2	SPARE	FU450	TB3-202	SPARE			
11.3	SPARE	FU451	TB3-203	SPARE			
11.4	SPARE	FU452	TB3-204	SPARE			
11.5	SPARE	FU453	TB3-205	SPARE			
11.6	SPARE	FU454	TB3-206	SPARE			
11.7	SPARE	FU455	TB3-207	SPARE			
11.8	SPARE	FU456	TB3-208	SPARE			
11.9	SPARE	FU457	TB3-209	SPARE			
11.10	SPARE	FU458	TB3-210	SPARE			
11.11	SPARE	FU459	TB3-211	SPARE			
11.12	SPARE	FU460	TB3-212	SPARE			
11.13	SPARE	FU461	TB3-213	SPARE			
11.14	SPARE	FU462	TB3-214	SPARE			
11.15	SPARE	FU463	TB3-215	SPARE			
11.16	SPARE	FU464	TB3-216	SPARE			
11.17		IG Bar	TB3-217	Check shield ground resistance < 0.01			

4/18/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-2
LOCAL CONTROL UNIT 104-CNR-12-102

4/17/96
 REV. 1.1
 PAGE 31 of 31

Test Procedure ID: _____

Date Tested: 4-18-96**DATA SHEET 7.4**

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Fluke 87 multimeter	S/N B2760217	11/96			
Attek 4-20mA Source Tester	Model 324 S/N 172696	11/96			

7.4. Analog Inputs

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
1.0	Rack 0, Group 4						
1.1	12-RITA-503	TB4-1	TB4-2	LLW Process G.B. Vent Duct Beta CAM Xmitr	✓		JS
1.2	12-RITA-501	TB4-5	TB4-6	LLW Process G.B. Vent Duct Beta Cam Xmitr	✓		
1.3	12-WT-761	TB4-9	T6-10	DH-07-104 Comp Drum Lifter - Weight Xmitter	✓		
1.4	SPARE	TB4-	TB4-14		✓		
1.5	SPARE	TB4-	TB4-18		✓		
1.6	SPARE	TB4-	TB4-22		✓		
1.7	SPARE	TB4-	TB4-26		✓		
1.8	SPARE	TB4-	TB4-30		✓		
1.9		IG	TB4-3	Check shield ground reistance (< 0.01 ohms)	✓		
1.10		IG	TB4-7	Check shield ground reistance (< 0.01 ohms)	✓		
1.11		IG	TB4-11	Check shield ground reistance (< 0.01 ohms)	✓		
1.12		IG	TB4-15	Check shield ground reistance (< 0.01 ohms)	✓		
1.13		IG	TB4-19	Check shield ground reistance (< 0.01 ohms)	✓		
1.14		IG	TB4-23	Check shield ground reistance (< 0.01 ohms)	✓		
1.15		IG	TB4-27	Check shield ground reistance (< 0.01 ohms)	✓		
1.16		IG	TB4-31	Check shield ground reistance (< 0.01 ohms)	✓		JS

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:
 Test: HATP-2
 Step: 1.10 Equipment Tag #: 104-CNR-12-102
 Spec. Section: 16450

Exception: 1
 Revision: 1.1
 Execution: 1

Test Operator: Mike Schneider
 Test Witness/Author: Stanley Nelson

Date: 4-18-96
 Time: 8:30 am

Responsible Contractor: PCL

Responsible Subcontractor: Plateau

Responsible Individual:

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

The isolated (signal/technical) ground bus bar should be connected separately to the facility ground grid by an insulated ground cable. An insulated ground cable for the isolated ground bus is not provided.

EXCEPTION RESOLUTION:

Re. RFI No. 5366-PCL 1386. Raytheon approve the grounding config. used by SEI - one connection to facility ground and a single jumper between the two ground bus bars.

Exception Closed By:

Date: 4-25-96

APPROVAL OF RESOLUTION

Contractor Representative:

Date: 4-25-96

WHC Projects Representative:

Date: 4-25-96

WHC NFS Representative:

(NFS = New Facility Startup)

Date: 4-25-96

ICF KEH Representative:

Date: 4-28-96

WRAP ACCEPTANCE TEST PROCEDURE
EXCEPTION LOG

Tracking #:

ATP (Y/N) Y

ATP#:

Test: HATP-2

Exception: 2

Step: N/A*

Equipment Tag #: 104-CNR-12-102

Revision: 1.1

Spec. Section: HATP-2

Execution: 1

Test Operator: Mike Schneider

Date: 4-18-96

Test Witness/Author: Stanley Nelson

Time: 8:30 am

Responsible Contractor: PCL

Responsible Subcontractor: Sil

Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

All signal shields are to be connected to the isolated bus bar including the AC discrete inputs/outputs. The 120 VAC discrete input/output shields are connected to the bonded bus bar. Either the specification (Ref. 13461-2.04.B.3.a.2) should be changed or the shields should be rewired (to the isolated bus).

*Exception was noted during Pre-Test and Inspection.

EXCEPTION RESOLUTION:

Re. RFI No. 5366 - PCL 1385. Raytheon approved the change to the 13461 spec section and tying the 120 VAC control signal shields to the common bus bar.

Exception Closed By:

Jan Popella

Date: 9/5/96

APPROVAL OF RESOLUTION

Contractor Representative:

M. Schubert

Date: 9/17/96

WHC Projects Representative:

Jan Popella

Date: 9/12/96

WHC NFS Representative:

Robert L. ...

Date: 9/15/96

(NFS = New Facility Startup)

ICF KEH Representative:

Paul S. Meehan

Date: 9/23/96

WRAP ACCEPTANCE TEST PROCEDURE
EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:
Test: HATP-2
Step: 1.19 Equipment Tag #: 104-CNR-12-102
Spec. Section: HATP-2

Exception: 3
Revision: 1.1
Execution: 1

Test Operator: Mike Schneider
Test Witness/Author: Stanley Nelson

Date: 4-18-96
Time: 10:00 am

Responsible Contractor: PCL
Responsible Subcontractor: SII
Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

A security program with password is required at the DTAM before data can be changed. No DTAM security screen is provided and a password function is not implemented.

EXCEPTION RESOLUTION:

INSTALL SECURITY PASSWORD

Exception Closed By:

*Stanley Nelson*Date: *8/22/96*

APPROVAL OF RESOLUTION

Contractor Representative:

WHC Projects Representative:

WHC NFS Representative:
(NFS = New Facility Startup)

ICF KEH Representative:

Date: *8/23/96*Date: *8-27-96*Date: *8/22/96*Date: *8/27/96*

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
 LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 1 of 28

TEST LOCATION/TYPE:

☐ Seller Factory-SF

☐ Buyer Factory-BF

☐ Seller Plant-SP

☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
 Project Number W-026

Prepared By
Systems Interface Inc.

For Westinghouse Hanford Company

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
 LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 2 of 28

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-3 Revision Number: 1.1
 Execution Number: 1 Start Date-Time: 4/17/96
 Test Operator: Mike Schneider End Date-Time: 4/18/96
 Witness: STANLEY NELSON Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☒ Yes ☐ No

COMMENTS:

TEST SHOULD BE STATUSED AS SUCCESSFUL
BASED ON CLEARING ALL ERR

DRW 11-7-96

TEST PROCEDURE APPROVAL

TEST ☐ Successful ☒ Unsuccessful

Contractor (Company): Systems Interface Inc.
 Contractor Representative: Mike Schneider Date: 11/5/96
 WHC Projects Representative: DRW Date: 11-7-96
 WHC NFS Representative: DRW Date: 11-7-96
 (NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative: Paul S. McPherson

Date: 11/7/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 3 of 28

1.0 PURPOSE AND SCOPE

This Hardware Acceptance Test Procedure has been prepared to demonstrate that the TRU Process Local Control Unit functions as required by project criteria.

2.0 REFERENCES

Vendor information including Allen Bradley Product Data Bulletins:

- "1771 Allen-Bradley Discrete I/O AC Input and Output Modules",
- "1771 Allen-Bradley Discrete I/O Relay Contact Output Modules",
- "1771 Allen-Bradley Analog Input Module".

2.1 DRAWINGS

Obtain and work with the latest revisions of the following drawings:

940823-HWD-C2301	"Control Panel Layout and Bill of Material"
940820-HWD-01301	"PMS System Architecture"
940823-HWD-01301	"PMS System Architecture"
940823-HWD-C4101	"CNR-12-103 Control Power Distribution and Rack Schedule"
940823-HWD-C4102	"CNR-12-103 Control Power Distribution and Rack Schedule"
940823-HWD-C4301	"CNR-12-103 120 VAC Digital Inputs, Rack 1, Group 0,1"
940823-HWD-C4302	"CNR-12-103 120 VAC Digital Inputs, Rack 1, Group 2,3"
940823-HWD-C4303	"CNR-12-103 120 VAC Digital Inputs, Rack 1, Group 4,5"
940823-HWD-C4304	"CNR-12-103 120 VAC Digital Inputs, Rack 1, Group 6,7"
940823-HWD-C4305	"CNR-12-103 120 VAC Digital Inputs, Rack 2, Group 0,1"
940823-HWD-C4306	"CNR-12-103 120 VAC Digital Inputs, Rack 2, Group 2,3"
940823-HWD-C4307	"CNR-12-103 120 VAC Digital Inputs, Rack 2, Group 4,5"
940823-HWD-C4308	"CNR-12-103 120 VAC Digital Inputs, Rack 2, Group 6,7"
940823-HWD-C4309	"CNR-12-103 120 VAC Digital Inputs, Rack 3, Group 0,1"
940823-HWD-C4401	"CNR-12-103 Relay Output Card, Rack 4, Group 0"
940823-HWD-C4402	"CNR-12-103 Relay Output Card, Rack 4, Group 1"
940823-HWD-C4403	"CNR-12-103 Relay Output Card, Rack 4, Group 2"
940823-HWD-C4404	"CNR-12-103 Relay Output Card, Rack 4, Group 3"
940823-HWD-C4405	"CNR-12-103 Relay Output Card, Rack 4, Group 4"
940823-HWD-C4406	"CNR-12-103 Relay Output Card, Rack 4, Group 5"
940823-HWD-C4407	"CNR-12-103 Relay Output Card, Rack 4, Group 6"
940823-HWD-C4408	"CNR-12-103 Relay Output Card, Rack 4, Group 7"
940823-HWD-C4409	"CNR-12-103 Relay Output Card, Rack 5, Group 0"
940823-HWD-c4501	"CNR-12-103 Analog Input Card, Rack 0, Group 6"

2.2 SPECIFICATIONS

Obtain and work with the most current revisions of the following documents:

- UE&C Specification Section 13461-all sections
- UE&C Specification Section 13462-2.04.B
- Westinghouse Hanford Company Hardware Requirements Matrix

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 4 of 28

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - b. If device being calibrated is not data sheet associated, at least four times greater than the specified device tolerance.

120 VAC Jumper (small alligator clips and or "scrap" wire)

Digital Multimeter (DMM)

Laptop computer with Allen-Bradley on-line programming software

4-20 mA current source

Vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 5 of 28

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 VERIFY Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 RECORD test equipment name, equipment number, and calibration expiration date on Data Sheet.
- 5.6 VERIFY that fuses and terminal blocks listed in the data sheets match those within the Local Control Unit.

6.0 SETUP

- 6.1 Connect a laptop computer to the PLC serial port located within the Local Control Unit and execute Rockwell PLC programming software (Winlogix or 6200). Select the data table monitoring and forcing screen from the Tools - Data Files menu (or hit Ctrl-D). This table will be used to monitor internal PLC registers to ensure the appropriate input changes from off to on when power is applied (see section 7.2); to "force" PLC outputs on to verify the output contacts close (see section 7.3); and to monitor PLC analog inputs to verify proper wiring, operation, accuracy (see section 7.4). The data table will display a 1 or 0 corresponding to whether the I/O point is on or off. The data table will also display the tag name for the point (if defined) on both the far right column and on an information line at the bottom of the screen.

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.1.1 Verify Steps 1 through 14 on Data Sheet 7.1.
- 7.1.2 Verify Steps 15 through end on Data Sheet 7.1, (that the requirements of the PMS Hardware Requirements matrix are met).
- 7.1.3 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 DIGITAL INPUT TESTING

- 7.2.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.2:
- 7.2.2 Place a jumper across the pair of inputs specified on the Data Sheet.
- 7.2.3 The corresponding input indicator on the card illuminates.
- 7.2.4 The associated data monitoring table tag name on the laptop computer display follows the input status change (from 0 to 1).
- 7.2.5 Look at all other inputs on the same input card and ensure no other input indicators illuminate, also review the data monitoring table for the input to ensure no other inputs are set to 1. This step ensures that no cross-wiring or wire short circuits exist.
- 7.2.6 Remove the jumper.
- 7.2.7 The input indicator on the card extinguishes.
- 7.2.8 The associated data monitoring table tag name on the laptop computer display reverts to its previous state (from 1 to 0).

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 6 of 28

7.2.9 For each group of 16 Inputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground. *1.99*

7.2.10 Check either "Pass" or "Fail", and initial the Data Sheet.

7.3 RELAY OUTPUT TESTING

7.3.1 Perform the following steps for each pair of outputs listed on Data Sheet 7.3:

7.3.2 Check voltage across card outputs specified on the Data Sheet - should be full voltage (120 VAC).

7.3.3 Using the laptop programming interface computer, force the output tagname to 1 (on).

7.3.4 The output indicator on the card lights. Ensure all other output indicators on the card are off.

7.3.5 Check the resistance across the output terminals - should be less than 0.01 ohms.

7.3.6 Check the resistance across all of the other output terminals on the card. They all should have infinite (> 100,000 ohms) resistance. This ensures that no wires are crossed or shorting.

7.3.7 Using the laptop computer, release the output tagname (set to 0).

7.3.8 The output indicator on the card extinguishes.

7.3.9 Check the resistance across the output terminals - should be infinite (or > 100,000)..

7.3.10 For each group of 16 Outputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground.

7.3.11 Check either "Pass" or "Fail", and initial the Data Sheet.

7.4 ANALOG INPUT TESTING

7.4.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.4:

7.4.2 Connect a 4-20 mA source to card inputs specified on the Data sheet.

7.4.3 Set current source to 4 mA.

7.4.4 Check the tagname reading in PLC using laptop computer. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between -0.25 and +0.25

7.4.5 Check all other tagnames on that Analog Input card. Verify that all other readings display a value of 0.00 (between -0.25 and +0.25)

7.4.6 Set source to 12 mA.

7.4.7 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 49.75 and 50.25.

7.4.8 Set source to 20 mA.

7.4.9 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 99.75 and 100.25.

7.4.10 Check all other tagnames on that Analog Input card. Verify that all other readings continue to display a value of 0.00 (between -0.25 and +0.25). This ensures that there are no short circuits or crossed wires. *1.99*

7.4.11 For each Analog Input, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground.

7.4.12 For each Analog Input, check fused loop power supply and neutral for 24 VDC (+/- 10%).

7.4.13 Check either "Pass" or "Fail", and initial the Data Sheet.

8.0 RESTORATION

8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.

8.2 RESTORE system to normal configuration.

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103**

**4/17/96
REV. 1.1
PAGE 7 of 28**

8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

9.1 The acceptance criteria of all steps contained within Section 7.0 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

Mike Schuch 10/22/96 Ally E. Nelson 8-27-96
Test Director Date Test Recorder Date

Mike Schuch 10/22/96 Ally E. Nelson 8-27-96
Test Operator Date Witness Date

Witness Date Witness Date

Comments:

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 8 of 28

Test Procedure ID: _____

Date Tested: 4/18/96**DATA SHEET 7.1**

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
<i>Fluke 87 multimeter</i>	<i>SN 62760217</i>	<i>11/96</i>			

7.1. Pre-Test and Inspection

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		SN
1.2	Component Legend Plates installed; Fuse replacement labels installed	✓		SN
1.3	PLC hardware installed per schematics and module dip switches set properly	✓		SN
1.4	Terminal strips labeled and common jumpers installed on panel side		✓	SN
1.5	Correct fuses (no greater than maximum specified) or Circuit Breakers installed	✓		SN
1.6	Motor Overloads correct	N/A		SN
1.7	Wire AWG size, labeled, and color correct	✓		SN
1.8	Door mounted devices installed properly and secure	✓		SN
1.9	All terminals tight, perform wire pull tests.	✓		SN
1.10	Check Main grounding lug, grounding integrity, separate grounds		✓	SN
1.11	Verify ~ infinite resistance between isolated ground bus and chassis ground bus	✓		SN
1.12	Apply power and check AC control circuits for proper voltage	✓		SN
1.13	Check DC power circuits; verify correct voltage	✓		SN
1.14	Check AC outlets and lights; verify correct voltage and operation	✓		SN
1.15	Verify requirements 5.1, 15.8, and 15.9 as called for in the Hardware Requirements matrix are met by cycling power to the Programmable Logic Controller (PLC). The PLC should have the actual WRAP program loaded with all databases and be in a "Run" condition prior to the power cycle. The PLC should return the "Run" condition with no errors upon power-up. All data registers should be preserved. Remove the PLC battery (with power applied) and verify that the low battery light illuminates and PLC status register S:10/0 denotes low battery.	✓		SN
1.16	Verify specification requirement 5.2 as called for in the Hardware Requirements matrix is met by forcing an output on, verifying the closed contact, turning power off, verifying the now open contact, and then restoring power. After restoration of power, unforce the output.	✓		SN
1.17	Verify specification requirement 15.10 as called for in the Hardware Requirements matrix is met by monitoring processor status words S8 (last scan) and S9 (max scan) for program scan time in milliseconds. The scan time should not exceed 200 milliseconds.	✓		SN
1.18	Verify specification requirements 25.38 and 15.29 as called for in the Hardware Requirements matrix are met by monitoring the 24 VDC power output on the termination blocks. While monitoring the voltage, disconnect incoming power on one of the two 24 VDC power supplies. The voltage at the termination blocks should not vary outside of +22 VDC to +30 VDC. Additionally, verify the appropriate PLC input (found on the electrical schematics) activates upon failure of this power supply. Perform this procedure for both 24 VDC power supplies.	✓		SN
1.19	Verify specification requirement 15.37 as called for in the Hardware Requirements matrix is met by accessing random "N" registers within the PLC via the Data Table Access Module (DTAM) mounted on the front of the Local Control Unit. Verify Read and Write operations occur properly though monitoring the data registers on the laptop computer after the read / write. Verify password is required and must be correctly entered before data change accepted.		✓	SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 9 of 28

Test Procedure ID: _____

Date Tested: 4.18.96**DATA SHEET 7.2**

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Duke 87 Multimeter	SN 62760217	11/96			

7.2. 120 VAC Digital Inputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 1, Groups 0.1					
1.1	09-HS-222A	FU1 TB2-1	CV-09-203 Empty Dr Staging Conv	✓		SN
1.2	SPARE	FU2 TB2-2	SPARE	✓		
1.3	09-XS-222A	FU3 TB2-3	CV-09-203 Empty Dr Staging Conv	✓		
1.4	09-ZS-222A	FU4 TB2-4	CV-09-203 Empty Dr Staging Conv	✓		
1.5	09-ZS-222B	FU5 TB2-5	CV-09-203 Empty Dr Staging Conv	✓		
1.6	09-ZS-222C	FU6 TB2-6	CV-09-203 Empty Dr Staging Conv	✓		
1.7	09-ZS-222D	FU7 TB2-7	CV-09-203 Empty Dr Staging Conv	✓		
1.8	CV-09-203/FS	FU8 TB2-8	CV-09-203 Empty Dr Staging Conv	✓		
1.9	CV-09-203/RS	FU9 TB2-9	CV-09-203 Empty Dr Staging Conv	✓		
1.10	09-HS-224A	FU10 TB2-10	CV-09-204 Empty Dr Staging Conv	✓		
1.11	SPARE	FU11 TB2-11	SPARE	✓		
1.12	09-XS-224A	FU12 TB2-12	CV-09-204 Empty Dr Staging Conv	✓		
1.13	09-ZS-224A	FU13 TB2-13	CV-09-204 Empty Dr Staging Conv	✓		
1.14	09-ZS-224B	FU14 TB2-14	CV-09-204 Empty Dr Staging Conv	✓		
1.15	09-ZS-224C	FU15 TB2-15	CV-09-204 Empty Dr Staging Conv	✓		
1.16	09-ZS-224D	FU16 TB2-16	CV-09-204 Empty Dr Staging Conv	✓		
1.17	CV-09-204/FS	FU17 TB2-21	CV-09-204 Empty Dr Staging Conv	✓		
1.18	CV-09-204/RS	FU18 TB2-22	CV-09-204 Empty Dr Staging Conv	✓		
1.19	09-ZS-221A	FU19 TB2-23	LT-09-201A RWM TRU Lir Table	✓		
1.20	SPARE	FU20 TB2-24	SPARE	✓		
1.21	09-ZS-221E	FU21 TB2-25	LT-09-201A RWM TRU Lir Table	✓		
1.22	09-ZS-221D	FU22 TB2-26	LT-09-201A RWM TRU Lir Table	✓		
1.23	09-ZS-221C	FU23 TB2-27	LT-09-201A RWM TRU Lir Table	✓		
1.24	09-HS-221C	FU24 TB2-28	LT-09-201A RWM TRU Lir Table	✓		
1.25	09-HS-221C	FU25 TB2-29	LT-09-201A RWM TRU Lir Table	✓		
1.26	09-HS-221A	FU26 TB2-30	LT-09-201A RWM TRU Lir Table	✓		
1.27	09-ZS-221G	FU27 TB2-31	LT-09-201A RWM TRU Lir Table	✓		
1.28	09-ZS-221F	FU28 TB2-32	LT-09-201A RWM TRU Lir Table	✓		
1.29	09-HS-221B	FU29 TB2-33	LT-09-201A RWM TRU Lir Table	✓		
1.30	09-HS-221B	FU30 TB2-34	LT-09-201A RWM TRU Lir Table	✓		
1.31	09-HS-221D	FU31 TB2-35	LT-09-201A RWM TRU Lir Table	✓		
1.32	09-XS-221A	FU32 TB2-36	LT-09-201A RWM TRU Lir Table	✓		SN
1.33	IG Bus	TB2-17	Check shield ground resistance (< 0.04 ohms)	✓		SN
1.34	IG Bus	TB2-37	Check shield ground resistance (< 0.04 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 10 of 28

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
2.0	Rack 1, Groups 2,3					
2.1	09-ZS-223A	FU33 TB2-41	LT-09-201B RWM TRU Lift Table	✓		SN
2.2	SPARE	FU34 TB2-42	SPARE	✓		
2.3	09-HS-223D	FU35 TB2-43	LT-09-201B RWM TRU Lift Table	✓		
2.4	09-HS-223A	FU36 TB2-44	LT-09-201B RWM TRU Lift Table	✓		
2.5	09-ZS-223D	FU37 TB2-45	LT-09-201B RWM TRU Lift Table	✓		
2.6	09-ZS-223E	FU38 TB2-46	LT-09-201B RWM TRU Lift Table	✓		
2.7	09-HS-223C	FU39 TB2-47	LT-09-201B RWM TRU Lift Table	✓		
2.8	09-HS-223C	FU40 TB2-48	LT-09-201B RWM TRU Lift Table	✓		
2.9	09-ZS-223G	FU41 TB2-49	LT-09-201B RWM TRU Lift Table	✓		
2.10	09-HS-223B	FU42 TB2-50	LT-09-201B RWM TRU Lift Table	✓		
2.11	09-HS-223B	FU43 TB2-51	LT-09-201B RWM TRU Lift Table	✓		
2.12	09-ZS-223F	FU44 TB2-52	LT-09-201B RWM TRU Lift Table	✓		
2.13	09-ZS-223C	FU45 TB2-53	LT-09-201B RWM TRU Lift Table	✓		
2.14	09-XS-223A	FU46 TB2-54	LT-09-201B RWM TRU Lift Table	✓		
2.15	09-HS-225B	FU47 TB2-55	LT-09-201C RWM TRU Lift Table	✓		
2.16	09-HS-225B	FU48 TB2-56	LT-09-201C RWM TRU Lift Table	✓		
2.17	09-ZS-225G	FU49 TB2-61	LT-09-201C RWM TRU Lift Table	✓		
2.18	09-ZS-225F	FU50 TB2-62	LT-09-201C RWM TRU Lift Table	✓		
2.19	09-HS-225A	FU51 TB2-63	LT-09-201C RWM TRU Lift Table	✓		
2.20	09-HS-225C	FU52 TB2-64	LT-09-201C RWM TRU Lift Table	✓		
2.21	09-HS-225C	FU53 TB2-65	LT-09-201C RWM TRU Lift Table	✓		
2.22	09-ZS-225C	FU54 TB2-66	LT-09-201C RWM TRU Lift Table	✓		
2.23	09-ZS-225D	FU55 TB2-67	LT-09-201C RWM TRU Lift Table	✓		
2.24	09-ZS-225E	FU56 TB2-68	LT-09-201C RWM TRU Lift Table	✓		
2.25	ZS-225A	FU57 TB2-69	LT-09-201C RWM TRU Lift Table	✓		
2.26	SPARE	FU58 TB2-70	SPARE	✓		
2.27	09-XS-225A	FU59 TB2-71	LT-09-201C RWM TRU Lift Table	✓		
2.28	09-HS-225D	FU60 TB2-72	LT-09-201C RWM TRU Lift Table	✓		
2.29	09-ZS-235C	FU61 TB2-73	LT-09-202B Proc LLW Lift Table	✓		
2.30	09-ZS-235F	FU62 TB2-74	LT-09-202B Proc LLW Lift Table	✓		
2.31	09-ZS-235G	FU63 TB2-75	LT-09-202B Proc LLW Lift Table	✓		
2.32	SPARE	FU64 TB2-76	SPARE	✓		SN
2.33	IG Bus	TB2-57	CHECK ^{THRESHOLD} GROUND RESISTANCE 2.0 ^Ω	✓		SN
2.34	IG Bus	TB2-77	CHECK ^{THRESHOLD} GROUND RESISTANCE 2.1 ^Ω	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 11 of 28

Test Procedure ID: _____

Date Tested: 4.18.96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
3.0	Rack 1 Groups 4,5					
3.1	09-ZS-235E	FU65 TB2-81	LT-09-202B Proc LLW Lift Table	✓		SN
3.2	09-ZS-235D	FU66 TB2-82	LT-09-202B Proc LLW Lift Table	✓		
3.3	09-ZS-235A	FU67 TB2-83	LT-09-202B Proc LLW Lift Table	✓		
3.4	09-XS-235A	FU68 TB2-84	LT-09-202B Proc LLW Lift Table	✓		
3.5	09-HS-235A	FU69 TB2-85	LT-09-202B Proc LLW Lift Table	✓		
3.6	09-ZS-239A	FU70 TB2-86	LT-09-202D Proc TRU Lift Table	✓		
3.7	09-ZS-239E	FU71 TB2-87	LT-09-202D Proc TRU Lift Table	✓		
3.8	09-ZS-239C	FU72 TB2-88	LT-09-202D Proc TRU Lift Table	✓		
3.9	09-ZS-239F	FU73 TB2-89	LT-09-202D Proc TRU Lift Table	✓		
3.10	09-ZS-239D	FU74 TB2-90	LT-09-202D Proc TRU Lift Table	✓		
3.11	09-HS-239A	FU75 TB2-91	LT-09-202D Proc TRU Lift Table	✓		
3.12	09-ZS-239G	FU76 TB2-92	LT-09-202D Proc TRU Lift Table	✓		
3.13	SPARE	FU77 TB2-93	SPARE	✓		
3.14	09-XS-239A	FU78 TB2-94	LT-09-202D Proc TRU Lift Table	✓		
3.15	09-ZS-247A	FU79 TB2-95	LT-09-202E Proc TRU Lift Table	✓		
3.16	SPARE	FU80 TB2-96	SPARE	✓		
3.17	09-ZS-247C	FU81 TB2-101	LT-09-202E Proc TRU Lift Table	✓		
3.18	09-ZS-247D	FU82 TB2-102	LT-09-202E Proc TRU Lift Table	✓		
3.19	09-ZS-247E	FU83 TB2-103	LT-09-202E Proc TRU Lift Table	✓		
3.20	09-ZS-247F	FU84 TB2-104	LT-09-202E Proc TRU Lift Table	✓		
3.21	09-ZS-247G	FU85 TB2-105	LT-09-202E Proc TRU Lift Table	✓		
3.22	09-XS-247A	FU86 TB2-106	LT-09-202E Proc TRU Lift Table	✓		
3.23	09-HS-247A	FU87 TB2-107	LT-09-202E Proc TRU Lift Table	✓		
3.24	09-ZS-243E	FU88 TB2-108	LT-09-203B Proc TRU Lift Table	✓		
3.25	09-ZS-243D	FU89 TB2-109	LT-09-203B Proc TRU Lift Table	✓		
3.26	09-ZS-243C	FU90 TB2-110	LT-09-203B Proc TRU Lift Table	✓		
3.27	09-HS-243A	FU91 TB2-111	LT-09-203B Proc TRU Lift Table	✓		
3.28	09-ZS-243F	FU92 TB2-112	LT-09-203B Proc TRU Lift Table	✓		
3.29	09-ZS-243G	FU93 TB2-113	LT-09-203B Proc TRU Lift Table	✓		
3.30	09-ZS-243A	FU94 TB2-114	LT-09-203B Proc TRU Lift Table	✓		
3.31	SPARE	FU95 TB2-115	SPARE	✓		
3.32	09-XS-243A	FU96 TB2-116	LT-09-203B Proc TRU Lift Table	✓		SN
3.33	IG	TB2-97	CHECK GROUND RESISTANCE < 1 SN	✓		SN
3.34		IG TB2-117	CHECK GROUND RESISTANCE < 1 SN	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 12 of 28

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
4.0	Rack 1 Groups 6,7					
4.1	09-ZS-245A	FU97 TB2-121	LT-09-203C Proc TRU Lir Table	✓		SW
4.2	SPARE	FU98 TB2-122	SPARE	✓		
4.3	09-ZS-245C	FU99 TB2-123	LT-09-203C Proc TRU Lir Table	✓		
4.4	09-ZS-245D	FU100 TB2-124	LT-09-203C Proc TRU Lir Table	✓		
4.5	09-ZS-245E	FU101 TB2-125	LT-09-203C Proc TRU Lir Table	✓		
4.6	09-ZS-245F	FU102 TB2-126	LT-09-203C Proc TRU Lir Table	✓		
4.7	09-ZS-245G	FU103 TB2-127	LT-09-203C Proc TRU Lir Table	✓		
4.8	09-XS-245A	FU104 TB2-128	LT-09-203C Proc TRU Lir Table	✓		
4.9	09-HS-245A	FU105 TB2-129	LT-09-203C Proc TRU Lir Table	✓		
4.10	-XA-307	FU106 TB2-130	HU-07-304 Compt Hydr Pwr Unit	✓		
4.11	-ZS-818	FU107 TB2-131	TC-07-301 Drum Transfer Car	✓		
4.12	-ZSC-823	FU108 TB2-132	DH-07-305 Comp Drum Lifter	✓		
4.13	-ZSO-823	FU109 TB2-133	DH-07-305 Comp Drum Lifter	✓		
4.14	-ZS-816	FU110 TB2-134	TC-07-301 Drum Transfer Car	✓		
4.15	-ZS-802A	FU111 TB2-135	CR-07-301A Monorail Hoist	✓		
4.16	-ZS-802B	FU112 TB2-136	CR-07-301A Monorail Hoist	✓		
4.17	-ZS-802C	FU113 TB2-141	CR-07-301A Monorail Hoist	✓		
4.18	PC-07-006/D	FU114 TB2-142	CR-07-301A Monorail Hoist	✓		
4.19	PC-07-006/F2S	FU115 TB2-143	CR-07-301A Monorail Hoist	✓		
4.20	PC-07-006/F3S	FU116 TB2-144	CR-07-301A Monorail Hoist	✓		
4.21	PC-07-006/F4S	FU117 TB2-145	CR-07-301A Monorail Hoist	✓		
4.22	PC-07-006/F5S	FU118 TB2-146	CR-07-301A Monorail Hoist	✓		
4.23	PC-07-006/FLS	FU119 TB2-147	CR-07-301A Monorail Hoist	✓		
4.24	PC-07-006/R2S	FU120 TB2-148	CR-07-301A Monorail Hoist	✓		
4.25	PC-07-006/R3S	FU121 TB2-149	CR-07-301A Monorail Hoist	✓		
4.26	PC-07-006/R4S	FU122 TB2-150	CR-07-301A Monorail Hoist	✓		
4.27	PC-07-006/R5S	FU123 TB2-151	CR-07-301A Monorail Hoist	✓		
4.28	PC-07-006/RLS	FU124 TB2-152	CR-07-301A Monorail Hoist	✓		
4.29	PC-07-006/U	FU125 TB2-153	CR-07-301A Monorail Hoist	✓		
4.30	-ZSC-804	FU126 TB2-154	DH-07-301 Drum Lifter	✓		
4.31	-ZSO-804	FU127 TB2-155	DH-07-301 Drum Lifter	✓		
4.32	-PS-395A	FU128 TB2-156	DH-07-302 Drum Transfer Assbly	✓		SW
4.33		IG Bus TB2-137	CHECK ^{500V} GROUND RESISTANCE $\leq 1 \Omega$	✓		SW
4.34		IG Bus TB2-157	CHECK ^{500V} GROUND RESISTANCE $\leq 1 \Omega$	✓		SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 13 of 28

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
5.0	Rack 2 Groups 0,1					
5.1	-PS-395B	FU129 TB2-161	DH-07-302 Drum Transfer Assbly	✓		SW
5.2	-ZS-305	FU130 TB2-162	DH-07-302 Drum Transfer Assbly	✓		
5.3	-ZS-807A	FU131 TB2-163	DH-07-302 Drum Transfer Assbly	✓		
5.4	-ZS-807B	FU132 TB2-164	DH-07-302 Drum Transfer Assbly	✓		
5.5	-ZS-807C	FU133 TB2-165	DH-07-302 Drum Transfer Assbly	✓		
5.6	-ZS-807D	FU134 TB2-166	DH-07-302 Drum Transfer Assbly	✓		
5.7	-ZS-808A	FU135 TB2-167	DH-07-302 Drum Transfer Assbly	✓		
5.8	-ZS-808B	FU136 TB2-168	DH-07-302 Drum Transfer Assbly	✓		
5.9	-ZS-808C	FU137 TB2-169	DH-07-302 Drum Transfer Assbly	✓		
5.10	-ZSC-806	FU138 TB2-170	DH-07-302 Drum Transfer Assbly	✓		
5.11	-ZSC-809	FU139 TB2-171	DH-07-302 Drum Transfer Assbly	✓		
5.12	-ZSO-806A	FU140 TB2-172	DH-07-302 Drum Transfer Assbly	✓		
5.13	-ZSO-806B	FU141 TB2-173	DH-07-302 Drum Transfer Assbly	✓		
5.14	-ZSO-809A	FU142 TB2-174	DH-07-302 Drum Transfer Assbly	✓		
5.15	-ZSO-809B	FU143 TB2-175	DH-07-302 Drum Transfer Assbly	✓		
5.16	-ZS-302	FU144 TB2-176	DH-07-302/M1 Drum Transfer Ass	✓		
5.17	-ZS-303	FU145 TB2-181	DH-07-302/M2 Drum Transfer Ass	✓		
5.18	-PS-803	FU146 TB2-182	DO-07-301 Drum Entry/Exit Port	✓		
5.19	-ZS-811	FU147 TB2-183	DO-07-301 Drum Entry/Exit Port	✓		
5.20	-ZSC-800A	FU148 TB2-184	DO-07-301 Drum Entry/Exit Port	✓		
5.21	-ZSO-801	FU149 TB2-185	DO-07-301 Drum Entry/Exit Port	✓		
5.22	-ZS-803A	FU150 TB2-186	DO-07-301 Drum Entry/Exit Port	✓		
5.23	-ZS-803B	FU151 TB2-187	DO-07-301 Drum Entry/Exit Port	✓		
5.24	-ZS-803C	FU152 TB2-188	DO-07-301 Drum Entry/Exit Port	✓		
5.25	-ZSC-800B	FU153 TB2-189	DO-07-301 Drum Entry/Exit Port	✓		
5.26	-ZSC-801	FU154 TB2-190	DO-07-301 Drum Entry/Exit Port	✓		
5.27	-PSL-800	FU155 TB2-191	DO-07-302 Sphincter Entry Port	✓		
5.28	-PSLL-801	FU156 TB2-192	DO-07-302 Sphincter Entry Port	✓		
5.29	-ZSC-805	FU157 TB2-193	DO-07-302 Sphincter Entry Port	✓		
5.30	-ZSO-805	FU158 TB2-194	DO-07-302 Sphincter Entry Port	✓		
5.31	-PDISL-303	FU159 TB2-195	GB-07-301 TRU Entry G.B.	✓		
5.32	-XS-301A	FU160 TB2-196	GB-07-301 TRU Entry G.B.	✓		SW
5.33		IG Bus TB2-177	Check shield ground resistance (< 0.01 ohms)	✓		SW
5.34		IG Bus TB2-197	Check shield ground resistance (< 0.01 ohms)	✓		SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 14 of 28

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
6.0	Rack 2 Groups 2,3					
6.1	XS-301B	FU161 TB2-201	GB-07-301 TRU Entry G.B.	✓		SA
6.2	XA-301	FU162 TB2-202	HU-07-301 Hydr Power Unit	✓		
6.3	XA-300	FU163 TB2-203	HU-07-302 Manip Hydr Pwr Unit	✓		
6.4	ZS-810	FU164 TB2-204	TC-07-301 Drum Transfer Car	✓		
6.5	HS-306	FU165 TB2-205	TE-12-104 Suite DMS Pedestal	✓		
6.6	HS-305	FU166 TB2-206	TE-12-104 Suite DMS Pedestal	✓		
6.7	ZS-328A	FU167 TB2-207	DH-07-303 Drum Tipper	✓		
6.8	ZS-328B	FU168 TB2-208	DH-07-303 Drum Tipper	✓		
6.9	ZS-329	FU169 TB2-209	DH-07-303 Drum Tipper	✓		
6.10	ZS-820A	FU170 TB2-210	DH-07-303 Drum Tipper	✓		
6.11	ZS-820B	FU171 TB2-211	DH-07-303 Drum Tipper	✓		
6.12	ZS-317	FU172 TB2-212	DH-07-303/M1 Hyd. Power Pack	✓		
6.13	ZS-327A	FU173 TB2-213	DO-07-303 X-ray Door	✓		
6.14	ZS-327B	FU174 TB2-214	DO-07-303 X-ray Door	✓		
6.15	ZS-823A	FU175 TB2-215	EM-07-301 Waste Manipulator	✓		
6.16	ZS-823B	FU176 TB2-216	EM-07-301 Waste Manipulator	✓		
6.17	ZS-823C	FU177 TB2-221	EM-07-301 Waste Manipulator	✓		
6.18	ZS-823D	FU178 TB2-222	EM-07-301 Waste Manipulator	✓		
6.19	PDISL-318	FU179 TB2-223	GB-07-302 Tru Sorting Glovebox	✓		
6.20	XS-312A	FU180 TB2-224	GB-07-302 Tru Sorting Glovebox	✓		
6.21	XS-312B	FU181 TB2-225	GB-07-302 Tru Sorting Glovebox	✓		
6.22	XS-311	FU182 TB2-226	GB-07-302 Tru Sorting Glovebox	✓		
6.23	ZS-824A	FU183 TB2-227	RT-07-301 Drum Delid/Relid Assembly	✓		
6.24	ZS-824B	FU184 TB2-228	RT-07-301 Drum Delid/Relid Assembly	✓		
6.25	ZS-826A	FU185 TB2-229	RT-07-301 Drum Delid/Relid Assembly	✓		
6.26	ZS-826B	FU186 TB2-230	RT-07-301 Drum Delid/Relid Assembly	✓		
6.27	ZS-827A	FU187 TB2-231	RT-07-301 Drum Delid/Relid Assembly	✓		
6.28	ZS-827B	FU188 TB2-232	RT-07-301 Drum Delid/Relid Assembly	✓		
6.29	ZS-828A	FU189 TB2-233	RT-07-301 Drum Delid/Relid Assembly	✓		
6.30	ZS-828B	FU190 TB2-234	RT-07-301 Drum Delid/Relid Assembly	✓		
6.31	ZS-819A	FU191 TB2-235	RT-07-301 Drum Delid/Relid Assembly	✓		
6.32	ZS-819B	FU192 TB2-236	RT-07-301 Drum Delid/Relid Assembly	✓		SA
6.33	IG Bus	TB2-217	Check shield ground resistance (< 0.64 ohms)	✓		SA
6.34	IG Bus	TB2-237	Check shield ground resistance (< 0.64 ohms)	✓		SA

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 15 of 28

Test Procedure ID: _____

Date Tested: 4.18.96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
7.0	Rack 2 Groups 4,5						
7.1	ZS-821	FU193	TB2-241	RT-07-301 Dr Delid/Relid Asmb.	✓		لوی
7.2	PSL-332	FU194	TB2-242	RT-07-301 Dr Delid/Relid Fidxr.	✓		
7.3	FSL-332	FU195	TB2-243	RT-07-301 Dr Delid/Relid Fidxr.	✓		
7.4	ZS-825B	FU196	TB2-244	TC-07-301 Transfer Car	✓		
7.5	ZS-825C	FU197	TB2-245	TC-07-301 Transfer Car	✓		
7.6	HS-307	FU198	TB2-246	TE-12-104 Suite DMS Pedestal	✓		
7.7	ZSC-952A	FU199	TB2-247	DO-07-402A One Trip Drum Exit Port	✓		
7.8	ZS-966C	FU200	TB2-248	DO-07-402A One Trip Drum Exit Port	✓		
7.9	ZS-966D	FU201	TB2-249	DO-07-402A One Trip Drum Exit Port	✓		
7.10	ZSO-968	FU202	TB2-250	DO-07-402A One Trip Drum Exit Port	✓		
7.11	ZSC-952B	FU203	TB2-251	DO-07-402A One Trip Drum Exit Port	✓		
7.12	ZS-966A	FU204	TB2-252	DO-07-402A One Trip Drum Exit Port	✓		
7.13	ZS-966B	FU205	TB2-253	DO-07-402A One Trip Drum Exit Port	✓		
7.14	PS-960A	FU206	TB2-254	DO-07-402A One Trip Drum Exit Port	✓		
7.15	ZSO-950	FU207	TB2-255	DO-07-402B One Trip Drum Exit Port	✓		
7.16	ZS-951C	FU208	TB2-256	DO-07-402B One Trip Drum Exit Port	✓		
7.17	ZS-951D	FU209	TB2-261	DO-07-402B One Trip Drum Exit Port	✓		
7.18	ZS-951A	FU210	TB2-262	DO-07-402B One Trip Drum Exit Port	✓		
7.19	PS-960B	FU211	TB2-263	DO-07-402B One Trip Drum Exit Port	✓		
7.20	ZS-970A	FU212	TB2-264	EM-07-401 Waste Manipulator	✓		
7.21	ZS-970B	FU213	TB2-265	EM-07-401 Waste Manipulator	✓		
7.22	ZS-970C	FU214	TB2-266	EM-07-401 Waste Manipulator	✓		
7.23	XS-304A	FU215	TB2-267	GB-07-401 TRU RWM Glovebox	✓		
7.24	XS-304B	FU216	TB2-268	GB-07-401 TRU RWM Glovebox	✓		
7.25	PDISL-375	FU217	TB2-269	GB-07-401 TRU RWM Glovebox	✓		
7.26	ZSC-969A	FU218	TB2-270	DO-07-402B One Trip Drum Exit Port	✓		
7.27	ZSC-969B	FU219	TB2-271	DO-07-402B One Trip Drum Exit Port	✓		
7.28	ZSC-868A	FU220	TB2-272	DO-07-309 One Trip Drum Exit Port	✓		
7.29	ZSC-868B	FU221	TB2-273	DO-07-309 One Trip Drum Exit Port	✓		
7.30	ZSO-867	FU222	TB2-274	DO-07-309 One Trip Drum Exit Port	✓		
7.31	ZS-865A	FU223	TB2-275	DO-07-309 One Trip Drum Exit Port	✓		
7.32	ZS-865B	FU224	TB2-276	DO-07-309 One Trip Drum Exit Port	✓		لوی
7.33		IG Bus	TB2-257	Check shield ground resistance (<0.04 ohms)	✓		لوی
7.34		IG Bus	TB2-277	Check shield ground resistance (<0.04 ohms)	✓		لوی

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
REV. 1.1
PAGE 16 of 28

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
8.0	Rack 2 Groups 6,7					
8.1	ZS-865C	FU225 TB2-281	DO-07-309 One Trip Drum Exit Port	✓		52
8.2	ZS-865D	FU226 TB2-282	DO-07-309 One Trip Drum Exit Port	✓		
8.3	PS-860	FU227 TB2-283	DO-07-309 One Trip Drum Exit Port	✓		
8.4	ZSC-878A	FU228 TB2-284	DO-07-310 One Trip Drum Exit Port	✓		
8.5	ZSC-878B	FU229 TB2-285	DO-07-310 One Trip Drum Exit Port	✓		
8.6	ZSO-877	FU230 TB2-286	DO-07-310 One Trip Drum Exit Port	✓		
8.7	ZS-875A	FU231 TB2-287	DO-07-310 One Trip Drum Exit Port	✓		
8.8	ZS-875B	FU232 TB2-288	DO-07-310 One Trip Drum Exit Port	✓		
8.9	ZS-875C	FU233 TB2-289	DO-07-310 One Trip Drum Exit Port	✓		
8.10	ZS-875D	FU234 TB2-290	DO-07-310 One Trip Drum Exit Port	✓		
8.11	PS-870	FU235 TB2-291	DO-07-310 One Trip Drum Exit Port	✓		
8.12	PDISL-309	FU236 TB2-292	GB-07-309 TRU Waste Loadout G.B.	✓		
8.13	XS-306	FU237 TB2-293	GB-07-310 TRU Waste Loadout G.B.	✓		
8.14	HS-308	FU238 TB2-294	TE-12-104 Suite DMS Pedestal	✓		
8.15	HS-309	FU239 TB2-295	TE-12-104 Suite DMS Pedestal	✓		
8.16	ZS-340A	FU240 TB2-296	XX-07-302 Waste Chute	✓		
8.17	ZS-340B	FU241 TB2-301	XX-07-302 Waste Chute	✓		
8.18	ZS-341B	FU242 TB2-302	XX-07-303 Waste Chute	✓		
8.19	ZS-341A	FU243 TB2-303	XX-07-303 Waste Chute	✓		
8.20	ZS-951B	FU244 TB2-304	DO-07-402B One Trip Drum Exit Port	✓		
8.21	ZS-970D	FU245 TB2-305	EM-07-401 Waste Manipulator	✓		
8.22	CRA	FU246 TB2-306	CNR-12-103 - Local Control Panel	✓		
8.23	CRB	FU247 TB2-307	CNR-12-103 - Local Control Panel	✓		
8.24	DO-07-305/CS	FU248 TB2-308	DO-07-305 TRU Sort Bagless Transfer Port	✓		
8.25	DO-07-305/OS	FU249 TB2-309	DO-07-305 TRU Sort Bagless Transfer Port	✓		
8.26	DO-07-308/CS	FU250 TB2-310	DO-07-308 Emp Dr Loadout Bagless Xfer Port	✓		
8.27	DO-07-308/OS	FU251 TB2-311	DO-07-308 Emp Dr Loadout Bagless Xfer Port	✓		
8.28	DO-07-401/CS	FU252 TB2-312	DO-07-401 TRU RWM Bagless Xfer Port	✓		
8.29	DO-07-401/OS	FU253 TB2-313	DO-07-401 TRU RWM Bagless Xfer Port	✓		
8.30	XS-312C	FU254 TB2-314	GB-07-302 TRU Sorting Glovebox	✓		
8.31	ZS-870	FU255 TB2-315	GB-07-302 TRU Sorting Glovebox	✓		
8.32	ZS-830C	FU256 TB2-316	GB-07-302 TRU Sorting Glovebox	✓		52
8.33	IG Bus	TB2-297	Check shield ground resistance (< 0.02 ohms)	✓		52
8.34	IG Bus	TB2-317	Check shield ground resistance (< 0.02 ohms)	✓		52

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 17 of 28

Test Procedure ID: _____

Date Tested: 4.18.96

Step #	TAG ID	Jumper Terminals			Description	Pass	Fail	Initials
9.0	Rack 3 Groups 0,1							
9.1	SPARE	FU257	TB2-321	SPARE	✓		SN	
9.2	SPARE	FU258	TB2-322	SPARE	✓			
9.3	SPARE	FU259	TB2-323	SPARE	✓			
9.4	SPARE	FU260	TB2-324	SPARE	✓			
9.5	SPARE	FU261	TB2-325	SPARE	✓			
9.6	SPARE	FU262	TB2-326	SPARE	✓			
9.7	SPARE	FU263	TB2-327	SPARE	✓			
9.8	SPARE	FU264	TB2-328	SPARE	✓			
9.9	SPARE	FU265	TB2-329	SPARE	✓			
9.10	SPARE	FU266	TB2-330	SPARE	✓			
9.11	SPARE	FU267	TB2-331	SPARE	✓			
9.12	SPARE	FU268	TB2-332	SPARE	✓			
9.13	SPARE	FU269	TB2-333	SPARE	✓			
9.14	SPARE	FU270	TB2-334	SPARE	✓			
9.15	SPARE	FU271	TB2-335	SPARE	✓			
9.16	SPARE	FU272	TB2-336	SPARE	✓			
9.17	SPARE	FU417	TB2-338	SPARE	✓			
9.18	SPARE	FU418	TB2-339	SPARE	✓			
9.19	SPARE	FU419	TB2-340	SPARE	✓			
9.20	SPARE	FU420	TB2-341	SPARE	✓			
9.21	SPARE	FU421	TB2-342	SPARE	✓			
9.22	SPARE	FU422	TB2-343	SPARE	✓			
9.23	SPARE	FU423	TB2-344	SPARE	✓			
9.24	SPARE	FU424	TB2-345	SPARE	✓			
9.25	SPARE	FU425	TB2-346	SPARE	✓			
9.26	SPARE	FU426	TB2-347	SPARE	✓			
9.27	SPARE	FU427	TB2-348	SPARE	✓			
9.28	SPARE	FU428	TB2-349	SPARE	✓			
9.29	SPARE	FU429	TB2-350	SPARE	✓			
9.30	SPARE	FU430	TB2-351	SPARE	✓			
9.31	SPARE	FU431	TB2-352	SPARE	✓			
9.32	SPARE	FU432	TB2-353	SPARE	✓		SN	
9.33		IG Bar	TB2-337	Check shield ground resistance (< 0.01 ohms)	✓		SN	
9.34		IG Bar	TB2-354	Check shield ground resistance (< 0.01 ohms)	✓		SN	

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
 LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 18 of 28

Test Procedure ID: _____

Date Tested: 4.18.96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
10.0	Rack 3 Group 2						
10.1	SPARE	FU433	TB2-361	SPARE	✓		SW
10.2	SPARE	FU434	TB2-362	SPARE	✓		
10.3	SPARE	FU435	TB2-363	SPARE	✓		
10.4	SPARE	FU436	TB2-364	SPARE	✓		
10.5	SPARE	FU437	TB2-365	SPARE	✓		
10.6	SPARE	FU438	TB2-366	SPARE	✓		
10.7	SPARE	FU439	TB2-367	SPARE	✓		
10.8	SPARE	FU440	TB2-368	SPARE	✓		
10.9	SPARE	FU441	TB2-369	SPARE	✓		
10.10	SPARE	FU442	TB2-370	SPARE	✓		
10.11	SPARE	FU443	TB2-371	SPARE	✓		
10.12	SPARE	FU444	TB2-372	SPARE	✓		
10.13	SPARE	FU445	TB2-373	SPARE	✓		
10.14	SPARE	FU446	TB2-374	SPARE	✓		
10.15	SPARE	FU447	TB2-375	SPARE	✓		
10.16	SPARE	FU448	TB2-376	SPARE	✓		SW
10.17	SPARE	IG Bar	TB2-377	Check shield ground resistance (<0.01 ohms)	✓		SW

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103**

4/17/96
REV. 1.1
PAGE 19 of 28

Test Procedure ID: _____

Date Tested: 4.18.96

DATA SHEET 7.3

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
<i>Fluke 87 Multimeter</i>	<i>SN 62760217</i>	<i>11/96</i>			

7.3. Relay Outputs

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
1.0	Rack 4 Group 0						
1.1	FEV-305	FU273	TB3-1	TRU Process Entry GB Exhaust	✓		SN
1.2	ZS-222E	FU274	TB3-2	Indexing Photo Sensors	✓		
1.3	ZY-222C	FU275	TB3-3	CV-09-203 Empty Drum Staging Conv.	✓		
1.4	SPARE	FU276	TB3-4	SPARE	✓		
1.5	CV-09-203/F	FU277	TB3-5	CV-09-203 Empty Drum Staging Conv.	✓		
1.6	CV-09-203/R	FU278	TB3-6	CV-09-203 Empty Drum Staging Conv.	✓		
1.7	ZS-224E	FU279	TB3-7	CV-09-204 Empty Drum Staging Conv.	✓		
1.8	SPARE	FU280	TB3-8	SPARE	✓		
1.9	ZY-224C	FU281	TB3-9	CV-09-204 Empty Drum Staging Conv.	✓		
1.10	CV-09-204/R	FU282	TB3-10	CV-09-204 Empty Drum Staging Conv.	✓		
1.11	CV-09-204/F	FU283	TB3-11	CV-09-204 Empty Drum Staging Conv.	✓		
1.12	LT-09-201A/F	FU284	TB3-12	LT-09-201A RWM TRU Lift Table	✓		
1.13	LT-09-201A/R	FU285	TB3-13	LT-09-201A RWM TRU Lift Table	✓		
1.14	ZY-221A	FU286	TB3-14	LT-09-201A RWM TRU Lift Table	✓		
1.15	09-ZL-221D	FU287	TB3-15	LT-09-201A RWM TRU Lift Table	✓		
1.16	SPARE	FU288	TB3-16	SPARE	✓		SN
1.17		IG Bus	TB3-17	Check shield ground resistance (<6.0+ ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 20 of 28

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
2.0	Rack 4, Group 1						
2.1	SPARE	FU289	TB3-21	SPARE	✓		SN
2.2	LT-09-201B/R	FU290	TB3-22	LT-09-201B RWM TRU Lift Table	✓		
2.3	ZY-223A	FU291	TB3-23	LT-09-201B RWM TRU Lift Table	✓		
2.4	09-ZL-223D	FU292	TB3-24	LT-09-201B RWM TRU Lift Table	✓		
2.5	LT-09-201B/F	FU293	TB3-25	LT-09-201B RWM TRU Lift Table	✓		
2.6	SPARE	FU294	TB3-26	SPARE	✓		
2.7	LT-09-201C/F	FU295	TB3-27	LT-09-201C RWM TRU Lift Table	✓		
2.8	LT-09-201C/R	FU296	TB3-28	LT-09-201C RWM TRU Lift Table	✓		
2.9	ZY-225A	FU297	TB3-29	LT-09-201C RWM TRU Lift Table	✓		
2.10	09-ZL-225D	FU298	TB3-30	LT-09-201C RWM TRU Lift Table	✓		
2.11	SPARE	FU299	TB3-31	SPARE	✓		
2.12	SPARE	FU300	TB3-32	SPARE	✓		
2.13	LT-09-202B/F	FU301	TB3-33	LT-09-202B TRU Entry Lift Table	✓		
2.14	ZY-235A	FU302	TB3-34	LT-09-202B TRU Entry Lift Table	✓		
2.15	09-ZL-235D	FU303	TB3-35	LT-09-202B TRU Entry Lift Table	✓		
2.16	LT-09-202B/R	FU304	TB3-36	LT-09-202B TRU Entry Lift Table	✓		SN
2.17	IG Bus	TB3-37	Check shield ground resistance (<0.01 ohms)		✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 21 of 28

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
3.0	Rack 4, Group 2						
3.1	SPARE	FU305	TB3-41	SPARE	✓		SN
3.2	ZL-237C	FU306	TB3-42	LT-09-202C Proc TRU Lift Table	✓		
3.3	LT-09-202D/F	FU307	TB3-43	LT-09-202D Proc TRU Lift Table	✓		
3.4	ZY-239A	FU308	TB3-44	LT-09-202D Proc TRU Lift Table	✓		
3.5	09-ZL-239D	FU309	TB3-45	LT-09-202D Proc TRU Lift Table	✓		
3.6	SPARE	FU310	TB3-46	SPARE	✓		
3.7	SPARE	FU311	TB3-47	SPARE	✓		
3.8	LT-09-202D/R	FU312	TB3-48	LT-09-202D Proc TRU Lift Table	✓		
3.9	ZY-247A	FU313	TB3-49	LT-09-202E Proc TRU Lift Table	✓		
3.10	09-ZL-247D	FU314	TB3-50	LT-09-202E Proc TRU Lift Table	✓		
3.11	LT-09-202E/F	FU315	TB3-51	LT-09-202E Proc TRU Lift Table	✓		
3.12	LT-09-202E/R	FU316	TB3-52	LT-09-202E Proc TRU Lift Table	✓		
3.13	SPARE	FU317	TB3-53	SPARE	✓		
3.14	SPARE	FU318	TB3-54	SPARE	✓		
3.15	ZY-243A	FU319	TB3-55	LT-09-203B Proc TRU Lift Table	✓		
3.16	09-ZL-243D	FU320	TB3-56	LT-09-203B Proc TRU Lift Table	✓		SN
3.17		IG Bus	TB3-57	Check shield ground resistance (<0.01 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 22 of 28

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
4.0	Rack 4 Group 3						
4.1	LT-09-203B/R	FU321	TB3-61	LT-09-203B Proc TRU Lift Table	✓		SN
4.2	SPARE	FU322	TB3-62	SPARE	✓		
4.3	SPARE	FU323	TB3-63	SPARE	✓		
4.4	LT-09-203B/F	FU324	TB3-64	LT-09-203B Proc TRU Lift Table	✓		
4.5	ZY-245A	FU325	TB3-65	LT-09-203C Proc TRU Lift Table	✓		
4.6	09-ZL-245D	FU326	TB3-66	LT-09-203C Proc TRU Lift Table	✓		
4.7	LT-09-203C/F	FU327	TB3-67	LT-09-203C Proc TRU Lift Table	✓		
4.8	LT-09-203C/R	FU328	TB3-68	LT-09-203C Proc TRU Lift Table	✓		
4.9	SPARE	FU329	TB3-69	SPARE	✓		
4.10	SPARE	FU330	TB3-70	SPARE	✓		
4.11	SPARE	FU331	TB3-71	SPARE	✓		
4.12	SPARE	FU332	TB3-72	SPARE	✓		
4.13	SPARE	FU333	TB3-73	SPARE	✓		
4.14	SPARE	FU334	TB3-74	SPARE	✓		
4.15	FEV-306	FU335	TB3-75	Bagless Transfer Port Controller	✓		SN
4.16	PC-07-006/S2	FU336	TB3-76	CR-07-301A Monorail Hoist	✓		SN
4.17		IG Bus	TB3-77	Check shield ground resistance (< 6.0 Ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
 LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 23 of 28

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
5.0	Rack 4 Group 4						
5.1	PC-07-006/S3	FU337	TB3-81	CR-07-301A Monorail Hoist	✓		SN
5.2	PC-07-006/S4	FU338	TB3-82	CR-07-301A Monorail Hoist	✓		
5.3	PC-07-006/S5	FU339	TB3-83	CR-07-301A Monorail Hoist	✓		
5.4	PC-07-006/SD	FU340	TB3-84	CR-07-301A Monorail Hoist	✓		
5.5	PC-07-006/SF	FU341	TB3-85	CR-07-301A Monorail Hoist	✓		
5.6	PC-07-006/SR	FU342	TB3-86	CR-07-301A Monorail Hoist	✓		
5.7	PC-07-006/SU	FU343	TB3-87	CR-07-301A Monorail Hoist	✓		
5.8	PC-07-006/ES	FU344	TB3-88	CR-07-301A Monorail Hoist	✓		
5.9	PC-07-006/P1	FU345	TB3-89	CR-07-301A Monorail Hoist	✓		
5.10	PC-07-006/P2	FU346	TB3-90	CR-07-301A Monorail Hoist	✓		
5.11	PC-07-006/P3	FU347	TB3-91	CR-07-301A Monorail Hoist	✓		
5.12	PC-07-006/US	FU348	TB3-92	CR-07-301A Monorail Hoist	✓		
5.13	PC-07-006/C	FU349	TB3-93	DH-07-301 Drum Lifter	✓		
5.14	PC-07-006/O	FU350	TB3-94	DH-07-301 Drum Lifter	✓		
5.15	PC-07-006/CS	FU351	TB3-95	DH-07-301 Drum Lifter	✓		
5.16	PC-07-006/OS	FU352	TB3-96	DH-07-301 Drum Lifter	✓		SN
5.17		IG	TB3-97	Check shield ground resistance (<0.01 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
 LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 24 of 28

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
6.0	Rack 4 Group 5						
6.1	FEV-395A	FU353	TB3-101	DH-07-302 Drum Transfer Assembly	✓		SW
6.2	FEV-395A	FU354	TB3-102	DH-07-302 Drum Transfer Assembly	✓		
6.3	FEV-395B	FU355	TB3-103	DH-07-302 Drum Transfer Assembly	✓		
6.4	FEV-395B	FU356	TB3-104	DH-07-302 Drum Transfer Assembly	✓		
6.5	DH-07-302M1/L	FU357	TB3-105	DH-07-302M1 Drum Transfer Assembly	✓		
6.6	DH-07-302M1/R	FU358	TB3-106	DH-07-302M1 Drum Transfer Assembly	✓		
6.7	DH-07-302M2/R	FU359	TB3-107	DH-07-302M1 Drum Transfer Assembly	✓		
6.8	DH-07-302M2/R	FU360	TB3-108	DH-07-302M1 Drum Transfer Assembly	✓		
6.9	FEV-302	FU361	TB3-109	DO-07-301 Drum Entry/Exit Port	✓		
6.10	FEV-801A	FU362	TB3-110	DO-07-301 Drum Entry/Exit Port	✓		
6.11	FEV-801B	FU363	TB3-111	DO-07-301 Drum Entry/Exit Port	✓		
6.12	PDA-303	FU364	TB3-112	GB-07-301 TRU Entry G.B.	✓		
6.13	FEV-394B	FU365	TB3-113	Pneumatic Valve Manifold - 20 PSI	✓		
6.14	FEV-394A	FU366	TB3-114	Pneumatic Valve Manifold - 80 PSI	✓		
6.15	FEV-801	FU367	TB3-115	SP-07-302 Pneumatic Valve Manifold	✓		
6.16	CV-07-301M1/F	FU368	TB3-116	CV-07-301 Comp Drum Conveyor	✓		SW
6.17		IG	TB3-117	Check shield ground resistance (< 0.04 ohms)	✓		SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 25 of 28

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
7.0	Rack 4 Group 6						
7.1	CV-07-301M1/R	FU369	TB3-121	CV-07-301 Comp Drum Conveyor	✓		SW
7.2	FEV-330	FU370	TB3-122	Bagless Transfer Port Controller	✓		
7.3	FEV-395C	FU371	TB3-123	DH-07-303 Drum Tipper	✓		
7.4	FEV-395C	FU372	TB3-124	DH-07-303 Drum Tipper	✓		
7.5	FEV-395D	FU373	TB3-125	DH-07-303 Drum Tipper	✓		
7.6	FEV-395E	FU374	TB3-126	DH-07-303 Drum Tipper	✓		
7.7	FEV-395E	FU375	TB3-127	DH-07-303 Drum Tipper	✓		
7.8	FEV-395F	FU376	TB3-128	DH-07-303 Drum Tipper	✓		
7.9	FEV-395F	FU377	TB3-129	DH-07-303 Drum Tipper	✓		
7.10	DH-07-303M1/SD	FU378	TB3-130	DH-07-303 Drum Tipper	✓		
7.11	DH-07-303M1/SU	FU379	TB3-131	DH-07-303 Drum Tipper	✓		
7.12	PDA-318	FU380	TB3-132	GB-07-302 TRU Sorting G.B.	✓		
7.13	FEV-331	FU381	TB3-133	HU-07-302 Manip HPU 80 PSIG	✓		
7.14	FEV-318B	FU382	TB3-134	Pneumatic Valve Manifold - 20 PSI	✓		
7.15	FEV-318A	FU383	TB3-135	Pneumatic Valve Manifold - 80 PSI	✓		
7.16	FEV-332A	FU384	TB3-136	RT-07-301 Drum Lid/Delid Fixture	✓		SW
7.17		IG	TB3-137	Check shield ground resistance (< 0.04 Ω)	✓		SW

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 26 of 28

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
8.0	Rack 4 Group 7						
8.1	FEV-332B	FU385	TB3-161	RT-07-301 Drum Lid/Delid Fixture	✓		SN
8.2	PDA-375	FU386	TB3-162	GB-07-401 TRU RWM Glovebox	✓		
8.3	FEV-374A	FU387	TB3-163	Pneumatic Valve Manifold - 80 PSI	✓		
8.4	FEV-308	FU388	TB3-164	GB-07-308 Pneumatic Valve Manifold	✓		
8.5	FEV-309	FU389	TB3-165	GB-07-309 Pneumatic Valve Manifold	✓		
8.6	PDA-309	FU390	TB3-166	GB-07-309 TRU Waste Loadout GB	✓		
8.7	XX-07-302/U	FU391	TB3-167	XX-07-302/M1 Waste Chute Motor	✓		
8.8	XX-07-302/D	FU392	TB3-168	XX-07-302/M1 Waste Chute Motor	✓		
8.9	XX-07-303/U	FU393	TB3-169	XX-07-303/M1 Waste Chute Motor	✓		
8.10	XX-07-303/D	FU394	TB3-170	XX-07-303/M1 Waste Chute Motor	✓		
8.11	DO-07-305/C	FU395	TB3-171	DO-07-305 TRU Sort Bagless Xfer Por	✓		
8.12	DO-07-305/O	FU396	TB3-172	DO-07-305 TRU Sort Bagless Xfer Por	✓		
8.13	DO-07-308/C	FU397	TB3-173	DO-07-308 Emp Dr Ldout Bagless Xfer Port	✓		
8.14	DO-07-308/O	FU398	TB3-174	DO-07-308 Emp Dr Ldout Bagless Xfer Port	✓		
8.15	DO-07-401/C	FU399	TB3-175	DO-07-401 TRU RWM Bagless Xfer Port	✓		
8.16	DO-07-401/O	FU400	TB3-176	DO-07-401 TRU RWM Bagless Xfer Port	✓		SN
8.17		IG	TB3-177	Check shield ground resistance (<0.01 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
 LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 27 of 28

Test Procedure ID: _____

Date Tested: 4-18-96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
9.0	Rack 5 Group 0						
9.1	SPARE	FU401	TB3-161	SPARE	✓		SN
9.2	SPARE	FU402	TB3-162	SPARE	✓		
9.3	SPARE	FU403	TB3-163	SPARE	✓		
9.4	SPARE	FU404	TB3-164	SPARE	✓		
9.5	SPARE	FU405	TB3-165	SPARE	✓		
9.6	SPARE	FU406	TB3-166	SPARE	✓		
9.7	SPARE	FU407	TB3-167	SPARE	✓		
9.8	SPARE	FU408	TB3-168	SPARE	✓		
9.9	SPARE	FU409	TB3-169	SPARE	✓		
9.10	SPARE	FU410	TB3-170	SPARE	✓		
9.11	SPARE	FU411	TB3-171	SPARE	✓		
9.12	SPARE	FU412	TB3-172	SPARE	✓		
9.13	SPARE	FU413	TB3-173	SPARE	✓		
9.14	SPARE	FU414	TB3-174	SPARE	✓		
9.15	SPARE	FU415	TB3-175	SPARE	✓		
9.16	SPARE	FU416	TB3-176	SPARE	✓		SN
9.17		IG	TB3-177	Check shield ground resistance (< 0.01 ohms)	✓		SN

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-3
LOCAL CONTROL UNIT 104-CNR-12-103

4/17/96
 REV. 1.1
 PAGE 28 of 28

Test Procedure ID: _____

Date Tested: 4-18-96**DATA SHEET 7.4**

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
<i>Fluke 87 Multi-meter</i>	<i>S/N 62760217</i>	<i>4/96</i>			
<i>Attek 4-20mA Source Tester</i>	<i>Model 334</i>	<i>11/96</i>			
	<i>S/N 172696</i>				

7.4. Analog Inputs							
Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
1.0	Rack 0, Group 4						
1.1	11-FIT-305	TB4-1	TB4-2	TRU Process G.B. Exhaust Flow Transmitter	✓		SN
1.2	11-WT-822	TB4-5	TB4-6	DH-07-305 Comp Drum Lifter - Weight Xmitter	✓		
1.3	SPARE	TB4-9	T6-10	SPARE	✓		
1.4	SPARE	TB4-13	TB4-14	SPARE	✓		
1.5	SPARE	TB4-17	TB4-18	SPARE	✓		
1.6	SPARE	TB4-21	TB4-22	SPARE	✓		
1.7	SPARE	TB4-25	TB4-26	SPARE	✓		
1.8	SPARE	TB4-29	TB4-30	SPARE	✓		
1.9		IG	TB4-3	Check shield ground resistance (< 0.04 ohms)	✓		
1.10		IG	TB4-7	Check shield ground resistance (< 0.04 ohms)	✓		
1.11		IG	TB4-11	Check shield ground resistance (< 0.04 ohms)	✓		
1.12		IG	TB4-15	Check shield ground resistance (< 0.04 ohms)	✓		
1.13		IG	TB4-19	Check shield ground resistance (< 0.04 ohms)	✓		
1.14		IG	TB4-23	Check shield ground resistance (< 0.04 ohms)	✓		
1.15		IG	TB4-27	Check shield ground resistance (< 0.04 ohms)	✓		
1.16		IG	TB4-31	Check shield ground resistance (< 0.04 ohms)	✓		
1.17	FU417	TB4-4		Verify 24 VDC Available (+/- 2 volts)	✓		
1.18	FU418	TB4-8		Verify 24 VDC Available (+/- 2 volts)	✓		
1.19	FU419	TB4-12		Verify 24 VDC Available (+/- 2 volts)	✓		
1.20	FU420	TB4-16		Verify 24 VDC Available (+/- 2 volts)	✓		
1.21	FU421	TB4-20		Verify 24 VDC Available (+/- 2 volts)	✓		
1.22	FU422	TB4-24		Verify 24 VDC Available (+/- 2 volts)	✓		
1.23	FU423	TB4-28		Verify 24 VDC Available (+/- 2 volts)	✓		
1.24	FU424	TB4-32		Verify 24 VDC Available (+/- 2 volts)	✓		SN

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:

Test: HATP-3

Step: 1.10 Equipment Tag #: 104-CNR-12-103

Spec. Section: 16450

Exception: 1

Revision: 1.1

Execution: 1

Test Operator: Mike Schneider

Test Witness/Author: Stanley Nelson

Date: 4-17-96

Time: 8:30 am

Responsible Contractor: PCL

Responsible Subcontractor: Plateau

Responsible Individual:

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

The isolated (signal/technical) ground bus bar should be connected separately to the facility ground grid by an insulated ground cable. An insulated ground cable for the isolated ground bus is not provided.

EXCEPTION RESOLUTION:

Re. RFI No. 5366-PCL1386. Raytheon approves the grounding configuration used by SII - one connection to facility ground and a single jumper between the two ground bus bars.

Exception Closed By:

Date: 9-25-96

APPROVAL OF RESOLUTION

Contractor Representative:

WHC Projects Representative:

WHC NFS Representative:
(NFS = New Facility Startup)

ICF KEH Representative:

Date: 9-25-96

Date: 9-25-96

Date: 9-25-96

Date: 9-28-96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:

Test: HATP-3

Step: N/A* Equipment Tag #: 104-CNR-12-103

Spec. Section: HATP-3

Exception: 2

Revision: 1.1

Execution: 1

Test Operator: Mike Schneider

Test Witness/Author: Stanley Nelson

Date: 4-17-96

Time: 8:30 am

Responsible Contractor: PCL

Responsible Subcontractor: SII

Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

All signal shields are to be connected to the isolated bus bar including the AC discrete inputs/outputs. The 120 VAC discrete input/output shields are connected to the bonded bus bar. Either the specification (Ref. 13461-2.04.B.3.a.2) should be changed or the shields should be rewired (to the isolated bus).

*Exception was noted during Pre-Test and Inspection.

EXCEPTION RESOLUTION:

Re. RFI No. 5366-PCL 1385. Raytheon approves the change to the 13461 spec. section and tying the 120 VAC control signal shields to the common bus bar.

Exception Closed By:

Date: 7/5/96

APPROVAL OF RESOLUTION

Contractor Representative:

Date: 9/17/96

WHC Projects Representative:

Date: 9/12/96

WHC NFS Representative:

Date: 9/19/96

(NFS = New Facility Startup)

ICF KEH Representative:

Date: 9/23/96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#: _____
 Test: HATP-3
 Step: 1.19 Equipment Tag #: 104-CNR-12-103
 Spec. Section: HATP-3

Exception: 3
 Revision: 1.1
 Execution: 1

Test Operator: Mike Schneider
 Test Witness/Author: Stanley Nelson

Date: 4-17-96
 Time: 10:00 am

Responsible Contractor: PCL
 Responsible Subcontractor: SII
 Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

A security program with password is required at the DTAM before data can be changed. No DTAM security screen is provided and a password function is not implemented.

EXCEPTION RESOLUTION:

INSTALL SECURITY PROGRAM

Exception Closed By:

Date: 8/22/96

APPROVAL OF RESOLUTION

Contractor Representative:
 WHC Projects Representative:
 WHC NFS Representative:
 (NFS = New Facility Startup)

Date: 8/23/96
 Date: 8-27-96
 Date: 9/22/96
 Date: 8/27/94

ICF KEH Representative:

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:
 Test: HATP-3
 Step: 1.4 Equipment Tag #: 104-CNR-12-103
 Spec. Section: HATP-3

Exception: 4
 Revision: 1.1
 Execution: 1

Test Operator: Mike Schneider
 Test Witness/Author: Stanley Nelson

Date: 4-17-96
 Time: 11:15 am

Responsible Contractor: PCL
 Responsible Subcontractor: SII
 Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

All terminal strips are to be labeled. Terminal strip TB-2 is not labeled.

EXCEPTION RESOLUTION:

Exception Closed By:

Date: 11-7-96

APPROVAL OF RESOLUTION

Contractor Representative:
 WHC Projects Representative:
 WHC NFS Representative:
 (NFS = New Facility Startup)

Date: 11/5/96
 Date: 11-7-96
 Date: 11-7-96

ICF KEH Representative:

Date: 11/7/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
REV. 1.1
PAGE 1 of 17

TEST LOCATION/TYPE:

☐ Seller Factory-SF☐ Buyer Factory-BF☐ Seller Plant-SP☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
Project Number W-026

Prepared By
Systems Interface Inc.

For Westinghouse Hanford Company

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
REV. 1.1
PAGE 2 of 17

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-4 Revision Number: 1.1
Execution Number: 1 Start Date-Time: 4-18-96/1PM
Test Operator: DAVE DANIEL End Date-Time: 4-19-96/10:30 AM
Witness: JIM POPELLA Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☒ Yes ☐ No

COMMENTS:

TEST SHOULD BE STARTED AS SUCCESSFUL
BASED ON ALL ETS BEING RESOLVED
JEK W 11-7-96

TEST PROCEDURE APPROVAL

TEST ☐ Successful ☒ Unsuccessful

Contractor (Company): Systems Interface Inc.

Contractor Representative: [Signature]

Date: 10/25/96

WHC Projects Representative: [Signature]

Date: 10-25-96

WHC NFS Representative: [Signature]

Date: 10-25-96

(NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative: [Signature]

Date: 10/25/96

PURPOSE AND SCOPE

This Hardware Acceptance Test Procedure has been prepared to demonstrate that the HVAC / Utilities / H.P Monitoring Local Control Unit functions as required by project criteria.

REFERENCES

Vendor information including Allen Bradley Product Data Bulletins:

- "1771 Allen-Bradley Discrete I/O AC Input and Output Modules",
- "1771 Allen-Bradley Discrete I/O Relay Contact Output Modules",
- "1771 Allen-Bradley Analog Input Module".

2.1 DRAWINGS

Obtain and work with the latest revisions of the following drawings:

940823-HWD-D2301	"Control Panel Layout and Bill of Material"
940820-HWD-01301	"PMS System Architecture"
940823-HWD-01301	"PMS System Architecture"
940823-HWD-D4101	"CNR-12-104 Control Power Distribution and Rack Schedule"
940823-HWD-D4301	"CNR-12-104 120 VAC Digital Inputs, Rack 1, Group 0,1"
940823-HWD-D4302	"CNR-12-104 120 VAC Digital Inputs, Rack 1, Group 2,3"
940823-HWD-D4303	"CNR-12-104 120 VAC Digital Inputs, Rack 1, Group 4,5"
940823-HWD-D4401	"CNR-12-104 Relay Output Card, Rack 1, Group 6"
940823-HWD-D4501	"CNR-12-104 Analog Input Card, Rack 0, Group 2"
940823-HWD-D4502	"CNR-12-104 Analog Input Card, Rack 0, Group 3"
940823-HWD-D4503	"CNR-12-104 Analog Input Card, Rack 0, Group 4"
940823-HWD-D4504	"CNR-12-104 Analog Input Card, Rack 0, Group 5"
940823-HWD-D4505	"CNR-12-104 Analog Input Card, Rack 0, Group 6"

2.2 SPECIFICATIONS

Obtain and work with the most current revisions of the following documents:

- UE&C Specification Section 13461-all sections
- UE&C Specification Section 13462-2.04.B
- Westinghouse Hanford Company Hardware Requirements Matrix

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 4 of 17

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - b. If device being calibrated is not data sheet associated, at least four times greater than the specified device tolerance.

120 VAC Jumper (small alligator clips and or "scrap" wire)
 Digital Multimeter (DMM)
 Laptop computer with Allen-Bradley on-line programming software
 4-20 mA current source
 Vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director IMMEDIATELY if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 5 of 17

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 VERIFY Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 RECORD test equipment name, equipment number, and calibration expiration date on Data Sheet.
- 5.6 VERIFY that fuses and terminal blocks listed in the data sheets match those within the Local Control Unit.

6.0 SETUP

- 6.1 Connect a laptop computer to the PLC serial port located within the Local Control Unit and execute Rockwell PLC programming software (Winlogix or 6200). Select the data table monitoring and forcing screen from the Tools - Data Files menu (or hit Ctrl-D). This table will be used to monitor internal PLC registers to ensure the appropriate input changes from off to on when power is applied (see section 7.2); to "force" PLC outputs on to verify the output contacts close (see section 7.3); and to monitor PLC analog inputs to verify proper wiring, operation, accuracy (see section 7.4). The data table will display a 1 or 0 corresponding to whether the I/O point is on or off. The data table will also display the tag name for the point (if defined) on both the far right column and on an information line at the bottom of the screen.

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.1.1 Verify Steps 1 through 14 on Data Sheet 7.1.
- 7.1.2 Verify Steps 15 through end on Data Sheet 7.1, (that the requirements of the PMS Hardware Requirements matrix are met).
- 7.1.3 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 DIGITAL INPUT TESTING

- 7.2.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.2:
- 7.2.2 Place a jumper across the pair of inputs specified on the Data Sheet.
- 7.2.3 The corresponding input indicator on the card illuminates.
- 7.2.4 The associated data monitoring table tagname on the laptop computer display follows the input status change (from 0 to 1).
- 7.2.5 Look at all other inputs on the same input card and ensure no other input indicators illuminate, also review the data monitoring table for the input to ensure no other inputs are set to 1. This step ensures that no cross-wiring or wire short circuits exist.
- 7.2.6 Remove the jumper.
- 7.2.7 The input indicator on the card extinguishes.
- 7.2.8 The associated data monitoring table tagname on the laptop computer display reverts to its previous state (from 1 to 0).

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 6 of 17

- 7.2.9 For each group of 16 Inputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground. *0.1 JP*
 7.2.10 Check either "Pass" or "Fail", and initial the Data Sheet.

7.3 RELAY OUTPUT TESTING

- 7.3.1 Perform the following steps for each pair of outputs listed on Data Sheet 7.3:
 7.3.2 Check voltage across card outputs specified on the Data Sheet - should be full voltage (120 VAC).
 7.3.3 Using the laptop programming interface computer, force the output tagname to 1 (on).
 7.3.4 The output indicator on the card lights. Ensure all other output indicators on the card are off.
 7.3.5 Check the resistance across the output terminals - should be less than 0.01 ohms. *1 JP*
 7.3.6 Check the resistance across all of the other output terminals on the card. They all should have infinite (> 100,000 ohms) resistance. This ensures that no wires are crossed or shorting. *5 JP if field wiring is installed. JP*
 7.3.7 Using the laptop computer, release the output tagname (set to 0).
 7.3.8 The output indicator on the card extinguishes. *5 ohms if field wiring is installed. JP*
 7.3.9 Check the resistance across the output terminals - should be infinite (or > 100,000 ohms).
 7.3.10 For each group of 16 Outputs, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground.
 7.3.11 Check either "Pass" or "Fail", and initial the Data Sheet.

7.4 ANALOG INPUT TESTING

- 7.4.1 Perform the following steps for each pair of inputs listed on Data Sheet 7.4:
 7.4.2 Connect a 4-20 mA source to card inputs specified on the Data sheet.
 7.4.3 Set current source to 4 mA.
 7.4.4 Check the tagname reading in PLC using laptop computer. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between -0.25 and +0.25.
 7.4.5 Check all other tagnames on that Analog Input card. Verify that all other readings display a value of 0.00 (between -0.25 and +0.25).
 7.4.6 Set source to 12 mA.
 7.4.7 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 49.75 and 50.25.
 7.4.8 Set source to 20 mA.
 7.4.9 Check readings on laptop computer data table display. Verify reading is within 0.25% of analog input range. If range is 0.00 to 100.00, reading should be between 99.75 and 100.25.
 7.4.10 Check all other tagnames on that Analog Input card. Verify that all other readings continue to display a value of 0.00 (between -0.25 and +0.25). This ensures that there are no short circuits or crossed wires. *1 JP*
 7.4.11 For each Analog Input, check shield connection resistance for less than 0.01 ohms to instrument (isolated) ground.
 7.4.12 For each Analog Input, check fused loop power supply and neutral for 24 VDC (+/- 10%).
 7.4.13 Check either "Pass" or "Fail", and initial the Data Sheet.

8.0 RESTORATION

- 8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.
 8.2 RESTORE system to normal configuration.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 7 of 17

- 8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

- 9.1 The acceptance criteria of all steps contained within Section 7.0 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

10/17/96 4-19-96
 Test Director Date Test Recorder Date

10/17/96 4-19-96
 Test Operator Date Witness Date

Witness _____ Date _____ Witness _____ Date _____

Comments:

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 8 of 17

Test Procedure ID: _____ DATA SHEET 7.1

Date Tested: 4/18/96

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
<i>Fluke 87 multimeter</i>	<i>S/N 62760217</i>	<i>11/96</i>			

7.1. Pre-Test and Inspection

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		<i>JP</i>
1.2	Component Legend Plates installed; Fuse replacement labels installed	✓		
1.3	PLC hardware installed per schematics and module dip switches set properly	✓		
1.4	Terminal strips labeled and common jumpers installed on panel side	✓		
1.5	Correct fuses (no greater than maximum specified) or Circuit Breakers installed	✓		
1.6	Motor Overloads correct	NA		
1.7	Wire AWG size, labeled, and color correct	✓		
1.8	Door mounted devices installed properly and secure	✓		
1.9	All terminals tight, perform wire pull tests.	✓		
1.10	Check Main grounding lug, grounding integrity, separate grounds	✓		<i>JP</i>
1.11	Verify ~ infinite resistance between isolated ground bus and chassis ground bus		✓	
1.12	Apply power and check AC control circuits for proper voltage	✓		
1.13	Check DC power circuits; verify correct voltage	✓		
1.14	Check AC outlets and lights; verify correct voltage and operation	✓		
1.15	Verify requirements 5.1, 15.8, and 15.9 as called for in the Hardware Requirements matrix are met by cycling power to the Programmable Logic Controller (PLC). The PLC should have the actual WRAP program loaded with all databases and be in a "Run" condition prior to the power cycle. The PLC should return the "Run" condition with no errors upon power-up. All data registers should be preserved. Remove the PLC battery (with power applied) and verify that the low battery light illuminates and PLC status register S:10/0 denotes low battery.	✓		
1.16	Verify specification requirement 5.2 as called for in the Hardware Requirements matrix is met by forcing an output on, verifying the closed contact, turning power off, verifying the now open contact, and then restoring power. After restoration of power, unforce the output.	✓		
1.17	Verify specification requirement 15.10 as called for in the Hardware Requirements matrix is met by monitoring processor status words S8 (last scan) and S9 (max scan) for program scan time in milliseconds. The scan time should not exceed 200 milliseconds.	✓		
1.18	Verify specification requirements 25.38 and 15.29 as called for in the Hardware Requirements matrix are met by monitoring the 24 VDC power output on the termination blocks. While monitoring the voltage, disconnect incoming power on one of the two 24 VDC power supplies. The voltage at the termination blocks should not vary outside of +22 VDC to +30 VDC. Additionally, verify the appropriate PLC input (found on the electrical schematics) activates upon failure of this power supply. Perform this procedure for both 24 VDC power supplies.	✓		
1.19	Verify specification requirement 15.37 as called for in the Hardware Requirements matrix is met by accessing random "N" registers within the PLC via the Data Table Access Module (DTAM) mounted on the front of the Local Control Unit. Verify Read and Write operations occur properly though monitoring the data registers on the laptop computer after the read / write. Verify password is required and must be correctly entered before data change accepted.		✓	<i>JP</i>

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 9 of 17

Test Procedure ID: _____

DATA SHEET 7.2

Date Tested: 4/18/96

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
<i>Fluke 51 multimeter</i>	<i>S/N 6276027</i>	<i>11/96</i>			

7.2. 120 VAC Digital Inputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 1, Groups 0.1					
1.1	12-RSH-517	FU1 TB2-1	Process Area	✓		<i>JP</i>
1.2	12-XS-517A	FU2 TB2-2	Process Area	✓		
1.3	12-XS-517B	FU3 TB2-3	Process Area	✓		
1.4	12-XS-517C	FU4 TB2-4	Process Area	✓		
1.5	11-XA-641	FU5 TB2-5	C-11-401 AHU Controller	✓		
1.6	11-XA-661	FU6 TB2-6	C-11-301 AHU Controller	✓		
1.7	11-XA-651	FU7 TB2-7	118-C-11-101 NCU Controller	✓		
1.8	SPARE	FU8 TB2-8	SPARE	✓		
1.9	11-XA-631A	FU9 TB2-9	C-11-501A AHU Controller	✓		
1.10	11-XA-631B	FU10 TB2-10	C-11-501B AHU Controller	✓		
1.11	11-XA-611A	FU11 TB2-11	C-11-201A Filter Train Cntrl	✓		
1.12	11-XA-611B	FU12 TB2-12	C-11-201B Filter Train Cntrl	✓		
1.13	11-XA-612A	FU13 TB2-13	C-11-202A Filter Train Cntrl	✓		
1.14	11-XA-612B	FU14 TB2-14	C-11-202B Filter Train Cntrl	✓		
1.15	11-XA-601A	FU15 TB2-15	C-11-201A AHU Controller	✓		
1.16	SPARE	FU16 TB2-16	SPARE	✓		
1.17	11-XA-601B	FU17 TB2-21	C-11-201B AHU Controller	✓		
1.18	11-ZSC-604	FU18 TB2-22	DP-11-202C Isolation Damper	✓		
1.19	11-ZSO-604	FU19 TB2-23	DP-11-202C Isolation Damper	✓		
1.20	11-XA-621	FU20 TB2-24	C-11-101 AHU Controller	✓		
1.21	12-RSH-508	FU21 TB2-25	High Radiation Alarm	✓		
1.22	12-RSH-509	FU22 TB2-26	High Radiation Alarm	✓		
1.23	12-XS-503	FU23 TB2-27	LLW Proc GB Vent Duct	✓		
1.24	SPARE	FU24 TB2-28	SPARE	✓		
1.25	12-RSH-503	FU25 TB2-29	LLW Process GB Vent Duct	✓		
1.26	12-RSH-501	FU26 TB2-30	LLW RWM GB Vent Duct	✓		
1.27	12-XS-501	FU27 TB2-31	LLW RWM GB Vent Duct	✓		
1.28	12-RSH-506	FU28 TB2-32	NDE/ND A Area	✓		
1.29	12-RSH-505	FU29 TB2-33	Process Area	✓		
1.30	12-RSH-513	FU30 TB2-34	Process Area	✓		
1.31	12-RSH-544	FU31 TB2-35	Process Area	✓		
1.32	SPARE	FU32 TB2-36	SPARE	✓		
1.33		IG Bus TB2-17	Check shield ground resistance (< 0.01 ohms)	✓		
1.34		IG Bus TB2-37	Check shield ground resistance (< 0.01 ohms)	✓		

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 10 of 17

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
2.0	Rack 1, Groups 2,3					
2.1	12-RSH-545	FU33 TB2-41	Process Area	✓		JP
2.2	12-XS-505	FU34 TB2-42	Process Area	✓		
2.3	12-XS-506	FU35 TB2-43	Process Area	✓		
2.4	12-XS-507	FU36 TB2-44	Process Area	✓		
2.5	12-XS-508	FU37 TB2-45	Process Area	✓		
2.6	12-XS-509	FU38 TB2-46	Process Area	✓		
2.7	12-XS-513	FU39 TB2-47	Process Area	✓		
2.8	SPARE	FU40 TB2-48	SPARE	✓		
2.9	12-XS-544	FU41 TB2-49	Process Area	✓		
2.10	12-XS-545	FU42 TB2-50	Process Area	✓		
2.11	12-RSH-512	FU43 TB2-51	Process HVAC Area	✓		
2.12	12-RSH-516	FU44 TB2-52	Process HVAC Area	✓		
2.13	12-XS-512	FU45 TB2-53	Process HVAC Area	✓		
2.14	12-XS-516	FU46 TB2-54	Process HVAC Area	✓		
2.15	12-XS-504	FU47 TB2-55	TRU Proc GB Vent Duct	✓		
2.16	SPARE	FU48 TB2-56	SPARE	✓		
2.17	12-RSH-504	FU49 TB2-61	TRU Process GB Vent Duct	✓		
2.18	12-RSH-502	FU50 TB2-62	TRU RWM GB Vent Duct	✓		
2.19	12-XS-502	FU51 TB2-63	TRU RWM GB Vent Duct	✓		
2.20	12-RSH-507	FU52 TB2-64	shipping/Receiving	✓		
2.21	12-RSH-551	FU53 TB2-65	Stack Effluent Alpha Sampler	✓		
2.22	12-XS-551	FU54 TB2-66	Stack Effluent Alpha Sampler	✓		
2.23	12-RSH-552	FU55 TB2-67	Stack Effluent Beta Sampler	✓		
2.24	SPARE	FU56 TB2-68	SPARE	✓		
2.25	12-XS-552	FU57 TB2-69	Stack Effluent Beta Sampler	✓		
2.26	12-FSL-551	FU58 TB2-70	Stack Effluent Alpha Sampler	✓		
2.27	12-FSL-552	FU59 TB2-71	Stack Effluent Beta Sampler	✓		
2.28	12-FSL-550	FU60 TB2-72	Stack Effluent Record Sampler	✓		
2.29	13-XS-011	FU61 TB2-73	C-13-101A Air Compressor	✓		
2.30	13-ZS-011	FU62 TB2-74	C-13-101A Air Compressor	✓		
2.31	13-XS-012	FU63 TB2-75	C-13-101B Air Compressor	✓		
2.32	SPARE	FU64 TB2-76	SPARE	✓		
2.33		IG Bus TB2-57		✓		
2.34		IG Bus TB2-77		✓		JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 11 of 17

Test Procedure ID: _____

Date Tested: 4/18/96

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
3.0	Rack 1 Groups 4,5						
3.1	13-ZS-012	FU65	TB2-81	C-13-101B Air Compressor	✓		JP
3.2	13-XS-07-015	FU66	TB2-82	DR-13-105A Air Dryer	✓		JP
3.3	13-ESL-031	FU67	TB2-83	BD-13-101 Electrical Bus Duct	✓		JP
3.4	13-ESL-032	FU68	TB2-84	BD-13-102 Electrical Bus Duct	✓		JP
3.5	13-XS-031	FU69	TB2-85	T-13-101 Transformer	✓		JP
3.6	13-XS-032	FU70	TB2-86	T-13-102 Transformer	✓		JP
3.7	13-XS-033	FU71	TB2-87	Uninterruptible Power Supply	✓		JP
3.8	SPARE	FU72	TB2-88	SPARE	✓		JP
3.9	13-XS-581A	FU73	TB2-89	Fire Protection System	✓		JP
3.10	13-XS-581B	FU74	TB2-90	Fire Protection System	✓		JP
3.11	SPARE	FU75	TB2-91	SPARE	✓		JP
3.12	CRA	FU76	TB2-92	CNR-12-104 - Local Control Panel	✓		JP
3.13	CRB	FU77	TB2-93	CNR-12-104 - Local Control Panel	✓		JP
3.14	SPARE	FU78	TB2-94	SPARE	✓		JP
3.15	SPARE	FU79	TB2-95	SPARE	✓		JP
3.16	SPARE	FU80	TB2-96	SPARE	✓		JP
3.17		IG Bus	TB2-97	Check shield ground resistance (< 0.01 ohms)	✓		JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 12 of 17

Test Procedure ID: _____ DATA SHEET 7.3

Date Tested: 4/18/96

Test Equipment Name	Test Equipment No.	Cal. Expir. Date	Test Equipment Name	Test Equipment Number	Cal. Expir. Date
Module 8 1/1 Multimeter	9N 62260217	11/96			

7.3. Relay Outputs							
Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
1.0	Rack 1, Group 6						
1.1	AH-11-101/SD	FU81	TB3-1	AHU Controller Radiation Shutdown	✓		JP
1.2	UA-12-110/RA	FU82	TB3-2	Control Room Annunciator	✓		
1.3	UA-12-110/RT	FU83	TB3-3	Control Room Annunciator	✓		
1.4	12-XS-W26/R	FU84	TB3-4	Facility Radiation Alarm to CASS	✓		
1.5	PC-12-300/RA	FU85	TB3-5	Process Area and Entrance Alarm Relay	✓		
1.6	PC-12-600/RA	FU86	TB3-6	Process HVAC Area and Entrance Alarm Relay	✓		
1.7	13-XS-W26/P	FU87	TB3-7	Facility Power Loss Alarm to CASS	✓		
1.8	13-XS-W26/F	FU88	TB3-8	Facility Fire Alarm to CASS	✓		
1.9	UA-12-110/CT	FU89	TB3-9	Control Room Annunciator	✓		
1.10	SPARE	FU90	TB3-10	SPARE	✓		
1.11	SPARE	FU91	TB3-11	SPARE	✓		
1.12	SPARE	FU92	TB3-12	SPARE	✓		
1.13	SPARE	FU93	TB3-13	SPARE	✓		
1.14	SPARE	FU94	TB3-14	SPARE	✓		
1.15	SPARE	FU95	TB3-15	SPARE	✓		
1.16	SPARE	FU96	TB3-16	SPARE	✓		
		IG Bus	TB3-17	Check shield ground resistance (< 0.04 ohms)	✓		JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 13 of 17

Test Procedure ID: _____

Date Tested: 4/19/96

DATA SHEET 7.4

Test Equipment Name	Test Equipment No.	Cal. Exp. Date	Test Equipment Name	Test Equipment Number	Cal. Exp. Date
<i>Fluke 87 Multi-meter</i>	<i>SN 62760217</i>	<i>11/96</i>			
<i>Altelc 4-20 mA Source Tester</i>	<i>Model 334 SN 172696</i>	<i>11/96</i>			

7.4. Analog Inputs

Step #	TAG ID	Jumper Terminals	Description	Pass	Fail	Initials
1.0	Rack 0, Group 2					
1.1	12-RIT-517A	TB4-1 TB4-2	Process Area CIM Health Phys Readout	✓		<i>JP</i>
1.2	12-RIT-517B	TB4-5 TB4-6	Process Area CIM Health Phys Readout	✓		
1.3	12-RIT-517C	TB4-9 T6-10	Process Area CIM Health Phys Readout	✓		
1.4	11-TIT-652	TB4-13 TB4-14	CH-11-101 Glycol Chiller Discharge Temp.	✓		
1.5	11-PDIT-607	TB4-17 TB4-18	Atmosphere/Zone II Differential Pressure	✓		<i>JP</i>
1.6	11-PDIT-601	TB4-21 TB4-22	Non-Conf/Zone II Process HVAC Diff. Pres.	✓		
1.7	11-PDIT-602	TB4-25 TB4-26	Non-Conf/Zone II Process HVAC Diff. Pres.	✓		
1.8	11-PDIT-603	TB4-29 TB4-30	Zone II Process HVAC/ZII Proc Diff. Pres.	✓		
1.9		IG TB4-3	Check shield ground resistance (< 0.01 ohms)	✓		<i>JP</i>
1.10		IG TB4-7	Check shield ground resistance (< 0.01 ohms)	✓		
1.11		IG TB4-11	Check shield ground resistance (< 0.01 ohms)	✓		
1.12		IG TB4-15	Check shield ground resistance (< 0.01 ohms)	✓		
1.13		IG TB4-19	Check shield ground resistance (< 0.01 ohms)	✓		
1.14		IG TB4-23	Check shield ground resistance (< 0.01 ohms)	✓		
1.15		IG TB4-27	Check shield ground resistance (< 0.01 ohms)	✓		
1.16		IG TB4-31	Check shield ground resistance (< 0.01 ohms)	✓		
1.17	FU97	TB4-4	Verify 24 VDC Available (+/- 2 volts)	✓		
1.18	FU98	TB4-8	Verify 24 VDC Available (+/- 2 volts)	✓		
1.19	FU99	TB4-12	Verify 24 VDC Available (+/- 2 volts)	✓		
1.20	FU100	TB4-16	Verify 24 VDC Available (+/- 2 volts)	✓		
1.21	FU101	TB4-20	Verify 24 VDC Available (+/- 2 volts)	✓		
1.22	FU102	TB4-24	Verify 24 VDC Available (+/- 2 volts)	✓		
1.23	FU103	TB4-28	Verify 24 VDC Available (+/- 2 volts)	✓		
1.24	FU104	TB4-32	Verify 24 VDC Available (+/- 2 volts)	✓		

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 14 of 17

Test Procedure ID: _____

Date Tested: 4/29/96

7.4. Analog Inputs							
Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
2.0	Rack 0, Group 3						
2.1	12-RIT-505	TB4-35	TB4-36	Process Area Gamma Rad Health Phys Readout	✓		JP
2.2	12-RIT-508	TB4-39	TB4-40	Process Area Gamma Rad Health Phys Readout	✓		
2.3	12-RITA-509	TB4-43	TB4-44	Process Area Alpha CAM Transmitter	✓		
2.4	12-RITA-513	TB4-47	TB4-48	Process Area Beta CAM Transmitter	✓		
2.5	12-RITA-544	TB4-51	TB4-52	Process Area Beta CAM Transmitter	✓		
2.6	12-RITA-545	TB4-55	TB4-56	Process Area Alpha CAM Transmitter	✓		
2.7	12-RITA-512	TB4-59	TB4-60	Process HVAC Area Alpha CAM Transmitter	✓		
2.8	12-RITA-516	TB4-63	TB4-64	Process HVAC Area Beta CAM Transmitter	✓		JP
2.9		IG	TB4-37	Check shield ground resistance (<0.01 ohms)	✓		JP
2.10		IG	TB4-41	Check shield ground resistance (<0.01 ohms)	✓		
2.11		IG	TB4-45	Check shield ground resistance (<0.01 ohms)	✓		
2.12		IG	TB4-49	Check shield ground resistance (<0.01 ohms)	✓		
2.13		IG	TB4-53	Check shield ground resistance (<0.01 ohms)	✓		
2.14		IG	TB4-57	Check shield ground resistance (<0.01 ohms)	✓		
2.15		IG	TB4-61	Check shield ground resistance (<0.01 ohms)	✓		
2.16		IG	TB4-65	Check shield ground resistance (<0.01 ohms)	✓		
2.17		FU105	TB4-38	Verify 24 VDC Available (+/- 2 volts)	✓		
2.18		FU106	TB4-42	Verify 24 VDC Available (+/- 2 volts)	✓		
2.19		FU107	TB4-46	Verify 24 VDC Available (+/- 2 volts)	✓		
2.20		FU108	TB4-50	Verify 24 VDC Available (+/- 2 volts)	✓		
2.21		FU109	TB4-54	Verify 24 VDC Available (+/- 2 volts)	✓		
2.22		FU110	TB4-58	Verify 24 VDC Available (+/- 2 volts)	✓		
2.23		FU111	TB4-62	Verify 24 VDC Available (+/- 2 volts)	✓		
2.24		FU112	TB4-66	Verify 24 VDC Available (+/- 2 volts)	✓		JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
REV. 1.1
PAGE 15 of 17

Test Procedure ID: _____

Date Tested: 4/19/96

7.4. Analog Inputs							
Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
3.0	Rack 0, Group 4						
3.1	12-RIT-506	TB4-67	TB4-68	Shipping/Receiving Gamma Rad Health Phys	✓		JP
3.2	12-RIT-507	TB4-71	TB4-72	Shipping/Receiving Gamma Rad Health Phys	✓		
3.3	12-RITA-504	TB4-75	TB4-76	TRU Process GB Vent Duct Alpha CAM Xmitter	✓		
3.4	12-RITA-502	TB4-79	TB4-80	TRU RWM GB Vent Duct Alpha CAM Xmitter	✓		
3.5	12-TT-553	TB4-83	TB4-84	Stack Effluent Temperature Transmitter	✓		JP
3.6	12-RT-551	TB4-87	TB4-88	Stack Effluent Alpha Sampler CAM Rad. Level	✓		
3.7	12-RT-552	TB4-91	TB4-92	Stack Effluent Beta Sampler CAM Rad. Level	✓		
3.8	12-FQ-553	TB4-95	TB4-96	Stack Effluent Flow Totalizer	✓		
3.9		IG	TB4-69	Check shield ground resistance (<0.01 ohms)	✓		JP
3.10		IG	TB4-73	Check shield ground resistance (<0.01 ohms)	✓		
3.11		IG	TB4-77	Check shield ground resistance (<0.01 ohms)	✓		
3.12		IG	TB4-81	Check shield ground resistance (<0.01 ohms)	✓		
3.13		IG	TB4-85	Check shield ground resistance (<0.01 ohms)	✓		
3.14		IG	TB4-89	Check shield ground resistance (<0.01 ohms)	✓		
3.15		IG	TB4-93	Check shield ground resistance (<0.01 ohms)	✓		
3.16		IG	TB4-97	Check shield ground resistance (<0.01 ohms)	✓		
3.17		FU113	TB4-70	Verify 24 VDC Available (+/- 2 volts)	✓		
3.18		FU114	TB4-74	Verify 24 VDC Available (+/- 2 volts)	✓		
3.19		FU115	TB4-78	Verify 24 VDC Available (+/- 2 volts)	✓		
3.20		FU116	TB4-82	Verify 24 VDC Available (+/- 2 volts)	✓		
3.21		FU117	TB4-86	Verify 24 VDC Available (+/- 2 volts)	✓		
3.22		FU118	TB4-90	Verify 24 VDC Available (+/- 2 volts)	✓		
3.23		FU119	TB4-94	Verify 24 VDC Available (+/- 2 volts)	✓		
3.24		FU120	TB4-98	Verify 24 VDC Available (+/- 2 volts)	✓		

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 16 of 17

Test Procedure ID: _____

Date Tested: 4/19/96**7.4. Analog Inputs**

Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
4.0	Rack 0, Group 5						
4.1	12-FT-553	TB4-99	TB4-100	Stack Effluent Air Flow Transmitter	✓		JP
4.2	12-FT-551	TB4-103	TB4-104	Stack Effluent Alpha Sampler Air Flow Xmitter	✓		
4.3	12-FT-552	TB4-107	TB4-108	Stack Effluent Beta Sampler Air Flow Xmitter	✓		
4.4	12-FT-550	TB4-111	TB4-112	Stack Effluent Record Sampler Air Flow Xmitter	✓		
4.5	13-PIT-016	TB4-115	TB4-116	Co-pressed Air Line Pressure Xmitter	✓		
4.6	11-PDIT-606	TB4-119	TB4-120	Non-Conf./Atmosphere Diff Press Transmitter	✓		
4.7	SPARE	TB4-123	TB4-124	SPARE	✓		
4.8	SPARE	TB4-127	TB4-128	SPARE	✓		JP
4.9		IG	TB4-101	Check shield ground reistance (<0.01 ohms)	✓		JP
4.10		IG	TB4-105	Check shield ground reistance (<0.01 ohms)	✓		
4.11		IG	TB4-109	Check shield ground reistance (<0.01 ohms)	✓		
4.12		IG	TB4-113	Check shield ground reistance (<0.01 ohms)	✓		
4.13		IG	TB4-117	Check shield ground reistance (<0.01 ohms)	✓		
4.14		IG	TB4-121	Check shield ground reistance (<0.01 ohms)	✓		
4.15		IG	TB4-125	Check shield ground reistance (<0.01 ohms)	✓		
4.16		IG	TB4-129	Check shield ground reistance (<0.01 ohms)	✓		
4.17	FU121	TB4-102		Verify 24 VDC Available (+/- 2 volts)	✓		
4.18	FU122	TB4-106		Verify 24 VDC Available (+/- 2 volts)	✓		JP
4.19	FU123	TB4-110		Verify 24 VDC Available (+/- 2 volts)	✓		
4.20	FU124	TB4-114		Verify 24 VDC Available (+/- 2 volts)	✓		
4.21	FU125	TB4-118		Verify 24 VDC Available (+/- 2 volts)	✓		
4.22	FU126	TB4-122		Verify 24 VDC Available (+/- 2 volts)	✓		
4.23	FU127	TB4-126		Verify 24 VDC Available (+/- 2 volts)	✓		
4.24	FU128	TB4-130		Verify 24 VDC Available (+/- 2 volts)	✓		JP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-4
 LOCAL CONTROL UNIT 104-CNR-12-104

4/17/96
 REV. 1.1
 PAGE 17 of 17

Test Procedure ID: _____

Date Tested: 4/19/96

7.4. Analog Inputs							
Step #	TAG ID	Jumper Terminals		Description	Pass	Fail	Initials
5.0	Rack 0, Group 6						
5.1	SPARE	TB4-131	TB4-132	SPARE	✓		JP
5.2	SPARE	TB4-135	TB4-136	SPARE	✓		
5.3	SPARE	TB4-139	TB4-140	SPARE	✓		
5.4	SPARE	TB4-143	TB4-144	SPARE	✓		
5.5	SPARE	TB4-147	TB4-148	SPARE	✓		
5.6	SPARE	TB4-151	TB4-152	SPARE	✓		JP JP
5.7	SPARE	TB4-155	TB4-156	SPARE	✓		
5.8	SPARE	TB4-159	TB4-160	SPARE	✓		
5.9	IG	TB4-133	Check shield ground resistance (< 0.01 ohms)	✓			
5.10	IG	TB4-137	Check shield ground resistance (< 0.01 ohms)	✓			
5.11	IG	TB4-141	Check shield ground resistance (< 0.01 ohms)	✓		JP	
5.12	IG	TB4-145	Check shield ground resistance (< 0.01 ohms)	✓			
5.13	IG	TB4-149	Check shield ground resistance (< 0.01 ohms)	✓			
5.14	IG	TB4-153	Check shield ground resistance (< 0.01 ohms)	✓			
5.15	IG	TB4-157	Check shield ground resistance (< 0.01 ohms)	✓			
5.16	IG	TB4-161	Check shield ground resistance (< 0.01 ohms)	✓			
5.17	FU129	TB4-134	Verify 24 VDC Available (+/- 2 volts)	✓			
5.18	FU130	TB4-138	Verify 24 VDC Available (+/- 2 volts)	✓			
5.19	FU131	TB4-142	Verify 24 VDC Available (+/- 2 volts)	✓			
5.20	FU132	TB4-146	Verify 24 VDC Available (+/- 2 volts)	✓			
5.21	FU133	TB4-150	Verify 24 VDC Available (+/- 2 volts)	✓		JP	
5.22	FU134	TB4-154	Verify 24 VDC Available (+/- 2 volts)	✓			
5.23	FU135	TB4-158	Verify 24 VDC Available (+/- 2 volts)	✓			
5.24	FU136	TB4-162	Verify 24 VDC Available (+/- 2 volts)	✓			

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:
 Test: HATP-4
 Step: 1.10 Equipment Tag #: 104-CNR-12-104
 Spec. Section: 16450

Exception: 1
 Revision: 1.1
 Execution: 1

Test Operator: Dave Daniel
 Test Witness/Author: Jim Popella

Date: 4-18-96
 Time: 2:00 pm

Responsible Contractor: PCL
 Responsible Subcontractor: Plateau
 Responsible Individual:

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

The isolated (signal/technical) ground bus bar should be connected separately to the facility ground grid by an insulated ground cable. An insulated ground cable for the isolated ground bus is not provided.

EXCEPTION RESOLUTION:

Re. RFI No. 5366-PCL13P6. Raytheon approves the grounding configuration used by SEI - one connection to facility ground and a single jumper between the two ground bus bars.

Exception Closed By: _____ Date: _____

APPROVAL OF RESOLUTION

Contractor Representative: *Dave Daniel* Date: 10/23/96
 WHC Projects Representative: *Jim Popella* Date: 10-25-96
 WHC NFS Representative: *John P. Hest* Date: 10/2
 (NFS = New Facility Startup)
 ICF KEH Representative: *John P. Hest* Date: 10/25/96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#: _____
 Test: HATP-4
 Step: 1.11 Equipment Tag #: 104-CNR-12-104
 Spec. Section: HATP-4

Exception: 2
 Revision: 1.1
 Execution: 1

Test Operator: Dave Daniel
 Test Witness/Author: Jim Popella

Date: 4-18-96
 Time: 2:00 pm

Responsible Contractor: PCL
 Responsible Subcontractor: SII
 Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

The isolated (signal/technical) ground bus bar should be isolated from the bonded bus and chassis ground. Continuity exists between the isolated and bonded buses. Check for and eliminate shorts or paths to ground at isolated bus bar standoffs and in wires connected to the isolated bus bar.

EXCEPTION RESOLUTION:

Exception Closed By: _____ Date: _____

APPROVAL OF RESOLUTION

Contractor Representative: *Daniel*
 WHC Projects Representative: *Jim Popella*
 WHC NFS Representative: *Mike Schneider*
 (NFS = New Facility Startup)
 ICF KEH Representative: *John*

Date: 10/23/96
 Date: 10-25-96
 Date: 10/23/96
 Date: 10/25/96

WRAP ACCEPTANCE TEST PROCEDURE
EXCEPTION LOG

HNF-SD-W026-ATR-022, Rev. 0 Page 110

Tracking #:

ATP (Y/N) Y ATP#:
Test: HATP-4
Step: N/A* Equipment Tag #: 104-CNR-12-104
Spec. Section: HATP-4

Exception: 3
Revision: 1.1
Execution: 1

Test Operator: Dave Daniel
Test Witness/Author: Jim Popella

Date: 4-18-96
Time: 2:00 pm

Responsible Contractor: PCL
Responsible Subcontractor: SII
Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

All signal shields are to be connected to the isolated bus bar including the AC discrete inputs/outputs. The 120 VAC discrete input/output shields are connected to the bonded bus bar. Either the specification (Ref. 13461-2.04.B.3.a.2) should be changed or the shields should be rewired (to the isolated bus).
*Exception was noted during Pre-Test and Inspection.

EXCEPTION RESOLUTION:

Re. RFI No. 5366-PCL1385. Raytheon approves the change to the 13461 spec. section and tying the 120 VAC control signal shields to the common bus bar.

Exception Closed By:

Jim Popella

Date: 9/5/96

APPROVAL OF RESOLUTION

Contractor Representative: *McSahil*
WHC Projects Representative: *Jim Popella*
WHC NFS Representative: *Mike Schneider*
(NFS = New Facility Startup)
ICF KEH Representative: *Paul S. McSherry*

Date: 9/17/96
Date: 9/12/96
Date: 9/14/96
Date: 9/23/96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#:
 Test: HATP-4
 Step: 1.19 Equipment Tag #: 104-CNR-12-104
 Spec. Section: HATP-4

Exception: 4
 Revision: 1.1
 Execution: 1

Test Operator: Dave Daniel
 Test Witness/Author: Jim Popella

Date: 4-18-96
 Time: 3:00 pm

Responsible Contractor: PCL
 Responsible Subcontractor: SII
 Responsible Individual: Mike Schneider

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

A security program with password is required at the DTAM before data can be changed. No DTAM security screen is provided and a password function is not implemented.

EXCEPTION RESOLUTION:

INSTALL SECURITY PROGRAM

Exception Closed By:

Date: 8/24/96

APPROVAL OF RESOLUTION

Contractor Representative:
 WHC Projects Representative:
 WHC NFS Representative:
 (NFS = New Facility Startup)
 ICF KEH Representative:

Date: 8/23/96
 Date: 8-27-96
 Date: 8/23/96
 Date: 9/3/96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) Y ATP#: _____
 Test: HATP-4
 Step: N/A* Equipment Tag #: 104-CNR-12-104
 Spec. Section: 16152

Exception: 5
 Revision: 1.1
 Execution: 1

Test Operator: Dave Daniel
 Test Witness/Author: Jim Popella

Date: 4-19-96
 Time: 10:30 am

Responsible Contractor: PCL
 Responsible Subcontractor: Plateau
 Responsible Individual: _____

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

A maximum of two conductors are permitted per terminal. Several terminals have three signal conductors or shield wires connected to them on the plant side of the terminal blocks including, but not limited to: TB2-77, TB2-97, TB2-36, TB3-17.

*Exception was noted during Post-Test Inspection.

EXCEPTION RESOLUTION:

The three shield wires have been twisted together to form a single termination.

Exception Closed By:

Date: 9/20/96

APPROVAL OF RESOLUTION

Contractor Representative:

Date: 9/23/96

WHC Projects Representative:

Date: 9/20/96

WHC NFS Representative:

Date: 9/23/96

(NFS = New Facility Startup)

ICF KEH Representative:

Date: 9/23/96

ACCEPTANCE TEST PROCEDURE: W026-ATP-074 REVISION: 0 DATE: 12-14-95TEST TITLE: HATP 5 -- OPERATOR CONTROL STATIONSLOCATION: WRAP 1 CONTROL ROOMPROJECT #: W-026 PROJECT TITLE: WRAP MODULE 1Prepared By
(Systems Interface Incorporated)For ICF-KHContract: KEH-5366

SELLER PROCEDURE APPROVAL

Originator 8-20-96
Date

Checker 8-20-96
Date

Seller Project Manager 8-20-96
Date

Systems Interface Inc

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-5 Revision Number: 0
 Execution Number: 1 Start Date-Time: 12/14/95
 Test Operator: GARY BENNETT End Date-Time: 8/20/96
 Witness: JOHN WEIDERT/MARK PALMER Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☒ Yes ☐ No

COMMENTS:

12-14-95 SUSPENDED TESTING PENDING COMPLETION OF INSTALLATION
SEE LOG

TEST PROCEDURE APPROVAL

TEST ☐ Successful ☐ Unsuccessful

Contractor (Company):

Systems Interface Inc.

Contractor Representative:

[Signature]

Date: 8-20-96

WHC Projects Representative:

[Signature]

Date: 8-27-96

WHC NFS Representative:
 (NFS = New Facility Startup)

[Signature]

Date: 8-20-96

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative:

[Signature]

Date: 8/21/96

Systems Interface Inc TEST LOG

Test Procedure: HATP-5 OCS CHECKOUT

Test Procedure ID: HATP-5 Test Type: BP HATP Revision Number: 0

Date: 12-14-95

Time	Test Step #	Event Description (with minor problem resolution test procedure AS-BUILT notes)	Recorder Initials	Minor Problem (M/S)?	WHC Approval Signature for "minor" problems
13:40		INITIATED TESTING ON CNS-12-101 THRU 109 Where applicable, a step 1.12 was added to verify proper function of GFCI test button. Also, a generic terminal strip label step was marked "N/A" as none of the bays contain terminal strips.	Jaw		
14:30		Testing was halted and will not resume until all monitor key boards, consoles, and desk tops are installed.			
10:30		RESTARTED HARDWARE TEST TO CHECK OUT NDE CONSOLE'S. 3 ETR'S WRITTEN AGAINST MISSING LABELS * CRACKED GFCI COVER PLATE. THERE IS ALSO A QUESTION REGARDING CABLE DROPS TO CABINETS. ARE THEY RUN PER CODE?			
15:45		Complete HATP 7.1.C.2 steps 1.13 - 1.15			
10:30		The last of x-terminal tests were signed off based on the fact that all OCS stations were tested via SATP during testing.	MS		

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
 OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 1 of 19

TEST LOCATION/TYPE:

☐ Seller Factory-SF

☐ Buyer Factory-BF

☐ Seller Plant-SP

☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
 Project Number W-026

Prepared By
SYSTEMS INTERFACE INC.

For Westinghouse Hanford Company

PROCEDURE APPROVAL

 Author

8-20-96

 Date

 Project Manager

8-20-96

 Date

 Buyer Approval

8-20-96

 Date

 Other Approval

 Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
 OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 2 of 19

APPROVAL TO START

TEST EXECUTION No. 1

[Signature]
 Test Director/Organization

8-20-96
 Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

RECORDED BY

[Signature]
 Test Operator/Organization

SYSTEMS INTERFACE ITR. 12/14/95
 Date

[Signature]
 Recorder/Organization

8-20-96
 Date

WITNESSES

[Signature]
 Witness/Organization

12-14-95
 Date

Witness/Organization

Date

Witness/Organization

Date

Witness/Organization

Date

TEST ACCEPTANCE

☒ WITHOUT EXCEPTIONS

☐ WITH EXCEPTIONS OUTSTANDING

[Signature]
 Approver/Organization

8/27/96
 Date

Approver/Organization

Date

Approver/Organization

Date

Approver/Organization

Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 3 of 19

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that the Operator Control Stations A,B,C,D,and E function as required by project criteria.

2.0 REFERENCES

Vendor information from Hewlett-Packard on Envizex X-Terminals, M-Power software, Intecolor 20" Rack-Mount Monitors, Addison Technology Speaker System, Emcor Enclosures, Islatrol Power Conditioners, and Leviton GFCI Duplex Outlets.

2.1 DRAWINGS

940824-HWD-D2301	Rev.2, "NDE OPERATOR CONTROL STATION #1 CNS-12-101"
940824-HWD-E3201	Rev 2, "NDE OPERATOR CONTROL STATION #2 CNS-12-102"
940824-HWD-F2301	Rev.2, "TRANSPORT/NDA OPERATOR CONTROL STATION#1 CNS-12-103"
940824-HWD-G2301	Rev.2, "TRANSPORT/NDA OPERATOR CONTROL STATION#2 CNS-12-104"
Additionally, test the equipment called on Bill Of Materials 940824-HWD-BOM8 for "DISPATCH OPERATOR CONTROL STATION CNS-12-105"	

2.2 SPECIFICATIONS

UE&C Specification Sections 13461-2.03, 13461-2.04.A, and 13461-2.05 dated October 1993.

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - If device being calibrated is not data sheet associated,
 - b. at least four times greater than the specified device tolerance.

Fluke 87 Digital Multimeter (DMM)

If necessary, a 4-20 mA current source

If necessary, a Laptop computer with necessary programming and configuration software such as:

Allen-Bradley Programming Software (ICOM)

Microware OS9000 Programming Software (for 'C' Coprocessors)

Procomm-Plus Terminal Emulation Software

120 VAC Jumpers (small alligator clips and or "scrap" wire)

Any required vendor manuals

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E**

**12/14/95
REV. 1.2
PAGE 4 of 19**

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 **VERIFY** Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 **RECORD** test equipment name, equipment number, and calibration expiration date on Data Sheet.
- 5.6 **VERIFY** that all tag numbers are listed on the Data Sheet.

6.0 SETUP

- 6.1 All computer and related systems are running with the appropriate Operator Interface screen displayed.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 5 of 19

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

7.1.1 Verify Steps 1 through 8 on Data Sheets (7.1.x.y) are satisfied for each OCS Bay.

7.2 TEST

7.2.1 Perform actions in Steps 8 through end, on Data Sheets (7.1.x.y) for each OCS Bay.

7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

8.0 RESTORATION

8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.

8.2 RESTORE system to normal configuration.

8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

9.1 The acceptance criteria of all steps contained in section 7 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

	<u>8-20-96</u>		<u>8-20-96</u>
Test Director	Date	Test Recorder	Date

	<u>8-20-96</u>		<u>8-20-96</u>
Test Operator	Date	Witness	Date

_____	_____	_____	_____
Witness	Date	Witness	Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
 OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 6 of 19

DATA SHEET 7.1

Test Equipment Name	Test Equipment Number	Calibration Expiration Date	Test Equipment Name	Test Equipment Number	Calibration Expiration Date
FURKE 87 NUCLEAR METER	SJS #F4	N/A			
PCL Heat Gun	747-35704	N/A			

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E**

12/14/95
REV. 1.2
PAGE 7 of 19

**Data Sheet 7.1.A.1
NDE OCS #1 CNS-12-101
BAY # 1**

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	/		lew
1.2	Component Legends installed; Fuse replacement labels installed	/		lew
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A*		lew
1.4	Correct fuses or Circuit Breakers installed	/		lew
1.5	Wire AWG size, labeled, and color correct	/		lew
1.6	Door mounted devices tight and secure	/		lew
1.7	All terminals tight	/		lew
1.8	Main grounding lug, grounding integrity, separate grounds All grounds ≤ 0.1 ohms resistance	/		lew
1.9	Apply power and check AC control circuits	/		lew
1.10	Check AC outlets and lights, verify 120VAC to GFCI outlets	/		lew
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	/		lew
1.12	Test GFCI outlets, (Test Button, and fused jumper between neutral and ground)	/		lew
1.13	Install HP X-Terminal, 20 inch Intecolor Rack Mount Monitor, and audio system	✓		mf
1.14	Apply power to monitor, terminal, and audio system, and verify power up	✓		mf
1.15	Run M Power Software and verify audio signal is clear and set to acceptable loudness level.	✓		mf
1.16	Verify specification requirements 13461-2.03.A.7a, 2.03.A.8.c, and 2.04.A.2.e as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the X-Terminal. Configuration non-volatile memory should not be lost, during boot the X-terminals should execute power-up test utilities, and the HP-UX login prompt should appear within a minute. Login as Operator, verify HP-RTAP software auto-executes.	✓		mf
1.17	Verify specification requirement 13461-2.04.A.3.e as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Check keyboard functions 1) Ability to login, 2) Start / execute programs, 3) All keys echo properly on screen.	✓		mf

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 8 of 19

Data Sheet 7.1.A.2
NDE OCS #1 CNS-12-101
BAY # 2

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	/		lew
1.2	Component Legends installed; Fuse replacement labels installed		/	lew
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A		
1.4	Correct fuses or Circuit Breakers installed	/		lew
1.5	Wire AWG size, labeled, and color correct	/		lew
1.6	Door mounted devices tight and secure	/		lew
1.7	All terminals tight	/		lew
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	/		lew
1.9	Apply power and check AC control circuits	/		lew
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	/		lew
1.11	Load test AC circuits> 1.2 kW (14 amp heat gun)	/		lew

See ETR # 1

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 9 of 19

Data Sheet 7.1.A.3 NDE OCS #1 CNS-12-101 V.S. TECHNOLOGIES BAY #3 A PROVIDED BAY #3				
Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	\		Law
1.2	Component Legends installed; Fuse replacement labels installed	\		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	\		Law
1.4	Correct fuses or Circuit Breakers installed	\		Law
1.5	Wire AWG size, labeled, and color correct	\		Law
1.6	Door mounted devices tight and secure	\		Law
1.7	All terminals tight	\		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	\		Law
1.9	Apply power and check AC control circuits	\		Law
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	\		Law
1.11	Load test AC circuits> 1.2 kW (14 amp heat gun)	\		Law

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E**

12/14/95
REV. 1.2
PAGE 10 of 19

Data Sheet 7.1.B.1 NDE OCS #2 CNS-12-102 BAY # 1				
Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	/		Low
1.2	Component Legends installed; Fuse replacement labels installed	/		Low
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A		Low
1.4	Correct fuses or Circuit Breakers installed	/		Low
1.5	Wire AWG size, labeled, and color correct	/		Low
1.6	Door mounted devices tight and secure	/		Low
1.7	All terminals tight	/		Low
1.8	Main grounding lug, grounding integrity, separate grounds All grounds ≤ 0.1 ohms resistance CS N/A	/		Low
1.9	Apply power and check AC control circuits	/		Low
1.10	Check AC outlets and lights, verify 120VAC to GFCI outlets	/		Low
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	/		Low
1.12	Test GFCI outlets, (Test Button, and fused jumper between neutral and ground)	/		Low
1.13	Install HP X-Terminal, 20 inch Intecolor Rack Mount Monitor, and audio system	✓		no
1.14	Apply power to monitor, terminal, and audio system, and verify power up	✓		no
1.15	Run M Power Software and verify audio signal is clear and set to acceptable loudness level	✓		no
1.16	Verify specification requirements 13461-2.03.A.7.a, 2.03.A.8.c, and 2.04.A.2.e as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the X-Terminal. Configuration non-volatile memory should not be lost, during boot the X-terminals should execute power-up test utilities, and the HP-UX login prompt should appear within a minute. Login as Operator, verify HP-RTAP software auto-executes.	✓		no
1.17	Verify specification requirement 13461-2.04.A.3.e as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Check keyboard functions 1) Ability to login, 2) Start / execute programs, 3) All keys echo properly on screen.	✓		no

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 11 of 19

Data Sheet 7.1.B.2
NDE OCS #2 CNS-12-102
BAY # 2

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	\		Law
1.2	Component Legends installed; Fuse replacement labels installed		\	Law
1.3	Terminal strips labeled and common jumpers installed on panel side	\		Law
1.4	Correct fuses or Circuit Breakers installed	\		Law
1.5	Wire AWG size, labeled, and color correct	\		Law
1.6	Door mounted devices tight and secure	\		Law
1.7	All terminals tight	\		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	\		Law
1.9	Apply power and check AC control circuits	\		Law
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	\		Law
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	\		Law

See ETR #2

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 12 of 19

Data Sheet 7.1.B.3
NDE OCS #2 CNS-12-102
BAY #3

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure		/	See
1.2	Component Legends installed; Fuse replacement labels installed		/	See
1.3	Terminal strips labeled and common jumpers installed on panel side	/		See
1.4	Correct fuses or Circuit Breakers installed	/		See
1.5	Wire AWG size, labeled, and color correct	/		See
1.6	Door mounted devices tight and secure	/		See
1.7	All terminals tight	/		See
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	/		See
1.9	Apply power and check AC control circuits	/		See
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	/		See
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	/		See

See ETR # 3

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
 OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 13 of 19

Data Sheet 7.1.C.1
 TRANSPORT / NDA OCS #1 CNS-12-103
 BAY # 1

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	/		Low
1.2	Component Legends installed; Fuse replacement labels installed	/		Low
1.3	Terminal strips labeled and common jumpers installed on panel side	NA		Low
1.4	Correct fuses or Circuit Breakers installed	/		Low
1.5	Wire AWG size, labeled, and color correct	/		Low
1.6	Door mounted devices tight and secure	/		Low
1.7	All terminals tight	/		Low
1.8	Main grounding lug, grounding integrity, separate grounds All grounds ≤ 0.1 ohms resistance ① N/A	/		Low
1.9	Apply power and check AC control circuits	/		Low
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	/		Low
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	/		Low

1.12 GFCI TEST BUTTON VERIFIED TO OPERATE PROPERLY /

Low

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E**

12/14/95
REV. 1.2
PAGE 14 of 19

**Data Sheet 7.1.C.2
TRANSPORT / NDA OCS #1 CNS-12-103
BAY # 2**

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	/		Law
1.2	Component Legends installed; Fuse replacement labels installed	/		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A		Law
1.4	Correct fuses or Circuit Breakers installed	/		Law
1.5	Wire AWG size, labeled, and color correct	/		Law
1.6	Door mounted devices tight and secure	/		Law
1.7	All terminals tight	/		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds ≤ 0.1 ohms resistance	/		Law
1.9	Apply power and check AC control circuits	/		Law
1.10	Check AC outlets and lights, verify 120VAC to GFCI outlets	/		Law
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	/		Law
1.12	Test GFCI outlets, (Test Button, and fused jumper between neutral and ground)	/		Law
1.13	Install HP X-Terminal, 20 inch Intecolor Rack Mount Monitor, and audio system	✓		PP
1.14	Apply power to monitor, terminal, and audio system, and verify power up	✓		PP
1.15	Run M Power Software and verify audio signal is clear and set to acceptable loudness level	✓		PP
1.16	Verify specification requirements 13461-2.03.A.7a, 2.03.A.8.c, and 2.04.A.2.e as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the X-Terminal. Configuration non-volatile memory should not be lost, during boot the X-terminals should execute power-up test utilities, and the HP-UX login prompt should appear within a minute. Login as Operator, verify HP-RTAP software auto-executes.	/		PP
1.17	Verify specification requirement 13461-2.04.A.3.e as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Check keyboard functions 1) Ability to login, 2) Start / execute programs, 3) All keys echo properly on screen.	✓		PP

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
 OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 15 of 19

Data Sheet 7.1.C.3
 TRANSPORT / NDA OCS #1 CNS-12-103
 BAY # 3

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	/		Law
1.2	Component Legends installed; Fuse replacement labels installed	/		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A		Law
1.4	Correct fuses or Circuit Breakers installed	/		Law
1.5	Wire AWG size, labeled, and color correct	/		Law
1.6	Door mounted devices tight and secure	/		Law
1.7	All terminals tight	/		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds ≤ 0.1 ohms resistance	/		Law
1.9	Apply power and check AC control circuits	/		Law
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	/		Law
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	/		Law

1.12 Test button verified to operate properly

/

Law

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
REV. 1.2
PAGE 16 of 19

Data Sheet 7.1.D.1
TRANSPORT / NDA OCS #2 CNS-12-104
BAY # 1

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	/		lew
1.2	Component Legends installed; Fuse replacement labels installed	/		lew
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A		lew
1.4	Correct fuses or Circuit Breakers installed	/		lew
1.5	Wire AWG size, labeled, and color correct	/		lew
1.6	Door mounted devices tight and secure	/		lew
1.7	All terminals tight	/		lew
1.8	Main grounding lug, ^① grounding integrity, separate grounds All grounds ≤ 0.1 ohms resistance	/		lew
1.9	Apply power and check AC control circuits	/		lew
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	/		lew
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	/		lew

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E**

12/14/95
REV. 1.2
PAGE 17 of 19

**Data Sheet 7.1.D.2
TRANSPORT / NDA OCS #2 CNS-12-104
BAY # 2**

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	✓		lew
1.2	Component Legends installed; Fuse replacement labels installed	✓		lew
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A		lew
1.4	Correct fuses or Circuit Breakers installed	✓		lew
1.5	Wire AWG size, labeled, and color correct	✓		lew
1.6	Door mounted devices tight and secure	✓		lew
1.7	All terminals tight	✓		lew
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		lew
1.9	Apply power and check AC control circuits	✓		lew
1.10	Check AC outlets and lights, verify 120VAC to GFCI outlets	✓		lew
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	✓		lew
1.12	Test GFCI outlets, (Test Button, and fused jumper between neutral and ground)	✓		lew
1.13	Install HP X-Terminal, 20 inch Intecolor Rack Mount Monitor, and audio system	✓		20.8
1.14	Apply power to monitor, terminal, and audio system, and verify power up	✓		10.8
1.15	Run M Power Software and verify audio signal is clear and set to acceptable loudness level	✓		10.8
1.16	Verify specification requirements 13461-2.03.A.7a, 2.03.A.8.c, and 2.04.A.2.e as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the X-Terminal. Configuration non-volatile memory should not be lost, during boot the X-terminals should execute power-up test utilities, and the HP-UX login prompt should appear within a minute. Login as Operator, verify HP-RTAP software auto-executes.	✓		20.8
1.17	Verify specification requirement 13461-2.04.A.3.e as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Check keyboard functions 1) Ability to login, 2) Start / execute programs, 3) All keys echo properly on screen.	✓		20.8

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
 OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 18 of 19

Data Sheet 7.1.D.3
 TRANSPORT / NDA OCS #2 CNS-12-104
 BAY # 3

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	✓		Law
1.2	Component Legends installed; Fuse replacement labels installed	✓		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	N/A		Law
1.4	Correct fuses or Circuit Breakers installed	✓		Law
1.5	Wire AWG size, labeled, and color correct	✓		Law
1.6	Door mounted devices tight and secure	✓		Law
1.7	All terminals tight	✓		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		Law
1.9	Apply power and check AC control circuits	✓		Law
1.10	Check AC outlets and lights, verify 120VAC to duplex outlets	✓		Law
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	✓		Law

1.12 GFCI TEST BUTTON VERIFIED TO OPERATE

✓

Law

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-5
OPERATOR CONTROL STATIONS A, B, C, D, E

12/14/95
 REV. 1.2
 PAGE 19 of 19

Data Sheet 7.1.E.1

Dispatch Operator Control Station (Government Furnished)

Step #	Description	Pass	Fail	Check
1.1	Install HP X-Terminal, 20 inch Intecolor Rack Mount Monitor, and audio system	✓		BH
1.2	Apply power to monitor, terminal, and audio system, and verify power up	✓		MS
1.3	Run M Power Software and verify audio signal is clear and set to acceptable loudness level	✓		BH
1.4	Verify specification requirements 13461-2.03.A.7a, 2.03.A.8.c, and 2.04.A.2.e as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the X-Terminal. Configuration non-volatile memory should not be lost, during boot the X-terminals should execute power-up test utilities, and the HP-UX login prompt should appear within a minute. Login as Operator, verify HP-RTAP software auto-executes.	✓		MS
1.5	Verify specification requirement 13461-2.04.A.3.e as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Check keyboard functions 1) Ability to login, 2) Start / execute programs, 3) All keys echo properly on screen.	✓		MS

Systems Interface Inc
EXCEPTION REPORT

Test Procedure ID: HATP 5Exception Report Number: 1Test Step Number: 7.1.A.2 - 1.2Execution Number: 1Test Operator: John STEPHENSONDate / Time: 3-28-96/10:30Test Witness: John WEIDERTDate / Time: 3-28-96/10:30**Description of the Exception (Expected Result versus Actual Result):**

Control Room Console GAGE 201 - CWS-12-100, RAY #2
IS MISSING 1 GFCI LABEL "15 AMP MAX" AND
HAS A SECOND ONE THAT IS FALLING OFF.

Resolution:

REPLACE LABELS

Approval of Resolution:

Contractor (Company):

Systems Interface Inc.

Contractor Representative:

[Signature]Date: 8-20-96

WHC Projects Representative:

[Signature]Date: 4-25-96WHC NFS Representative:
(NFS = New Facility Startup)[Signature]Date: 4-25-96

ICF KEH Representative:

[Signature]Date: 8.21.96

LABELS REPLACED 4-25-96

**Systems Interface Inc
EXCEPTION REPORT**

Test Procedure ID: HATP 5Exception Report Number: 2Test Step Number: 7.1.B2-12Execution Number: 1Test Operator: John STEPHENSONDate / Time: 3-28-96 / 10:30Test Witness: John W. HootzDate / Time: 3-28-96 / 10:30**Description of the Exception (Expected Result versus Actual Result):**

CONTROL ROOM CONSOLE 201-CNS-12-102 RAY #2
IS MISSING FUSE LABEL

Resolution:

REPLACE LABEL

Approval of Resolution:

Contractor (Company):	<u>Systems Interface Inc.</u>	
Contractor Representative:	<u>[Signature]</u>	Date: <u>3-20-96</u>
WHC Projects Representative:	<u>[Signature]</u>	Date: <u>4-25-96</u>
WHC NFS Representative:	<u>[Signature]</u>	Date: <u>4-25-96</u>
(NFS = New Facility Startup)		
ICF KEH Representative:	<u>[Signature]</u>	Date: <u>8-21-96</u>

LABEL REPLACED 4-25-96

Systems Interface Inc
EXCEPTION REPORT

Test Procedure ID: HATP 5
 Test Step Number: 7.1-B, 3-1.1 & 1.2
 Test Operator: John Stephenson
 Test Witness: John Weidert

Exception Report Number: 3
 Execution Number: 1
 Date / Time: 3-28-96 / 10:30
 Date / Time: 3-28-96 / 10:30

Description of the Exception (Expected Result versus Actual Result):

CONTROL ROOM CONSOLE 201-CPS-12-103, BAY #3
IS MISSING A LABEL FOR THE FUSE & HAS A
CRACK IN THE UPPER GFCI COVER PLATE

Resolution:

REPLACE LABEL & GFCI COVER PLATE

Approval of Resolution:

Contractor (Company):	<u>Systems Interface Inc.</u>	
Contractor Representative:	<u>[Signature]</u>	Date: <u>8-20-96</u>
WHC Projects Representative:	<u>[Signature]</u>	Date: <u>8-27-96</u>
WHC NFS Representative: (NFS = New Facility Startup)	<u>[Signature]</u>	Date: <u>8-20-96</u>
ICF KEH Representative:	<u>[Signature]</u>	Date: <u>8-21-96</u>

Systems Interface Inc
TEST RESPONSIBILITY MATRIX

WRAP MODULE I TESTING RESPONSIBILITY MATRIX

Test Procedure: DCS HATP-5 Revision #: 0

Execution Number: 1 Date: 12-14-95

FACTORY TESTING

	Seller Factory (Dry Run)	Buyer Factory
Test Director		
Test Operator		
Test Recorder		
Test Witness		
Quality Assurance Approval		
Other Test Approval Authorities		

SITE TESTING

	Seller Site (Dry Run)	Buyer Site
Test Director		<i>[Signature]</i>
Test Operator		<i>[Signature]</i>
Test Recorder		<i>[Signature]</i>
Test Witness		<i>[Signature]</i>
Title III Inspector Approval		N/A
Raytheon Approval		N/A
Quality Assurance Approval		<i>[Signature]</i>
WHC Project Test Approval		<i>[Signature]</i>
WHC N.F.S. Test Approval		<i>[Signature]</i>
Other Test Approval Authorities		

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-6 Revision Number: 1.0
Execution Number: 1 Start Date-Time: 3/28/96
Test Operator: JOHN STEPHENSON End Date-Time: 3/28/96
Witness: MARK PALMER Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☐ Yes ☒ No

COMMENTS:

TEST PROCEDURE APPROVAL

TEST ☒ Successful ☐ Unsuccessful

Contractor (Company):

Systems Interface Inc.

Contractor Representative:

[Signature]

Date: 8-22-96

WHC Projects Representative:

[Signature]

Date: 8-27-96

WHC NFS Representative:

[Signature]

Date: 8-20-96

(NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative:

[Signature]

Date: 8/27/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-6
 DATA MANAGEMENT SYSTEM INCLUDING CPU-12-109, DRV-12-109, & TE-12-109

3/22/96
 REV. 1.0
 PAGE 1 of 7

TEST LOCATION/TYPE:

☐ Seller Factory-SF

☐ Buyer Factory-BF

☐ Seller Plant-SP

☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
 Project Number W-026

Prepared By
SYSTEMS INTERFACE INC.

For Westinghouse Hanford Company

PROCEDURE APPROVAL

 Author

8-20-96
 Date

 Project Manager

8-20-96
 Date

 Buyer Approval

8-20-96
 Date

 Other Approval

 Date

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-6
 DATA MANAGEMENT SYSTEM INCLUDING CPU-12-109, DRV-12-109, & TE-12-109**

3/22/96
 REV. 1.0
 PAGE 2 of 7

APPROVAL TO STARTTEST EXECUTION No. 1

[Signature] SEI 8-22-96
 Test Director/Organization Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

RECORDED BY

John Stephenson SEI 3/28/96
 Test Operator/Organization Date

John Stephenson SEI 3/28/96
 Recorder/Organization Date

WITNESSES

[Signature] W/HNC 3/28/96
 Witness/Organization Date

 Witness/Organization Date

 Witness/Organization Date

 Witness/Organization Date

TEST ACCEPTANCE

☒ **WITHOUT EXCEPTIONS**

☐ **WITH EXCEPTIONS OUTSTANDING**

[Signature] W/HNC/WFS 3/28/96
 Approver/Organization Date

[Signature] ICF KH 8/27/96
 Approver/Organization Date

[Signature] SEI 3/28/96
 Approver/Organization Date

 Approver/Organization Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-6
DATA MANAGEMENT SYSTEM INCLUDING CPU-12-109, DRV-12-109, & TE-12-109

3/22/96
 REV. 1.0
 PAGE 3 of 7

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that hardware provided for the Data Management System properly operates as required by project criteria and specifications.

2.0 REFERENCES

Vendor information from Hewlett-Packard on HP 9000/E35 Unix systems, Islatrol Power Conditioners, and SL Waber Surge Protectors.

2.1 DRAWINGS

Test the equipment called on Bill Of Materials 940820-HWD-BOM3, BOM4, and BOM5 for
 "DATA MANAGEMENT SYSTEM - CPU/DRV-12-109"

2.2 SPECIFICATIONS

UE&C Specification Sections 13461-2.04D and 13462-1.04A.1.b.

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - If device being calibrated is not data sheet associated,
 - b. at least four times greater than the specified device tolerance.

Fluke 87 Digital Multimeter (DMM)

If necessary, a 4-20 mA current source

If necessary, a Laptop computer with necessary programming and configuration software such as:

Allen-Bradley Programming Software (ICOM)

Microware OS9000 Programming Software (for 'C' Coprocessors)

Procomm-Plus Terminal Emulation Software

120 VAC Jumpers (small alligator clips and or "scrap" wire)

Any required vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 **VERIFY** Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 **RECORD** test equipment name, equipment number, and calibration expiration date on Data Sheet.

6.0 SETUP

- 6.1 Ensure 120 VAC line power is available at a duplex outlet and all circuit breakers "upstream" are on.

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-6
 DATA MANAGEMENT SYSTEM INCLUDING CPU-12-109, DRV-12-109, & TE-12-109**

3/22/96
 REV. 1.0
 PAGE 5 of 7

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.1.1 Verify Steps 1 through 7 on Data Sheet 7.1 are satisfied.
- 7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 TEST

- 7.2.1 Perform actions in Steps 8 through end, on Data Sheet 7.1.
- 7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

8.0 RESTORATION

- 8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.
- 8.2 RESTORE system to normal configuration.
- 8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

- 9.1 The acceptance criteria of all steps contained in section 7 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

	<u>8-20-96</u>		<u>8-20-96</u>
Test Director	Date	Test Recorder	Date

	<u>8-20-96</u>		<u>8-20-96</u>
Test Operator	Date	Witness	Date

_____	_____	_____	_____
Witness	Date	Witness	Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM

3/22/96

HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-6

REV. 1.0

DATA MANAGEMENT SYSTEM INCLUDING CPU-12-109, DRV-12-109, & TE-12-109

PAGE 6 of 7

DATA SHEET 7.1

Test Equipment Name	Test Equipment Number	Calibration Expiration Date	Test Equipment Name	Test Equipment Number	Calibration Expiration Date

22 WLD 8-27-96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-6
DATA MANAGEMENT SYSTEM INCLUDING CPU-12-109, DRV-12-109, & TE-12-109

3/22/96
 REV. 1.0
 PAGE 7 of 7

Data Sheet 7.1

DATA MANAGEMENT SYSTEM
PROCESSOR CPU-12-109
EXTERNAL DISK DRIVE DRV-12-109
SYSTEM TERMINAL TE-12-109

Step #	Description	Pass	Fail	Check
1.1	Install HP 9000/E35 Central Processing Unit. Connect Islatrol Power Line Conditioner to wall duplex and SL Waber Surge Suppressor to Islatrol. Finally plug in HP E35 CPU to SL Waber. Also connect serial multiplexor adaptor to back of E35. Keep the SL Waber power switched off until after step 1.3.	✓		msp
1.2	Install HP 6000 SCSI/SE External Disk Drive Chassis. Connect power to SL Waber Surge Protector. Connect SCSI cable from drive chassis to HP E35 CPU rear SCSI adapter.	✓		msp
1.3	Install HP 700 Character Terminal. Connect power to SL Waber Surge Protector. Connect serial cable from terminal to port 1 of the HP E35 CPU multiplexor adapter.	✓		msp
1.4	Connect 10-Base-T network cable (RJ45 connector) to rear of E35.	✓		msp
1.5	Verify all network cabling properly terminated (see HATP-11).	✓		msp
1.6	Verify the Cabletron Hub/Router is configured, wired, and powered up (see HATP-11).	✓		msp
* 1.7	Verify the Hanford site WLAN Domain Name Server (DNS) is on-line and functioning properly.	N/A		msp
1.8	Apply power and verify all systems are powering up. If nothing happens, check 120 VAC at surge suppressor, line conditioner, and duplex wall outlet and verify that all switches are in the "on" position. Monitor the terminal during power up and note any diagnostic messages that appear. If no trouble messages appear, system is properly executing.	✓		msp
1.9	Login to E35 CPU via Terminal and Check keyboard functions 1) Ability to login, 2) Start / execute programs, 3) All keys echo properly on screen.	✓		msp
* 1.10	Verify specification requirement 13462-1.04A.1.b.7 as called for in the ATP QA checklist in the Hardware Requirements matrix is met. To verify proper network communications to other systems, from the Unix prompt "ping" all devices on the network. These include: "pcs", "sie", "geaa", "geab", "pana", "panb", "bwas", "ocs101", "ocs102", "ocs103", "ocs104", "ocs105", "te124", "te108", "te107", "te104", "te103", "olu105a", and "olu106a". Failure to communicate with any or all of these devices probably indicates problems with wiring, the Cabletron Router, and/or site Domain Name Server.	✓		msp
1.11	Execute the Unix command "sam" to verify that at least four 1.0 Gb hard drives, one CD-ROM drive, one DDS tape backup, and one 3.5" floppy drive can be located.	✓		msp

* External Cassin on use in
 development system - msp

** DNS not required to test DMS system on SD
 *** LCUID2, 10A & Router "pinged"

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-7 Revision Number: 1.0
Execution Number: 1 Start Date-Time: 3/28/96
Test Operator: JOHN STEPHENSON End Date-Time: 3/28/96
Witness: MARK PALMER Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☐ Yes ☒ No

COMMENTS:

TEST PROCEDURE APPROVAL

TEST ☒ Successful ☐ Unsuccessful

Contractor (Company):

Systems Interface Inc.

Contractor Representative:

[Signature]

Date: 8-20-96

WHC Projects Representative:

[Signature]

Date: 8-21-96

WHC NFS Representative:

[Signature]

Date: 8-20-96

(NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative:

[Signature]

Date: 8/27/96

Systems Interface Inc TEST LOG

Test Procedure: HATP-7

Test Procedure ID: HATP-7 Test Type: HARDWARE Revision Number: 1.0

Date: 3/28

[illegible]

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-7
 PLANT CONTROL SYSTEM SERVER (CPU-12-110) & SYSTEM TERMINAL(TE-12-110)

3/22/96
 REV. 1.0
 PAGE 1 of 7

TEST LOCATION/TYPE:

☐ Seller Factory-SF

☐ Buyer Factory-BF

☐ Seller Plant-SP

☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
 Project Number W-026

Prepared By
SYSTEMS INTERFACE INC.

For Westinghouse Hanford Company

PROCEDURE APPROVAL

 Author

8-20-96
 Date

 Project Manager

8-20-96
 Date

 Buyer Approval

8-20-96
 Date

Other Approval

Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-7
 PLANT CONTROL SYSTEM SERVER (CPU-12-110) & SYSTEM TERMINAL(TE-12-110)

3/22/96
 REV. 1.0
 PAGE 2 of 7

APPROVAL TO START

TEST EXECUTION No. 1

John Stephenson SH
 Test Director/Organization

8-20-96
 Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

RECORDED BY

John Stephenson SH
 Test Operator/Organization

3/28/96
 Date

John Stephenson SH
 Recorder/Organization

3/28/96
 Date

WITNESSES

John Stephenson SH
 Witness/Organization

3/28/96
 Date

 Witness/Organization

 Date

 Witness/Organization

 Date

 Witness/Organization

 Date

TEST ACCEPTANCE

☒ WITHOUT EXCEPTIONS

☐ WITH EXCEPTIONS OUTSTANDING

John Stephenson SH
 Approver/Organization

3/28/96
 Date

John Stephenson SH
 Approver/Organization

8/27/96
 Date

John Stephenson SH
 Approver/Organization

3/28/96
 Date

 Approver/Organization

 Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-7
PLANT CONTROL SYSTEM SERVER (CPU-12-110) & SYSTEM TERMINAL (TE-12-110)

3/22/96
 REV. 1.0
 PAGE 3 of 7

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that hardware provided for the Plant Control System server properly operates as required by project criteria and specifications.

2.0 REFERENCES

Vendor information from Hewlett-Packard on HP 9000/E45 Unix systems, Islatrol Power Conditioners, and SL Waber Surge Protectors.

2.1 DRAWINGS

Test the equipment called on Bill Of Materials

2.2 SPECIFICATIONS

UE&C Specification Sections 13461-2.04D and 13462-1.04A.1.b.

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - If device being calibrated is not data sheet associated,
 - b. at least four times greater than the specified device tolerance.

Fluke 87 Digital Multimeter (DMM)

If necessary, a 4-20 mA current source

If necessary, a Laptop computer with necessary programming and configuration software such as:

Allen-Bradley Programming Software (ICOM)

Microware OS9000 Programming Software (for 'C' Coprocessors)

Procomm-Plus Terminal Emulation Software

120 VAC Jumpers (small alligator clips and or "scrap" wire)

Any required vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 VERIFY Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 RECORD test equipment name, equipment number, and calibration expiration date on Data Sheet.

6.0 SETUP

- 6.1 Ensure 120 VAC line power is available at a duplex outlet and all circuit breakers "upstream" are on.

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-7
PLANT CONTROL SYSTEM SERVER (CPU-12-110) & SYSTEM TERMINAL(TE-12-110)**

**3/22/96
REV. 1.0
PAGE 5 of 7**

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

7.1.1 Verify Steps 1 through 7 on Data Sheet 7.1 are satisfied.

7.1.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 TEST

7.2.1 Perform actions in Steps 8 through end, on Data Sheet 7.1.

7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

8.0 RESTORATION

8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.

8.2 RESTORE system to normal configuration.

8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

9.1 The acceptance criteria of all steps contained in section 7 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

Test Director

8-20-96
Date

Test Recorder

8-20-96
Date

Test Operator

8-20-96
Date

Witness

8-20-96
Date

Witness

Date

Witness

Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM

3/22/96

HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-7

REV. 1.0

PLANT CONTROL SYSTEM SERVER (CPU-12-110) & SYSTEM TERMINAL (TE-12-110)

PAGE 6 of 7

DATA SHEET 7.1

Test Equipment Name	Test Equipment Number	Calibration Expiration Date	Test Equipment Name	Test Equipment Number	Calibration Expiration Date
		2/1			

JRW 6-27-96

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-7
PLANT CONTROL SYSTEM SERVER (CPU-12-110) & SYSTEM TERMINAL (TE-12-110)**

3/22/96
REV. 1.0
PAGE 7 of 7

Data Sheet 7.1

PLANT CONTROL SYSTEM SERVER (CPU-12-110) & SYSTEM TERMINAL (TE-12-110)

Step #	Description	Pass	Fail	Check
1.1	Install HP 9000/E45 Central Processing Unit. Connect Islatrol Power Line Conditioner to wall duplex and SL Waber Surge Suppressor to Islatrol. Finally plug in HP E45 CPU to SL Waber. Also connect serial multiplexor adaptor to back of E45. Keep the SL Waber power switched off until after step 1.3.	✓		msf
1.2	Install HP 700 Character Terminal. Connect power to SL Waber Surge Protector. Connect serial cable from terminal to port 1 of the HP E45 CPU multiplexor adapter.	✓		msf
1.3	Connect 10-Base-T network cable (RJ45 connector) to rear of E45.	✓		msf
1.4	Verify all network cabling properly terminated (see HATP-11).	✓		msf
1.5	Verify the Cabletron Hub/Router is configured, wired, and powered up (see HATP-11).	✓		msf
1.6 *	Verify the Hanford site WLAN Domain Name Server (DNS) is on-line and functioning properly.			
1.7	Apply power and verify all systems are powering up. If nothing happens, check 120 VAC at surge suppressor, line conditioner, and duplex wall outlet. Ensure all switches are set to the "on" position. Monitor the terminal during power up and note any self-diagnostic messages that appear. If no trouble messages appear, system is properly executing.	✓		msf
1.8	Login to E45 CPU via Terminal and Check keyboard functions 1) Ability to login, 2) Start / execute programs, 3) All keys echo properly on screen.	✓		msf
1.9 xx	Verify proper network communications to other systems; from the Unix prompt "ping" all devices on the network. These include: "dms", "sie", "geaa", "geab", "pana", "panb", "ocs101", "ocs102", "ocs103", "ocs104", "ocs105", "lcu101", "lcu102", "lcu103", "lcu104", "pam", "agv", "asrs" and "ny106". Failure to communicate with any or all of these devices probably indicates problems with wiring, the Cabletron Router, and/or site Domain Name Server.	✓		msf
1.10	Execute the Unix command "sam" to verify that there exists two 1.0 Gb hard drives, one CD_ROM drive, one DDS tape backup, and one 3.5" floppy drive can be located.	✓		msf

* Not needed to test PCS server. msf
 ** Pinged Dms + LCU101. msf

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM

4/17/96

HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8

REV. 1.1

OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

PAGE 1 OF 17

TEST LOCATION/TYPE:

☐ Seller Factory-SF☐ Buyer Factory-BF☐ Seller Plant-SP☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
Project Number W-026

Prepared By

*Systems Interface Inc.****For Westinghouse Hanford Company***

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
 OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 2 OF 17

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-8

Revision Number: 1.1

Execution Number: 1

Start Date-Time: 4/17/96 - 1:00 PM

Test Operator: John Stephenson

End Date-Time: _____

Witness: Wayne Robertson

Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☐ Yes ☒ No

COMMENTS:

TEST PROCEDURE APPROVAL

TEST ☒ Successful ☐ Unsuccessful

Contractor (Company): Systems Interface Inc.

Contractor Representative: [Signature]

Date: 10/24/96

WHC Projects Representative: [Signature]

Date: 10-25-91

WHC NFS Representative: [Signature]

Date: 10/24/96

(NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative: [Signature]

Date: 11/25/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM

4/17/96

HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8

REV. 1.1

OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

PAGE 3 OF 17

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that the Operator Interface Units 103A, 103B, 103C, 104A, 104B, 104C, 104D, 105B and 106B function as required by project criteria.

2.0 REFERENCES

Vendor information from Total Control Products on 5" and 9" Color Quickpanels and Islatrol Power Conditioners.

2.1 DRAWINGS

940823-HWD-B2302	"Operator Interface Unit Layout"
940823-HWD-B2303	"Operator Interface Unit Layout (107-OIU-12-103B)"
940823-HWD-C2302	"Operator Interface Unit Layout"
940823-HWD-C2303	"Operator Interface Unit Layout (107-OIU-12-104B)"
940823-HWD-E2301	"Operator Interface Units Panel Layout"

2.2 SPECIFICATIONS

UE&C Specification Sections 13461-2.03, 13461-2.04.A, and 13461-2.05 dated October 1993.

3.0 EQUIPMENT, MATERIALS AND TOOLS**NOTE**

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - If device being calibrated is not data sheet associated,
 - b. at least four times greater than the specified device tolerance.

Fluke 87 Digital Multimeter (DMM)

If necessary, a 4-20 mA current source

If necessary, a Laptop computer with necessary programming and configuration software such as:

Allen-Bradley Programming Software (ICOM)

Microware OS9000 Programming Software (for 'C' Coprocessors)

Procomm-Plus Terminal Emulation Software

Total Control Products Development Software

120 VAC Jumpers (small alligator clips and or "scrap" wire)

Any required vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 **VERIFY** Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 **RECORD** test equipment name, equipment number, and calibration expiration date on Data Sheet.
- 5.6 **VERIFY** that all tag numbers are correct as listed on the Data Sheets.

6.0 SETUP

- 6.1 All computer and related systems are running with the appropriate Operator Interface screen displayed.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
 OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 5 OF 17

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

7.0.1 Verify Steps 1 through 8 on Data Sheets (7.0.x) are satisfied for each Operator Interface Unit.

7.0.2 Check either "Pass" or "Fail" and initial the completed step.

7.2 TEST

7.2.1 Perform actions in Steps 9 through end, on Data Sheets (7.0.x) for each Operator Interface Unit.

7.2.2 Check either "Pass" or "Fail", and initial the completed step.

8.0 RESTORATION

8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.

8.2 RESTORE system to normal configuration.

8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

9.1 The acceptance criteria of all steps contained in section 7 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

10/17/96
 Test Director Date

 Test Recorder

8-20-96
 Date

10/17/96
 Test Operator Date

 Witness

8-20-96
 Date

 Witness Date

 Witness

 Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8

4/17/96

REV. 1.1

OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

PAGE 6 OF 17

DATA SHEET 5.5

Test Equipment Name	Test Equipment Number	Calibration Expiration Date	Test Equipment Name	Test Equipment Number	Calibration Expiration Date
Fluke 817 multimeter	S/N 62760267	11/96			

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 7 OF 17

Data Sheet 7.0.A				
OPERATOR INTERFACE UNIT OIU-12-103A				
LLW ENTRY GLOVEBOX				
Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		Law
1.2	Component Legends installed; Fuse replacement labels installed	✓		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		Law
1.4	Correct fuses or Circuit Breakers installed	✓		Law
1.5	Wire AWG size, labeled, and color correct	✓		Law
1.6	Door mounted devices tight and secure	✓		Law
1.7	All terminals tight	✓		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		Law
1.9	Apply power and check AC control circuits	✓		Law
1.10	Apply power to Operator Interface Unit and verify power up.	✓		Law
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		Law
1.12	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		Law
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		Law
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		Law

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 8 OF 17

Data Sheet 7.0.B
OPERATOR INTERFACE UNIT OIU-12-103B
LLW SORTING GLOVEBOX

Serial # 70154

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	/		lar
1.2	Component Legends installed; Fuse replacement labels installed	/		lar
1.3	Terminal strips labeled and common jumpers installed on panel side	/		lar
1.4	Correct fuses or Circuit Breakers installed	/		lar
1.5	Wire AWG size, labeled, and color correct	/		lar
1.6	Door mounted devices tight and secure	/		lar
1.7	All terminals tight	✓		lar
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		lar
1.9	Apply power and check AC control circuits	✓		lar
1.10	Apply power to Operator Interface Unit and verify power up.	✓		lar
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		lar
1.12	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		lar
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		lar
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		lar

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 9 OF 17

Data Sheet 7.0.C				
OPERATOR INTERFACE UNIT OIU-12-103C serial # 69122				
LLW EXIT GLOVEBOX				
Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		Jan
1.2	Component Legends installed; Fuse replacement labels installed	✓		Jan
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		Jan
1.4	Correct fuses or Circuit Breakers installed	✓		Jan
1.5	Wire AWG size, labeled, and color correct	✓		Jan
1.6	Door mounted devices tight and secure	✓		Jan
1.7	All terminals tight	✓		Jan
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		Jan
1.9	Apply power and check AC control circuits	✓		Jan
1.10	Apply power to Operator Interface Unit and verify power up.	✓		Jan
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		Jan
1.12	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		Jan
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		Jan
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		Jan

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 10 OF 17

Data Sheet 7.0.D				
OPERATOR INTERFACE UNIT OIU-12-105B				
LLW RWM GLOVEBOX				
Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		Law
1.2	Component Legends installed; Fuse replacement labels installed	✓		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		Law
1.4	Correct fuses or Circuit Breakers installed	✓		Law
1.5	Wire AWG size, labeled, and color correct	✓		Law
1.6	Door mounted devices tight and secure	✓		Law
1.7	All terminals tight	✓		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		Law
1.9	Apply power and check AC control circuits	✓		Law
1.10	Apply power to Operator Interface Unit and verify power up.	✓		Law
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		Law
1.12	Verify specification requirements 13461-2.03.A.7.a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		Law
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		Law
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		Law

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8**
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)
4/17/96
REV. 1.1
PAGE 11 OF 17
**Data Sheet 7.0.E
OPERATOR INTERFACE UNIT OIU-12-105A
LLW RWM DMS TERMINAL**

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		Law
1.2	Component Legends installed; Fuse replacement labels installed	✓		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		Law
1.4	Correct fuses or Circuit Breakers installed	✓		Law
1.5	Wire AWG size, labeled, and color correct	✓		Law
1.6	Door mounted devices tight and secure	✓		Law
1.7	All terminals tight	✓		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		Law
1.9	Apply power and check AC control circuits	✓		Law
1.10	Verify 120VAC to GFCI outlets	✓		Law
1.11	Load test AC circuits> 1.2 kW (14 amp heat gun)	✓		Law
1.12	Test GFCI outlets, (Test Button, and fused jumper between neutral and ground)	✓		Law
1.13	HP Vectra 486 Computer, terminal and keyboard installed, with keyboard resting on top of computer.	✓		Law
1.14	Apply power to HP Vectra Computer and Dynacomp 14" Monitor and verify auto boot to windows application.	✓		Law
1.15	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP Computer. Upon re-initialization of the computer the computer should boot up properly and display the appropriate software.	✓		Law
1.16	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System.	✓		Law

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM

4/17/96

HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8

REV. 1.1

OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

PAGE 12 OF 17

Data Sheet 7.0.F

OPERATOR INTERFACE UNIT OIU-12-104A

Serial # 69123

TRU ENTRY GLOVEBOX

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	/		JS
1.2	Component Legends installed; Fuse replacement labels installed	/		JS
1.3	Terminal strips labeled and common jumpers installed on panel side	/		JS
1.4	Correct fuses or Circuit Breakers installed	/		JS
1.5	Wire AWG size, labeled, and color correct	/		JS
1.6	Door mounted devices tight and secure	/		JS
1.7	All terminals tight	/		JS
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		JS
1.9	Apply power and check AC control circuits	✓		JS
1.10	Apply power to Operator Interface Unit and verify power up.	✓		JS
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		JS
1.12	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		JS
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		JS
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		JS

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM

4/17/96

HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8

REV. 1.1

OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

PAGE 13 OF 17

Data Sheet 7.0.G

OPERATOR INTERFACE UNIT OIU-12-104B

serial # 69062

TRU SORTING GLOVEBOX

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		lew
1.2	Component Legends installed; Fuse replacement labels installed	✓		lew
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		lew
1.4	Correct fuses or Circuit Breakers installed	✓		lew
1.5	Wire AWG size, labeled, and color correct	✓		lew
1.6	Door mounted devices tight and secure	✓		lew
1.7	All terminals tight	✓		lew
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		mp
1.9	Apply power and check AC control circuits	✓		mp
1.10	Apply power to Operator Interface Unit and verify power up.	✓		mp
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		mp
1.12	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		mp
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		mp
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		mp

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 14 OF 17

Data Sheet 7.0.H

OPERATOR INTERFACE UNIT OIU-12-104C
TRU EMPTY DRUM LOADOUT GLOVEBOX

serial # 69125

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	✓		LW
1.2	Component Legends installed; Fuse replacement labels installed	✓		LW
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		LW
1.4	Correct fuses or Circuit Breakers installed	✓		LW
1.5	Wire AWG size, labeled, and color correct	✓		LW
1.6	Door mounted devices tight and secure	✓		LW
1.7	All terminals tight	✓		LW
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		BP
1.9	Apply power and check AC control circuits	✓		BP
1.10	Apply power to Operator Interface Unit and verify power up.	✓		BP
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		BP
1.12	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		BP
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		BP
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		BP

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8**
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96

REV. 1.1

PAGE 15 OF 17

Data Sheet 7.0.1
OPERATOR INTERFACE UNIT OIU-12-104D
TRU LOADOUT GLOVEBOX
serial # 6912A

Step #	Description	Pass	Fail	Initials
1.1	Correct Hardware installed and secure	/		<i>Law</i>
1.2	Component Legends installed; Fuse replacement labels installed	/		<i>Law</i>
1.3	Terminal strips labeled and common jumpers installed on panel side	/		<i>Law</i>
1.4	Correct fuses or Circuit Breakers installed	/		<i>Law</i>
1.5	Wire AWG size, labeled, and color correct	/		<i>Law</i>
1.6	Door mounted devices tight and secure	/		<i>Law</i>
1.7	All terminals tight	✓		<i>Law</i>
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		<i>Law</i>
1.9	Apply power and check AC control circuits	✓		<i>Law</i>
1.10	Apply power to Operator Interface Unit and verify power up.	✓		<i>Law</i>
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		<i>Law</i>
1.12	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		<i>Law</i>
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		<i>Law</i>
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		<i>Law</i>

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 16 OF 17

Data Sheet 7.0.J
OPERATOR INTERFACE UNIT OIU-12-106B serial # 69121
TRU RWM GLOVEBOX

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	✓		Law
1.2	Component Legends installed; Fuse replacement labels installed	✓		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		Law
1.4	Correct fuses or Circuit Breakers installed	✓		Law
1.5	Wire AWG size, labeled, and color correct	✓		Law
1.6	Door mounted devices tight and secure	✓		Law
1.7	All terminals tight	✓		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		Law
1.9	Apply power and check AC control circuits	✓		Law
1.10	Apply power to Operator Interface Unit and verify power up.	✓		Law
1.11	Download executable files to the OIU and verify by proper powerup to Main Menu Display.	✓		Law
1.12	Verify specification requirements 13461-2.03.A.7.a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the Operator Interface Unit. Memory stored in the Flash Eprom should reload the OIU with the proper configuration and Main Menu should be displayed.	✓		Law
1.13	Verify specification requirements 13461-2.03.A.8.c as called for in the ATP QA checklist of the Hardware Requirements matrix are met by disconnecting the Allen Bradley communications cable located on the back of the Operator Interface Unit. When reconnected the Operator Interface Unit should automatically come back "on-line" with the PLC Processor.	✓		Law
1.14	Verify specification requirement 13461-2.04.C.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met. Generate an alarm condition for the glovebox using the PLC data tables and verify that the alarm condition is generated on the OIU alarm display screen. Note that the Software Acceptance Tests will verify all alarms, including OIU equipment failure.	✓		Law

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-8
OPERATOR INTERFACE UNITS (103A,B,C,104A,B,C,D, 105A,B AND 106A,B)

4/17/96
 REV. 1.1
 PAGE 17 OF 17

Data Sheet 7.0.K
OPERATOR INTERFACE UNIT OIU-12-106A
TRU RWM DMS TERMINAL

Step #	Description	Pass	Fail	Check
1.1	Correct Hardware installed and secure	✓		Law
1.2	Component Legends installed; Fuse replacement labels installed	✓		Law
1.3	Terminal strips labeled and common jumpers installed on panel side	✓		Law
1.4	Correct fuses or Circuit Breakers installed	✓		Law
1.5	Wire AWG size, labeled, and color correct	✓		Law
1.6	Door mounted devices tight and secure	✓		Law
1.7	All terminals tight	✓		Law
1.8	Main grounding lug, grounding integrity, separate grounds All grounds <0.1 ohms resistance	✓		JP
1.9	Apply power and check AC control circuits	✓		JP
1.10	Verify 120VAC to GFCI outlets	✓		JP
1.11	Load test AC circuits > 1.2 kW (14 amp heat gun)	✓		JP
1.12	Test GFCI outlets, (Test Button, and fused jumper between neutral and ground)	✓		JP
1.13	HP Vectra 486 Computer, terminal and keyboard installed, with keyboard resting on top of computer.	✓		JP
1.14	Apply power to HP Vectra Computer and Dynacomp 14" Monitor and verify auto boot to windows application.	✓		JP
1.15	Verify specification requirements 13461-2.03.A.7a and 2.03.A.7.b as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP Computer. Upon re-initialization of the computer the computer should boot up properly and display the appropriate software.	✓		JP
1.16	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System.	✓		JP

TEST LOG
Systems Interface Inc

TEST LOG

BPHTP-8

Test Procedure:

Test Procedure ID: ATP-8

Test Type: 88

Revision Number:

Date: _____

26/2/11

Time	Step #	Event Description (with minor problem resolution test procedure AS-BUILT notes)	Recorder Initials	Minor Problem (M/S)?	WHC Approval Signature for "minor" problems
1:00		Completed Steps 1.7 and 1.9-1.14 on Data Sheets 7.0.4, 7.0.5, 7.0.6, 7.0.7, 7.0.8, 7.0.9, 7.0.10, 7.0.11, 7.0.12, 7.0.13, 7.0.14, 7.0.15, 7.0.16, 7.0.17, 7.0.18, 7.0.19, 7.0.20, 7.0.21, 7.0.22, 7.0.23, 7.0.24, 7.0.25, 7.0.26, 7.0.27, 7.0.28, 7.0.29, 7.0.30, 7.0.31, 7.0.32, 7.0.33, 7.0.34, 7.0.35, 7.0.36, 7.0.37, 7.0.38, 7.0.39, 7.0.40, 7.0.41, 7.0.42, 7.0.43, 7.0.44, 7.0.45, 7.0.46, 7.0.47, 7.0.48, 7.0.49, 7.0.50, 7.0.51, 7.0.52, 7.0.53, 7.0.54, 7.0.55, 7.0.56, 7.0.57, 7.0.58, 7.0.59, 7.0.60, 7.0.61, 7.0.62, 7.0.63, 7.0.64, 7.0.65, 7.0.66, 7.0.67, 7.0.68, 7.0.69, 7.0.70, 7.0.71, 7.0.72, 7.0.73, 7.0.74, 7.0.75, 7.0.76, 7.0.77, 7.0.78, 7.0.79, 7.0.80, 7.0.81, 7.0.82, 7.0.83, 7.0.84, 7.0.85, 7.0.86, 7.0.87, 7.0.88, 7.0.89, 7.0.90, 7.0.91, 7.0.92, 7.0.93, 7.0.94, 7.0.95, 7.0.96, 7.0.97, 7.0.98, 7.0.99, 7.0.100, 7.0.101, 7.0.102, 7.0.103, 7.0.104, 7.0.105, 7.0.106, 7.0.107, 7.0.108, 7.0.109, 7.0.110, 7.0.111, 7.0.112, 7.0.113, 7.0.114, 7.0.115, 7.0.116, 7.0.117, 7.0.118, 7.0.119, 7.0.120, 7.0.121, 7.0.122, 7.0.123, 7.0.124, 7.0.125, 7.0.126, 7.0.127, 7.0.128, 7.0.129, 7.0.130, 7.0.131, 7.0.132, 7.0.133, 7.0.134, 7.0.135, 7.0.136, 7.0.137, 7.0.138, 7.0.139, 7.0.140, 7.0.141, 7.0.142, 7.0.143, 7.0.144, 7.0.145, 7.0.146, 7.0.147, 7.0.148, 7.0.149, 7.0.150, 7.0.151, 7.0.152, 7.0.153, 7.0.154, 7.0.155, 7.0.156, 7.0.157, 7.0.158, 7.0.159, 7.0.160, 7.0.161, 7.0.162, 7.0.163, 7.0.164, 7.0.165, 7.0.166, 7.0.167, 7.0.168, 7.0.169, 7.0.170, 7.0.171, 7.0.172, 7.0.173, 7.0.174, 7.0.175, 7.0.176, 7.0.177, 7.0.178, 7.0.179, 7.0.180, 7.0.181, 7.0.182, 7.0.183, 7.0.184, 7.0.185, 7.0.186, 7.0.187, 7.0.188, 7.0.189, 7.0.190, 7.0.191, 7.0.192, 7.0.193, 7.0.194, 7.0.195, 7.0.196, 7.0.197, 7.0.198, 7.0.199, 7.0.200, 7.0.201, 7.0.202, 7.0.203, 7.0.204, 7.0.205, 7.0.206, 7.0.207, 7.0.208, 7.0.209, 7.0.210, 7.0.211, 7.0.212, 7.0.213, 7.0.214, 7.0.215, 7.0.216, 7.0.217, 7.0.218, 7.0.219, 7.0.220, 7.0.221, 7.0.222, 7.0.223, 7.0.224, 7.0.225, 7.0.226, 7.0.227, 7.0.228, 7.0.229, 7.0.230, 7.0.231, 7.0.232, 7.0.233, 7.0.234, 7.0.235, 7.0.236, 7.0.237, 7.0.238, 7.0.239, 7.0.240, 7.0.241, 7.0.242, 7.0.243, 7.0.244, 7.0.245, 7.0.246, 7.0.247, 7.0.248, 7.0.249, 7.0.250, 7.0.251, 7.0.252, 7.0.253, 7.0.254, 7.0.255, 7.0.256, 7.0.257, 7.0.258, 7.0.259, 7.0.260, 7.0.261, 7.0.262, 7.0.263, 7.0.264, 7.0.265, 7.0.266, 7.0.267, 7.0.268, 7.0.269, 7.0.270, 7.0.271, 7.0.272, 7.0.273, 7.0.274, 7.0.275, 7.0.276, 7.0.277, 7.0.278, 7.0.279, 7.0.280, 7.0.281, 7.0.282, 7.0.283, 7.0.284, 7.0.285, 7.0.286, 7.0.287, 7.0.288, 7.0.289, 7.0.290, 7.0.291, 7.0.292, 7.0.293, 7.0.294, 7.0.295, 7.0.296, 7.0.297, 7.0.298, 7.0.299, 7.0.300, 7.0.301, 7.0.302, 7.0.303, 7.0.304, 7.0.305, 7.0.306, 7.0.307, 7.0.308, 7.0.309, 7.0.310, 7.0.311, 7.0.312, 7.0.313, 7.0.314, 7.0.315, 7.0.316, 7.0.317, 7.0.318, 7.0.319, 7.0.320, 7.0.321, 7.0.322, 7.0.323, 7.0.324, 7.0.325, 7.0.326, 7.0.327, 7.0.328, 7.0.329, 7.0.330, 7.0.331, 7.0.332, 7.0.333, 7.0.334, 7.0.335, 7.0.336, 7.0.337, 7.0.338, 7.0.339, 7.0.340, 7.0.341, 7.0.342, 7.0.343, 7.0.344, 7.0.345, 7.0.346, 7.0.347, 7.0.348, 7.0.349, 7.0.350, 7.0.351, 7.0.352, 7.0.353, 7.0.354, 7.0.355, 7.0.356, 7.0.357, 7.0.358, 7.0.359, 7.0.360, 7.0.361, 7.0.362, 7.0.363, 7.0.364, 7.0.365, 7.0.366, 7.0.367, 7.0.368, 7.0.369, 7.0.370, 7.0.371, 7.0.372, 7.0.373, 7.0.374, 7.0.375, 7.0.376, 7.0.377, 7.0.378, 7.0.379, 7.0.380, 7.0.381, 7.0.382, 7.0.383, 7.0.384, 7.0.385, 7.0.386, 7.0.387, 7.0.388, 7.0.389, 7.0.390, 7.0.391, 7.0.392, 7.0.393, 7.0.394, 7.0.395, 7.0.396, 7.0.397, 7.0.398, 7.0.399, 7.0.400, 7.0.401, 7.0.402, 7.0.403, 7.0.404, 7.0.405, 7.0.406, 7.0.407, 7.0.408, 7.0.409, 7.0.410, 7.0.411, 7.0.412, 7.0.413, 7.0.414, 7.0.415, 7.0.416, 7.0.417, 7.0.418, 7.0.419, 7.0.420, 7.0.421, 7.0.422, 7.0.423, 7.0.424, 7.0.425, 7.0.426, 7.0.427, 7.0.428, 7.0.429, 7.0.430, 7.0.431, 7.0.432, 7.0.433, 7.0.434, 7.0.435, 7.0.436, 7.0.437, 7.0.438, 7.0.439, 7.0.440, 7.0.441, 7.0.442, 7.0.443, 7.0.444, 7.0.445, 7.0.446, 7.0.447, 7.0.448, 7.0.449, 7.0.450, 7.0.451, 7.0.452, 7.0.453, 7.0.454, 7.0.455, 7.0.456, 7.0.457, 7.0.458, 7.0.459, 7.0.460, 7.0.461, 7.0.462, 7.0.463, 7.0.464, 7.0.465, 7.0.466, 7.0.467, 7.0.468, 7.0.469, 7.0.470, 7.0.471, 7.0.472, 7.0.473, 7.0.474, 7.0.475, 7.0.476, 7.0.477, 7.0.478, 7.0.479, 7.0.480, 7.0.481, 7.0.482, 7.0.483, 7.0.484, 7.0.485, 7.0.486, 7.0.487, 7.0.488, 7.0.489, 7.0.490, 7.0.491, 7.0.492, 7.0.493, 7.0.494, 7.0.495, 7.0.496, 7.0.497, 7.0.498, 7.0.499, 7.0.500, 7.0.501, 7.0.502, 7.0.503, 7.0.504, 7.0.505, 7.0.506, 7.0.507, 7.0.508, 7.0.509, 7.0.510, 7.0.511, 7.0.512, 7.0.513, 7.0.514, 7.0.515, 7.0.516, 7.0.517, 7.0.518, 7.0.519, 7.0.520, 7.0.521, 7.0.522, 7.0.523, 7.0.524, 7.0.525, 7.0.526, 7.0.527, 7.0.528, 7.0.529, 7.0.530, 7.0.531, 7.0.532, 7.0.533, 7.0.534, 7.0.535, 7.0.536, 7.0.537, 7.0.538, 7.0.539, 7.0.540, 7.0.541, 7.0.542, 7.0.543, 7.0.544, 7.0.545, 7.0.546, 7.0.547, 7.0.548, 7.0.549, 7.0.550, 7.0.551, 7.0.552, 7.0.553, 7.0.554, 7.0.555, 7.0.556, 7.0.557, 7.0.558, 7.0.559, 7.0.560, 7.0.561, 7.0.562, 7.0.563, 7.0.564, 7.0.565, 7.0.566, 7.0.567, 7.0.568, 7.0.569, 7.0.570, 7.0.571, 7.0.572, 7.0.573, 7.0.574, 7.0.575, 7.0.576, 7.0.577, 7.0.578, 7.0.579, 7.0.580, 7.0.581, 7.0.582, 7.0.583, 7.0.584, 7.0.585, 7.0.586, 7.0.587, 7.0.588, 7.0.589, 7.0.590, 7.0.591, 7.0.592, 7.0.593, 7.0.594, 7.0.595, 7.0.596, 7.0.597, 7.0.598, 7.0.599, 7.0.600, 7.0.601, 7.0.602, 7.0.603, 7.0.604, 7.0.605, 7.0.606, 7.0.607, 7.0.608, 7.0.609, 7.0.610, 7.0.611, 7.0.612, 7.0.613, 7.0.614, 7.0.615, 7.0.616, 7.0.617, 7.0.618, 7.0.619, 7.0.620, 7.0.621, 7.0.622, 7.0.623, 7.0.624, 7.0.625, 7.0.626, 7.0.627, 7.0.628, 7.0.629, 7.0.630, 7.0.631, 7.0.632, 7.0.633, 7.0.634, 7.0.635, 7.0.636, 7.0.637, 7.0.638, 7.0.639, 7.0.640, 7.0.641, 7.0.642, 7.0.643, 7.0.644, 7.0.645, 7.0.646, 7.0.647, 7.0.648, 7.0.649, 7.0.650, 7.0.651, 7.0.652, 7.0.653, 7.0.654, 7.0.655, 7.0.656, 7.0.657, 7.0.658, 7.0.659, 7.0.660, 7.0.661, 7.0.662, 7.0.663, 7.0.664, 7.0.665, 7.0.666, 7.0.667, 7.0.668, 7.0.669, 7.0.670, 7.0.671, 7.0.672, 7.0.673, 7.0.674, 7.0.675, 7.0.676, 7.0.677, 7.0.678, 7.0.679, 7.0.680, 7.0.681, 7.0.682, 7.0.683, 7.0.684, 7.0.685, 7.0.686, 7.0.687, 7.0.688, 7.0.689, 7.0.690, 7.0.691, 7.0.692, 7.0.693, 7.0.694, 7.0.695, 7.0.696, 7.0.697, 7.0.698, 7.0.699, 7.0.700, 7.0.701, 7.0.702, 7.0.703, 7.0.704, 7.0.705, 7.0.706, 7.0.707, 7.0.708, 7.0.709, 7.0.710, 7.0.711, 7.0.712, 7.0.713, 7.0.714, 7.0.715, 7.0.716, 7.0.717, 7.0.718, 7.0.719, 7.0.720, 7.0.721, 7.0.722, 7.0.723, 7.0.724, 7.0.725, 7.0.726, 7.0.727, 7.0.728, 7.0.729, 7.0.730, 7.0.731, 7.0.732, 7.0.733, 7.0.734, 7.0.735, 7.0.736, 7.0.737, 7.0.738, 7.0.739, 7.0.740, 7.0.741, 7.0.742, 7.0.743, 7.0.744, 7.0.745, 7.0.746, 7.0.747, 7.0.748, 7.0.749, 7.0.750, 7.0.751, 7.0.752, 7.0.753, 7.0.754, 7.0.755, 7.0.756, 7.0.757, 7.0.758, 7.0.759, 7.0.760, 7.0.761, 7.0.762, 7.0.763, 7.0.764, 7.0.765, 7.0.766, 7.0.767, 7.0.768, 7.0.769, 7.0.770, 7.0.771, 7.0.772, 7.0.773, 7.0.774, 7.0.775, 7.0.776, 7.0.777, 7.0.778, 7.0.779, 7.0.780, 7.0.781, 7.0.782, 7.0.783, 7.0.784, 7.0.785, 7.0.786, 7.0.787, 7.0.788, 7.0.789, 7.0.790, 7.0.791, 7.0.792, 7.0.793, 7.0.794, 7.0.795, 7.0.796, 7.0.797, 7.0.798, 7.0.799, 7.0.800, 7.0.801, 7.0.802, 7.0.803, 7.0.804, 7.0.805, 7.0.806, 7.0.807, 7.0.808, 7.0.809, 7.0.810, 7.0.811, 7.0.812, 7.0.813, 7.0.814, 7.0.815, 7.0.816, 7.0.817, 7.0.818, 7.0.819, 7.0.820, 7.0.821, 7.0.822, 7.0.823, 7.0.824, 7.0.825, 7.0.826, 7.0.827, 7.0.828, 7.0.829, 7.0.830, 7.0.831, 7.0.832, 7.0.833, 7.0.834, 7.0.835, 7.0.836, 7.0.837, 7.0.838, 7.0.839, 7.0.840, 7.0.841, 7.0.842, 7.0.843, 7.0.844, 7.0.845, 7.0.846, 7.0.847, 7.0.848, 7.0.849, 7.0.850, 7.0.851, 7.0.852, 7.0.853, 7.0.854, 7.0.855, 7.0.856, 7.0.857, 7.0.858, 7.0.859, 7.0.860, 7.0.861, 7.0.862, 7.0.863, 7.0.864, 7.0.865, 7.0.866, 7.0.867, 7.0.868, 7.0.869, 7.0.870, 7.0.871, 7.0.872, 7.0.873, 7.0.874, 7.0.875, 7.0.876, 7.0.877, 7.0.878, 7.0.879, 7.0.880, 7.0.881, 7.0.882, 7.0.883, 7.0.884, 7.0.885, 7.0.886, 7.0.887, 7.0.888, 7.0.889, 7.0.890, 7.0.891, 7.0.892, 7.0.893, 7.0.894, 7.0.895, 7.0.896, 7.0.897, 7.0.898, 7.0.899, 7.0.900, 7.0.901, 7.0.902, 7.0.903, 7.0.904, 7.0.905, 7.0.906, 7.0.907, 7.0.908, 7.0.909, 7.0.910, 7.0.911, 7.0.912, 7.0.913, 7.0.914, 7.0.915, 7.0.916, 7.0.917, 7.0.918, 7.0.919, 7.0.920, 7.0.921, 7.0.922, 7.0.923, 7.0.924, 7.0.925, 7.0.926, 7.0.927, 7.0.928, 7.0.929, 7.0.930, 7.0.931, 7.0.932, 7.0.933, 7.0.934, 7.0.935, 7.0.936, 7.0.937, 7.0.938, 7.0.939, 7.0.940, 7.0.941, 7.0.942, 7.0.943, 7.0.944, 7.0.945, 7.0.946, 7.0.947, 7.0.948, 7.0.949, 7.0.950, 7.0.951, 7.0.952, 7.0.953, 7.0.954, 7.0.955, 7.0.956, 7.0.957, 7.0.958, 7.0.959, 7.0.960, 7.0.961, 7.0.962, 7.0.963, 7.0.964, 7.0.965, 7.0.966, 7.0.967, 7.0.968, 7.0.969, 7.0.970, 7.0.971, 7.0.972, 7.0.973, 7.0.974, 7.0.975, 7.0.976, 7.0.977, 7.0.978, 7.0.979, 7.0.980, 7.0.981, 7.0.982, 7.0.983, 7.0.984, 7.0.985, 7.0.986, 7.0.987, 7.0.988, 7.0.989, 7.0.990, 7.0.991, 7.0.992, 7.0.993, 7.0.994, 7.0.995, 7.0.996, 7.0.997, 7.0.998, 7.0.999, 7.0.1000			

Systems Interface Inc

TEST PROCEDURE COVER SHEET

Test Procedure ID: HARD-9Revision Number: 0Execution Number: 1Start Date-Time: 3/28/96 - 2:10 pmTest Operator: John StephensonEnd Date-Time: 3/31/96 1930Witness: Mark PalmerInspection Only?: ☐ Yes ☒ NoTest Exceptions Recorded? ☐ Yes ☒ No

COMMENTS:

TEST PROCEDURE APPROVAL

TEST ☒ Successful ☐ Unsuccessful

Contractor (Company):

Systems Interface Inc.

Contractor Representative:

Date: 7/31/96

WHC Projects Representative:

Date: 8-27-96WHC NFS Representative:
(NFS = New Facility Startup)

Date: 7/31/96

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative:

Date: 8/27/96

Systems Interface Inc
TEST RESPONSIBILITY MATRIX

WRAP MODULE I TESTING RESPONSIBILITY MATRIX

Test Procedure: HATP-9Revision #: 0Execution Number: 1Date: 3/28/96

FACTORY TESTING

	Seller Factory (Dry Run)	Buyer Factory
Test Director		
Test Operator		
Test Recorder		
Test Witness		
Quality Assurance Approval		
Other Test Approval Authorities		

SITE TESTING

	Seller Site (Dry Run)	Buyer Site
Test Director		John Stephenson
Test Operator		for Dwyer SW
Test Recorder		Mark Palmer
Test Witness		to SC Run
Title III Inspector Approval		N/A
Raytheon Approval		N/A
Quality Assurance Approval		for Dwyer SW
WHC Project Test Approval		for Dwyer SW
WHC N.F.S. Test Approval		for Dwyer SW
Other Test Approval Authorities		

Systems Interface Inc TEST LOG

Test Procedure: _____

Test Procedure ID: HATP-9 Test Type: SP Revision Number: 0

Date: _____

[illegible]

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
 PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
 REV. 0
 PAGE 1 of 10

TEST LOCATION/TYPE:

☐ Seller Factory-SF

☐ Buyer Factory-BF

☐ Seller Plant-SP

☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
 Project Number W-026

Prepared By
SYSTEMS INTERFACE INC.

For Westinghouse Hanford Company

PROCEDURE APPROVAL

 Author

7/31/96
 Date

 Project Manager

8-20-96
 Date

 Buyer Approval

7/31/96
 Date

Other Approval

Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
 PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
 REV. 0
 PAGE 2 of 10

APPROVAL TO START

TEST EXECUTION No. 1

[Signature] / SW 7/31/96
 Test Director/Organization Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

RECORDED BY

[Signature] / SW 7/31/96 Frank S Palmer / WAC 7/31/96
 Test Operator/Organization Date Recorder/Organization Date

WITNESSES

Frank S Palmer / WAC 7/31/96 _____
 Witness/Organization Date Witness/Organization Date

 Witness/Organization Date Witness/Organization Date

TEST ACCEPTANCE

☒ WITHOUT EXCEPTIONS

☐ WITH EXCEPTIONS OUTSTANDING

Frank S Palmer / WAC 7/31/96 _____
 Approver/Organization Date Approver/Organization Date

[Signature] 8/21/96 _____
 Approver/Organization Date Approver/Organization Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
 REV. 0
 PAGE 3 of 10

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that hardware provided for the Plant Management System printers properly operates as required by project criteria and specifications.

2.0 REFERENCES

Vendor information from Hewlett-Packard on HP LaserJet 4 printers and from EPSON on DFX-5000+ printers.

2.1 DRAWINGS

940820-HWD-01301 PMS SYSTEM ARCHITECTURE

2.2 SPECIFICATIONS

UE&C Specification Section 13461

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet
 - If device being calibrated is not data sheet associated,
 - b. at least four times greater than the specified device tolerance.

Fluke 87 Digital Multimeter (DMM)

If necessary, a 4-20 mA current source

If necessary, a Laptop computer with necessary programming and configuration software such as:

Allen-Bradley Programming Software (ICOM)

Microware OS9000 Programming Software (for 'C' Coprocessors)

Procomm-Plus Terminal Emulation Software

120 VAC Jumpers (small alligator clips and or "scrap" wire)

Any required vendor manuals

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
PLANT MANAGEMENT SYSTEM PRINTERS****3/22/96
REV. 0
PAGE 4 of 10****4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS**

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 **VERIFY** Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 **RECORD** test equipment name, equipment number, and calibration expiration date on Data Sheet.

6.0 SETUP

- 6.1 Ensure 120 VAC line power is available at a duplex outlet and all circuit breakers "upstream" are on. Plug the printer in.
- 6.2 Ensure there is a supply of paper in the paper tray.

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
PLANT MANAGEMENT SYSTEM PRINTERS**

**3/22/96
REV. 0
PAGE 5 of 10**

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.1.1 Verify Steps 1 through 7 on Data Sheet 7.1 are satisfied.
- 7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 TEST

- 7.2.1 Perform actions in Steps 8 through end, on Data Sheet 7.1.
- 7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

8.0 RESTORATION

- 8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.
- 8.2 RESTORE system to normal configuration.
- 8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

- 9.1 The acceptance criteria of all steps contained in section 7 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

	<u>7/31/96</u>		<u>7/31/96</u>
Test Director	Date	Test Recorder	Date

	<u>7/31/96</u>		
Test Operator	Date	Witness	Date

	<u>7/31/96</u>		
Witness	Date	Witness	Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
REV. 0
PAGE 6 of 10

DATA SHEET 7.1

Test Equipment Name	Test Equipment Number	Calibration Expiration Date	Test Equipment Name	Test Equipment Number	Calibration Expiration Date
		N/A			

[Handwritten signature]
8-27-96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
 PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
 REV. 0
 PAGE 7 of 10

Data Sheet 7.1				
PLANT MANAGEMENT SYSTEM				
SAMPLE MANAGEMENT OFFICE PRINTER 109-PR-12-107				
Step #	Description	Pass	Fail	Check
1.1	Turn on the printer. After an initial warm-up sequence the printer is on-line.	☒	☐	☒
1.2	Press ONLINE to take the printer off-line.	☒	☐	☒
1.3	Press MENU until TEST MENU appears.	☒	☐	☒
1.4	Press ITEM until SELF-TEST appears.	☒	☐	☒
1.5	Press ENTER to start the test. The SELF TEST page is printed.	☒	☐	☒
1.6	Refer to the printer's Users manual for expected SELF TEST layout.	☒	☐	☒
1.7	Date, initial and attach the self test to the test document.	☒	☐	☒

Serial no. JPTG007576

4/16/96

Heather Duncan

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
 PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
 REV. 0
 PAGE 8 of 10

Data Sheet 7.2				
PLANT MANAGEMENT SYSTEM				
SHIPPING/RECEIVING OFFICE PRINTER 101-PR-12-108				
Step #	Description	Pass	Fail	Check
1.1	Turn on the printer. After an initial warm-up sequence the printer is on-line.			✓
1.2	Press ONLINE to take the printer off-line.			✓
1.3	Press MENU until TEST MENU appears.			✓
1.4	Press ITEM until SELF-TEST appears.			✓
1.5	Press ENTER to start the test. The SELF TEST page is printed.			✓
1.6	Refer to the printer's Users manual for expected SELF TEST layout.			✓
1.7	Date, initial and attach the self test to the test document.			✓

Serial no. USBC221288

4/16/96

Heather Duncan

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
 PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
 REV. 0
 PAGE 9 of 10

Data Sheet 7.3
 PLANT MANAGEMENT SYSTEM
 DATA MANAGEMENT SYSTEM PRINTER 202-PR-12-109

Step #	Description	Pass	Fail	Check
1.1	Turn on the printer. After an initial warm-up sequence the printer is on-line.	✓		MR
1.2	Press ONLINE to take the printer off-line.	✓		MR
1.3	Press MENU until TEST MENU appears.	✓		MR
1.4	Press ITEM until SELF-TEST appears.	✓		MR
1.5	Press ENTER to start the test. The SELF TEST page is printed.	✓		MR
1.6	Refer to the printer's Users manual for expected SELF TEST layout.	✓		MR
1.7	Date, initial and attach the self test to the test document.	✓		MR

Serial # J P G B D 17770

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-9
 PLANT MANAGEMENT SYSTEM PRINTERS

3/22/96
 REV. 0
 PAGE 10 of 10

Data Sheet 7.4

PLANT MANAGEMENT SYSTEM

PLANT CONTROL SYSTEM PRINTER 201-PR-12-110

Step #	Description	Pass	Fail	Check
1.1	While holding down the LF/FF button turn on the printer. The self test will print.	✓		mp
1.2	Press the PAUSE button to stop the self test.	✓		mp
1.3	Press the LF/FF button to advance the paper and cancel the self test.	✓		mp
1.4	Refer to the printer's Users manual for expected SELF TEST layout.	✓		mp
1.5	Date, initial and attach the self test to the test document.	✓		mp

- - - - - SELF TEST - - - - -

JOB MENU

```

PAGEPROTECT      = OFF
RESOLUTION       = 300
TIMEOUT          = 15

```

SERIAL MENU

```
SERIAL          = RS-232
PACING          = XON/XOFF
BAUD RATE       = 19200
ROBUST XON      = ON
DTR POLARITY    = HI
```

SELF TEST
CONT SELF TEST
PCL TYPE LIST
PCL DEMO PAGE

```

Formatter Number: SL501119NSP
RAM size: 4096K bytes
Page Count: 18990
Firmware Datecode: 19920603
Cartridge Installed: YES
Paper Trays: PC TRAY (LETTER)
Installed Options: NONE
Installed Personalities:
  PCL (19920511)

```

[illegible]

Printer Self Tests

When you run a Self Test, the printer checks its internal controller and I/O interfaces, then prints a test page.

Understanding the Self Test Printout

Figure 2-5 shows a sample of the Self Test printout.

Self Test Printout Items

Item	Explanation
1.	Standard Menu Selections: Shows standard menu selections, such as Printing Menu and PCL Menu, and menu items, such as copies and MP tray, in the order they appear in the control panel display.
2.	PostScript and Optional Menus: Shows optional menu selections, such as the PostScript Menu, and menu items, such as PRT PS ERRS, in the order they appear in the control panel display. An optional menu will automatically be added to the control panel display and Self Test printout after the option has been added to the printer.
3.	AUX IO Menu: If a Modular I/O is added, it will appear following the Serial Menu in the Self Test and control panel display after the option has been installed.
4.	AUX IO Information: Reserved for MIO and Network statistics. Note that for some installed MIO options, this block of information can take up to 20 lines and three columns.
5.	Formatter Number: Shows the printer's formatter number.
6.	RAM Size: Shows the total amount of installed printer memory, including added optional memory. Two MBytes of installed memory is standard with the printer. If you install optional memory, you can use a self test to verify proper installation. Figure 2-5 shows 6144 KBytes of memory, indicating that 4 additional MBytes of memory have been installed in addition to the printer's 2 MBytes of internal memory.
7.	Page Count: Shows how many pages have been printed. You can use the page count to track printer use. The page count is always updated.
8.	Datecode: Eight-digit date (YYYYMMDD) indicating when the formatter firmware was last revised. This information may be of use to a service technician.
9.	Other Installed Options: Use this area of the self test to verify the installation of typeface cartridges, paper trays, personalities, and other installed options.
10.	Resolution Enhancement: The RET= block can be used to harmonize print density and resolution enhancement (see "Print Density and Resolution Enhancement" under the Printing Menu). For the RET= block to appear on the self test page, resolution must be set to 600 dpi.
11.	Print Pattern: Use the text print pattern to check print density and quality.

Figure 2-5. Self Test Printout

[illegible]

Printer Self Tests

When you run a Self Test, the printer checks its internal controller and I/O interfaces, then prints a test page.

Understanding the Self Test Printout

Figure 2-5 shows a sample of the Self Test printout.

Self Test Printout Items

Item	Explanation
1.	Standard Menu Selections: Shows standard menu selections, such as Printing Menu and PCL Menu, and menu items, such as copies and MP tray, in the order they appear in the control panel display.
2.	PostScript and Optional Menus: Shows optional menu selections, such as the PostScript Menu, and menu items, such as PRT FS EPS, in the order they appear in the control panel display. An optional menu will automatically be added to the control panel display and Self Test printout after the option has been added to the printer.
3.	AUX I/O Menu: If a Module I/O is added, it will appear following the Serial Menu in the Self Test and control panel display after the option has been installed.
4.	AUX I/O Information: Reserved for NIO and Network statistics. Note that for some installed NIO options, this block of information can take up to 20 lines and three columns.
5.	Formatter Number: Shows the printer's formatter number.
6.	RAM Size: Shows the total amount of installed printer memory, including added optional memory. Two Mbytes of installed memory is standard with the printer. If you install optional memory, you use a self test to verify proper installation. Figure 2-5 shows 814 Kbytes of installed memory, indicating that 4 additional Mbytes of memory have been installed in addition to the printer's 2 Mbytes of internal memory.
7.	Page Counts: Shows how many pages have been printed. You can use the page count to track printer use. The page count is always updated.
8.	Date/Time: Eight-digit date (YYYYMMDD) including when the formatter firmware was last revised. This information may be of use to a service technician.
9.	Other Installed Options: Use this area of the self test to verify the installation of typeface cartridges, paper trays, personalizer, and other installed options.
10.	Resolution Enhancement: The KPSR block can be used to harmonize print density and resolution enhancement (see "Print Density and Resolution Enhancement" under the Printing Menu). For the KPSR block to appear on the self test page, resolution must be set to 600 dpi.
11.	Print Pattern: Use the text print pattern to check print density and quality.

Figure 2-5. Self Test Printout

```
PS MENU
PRT PS ERRS   = OFF
JAM RECOVER   = OFF
```

PARALLEL MENU
HIGH SPEED = YES
ADV FNCTNS = ON

TEST MENU

- SELF TEST
- CONT SELF TEST
- PCL TYPE LIST
- PCL DEMO PAGE
- PS CONFIG PAGE
- PS TYPEFACE LIST
- PS DEMO PAGE

RRT - MEDIUM

[illegible]

ACCEPTANCE TEST PROCEDURE: W026-ATP-095 REVISION: 0 DATE: 12-14-95TEST TITLE: HATP 10 -- DMS TERMINALSLOCATION: WRAP 1PROJECT #: W-026 PROJECT TITLE: WRAP MODULE 1

Prepared By
(Systems Interface Incorporated)

For ICF-KHContract: KEH-5366

SELLER PROCEDURE APPROVAL

Originator Date

John G. Kellum _____
Checker Date 8-20-96

Seller Project Manager Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS

2/5/96
REV. 1.1
PAGE 1 OF 14

TEST LOCATION/TYPE:

☐ Seller Factory-SF

☐ Buyer Factory-BF

☐ Seller Plant-SP

☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
Project Number W-026

Prepared By
Systems Interface Inc.

For Westinghouse Hanford Company

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
 DMS SYSTEM TERMINALS
 OF 14 11/01/96

12/14/95
 REV. 1.1
 PAGE 2

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-10 BP
TABLE 6.0.2 Data
 Execution Number: 1

Revision Number: 1.1

Start Date-Time: 12/14/95 9:45am

Test Operator: GARY BENNETT

End Date-Time: 12/14/95

Witness: MARK PALMER

Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☒ Yes ☐ No

COMMENTS:

TEST PROCEDURE APPROVAL

TEST ☒ Successful ☐ Unsuccessful

Contractor (Company): Systems Interface Inc.

Contractor Representative:

Gary Bennett
JORNO
JORNO

Date: 12/4/96

WHC Projects Representative:

Date: 12-16-96

WHC NFS Representative:

Date: 12-16-96

(NFS = New Facility Startup)

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative:

John Payne

Date: 12/11/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 3 OF 14

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that the DMS System Terminals (TE-12-103, TE-12-104, TE-12-107, TE-12-108, OIU-12-105A, OIU-12-106A and TE-12-124) all function as required by project criteria.

2.0 REFERENCES

Vendor information for the Hewlett-Packard Vectra VL2 4/66.

2.1 DRAWINGS

940824-HWD-B2301	"Data Management System Pedestal TE-12-103 Panel Layout"
940824-HWD-A4101	"Data Management System Pedestal TE-12-103 Power Distribution"
940824-HWD-A2301	"Data Management System Pedestal TE-12-104 Panel Layout"
940824-HWD-B4101	"Data Management System Pedestal TE-12-104 Power Distribution"
940824-HWD-C2301	"Data Management System Pedestal TE-12-124 Panel Layout"
940824-HWD-C4101	"Data Management System Pedestal TE-12-124 Power Distribution"

2.2 SPECIFICATIONS

UE&C Specification Sections 13461-2.03.A.7a and 13462/PARTS 123-1.04.A.1.b.7 dated December 15, 1994.

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - If device being calibrated is not data sheet associated,
 - b. at least four times greater than the specified device tolerance.

Digital Multimeter (DMM)
 PC Test Software (Check-it)
 Any required vendor manuals

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS**

**2/5/96
REV. 1.1
PAGE 4 OF 14**

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 VERIFY Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 RECORD test equipment name, equipment number, and calibration expiration date.
- 5.6 VERIFY that all tag numbers are correct as listed on the Data Sheets.

6.0 INSTRUCTIONS

6.1 PRE-TEST AND INSPECTION

- 6.1.1 Verify initial steps (all test steps prior to steps beginning with "Test" or "Verify") are met for the DMS equipment item being tested in data sheet 6.0.x.
- 6.1.2 Check either "Pass" or "Fail" and initial the completed step.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
 DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 5 OF 14

6.2 TEST

- 6.2.1 Perform actions in the following test steps (all test steps beginning with "Test" or "Verify") for the DMS equipment item being tested in data sheet 6.0.x.
- 6.2.2 Check either "Pass" or "Fail", and initial the completed step.

7.0 RESTORATION

- 7.1 VERIFY test equipment is removed and field wiring reconnected.
- 7.2 RESTORE system to normal configuration.
- 7.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

8.0 DISPOSITION

- 8.1 The acceptance criteria of all steps contained in section 6 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

 Test Director

 Date

 Test Recorder

 Date

 Test Operator

 Date

 Witness

 Date

 Witness

 Date

 Witness

 Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
 DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 6 OF 14

DATA SHEET 5.5

Test Equipment Name	Test Equipment Number	Calibration Expiration Date	Test Equipment Name	Test Equipment Number	Calibration Expiration Date
Fluke 87 multimeter	SN 62760267	11/96			

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
 DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 7 OF 14

Data Sheet 6.0.A
 LLW DMS Terminal
 TE-12-103

Step #	Description	Pass	Fail	Initials
1.1	Correct hardware installed and secure.	✓		SP
1.2	Component Legends installed; fuse replacement labels installed.	✓		SP
1.3	Terminal strips labeled.	✓		SP
1.4	Correct fuses or circuit breakers installed.		✓	Law
1.5	Wire AWG size, labeled, and color correct.	✓		Law
1.6	All terminals tight.	✓		Law
1.7	Main grounding lug, grounding integrity. All grounds < 0.1 ohms resistance.	✓		Law
1.8	Apply power and check AC control circuits.	✓		Law
1.9	Verify 120 VAC to GFCI outlets.	✓		2AR
1.10	Test load of AC circuits > 1.2 kW (14 amp heat gun). <i>(Convenience only)</i>	✓		2AR
1.11	Test GFCI outlets (test button, and fused jumper between neutral and ground). <i>(Circ OK) Computer called test button</i>		✓	2AR
1.12	Test integrity of HP Vectra computer system using seller-supplied PC test software (Check-it). Select the "Test Everything" option under the "Test" menu to perform a complete diagnostic of the computer system.	✓		2AR
1.13	Verify specification requirements 13461-2.03.A.7a as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP computer. Upon re-initialization of power, the computer should boot up properly and display the appropriate software.	✓		2AR
1.14	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using buyer-supplied network utility software to verify that the computer can communicate to the Data Management System (i.e. attempt a network "ping" from the DMS terminal to the DMS Server).	✓		SP
1.15	Verify that the LLW Process GB Suite Emergency Stop Push Button, 07-HS-315, is closed when the button is up (deactivated) and is open when the button is down (activated). <i>I: 25/06</i>	✓		SP
1.16	Verify that the LLW Entry GB Auto Mode Key Switch, 07-HS-316, is closed when the key switch is in the AUTO position and is open when the switch is in the MAINT position. <i>I: 23/05</i>	✓		SP
1.17	Verify that the LLW Sorting GB Auto Mode Key Switch, 07-HS-317, is closed when the key switch is in the AUTO position and is open when the switch is in the MAINT position. <i>I: 30/00</i>	✓		SP
1.18	Verify that the LLW Exit GB Auto Mode Key Switch, 07-HS-318, is closed when the key switch is in the AUTO position and is open when the switch is in the MAINT position. <i>I: 25/05</i>	✓		SP
1.19	Verify that a spare Key Switch is installed per contract documents.	N/A		Law

ETR

GCB
 12/4/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 8 OF 14

Data Sheet 6.0.B TRU DMS Terminal TE-12-104				
Step #	Description	Pass	Fail	Initials
1.1	Correct hardware installed and secure. <i>HAM HARDWARE NOT MOUNTED</i>	✓		<i>MSD</i>
1.2	Component Legends installed; fuse replacement labels installed.	✓		<i>MSD</i>
1.3	Terminal strips labeled.	✓		<i>LAR</i>
1.4	Correct fuses or circuit breakers installed.	✓		<i>MSD</i>
1.5	Wire AWG size, labeled, and color correct.	✓		<i>MSD</i>
1.6	All terminals tight.	✓		<i>MSD</i>
1.7	Main grounding lug, grounding integrity. All grounds < 0.1 ohms resistance.	✓		<i>MSD</i>
1.8	Apply power and check AC control circuits.			<i>N/A</i>
1.9	Verify 120 VAC to GFCI outlets.	✓		<i>MSD</i>
1.10	Test load of AC circuits > 1.2 kW (14 amp heat gun).	✓		<i>MSD</i>
1.11	Test GFCI outlets (test button, and fused jumper between neutral and ground).		✓	<i>MSD</i>
1.12	Test integrity of HP Vectra computer system using seller-supplied PC test software (Check-It). Select the "Test Everything" option under the "Test" menu to perform a complete diagnostic of the computer system.	✓		<i>MSD</i>
1.13	Verify specification requirements 13461-2.03.A.7a as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP computer. Upon re-initialization of power, the computer should boot up properly and display the appropriate software.	✓		<i>MSD</i>
1.14	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System (i.e. attempt a network "ping" from the DMS terminal to the DMS Server).	✓		<i>LAR</i>
1.15	Verify that the TRU Process GB Suite Emergency Stop Push Button, 07-HS-305, is closed when the button is up (deactivated) and is open when the button is down (activated). <i>Input I:22/5</i>	✓		<i>MSD</i>
1.16	Verify that the TRU Entry GB Auto Mode Key Switch, 07-HS-306, is closed when the key switch is in the AUTO position and is open when the switch is in the MAINT position. <i>I:22/4</i>	✓		<i>MSD</i>
1.17	Verify that the TRU Sorting GB Auto Mode Key Switch, 07-HS-307, is closed when the key switch is in the AUTO position and is open when the switch is in the MAINT position. <i>I:24/5</i>	✓		<i>MSD</i>
1.18	Verify that the TRU Waste Loadout GB 309 Auto Mode Key Switch, 07-HS-308, is closed when the key switch is in the AUTO position and is open when the switch is in the MAINT position. <i>I:26/15</i>	✓		<i>MSD</i>
1.19	Verify that the TRU Waste Loadout GB 309 Auto Mode Key Switch, 07-HS-309, is closed when the key switch is in the AUTO position and is open when the switch is in the MAINT position. <i>I:26/16</i>	✓		<i>LAR</i>

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
 DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 9 OF 14

Data Sheet 6.0.B
 TRU DMS Terminal
 TE-12-104

Step #	Description	Pass	Fail	Initials
1.20	Verify that two ^{nk} black coverplates are installed for future spare Key Switches per contract specifications. ^A	✓		MB

~~4.20~~ 5 blank above
 3 blank below 30

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS

9/12/96
 REV. 1.1
 PAGE 10 OF 14

Data Sheet 6.0.C				
Sample Management Office DMS Terminal				
TE-12-107				
Step #	Description	Pass	Fail	Initials
1.1	All cables from the monitor, keyboard and mouse are securely attached to the HP Vectra VL2 4/66 computer. Power cable is attached to computer and plugged into a 120 VAC	✓		mg
1.2	Apply power by switching on the power switch of the computer.	✓		mg
1.3	Test integrity of HP Vectra computer system using seller-supplied PC test software (Check-It). Select the "Test Everything" option under the "Test" menu to perform a complete diagnostic of the computer system.		✓	mg
1.4	Verify specification requirements 13461-2.03.A.7a as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP computer. Upon re-initialization of power, the computer should boot up properly and display the appropriate software.	✓		mg
1.5	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System (i.e. attempt a network "ping" from the DMS terminal to the DMS Server).		✓	mg

ETR #2

Keyboard M/N E03L142UX M/O 58351814
 MOUSE S/N LTR 41704473
 MONITOR S/N KK40130227
 CPU S/N 3434A 01293

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS

9/12/96
 REV. 1.1
 PAGE 11 OF 14

Data Sheet 6.0.D

Shipping / Receiving Office DMS Terminal

TE-12-108

Step #	Description	Pass	Fail	Initials
1.1	All cables from the monitor, keyboard and mouse are securely attached to the HP Vectra VL2 4/66 computer. Power cable is attached to computer and plugged into a 120 VAC	X		EAR
1.2	Apply power by switching on the power switch of the computer.	X		EAR
1.3	Test integrity of HP Vectra computer system using seller-supplied PC test software (Check-It). Select the "Test Everything" option under the "Test" menu to perform a complete diagnostic of the computer system.	X		EAR
1.4	Verify specification requirements 13461-2.03.A.7a as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP computer. Upon re-initialization of power, the computer should boot up properly and display the appropriate software.	X		EAR
1.5	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System (i.e. attempt a network "ping" from the DMS terminal to the DMS Server).	X		EAR

Cpu S/N 3434A01772

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 12 OF 14

Data Sheet 6.0.E
LLW RWM Processing DMS Monitor
OJU-12-105A

Step #	Description	Pass	Fail	Initials
1.1	All cables from the monitor are securely attached to the HP Vectra VL2 4/68 computer. Power cable is attached to computer and plugged into a 120 VAC outlet.	/		Law
1.2	Apply power by switching on the power switch of the computer.	/		Law
1.3	Test integrity of HP Vectra computer system using seller-supplied PC test software (Check-It). Select the "Test Everything" option under the "Test" menu to perform a complete diagnostic of the computer system.		/	Law
1.4	Verify specification requirements 13461-2.03.A.7a as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP computer. Upon re-initialization of power, the computer should boot up properly and display the appropriate software.	/		Law
1.5	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System (i.e. attempt a network "ping" from the DMS terminal to the DMS Server).		/	Law

ETP-1P

ETP-1P

KEYBOARD
 MONITOR
 CPU

S/N HN 03614205
 S/N 3434A01795

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
 DMS SYSTEM TERMINALS

2/5/96
 REV. 1.1
 PAGE 13 OF 14

Data Sheet 6.0.F				
TRU RWM Processing DMS Monitor				
OIU-12-106A				
Step #	Description	Pass	Fail	Initials
1.1	All cables from the monitor are securely attached to the HP Vectra VL2 4/66 computer. Power cable is attached to computer and plugged into a 120 VAC outlet.	✓		3P
1.2	Apply power by switching on the power switch of the computer.	✓		2B
1.3	Test integrity of HP Vectra computer system using seller-supplied PC test software (Check-It). Select the "Test Everything" option under the "Test" menu to perform a complete diagnostic of the computer system.	* ✓		3P
1.4	Verify specification requirements 13461-2.03.A.7a as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP computer. Upon re-initialization of power, the computer should boot up properly and display the appropriate software.	✓		AD
1.5	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System (i.e. attempt a network "ping" from the DMS terminal to the DMS Server).	✓		118

* Monitor checked with CHECKIT on 3/28/96 + passed.
 Monitor is dirty + needs cleaning

CPU S/N 3430A03788

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-10
DMS SYSTEM TERMINALS**

2/5/96
REV. 1.1
PAGE 14 OF 14

**Data Sheet 6.0.G
TRUPACT Station DMS Terminal
TE-12-124**

Step #	Description	Pass	Fail	Initials
1.1	Correct hardware installed and secure.	✓		ZAK
1.2	Component Legends installed; fuse replacement labels installed.	✓		ZAK
1.3	Terminal strips labeled.	✓		ZAK
1.4	Correct fuses or circuit breakers installed.	✓		ZAK
1.5	Wire AWG size, labeled, and color correct.	✓		LBJ
1.6	All terminals tight.	✓		ZAK
1.7	Main grounding lug, grounding integrity. All grounds < 0.1 ohms resistance.	✓		ZAK
1.8	Apply power and check AC control circuits.	✓		ZAK
1.9	Verify 120 VAC to GFCI outlets.	✓		ZAK
1.10	Test load of AC circuits > 1.2 kW (14 amp heat gun). <i>(Convenience outlet only)</i>	✓		ZAK
1.11	Test GFCI outlets (test button, and fused jumper between neutral and ground).	✓		ZAK
1.12	Test integrity of HP Vectra computer system using seller-supplied PC test software (Check-It). Select the "Test Everything" option under the "Test" menu to perform a complete diagnostic of the computer system.	✓		KAK
1.13	Verify specification requirements 13461-2.03.A.7a as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the HP computer. Upon re-initialization of power, the computer should boot up properly and display the appropriate software.	✓		ZAK
1.14	Verify specification requirements 13462/PARTS 123-1.04.A.1.b.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by using network utility software to verify that the computer can communicate to the Data Management System (i.e. attempt a network "ping" from the DMS terminal to the DMS Server).	✓		ZAK

HAT8-9 Data Sheet 7.4
7/3/96 Page 1 of 3

HHS-9 DATA SHEET 7.4
Page 2 of 3

H470-9 Data Sheet 7.4
Page 3 of 3

[illegible]

ACCEPTANCE TEST PROCEDURE: W026-ATP-095 REVISION: 0 DATE: 12-14-95

TEST EXECUTION

EXECUTED BY:

<u>Test Director/Organization</u>	<u>Date</u>	<u>Test Operator/Organization</u>	<u>Date</u>
<u>Sub 7 Baker</u>	<u>8-20-91</u>		
<u>Recorder/Organization</u>	<u>Date</u>		

BUYER WITNESSES:

<u>Witness/Organization</u>	<u>Date</u>	<u>Witness/Organization</u>	<u>Date</u>
<u>J. R. K. K.</u>	<u>2-15-91</u>		
<u>Witness/Organization</u>	<u>Date</u>	<u>Witness/Organization</u>	<u>Date</u>

TEST APPROVAL

Without Exception _____	With Exceptions Resolved _____	With Exceptions Outstanding _____
----------------------------	-----------------------------------	--------------------------------------

<u>WRAP 1 Operations</u>	<u>Date</u>
--------------------------	-------------

Without Exception _____	With Exceptions Resolved _____	With Exceptions Outstanding _____
----------------------------	-----------------------------------	--------------------------------------

<u>WHC Quality Assurance</u>	<u>Date</u>
------------------------------	-------------

Without Exception _____	With Exceptions Resolved _____	With Exceptions Outstanding _____
----------------------------	-----------------------------------	--------------------------------------

<u>WRAP 1 Project Engineer</u>	<u>Date</u>
--------------------------------	-------------

Without Exception _____	With Exceptions Resolved _____	With Exceptions Outstanding _____
----------------------------	-----------------------------------	--------------------------------------

<u>Raytheon</u>	<u>Date</u>
-----------------	-------------

Without Exception _____	With Exceptions Resolved _____	With Exceptions Outstanding _____
----------------------------	-----------------------------------	--------------------------------------

<u>ICF-KH Project Manager</u>	<u>Date</u>
-------------------------------	-------------

Systems Interface Inc
TEST LOG

Test Procedure: BPHATP-10

Test Procedure ID: HATP-10

Test Type: RP

Revision Number: 1.1

Date: 12/14/95

Time	Test Step #	Event Description (with minor problem resolution test procedure AS-BUILT notes)	Recorder Initials	Minor Problem (M/S)?	WHC Approval Signature for "minor" problems
9:45	—	BEGIN TESTING, SAMPLE MANAGEMENT OFFICE DMS TERMINAL DATA	GLB		
—	—	START G.O.C.			
1100	1.3	Failed roller test	msf		
1100	1.5	No response for network card - cannot access	msf		
2-15-96 0930	1.3	Attempted to clear test exceptions #2 on data sheet G.O.C. (pg 2) deficiency still not resolved			
	1.5	Ran data sheet G.O.C. Could not verify DMS communications as server is not available. Test exceptions generated	lew	M	
	1.3	Test was run in control room using x-terminal step 1.3 (video portion) needs to be rerun on the plant floor using ERM monitor - test exceptions generated	lew	S	
2-22-96	1.3	DATA SHEET G.O.C. & SAMPLE MANAGEMENT OFFICE DMS TERMINAL EXCEPTION REPORT #2 CLOSED & PER MARK KIMMER, REF			
	9:50	CCMAIL 2/22/96	GLB		
2-10-96 1045	1.35	ERR #3 PING initiated and passed. This ERR closed, DS G.O.E	msf		
1050	1.5	ERR #1, PING for DS G.O.C initiated & passed	msf		
1145	1.3	ERR #4, LLW AWM monitor checked out with CHECKIT			
		I passed. Monitor is defective	msf		
1150	1.3	CHECKIT AWM on ERR #4 thru AWM monitor. Passed. (monitor is defective)	msf		

Systems Interface Inc TEST LOG

Test Procedure: BP 4 ATP 10

Test Procedure ID: HATP-10 Test Type: BP Revision Number: 1.1

Date: 4/18/26

[illegible]

Systems Interface Inc
EXCEPTION REPORT

Test Procedure ID: HATP-10 DS C.O.C Exception Report Number: 1

Test Step Number: 1.5 Execution Number: 1

Test Operator: G. Bennett Date / Time: 12/14/95

Test Witness: M. Palmer Date / Time: 12/17/95

Description of the Exception (Expected Result versus Actual Result):

Final network wiring is not in place. Failed
on temporary wiring. No display to run
step 1.5

Resolution:

Retest step 1.5 when final cable is in place

Retested on 3/28 & passed. msp

Approval of Resolution:

Contractor (Company): Systems Interface Inc.

Contractor Representative: [Signature]

Date: 7/31/96

WHC Projects Representative: [Signature]

Date: 12-15-95

WHC NFS Representative: [Signature]
(NFS = New Facility Startup)

Date: 12/14/95

ICF KEH Representative: [Signature]

Date: 8/21/96

Systems Interface Inc
EXCEPTION REPORT

Test Procedure ID: HATP-10 DSG.D.C Exception Report Number: 2

Test Step Number: 1.83 Execution Number: 1

Test Operator: G Bennett Date / Time: 12/17/95

Test Witness: M Palmer Date / Time: 12/19/95

Description of the Exception (Expected Result versus Actual Result):

Failed rider mode test, EGA MONO

Resolution:

EGA MONO MADE NOT (REQUIRED) FOR OPERATION
EXCEPTION CLOSED

Approval of Resolution:

Contractor (Company): Systems Interface Inc.

Contractor Representative:

G Bennett

Date: 2/22/96

WHC Projects Representative:

W R Wood

Date: 3-28-96

WHC NFS Representative:
(NFS = New Facility Startup)

M S Palmer

Date: 3/28/96

ICF KEH Representative:

M Palmer

Date: 8-21-96

**Systems Interface Inc
EXCEPTION REPORT**

Test Procedure ID: HATP 10-DS 6.0.E Exception Report Number: 3

Test Step Number: 1.5

Execution Number: 1

Test Operator: [Signature]

Date / Time: 2-15-95/10:00

Test Witness: [Signature]

Date / Time: 2-15-95/10:00

Description of the Exception (Expected Result versus Actual Result):

Final network wiring/DMS server is not in place. Terminal communications over WLAN can not be verified.

Resolution:

Perform test of step 1.5 upon completion of system installation

Re-run on 3/28 + final msg

Approval of Resolution:

Contractor (Company):	<u>Systems Interface Inc.</u>	
Contractor Representative:	<u>[Signature]</u>	Date: <u>7/31/96</u>
WHC Projects Representative:	<u>[Signature]</u>	Date: <u>3-28-96</u>
WHC NFS Representative: (NFS = New Facility Startup)	<u>[Signature]</u>	Date: <u>3/28/96</u>
ICF KEH Representative:	<u>[Signature]</u>	Date: <u>8-21-96</u>

Systems Interface Inc
EXCEPTION REPORT

Test Procedure ID: HATP 10 - DS 6.0.EException Report Number: 4Test Step Number: 1.3Execution Number: 1Test Operator: [Signature]Date / Time: 2-15-96 / 1000Test Witness: [Signature]Date / Time: 2-15-96 / 10:00**Description of the Exception (Expected Result versus Actual Result):**

Test was run ~~on~~ on Central Room X-terminated
monitor vs. Room monitor on glove box.

Resolution:

Re-run "check-it" software (video portion only)
on Room monitor

Approval of Resolution:

Contractor (Company):

Systems Interface Inc.

Contractor Representative:

[Signature]Date: 3/21/96

WHC Projects Representative:

[Signature]Date: 2-28-96WHC NFS Representative:
(NFS = New Facility Startup)[Signature]Date: 3/28/96

ICF KEH Representative:

[Signature]Date: 3.21.96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP#: HATP 10
 Test: 6.0B
 Step: 1.11 Equipment Tag #: 107-TE-12-104

Exception #: 5
 Revision #: 1
 Execution: 1

Test Operator: John Stephenson
 Test Witness: ME Palmer

Date/Time: 4/13/96 1400
 Date/Time: 4/18/96 1400

Responsible Contractor: PCL
 Responsible Subcontractor: SII
 Responsible Individual: _____

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

Computer GECI would not trip

EXCEPTION RESOLUTION:

SII to troubleshoot & fix
Outlet replaced and retested GECI

Exception Closed By:

Gregory A. White

Date:

9-5-96

APPROVAL OF RESOLUTION

Contractor Representative:

[Signature]

Date:

9-5-96

WHC Projects Representative:

[Signature]

Date:

9-24-96

WHC NFS Representative:

(NFS = New Facility Startup)

Gregory A. White

Date:

9-5-96

ICF KEH Representative:

Paul S. McElroy

Date:

9-28-96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracing #:

ATP (Y/N) _____ ATP#: HATP 10
 Test: HATP 10
 Step: 6.0.F Equipment Tag #: 01V-12-106A
 Spec. Section: 13461

Exception: 6
 Revision: 1
 Execution: 1

Test Operator: _____
 Test Witness: W. Linder

Date: 10-10-96
 Time: 1100

Responsible Contractor: PCL
 Responsible Subcontractor: W. ST. DMP
 Responsible Individual: BEHNSP

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

A SUNCLOWER SEED IS STUCK BETWEEN OLV SCREEN
& GLOVEBOX WINDOW (BOTTOM CENTER LOCATION)

EXCEPTION RESOLUTION:

REMOVE SUNCLOWER SEED, REINSTALL MONITOR
& VERIFY DMS COMMUNICATIONS STILL WORK

Exception Closed By: _____

Date: 11-6-96

APPROVAL OF RESOLUTION

Contractor Representative: _____

Date: 11/5/96

WHC Projects Representative: _____

Date: 11-7-96

WHC NFS Representative:
(NFS = New Facility Startup)

Date: 11-7-96

ICF KEH Representative: _____

Date: 11/7/96

WRAP ACCEPTANCE TEST PROCEDURE EXCEPTION LOG

Tracking #:

ATP (Y/N) _____ ATP#: HATP 10
 Test: HATP 10
 Step: 6.0.A.B Equipment Tag #: _____
 Spec. Section: 13461

Exception: 7
 Revision: 1
 Execution: 1

Test Operator: _____
 Test Witness: W. Eiden

Date: 10-25-96
 Time: _____

Responsible Contractor: PCL
 Responsible Subcontractor: SII
 Responsible Individual: Schumme

EXCEPTION DESCRIPTION: (Expected Result versus Actual Result)

ON LHW DWS TERMINAL: CBI IS UNDERSIZED, LEADS AC3
 & N2 ARE IMPROPERLY LABELLED: DWG 940824-HWD-A2301
 DOES NOT REFLECT AS BUILT CONDITION
 ON TRU DWS TERMINAL: DWG 940824-HWD-B2301
 DOES NOT REFLECT AS BUILT CONDITION

EXCEPTION RESOLUTION:

RESOLVE ISSUES, REINSPECT AND RESUBMIT DWGS

Exception Closed By:

J. R. W.

Date: 12-11-96

APPROVAL OF RESOLUTION

Contractor Representative: _____
 WHC Projects Representative: _____
 WHC NFS Representative: _____
 (NFS = New Facility Startup)
 ICF KEH Representative: _____

John Payne

Date: 12/4/96
 Date: 12-11-96
 Date: 12-11-96
 Date: 12/11/96

Systems Interface Inc

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP-11 Revision Number: 0
 Execution Number: 1 Start Date-Time: 9/23/96 1345
 Test Operator: JOHN STEPHENSON End Date-Time: 10/7/96 1300
 Witness: MARK PALMER Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☐ Yes ☒ No

COMMENTS:

TEST PROCEDURE APPROVAL

TEST ☒ Successful ☐ Unsuccessful

Contractor (Company):

Systems Interface Inc.

Contractor Representative:

[Signature]

Date: 10/7/96

WHC Projects Representative:

[Signature]

Date: 10-7-96

WHC NFS Representative:
(NFS = New Facility Startup)

[Signature]

Date: 10/7/96

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative:

[Signature]

Date: 10/7/96

TEST LOG

Test Procedure: Comm. Equipment

Test Procedure ID: HATP-11

Test Type: HARDWARE

Revision Number: 0

Date: 9/23/46

10/7/96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
 MISCELLANEOUS COMMUNICATIONS EQUIPMENT

3/22/96
 REV. 0
 PAGE 1 of 8

TEST LOCATION/TYPE:

☐ Seller Factory-SF

☐ Buyer Factory-BF

☐ Seller Plant-SP

☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
 Project Number W-026

Prepared By
 SYSTEMS INTERFACE INC.

For Westinghouse Hanford Company

PROCEDURE APPROVAL

DL SLL
 Author

10/7/96
 Date

DL SLL
 Project Manager

10/7/96
 Date

John J. L. L.
 Buyer Approval

10/7/96
 Date

 Other Approval

 Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
MISCELLANEOUS COMMUNICATIONS EQUIPMENT

3/22/96
REV. 0
PAGE 2 of 8

APPROVAL TO STARTTEST EXECUTION No. 1

[Signature] / SEA 10/7/96
 Test Director/Organization Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

RECORDED BY

[Signature] / SEA 10/7/96 [Signature] / RUST 10/7/96
 Test Operator/Organization Date Recorder/Organization Date

WITNESSES

[Signature] / RUST 10/7/96 _____
 Witness/Organization Date Witness/Organization Date

 Witness/Organization Date Witness/Organization Date

TEST ACCEPTANCE

☒ **WITHOUT EXCEPTIONS**

☐ **WITH EXCEPTIONS OUTSTANDING**

[Signature] / PDNWH 10/7/96 _____
 Approver/Organization Date Approver/Organization Date

 Approver/Organization Date Approver/Organization Date

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
MISCELLANEOUS COMMUNICATIONS EQUIPMENT**

**3/22/96
REV. 0
PAGE 3 of 8**

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that hardware provided for miscellaneous communications equipment including:

1. 1771 Control Coprocessors
2. PCS LAN cabling
3. Hub/Router

properly operates as required by project criteria and specifications.

2.0 REFERENCES

Vendor information from:

- Allen-Bradley for the 1771 Control Coprocessor

2.1 DRAWINGS

940820-HWD-01301	PMS SYSTEM ARCHITECTURE
940823-HWD-01301	PMS SYSTEM ARCHITECTURE
940823-HWD-01302	PMS SYSTEM ARCHITECTURE

2.2 SPECIFICATIONS

UE&C Specification Section 13461

3.0 EQUIPMENT, MATERIALS AND TOOLS

NOTE

All Measuring and Test Equipment (M&TE) used to collect data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label.
- Be capable of desired range.
- Have an accuracy consistent with state-of-the-art limitations:
 - a. equal to or greater than the input tolerance specified on the Data Sheet.
 - If device being calibrated is not data sheet associated,
 - b. at least four times greater than the specified device tolerance.

Fluke 87 Digital Multimeter (DMM)

Fluke 650 LAN Cable Meter

If necessary, a 4-20 mA current source

If necessary, a Laptop computer with necessary programming and configuration software such as:

Allen-Bradley Programming Software (ICOM)

Microware OS9000 Programming Software (for 'C' Coprocessors)

Procomm-Plus Terminal Emulation Software

120 VAC Jumpers (small alligator clips and or "scrap" wire)

Any required vendor manuals

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
MISCELLANEOUS COMMUNICATIONS EQUIPMENT****3/22/96
REV. 0
PAGE 4 of 8****4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS**

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 VERIFY Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 RECORD test equipment name, equipment number, and calibration expiration date on Data Sheet.

6.0 SETUP

- 6.1 Ensure 120 VAC line power is available at a duplex outlet and all circuit breakers "upstream" are on.

**WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
MISCELLANEOUS COMMUNICATIONS EQUIPMENT**

**3/22/96
REV. 0
PAGE 5 of 8**

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.1.1 Verify Steps 1 through 7 on Data Sheet 7.1 are satisfied.
- 7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

7.2 TEST

- 7.2.1 Perform actions in Steps 8 through end, on Data Sheet 7.1.
- 7.2.2 Check either "Pass" or "Fail", and check (as completed) the Data Sheet.

8.0 RESTORATION

- 8.1 VERIFY test equipment and all jumpers are removed and field wiring reconnected.
- 8.2 RESTORE system to normal configuration.
- 8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

- 9.1 The acceptance criteria of all steps contained in section 7 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

	<u>10/7/96</u>		<u>10/7/96</u>
Test Director	Date	Test Recorder	Date

	<u>10/7/96</u>		<u>10/7/96</u>
Test Operator	Date	Witness	Date

_____	_____	_____	_____
Witness	Date	Witness	Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
MISCELLANEOUS COMMUNICATIONS EQUIPMENT

3/22/96
REV. 0
PAGE 6 of 8

DATA SHEET 7.1

Test Equipment Name	Test Equipment Number	Calibration Expiration Date	Test Equipment Name	Test Equipment Number	Calibration Expiration Date
FLUKE 650LAN Cable Meter					

[Handwritten Signature]
 10-7-96

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
MISCELLANEOUS COMMUNICATIONS EQUIPMENT

3/22/96
 REV. 0
 PAGE 7 of 8

Data Sheet 7.1

PLANT MANAGEMENT SYSTEM
COMMUNICATIONS CO-PROCESSOR IN LCU 101

Step #	Description	Pass	Fail	Check
1.1	Power up the coprocessor. On the main module, the CPU LED blinks green four (4) times and then remains lit green.	✓		3/22
1.2	The BATT LED blinks red four times and then is not lit.	✓		3/22

Data Sheet 7.2

PLANT MANAGEMENT SYSTEM
COMMUNICATIONS CO-PROCESSOR IN LCU 102

Step #	Description	Pass	Fail	Check
1.1	Power up the coprocessor. On the main module, the CPU LED blinks green four (4) times and then remains lit green.	✓		3/22
1.2	The BATT LED blinks red four times and then is not lit.	✓		3/22
1.3	On the expander module, the four character positions on the ASCII display blink four times and then are not lit.	✓		3/22

Data Sheet 7.3

PLANT MANAGEMENT SYSTEM
COMMUNICATIONS CO-PROCESSOR IN LCU 103

Step #	Description	Pass	Fail	Check
1.1	Power up the coprocessor. On the main module, the CPU LED blinks green four (4) times and then remains lit green.	✓		3/22
1.2	The BATT LED blinks red four times and then is not lit.	✓		3/22
1.3	On the expander module, the four character positions on the ASCII display blink four times and then are not lit.	✓		3/22

Data Sheet 7.4

PLANT MANAGEMENT SYSTEM
COMMUNICATIONS CO-PROCESSOR IN LCU 104

Step #	Description	Pass	Fail	Check
1.1	Power up the coprocessor. On the main module, the CPU LED blinks green four (4) times and then remains lit green.	✓		3/22
1.2	The BATT LED blinks red four times and then is not lit.	✓		3/22

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-11
MISCELLANEOUS COMMUNICATIONS EQUIPMENT

3/22/96
 REV. 0
 PAGE 8 of 8

Data Sheet 7.5				
PLANT MANAGEMENT SYSTEM				
LAN CABLING				
Step #	Description	Pass	Fail	Check
1.1	PCS to HUB (01) Disconnect both ends of the cable. At one end attach the REMOTE UNIT, at the other attach the meter.	✓		240
1.2	Select AUTOTEST and select 10BaseT L5 for the cable type. The tests are run automatically. All tests pass.	✓		450
1.3	Save the test as #01 for later printing.	N/A		740
Repeat the tests for the following cable runs:				
1.4	OCS 101 to HUB (02)	✓		240
1.5	OCS 102 to HUB (03)	✓		240
1.6	OCS 103 to HUB (04)	✓		240
1.7	OCS 104 to HUB (05)	✓		240
1.8	OCS 105 to HUB (06)	✓		240
1.9	HUB to LCU 101 (07)	✓		240
1.10	HUB to LCU 102 (08)	✓		240
1.11	HUB to LCU 103 (09)	✓		240
1.12	HUB to LCU 104 (10)	✓		240
1.13	Connect the meter to a serial printer and print a; of the save tests. Attach those tests to this testing document.	N/A		240

Data Sheet 7.6				
PLANT MANAGEMENT SYSTEM				
CABLETRON MMAC HUB/ROUTER				
Step #	Description	Pass	Fail	Check
1.1	Power up the router. There should be no red LED's.	✓		240

See log

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
BAR CODE EQUIPMENT

2/1/96
REV. 1.1
PAGE 1 OF 27

TEST LOCATION/TYPE:

☐ Seller Factory-SF☐ Buyer Factory-BF☐ Seller Plant-SP☒ Buyer Plant-BP

PROJECT TITLE: WRAP MODULE 1 PLANT MANAGEMENT SYSTEM
Project Number W-026

Prepared By

Systems Interface Inc.

For Westinghouse Hanford Company

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1

PAGE 2 OF 27

TEST PROCEDURE COVER SHEET

Test Procedure ID: HATP - 12

Revision Number: 0

Execution Number: 1

Start Date-Time: 2-15-96 / 10:00

Test Operator: GARY BENOET

End Date-Time: _____

Witness: JOHN WEIDERT

Inspection Only?: ☐ Yes ☒ No

Test Exceptions Recorded? ☒ Yes ☐ No

COMMENTS:

Obtain wedge reader 12-NE/WT-317 and test.

TEST PROCEDURE APPROVAL

TEST ☐ Successful ☐ Unsuccessful

Contractor (Company): Systems Interface Inc.

Contractor Representative: _____

Date: 10/17/96

WHC Projects Representative: _____

Date: 10-17-96

WHC NFS Representative:
 (NFS = New Facility Startup)

Date: 10-17-96

CERTIFICATION OF SATISFACTORY EXECUTION

All test cases for this procedure have been tested and all exception sheets for this test have been resolved.

ICF KEH Representative: _____

Date: 11/17/96

1.0 PURPOSE AND SCOPE

This Acceptance Test Procedure has been prepared to demonstrate that the Bar Code Equipment, including the Fixed Bar Code Interface Module, the Bar Code Printer, the Fixed Bar Code Scanners/Terminals (12-NT/NE-102, 12-NT/NE-301, 12-NT/NE-304, 12-NT/NE-305, 12-NT/NE-311, 12-NT/NE-312, 12-NT/NE-314, 12-NT/NE-315, 12-NT/NE-316, 12-NT/NE-317), and the the Teklogix 7025-ILR RF Bar Code Scanners/Terminals (12-NT/NE-101, 12-NT/NE-103, 12-NT/NE-300, 12-NT/NE-303, 12-NT/NE-310, 12-NT/NE-313), RF Bar Code Network Controller (12-NY-106), and Radio Link Controllers (12-NY-104, 12-NY-105, 12-NY-306) all function as required by project criteria.

2.0 REFERENCES

Vendor information and SII Configuration Sheets for the Allen-Bradley 2708 Wand Bar Code Decoder, the Allen-Bradley 2755 Fixed Bar Code Decoder, the Allen-Bradley 2760-RB Flexible Interface Module, and the Teklogix RF Bar Code Equipment (7025 RF Terminals, 9130 Radio Link Controllers and 9200 Network Controller); vendor information for the Zebra Bar Code Printer.

2.1 DRAWINGS

940821-HWD-01301	"Bar Code Block Diagram"
940821-HWD-04201	"Bar Code Scanner Connection Details"
940821-HWD-04202	"Bar Code Wand Reader Connection Details"
940821-HWD-A2301	"Bar Code Radio Link Controller"
940821-HWD-A2302	"Bar Code Fixed Scanner Decoders"
940821-HWD-A2303	"Bar Code Wand Scanner Decoders"

2.2 SPECIFICATIONS

UE&C Specification Sections 13406-2.04.A, 13406-2.04.C, 13406-2.04.D, 13406-2.04.E, 13406-2.04.F, 13406-2.04.G, 13406-2.04.K, 13406-2.04.L, 13406-3.05.A, dated December 15, 1994.

3.0 EQUIPMENT, MATERIALS AND TOOLS

Sample Bar Code Labels of all types and media to be used in the facility
 Laptop computer with necessary programming and configuration software such as:
 Allen-Bradley Programming Software (ICOM)
 Procomm-Plus Terminal Emulation Software
 Allen-Bradley Application Generator Software (for Wand Decoders)
 Allen-Bradley Network Manager Software (for Wand Decoders)
 Zebra Label Matrix Software (for Bar Code Printer)
 PCS Server
 HP-UX X-Terminal
 Any required vendor manuals

4.0 SAFETY, PRECAUTIONS, AND LIMITATIONS

- 4.1 Note that the test involves working with 120 Volt AC power which is potentially hazardous unless appropriate safety precautions are taken. This includes basic knowledge of electricity and awareness of whether a circuit or wire is energized before beginning work with or near any exposed electrical wiring or components. If someone does receive a serious electric shock, attempt to follow the following first aid procedures:
- 1) Turn off the power source.
 - 2) Do not approach the victim until the source of the power has been turned off.
 - 3) Drag the victim clear, if necessary.
 - 4) Administer Artificial Respiration or CPR, if necessary.
 - 5) Treat for shock
 - 6) Check for other injuries and seek Medical help.
 - 7) Monitor victim until Medical help arrives, continuing CPR, if necessary.
- 4.2 Inform the Test Director **IMMEDIATELY** if problems are encountered with this procedure.
- 4.3 If this procedure cannot be performed as written, stop work. Return equipment to safe configuration and inform Test Director that the procedure cannot be performed as written, and revision or retest is required.
- 4.4 Comply with the Hardware Test Plan Requirements and Procedures.

5.0 PREREQUISITES

- 5.1 Reverify test prerequisites prior to resumption of a suspended test procedure.
- 5.2 Release from Test Director has been obtained prior to testing or retesting of installed equipment.
- 5.3 **VERIFY** Test Operator has configured system or equipment as required to allow performance of this procedure.
- 5.4 Notify all appropriate personnel that a test is being initiated and false alarms and/or indications could be generated.
- 5.5 **VERIFY** that all tag numbers are correct as listed on the Data Sheets.

6.0 SETUP

- 6.1 All computer and related systems are running, including LCU_103 (Fixed Bar Code Interface Module), the RF Network Controller 12-NY-106 in LCU_101, the RF Radio Link Controllers, the bar code decoders/scanners, test laptop, and, where necessary, the PCS Server and an HP-UX X-Terminal.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
BAR CODE EQUIPMENT

2/1/96
 REV. 1.1

PAGE 5 OF 27

7.0 INSTRUCTIONS

7.1 PRE-TEST AND INSPECTION

- 7.0.1 Verify initial steps are met for bar code equipment item being tested in data sheet 7.0.x.
- 7.0.2 Check either "Pass" or "Fail" and initial the completed step.

7.2 TEST

- 7.2.1 Perform actions in the following test steps for the bar code item being tested in data sheet 7.0.x. Perform tests on each data sheet in the order listed (7.0.1, 7.0.2, ...).
- 7.2.2 Check either "Pass" or "Fail", and initial the completed step.

8.0 RESTORATION

- 8.1 VERIFY test equipment is removed and field wiring reconnected.
- 8.2 RESTORE system to normal configuration.
- 8.3 Notify appropriate personnel that a test is complete and no more false alarms and/or indications will be generated.

9.0 DISPOSITION

- 9.1 The acceptance criteria of all steps contained in section 7 HAVE / HAVE NOT (circle one) been met. RECORD on an Exception Form any steps where the acceptance criteria was NOT met. The following persons by their signature concur that the above tests have been successfully completed.

 Test Director
 2-15-96
 Date

 Test Operator
 2-15-96
 Date

 Test Recorder
 2-15-96
 Date

 Witness
 2-15-96
 Date

 Witness Date

 Witness Date

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
BAR CODE EQUIPMENT

2/1/96

REV. 1.1

PAGE 6 OF 27

9-12-96

Data Sheet 7.0.A**FIXED BAR CODE INTERFACE MODULE WITHIN LCU 103**

Step #	Description	Pass	Fail	Initials
1.1	Allen-Bradley 2760-RB Flexible Interface Module correctly installed in PLC processor rack 0, slots 2 and 3 of LCU 103.	✓		mrg
1.2	Apply power to PLC processor rack by switching power supply on.	✓		mrg
1.3	Verify 2760-RB is configured properly for fixed bar code system. See attached configuration sheet for 2760-RB Module.	✓		mrg
1.4	Verify specification requirements 13406-2.04.K.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by cycling power to the PLC processor rack. Verify all module configuration information remains intact during the power loss.	✓		mrg

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
BAR CODE EQUIPMENT

2/1/96
 REV. 1.1

PAGE 7 OF 27

Data Sheet 7.0.B

RF BAR CODE NETWORK CONTROLLER in LCU 101

12-NY-106

Step #	Description	Pass	Fail	Check Initials
1.1	Verify power and communication cables are properly connected to controller.	✓		mef
1.2	Power on Network Controller by switching on power switch.	✓		mef
1.3	Verify Network Controller is properly configured by verifying configuration via laptop computer. See attached configuration sheet for Teklogix 9200 RF Bar Code Network Controller.	✓		mef

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 8 OF 27

Data Sheet 7.0.C				
RF BAR CODE RADIO LINK CONTROLLER in Shipping / Receiving Area				
12-NY-105				
Step #	Description	Pass	Fail	Check
1.1	Radio Link Controller power and communication cables and antenna are connected and dip switches are set properly. See attached configuration sheet for the Teklogix 9130 Radio Link Controllers.	✓		mpf
1.2	Power on controller by switching on power switch.	✓		mpf
1.3	Verify that only LED's #4 and #5 are active (and only when data is being transmitted or received); all other LED's should be off.	✓		mpf

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 9 OF 27

9-12-96

Data Sheet 7.0.D				
RF BAR CODE RADIO LINK CONTROLLER in NDE/NDA Area				
12-NY-104				
Step #	Description	Pass	Fail	Check
1.1	Radio Link Controller power and communication cables and antenna are connected and dip switches are set properly. See attached configuration sheet for the Teklogix 9130 Radio Link Controllers.	✓		MPJ
1.2	Power on controller by switching on power switch.	✓		MPJ
1.3	Verify that only LED's #4 and #5 are active (and only when data is being transmitted or received); all other LED's should be off.	✓		MPJ

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 10 OF 27

9-12-96

Data Sheet 7.0.E				
RF BAR CODE RADIO LINK CONTROLLER in Process Area				
12-NY-306				
Step #	Description	Pass	Fail	Check
1.1	Radio Link Controller power and communication cables and antenna are connected and dip switches are set properly. See attached configuration sheet for the Teklogix 9130 Radio Link Controllers.	✓		mt
1.2	Power on controller by switching on power switch.	✓		mt
1.3	Verify that only LED's #4 and #5 are active (and only when data is being transmitted or received); all other LED's should be off.	✓		mt

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 11 OF 27

Data Sheet 7.0.F				
BAR CODE PRINTER at SHIPPING / RECEIVING				
BP-12-120				
Step #	Description	Pass	Fail	Initials
1.1	Printer is installed correctly; AC power cord is plugged into 120 VAC outlet; blank bar code labels installed correctly; printer print head is in proper position for printing.	/		Law
1.2	PC running Zebra Label Matrix software connected to printer.	/		Law
1.3	Apply power by turning on printer power switch.	/		Law
1.4	Verify specification requirements 13406-2.04.L.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by printing a sample Code 39 bar code label.	/		Law *
1.5	Verify specification requirements 13406-2.04.L.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by printing a sample bar code label at a 90 degree rotation angle.	/		Law *
1.6	Verify specification requirements 13406-2.04.L.9 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by examining bar code label to verify that there are (4) lines of entry spaced at least 2 inches long beneath the bar code number for manual data entry.	/		Law *
1.7	Verify specification requirements 13406-3.05.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by printing a test case label with Code 39 bar code.	/		Law

* SEE LABELS ON BACK OF THIS PAGE

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 12 OF 27

9:25 AM. 8-27-96

Serial # 7025LR-013855

Data Sheet 7.0.G

RF BAR CODE SCANNER / TERMINAL in AS/RS AREA

12-NT/NE-101

Terminal 1

Step #	Description	Pass	Fail	Initials
1.1	RF Bar Code Scanner / Terminal is powered on.	✓		mef
1.2	RF Bar Code Scanner / Terminal is configured properly as terminal # 1 to read Code 39 ASCII bar codes. See attached configuration sheet for the Telkogix 7025-ILR RF Bar Code Scanners.	✓		mef
1.3	PCS Server is running. HP-UX X-Terminal is running with an HPterm window open.	✓		mef
1.4	Establish Telnet session with RF Terminal 1 to observe scanned bar codes by typing the following at the "S" prompt: telnet ny106 10001	✓		mef
1.5	Verify specification requirements 13406-2.04.A.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code at a maximum distance of 20 inches.	✓		mef
1.6	Verify specification requirements 13406-2.04.G.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		mef
1.7	Verify specification requirements 13406-2.04.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in both ambient indoor and outdoor light similar to that expected at the WRAP facility.	✓		9-12-96 mef
1.8	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mef
1.9	Verify specification requirement 13461-3.05.A.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met by scanning a test case bar code identification number from the most remote location in the plant where a bar code would be normally read during operation and also at any locations where transmission difficulties might be expected. Observe the bar code transmissions in the HPterm window on the X-Terminal. If testing is not performed at the plant, distant and difficult scanning locations shall be simulated.	✓		9-12-96 mef
1.10	Close telnet session when finished observing bar code scans by typing "Ctrl-J" in the HPterm window to get the "telnet>" prompt, then typing "close" to close the session and return to the "S" prompt.	✓		9-12-96 mef

1.9 Scanned at rear loading dock, outside building.
 Note: rear / east loading dock is closest to ASRS.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 13 OF 27

Data Sheet 7.0.H

HAND-HELD SCANNER/FIXED BAR CODE TERMINAL at Receiving Drum Scale Conveyor

12-NT/NE-102

Step #	Description	Pass	Fail	Initials
1.1	Hand-Held Scanner / Fixed Bar Code Terminal is powered on.	✓		met
1.2	Hand-Held Scanner / Fixed Bar Code Terminal is configured properly as terminal # 11 to read Code 39 ASCII bar codes. See attached configuration sheet for 2755 Bar Code Decoders.	✓		met
1.3	Determine if specification requirements 13406-2.04.A.6 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by verifying that 9 foot cable provided is adequate. If cable length is adequate, specification should be changed from 10 foot cable to 9 foot cable. <i>Cord reads 10 ft</i>	✓		met
1.4	Verify specification requirements 13406-2.04.F.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		met
1.5	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code. <i>Yellow scanning + green good read light</i>	✓		met
1.6	Verify specification requirements 13406-2.04.A.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code at a maximum distance of 20 inches.	✓		met
1.7	Verify specification requirements 13406-2.04.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in ambient indoor light similar to that expected at the WRAP facility.	✓		met
1.8	Verify specification requirements 13406-2.04.A.4 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code with an element width of 15 mils.	✓		met

#1.8: Bar codes printed using "Label Matrix" Version 3.02 bar code printing software. Labels printed as medium density 13.3 mils.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 14 OF 27

9:45 8-27-96

Serial # 7025LR-013856

Data Sheet 7.0.1				
RF BAR CODE SCANNER / TERMINAL at TRUPACT AREA				
12-NT/NE-103				
Step #	Description	Pass	Fail	Initials
1.1	RF Bar Code Scanner / Terminal is powered on.	✓		mef
1.2	RF Bar Code Scanner / Terminal is configured properly as terminal # 2 to read Code 39 ASCII bar codes. See attached configuration sheet for the Telkogix 7025-ILR RF Bar Code Scanners.	✓		mef
1.3	PCS Server is running. HP-UX X-Terminal is running with an HPterm window open.	✓		mef
1.4	Establish Telnet session with RF Terminal 2 to observe scanned bar codes by typing the following at the "S" prompt: telnet ny106 10002	✓		mef
1.5	Verify specification requirements 13406-2.04.G.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		mef
1.6	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mef
1.7	Verify specification requirements 13406-2.04.A.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code at a maximum distance of 20 inches.	✓		mef
1.8	Verify specification requirements 13406-2.04.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in both ambient indoor and outdoor light similar to that expected at the WRAP facility.	✓		mef
1.9	Verify specification requirement 13461-3.05.A.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met by scanning a test case bar code identification number from the most remote location in the plant where a bar code would be normally read during operation and also at any locations where transmission difficulties might be expected. Observe the bar code transmissions in the HPterm window on the X-Terminal. If testing is not performed at the plant, distant and difficult scanning locations shall be simulated.	✓		mef
1.10	Close telnet session when finished observing bar code scans by typing "Ctrl-J" in the HPterm window to get the "telnet>" prompt, then typing "close" to close the session and return to the "S" prompt.	✓		mef

1.9. Scanned at rear loading dock, outside building

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/196
 REV. 1.1
 PAGE 15 OF 27

8-27-96 8:29 AM

Serial # 7025LR-013859

Data Sheet 7.0.J

RF BAR CODE SCANNER / TERMINAL at TRU Process Glovebox

Terminal 4

12-NT/NE-300

Step #	Description	Pass	Fail	Initials
1.1	RF Bar Code Scanner / Terminal is powered on.	✓		mef
1.2	RF Bar Code Scanner / Terminal is configured properly as terminal # 4 to read Code 39 ASCII bar codes. See attached configuration sheet for the Telkogix 7025-ILR RF Bar Code Scanners.	✓		mef
1.3	PCS Server is running. HP-UX X-Terminal is running with an HPterm window open.	✓		mef
1.4	Establish Telnet session with RF Terminal 4 to observe scanned bar codes by typing the following at the "S" prompt: telnet ny106 10004	✓		mef
1.5	Verify specification requirements 13406-2.04.G.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		mef
1.6	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mef
1.7	Verify specification requirements 13406-2.04.A.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code at a maximum distance of 20 inches.	✓		mef
1.8	Verify specification requirements 13406-2.04.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in both ambient indoor and outdoor light similar to that expected at the WRAP facility.	✓		mef
1.9	Verify specification requirement 13461-3.05.A.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met by scanning a test case bar code identification number from the most remote location in the plant where a bar code would be normally read during operation and also at any locations where transmission difficulties might be expected. Observe the bar code transmissions in the HPterm window on the X-Terminal. If testing is not performed at the plant, distant and difficult scanning locations shall be simulated.	✓		mef
1.10	Close telnet session when finished observing bar code scans by typing "Ctrl-J" in the HPterm window to get the "telnet>" prompt, then typing "close" to close the session and return to the "S" prompt.	✓		mef

1.9 Scanned at both loading docks

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 16 OF 27

Data Sheet 7.0.K FIXED BAR CODE SCANNER / TERMINAL at TRU Process Glovebox 12-NT/NE-301				
Step #	Description	Pass	Fail	Initials
1.1	Fixed Bar Code Scanner / Terminal is powered on.	✓		mef
1.2	Fixed Bar Code Scanner / Terminal is configured properly as terminal # 17 to read Code 39 ASCII bar codes. See attached configuration sheet for 2755 Bar Code Decoders.	✓		mef
1.3	Verify specification requirements 13406-2.04.F.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner. <i>triggering package detect photoeye.</i>	✓		mef
1.4	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mef
1.5	Verify specification requirements 13406-2.04.C.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code at distances from 10 to 36 inches (approximate bar code element width of 1mm).	✓		mef
1.6	Verify specification requirements 13406-2.04.C.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in industrial lighting levels similar to that expected at the WRAP facility.	✓		mef
1.7	Verify specification requirements 13406-2.04.C.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes of all types to be used in the facility.	✓		mef
1.8	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mef

1.1 Scanner appears to be mounted 16-20 inches above gloveport height.

Note: All scans performed for this worksheet through 1/4" laminated glass, except for 36" scan. Through glass, can only achieve 34 1/2" scan.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 17 OF 27

Serial # 7025LR-013861

Data Sheet 7.0.L				
RF BAR CODE SCANNER / TERMINAL at TRU RWM Glovebox				
Terminal # 6		12-NT/NE-303		8-27-96 11:45 AM
Step #	Description	Pass	Fail	Initials
1.1	RF Bar Code Scanner / Terminal is powered on.	✓		mef
1.2	RF Bar Code Scanner / Terminal is configured properly as terminal # 6 to read Code 39 ASCII bar codes. See attached configuration sheet for the Telogix 7025-ILR RF Bar Code Scanners.	✓		mef
1.3	PCS Server is running. HP-UX X-Terminal is running with an HPterm window open.	✓		mef
1.4	Establish Telnet session with RF Terminal 6 to observe scanned bar codes by typing the following at the "S" prompt: telnet ny106 10006	✓		mef
1.5	Verify specification requirements 13406-2.04.G.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		mef
1.6	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mef
1.7	Verify specification requirements 13406-2.04.A.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code at a maximum distance of 20 inches.	✓		mef
1.8	Verify specification requirements 13406-2.04.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in both ambient indoor and outdoor light similar to that expected at the WRAP facility.	✓		9-12-96 mef
1.9	Verify specification requirement 13461-3.05.A.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met by scanning a test case bar code identification number from the most remote location in the plant where a bar code would be normally read during operation and also at any locations where transmission difficulties might be expected. Observe the bar code transmissions in the HPterm window on the X-Terminal. If testing is not performed at the plant, distant and difficult scanning locations shall be simulated.	✓		9-12-96 mef
1.10	Close telnet session when finished observing bar code scans by typing "Ctrl-" in the HPterm window to get the "telnet>" prompt, then typing "close" to close the session and return to the "S" prompt.	✓		9-12-96 mef

1.9 - Scanned outside building at loading dock closest to AS/RS.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 18 OF 27

Serial # SLD 412614

Data Sheet 7.0.M

FIXED BAR CODE SCANNER / TERMINAL at TRU RWM Glovebox
 12-NT/NE-304

Step #	Description	Pass	Fail	Initials
1.1	Fixed Bar Code Scanner / Terminal is powered on.	✓		mef
1.2	Fixed Bar Code Scanner / Terminal is configured properly as terminal # 18 to read Code 39 ASCII bar codes. See attached configuration sheet for 2755 Bar Code Decoders.	✓		mef
1.3	Verify specification requirements 13406-2.04.F.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger <i>triggering package door photoeye</i> and observing the laser scanner.	✓		mef
1.4	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mef
1.5	Verify specification requirements 13406-2.04.C.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code at distances from 10 to 36 inches (approximate bar code element width of 1mm).	✓		mef
1.6	Verify specification requirements 13406-2.04.C.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in industrial lighting levels similar to that expected at the WRAP facility.	✓		mef
1.7	Verify specification requirements 13406-2.04.C.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes of all types to be used in the facility.	✓		mef
1.8	Verify specification requirements 13406-2.04.C.6 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code through 1/4 laminated glass.	✓		mef

1.3 - Scanner is triggered via photoeye.

1.7 - Test step is irrelevant. Bar code scanner shown to scan 3 of 9 bar codes.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 19 OF 27

Serial # SLD 4/26/6

Data Sheet 7.0.N

FIXED BAR CODE SCANNER / TERMINAL at TRU RWM Glovebox

12-NT/NE-305

Step #	Description	Pass	Fail	Check
1.1	Fixed Bar Code Scanner / Terminal is powered on.	✓		mgf
1.2	Fixed Bar Code Scanner / Terminal is configured properly as terminal # 19 to read Code 39 ASCII bar codes. See attached configuration sheet for 2755 Bar Code Decoders.	✓		mgf
1.3	Verify specification requirements 13406-2.04.F.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger <i>triggering package detect photo eye</i> and observing the laser scanner.	✓		mgf
1.4	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mgf
1.5	Verify specification requirements 13406-2.04.C.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code at distances from 10 to 36 inches (approximate bar code element width of 1mm).	✓		mgf
1.6	Verify specification requirements 13406-2.04.C.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in industrial lighting levels similar to that expected at the WRAP facility.	✓		mgf
1.7	Verify specification requirements 13406-2.04.C.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes of all types to be used in the facility.	✓		mgf
1.8	Verify specification requirements 13406-2.04.C.6 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code through 1/4 laminated glass.	✓		mgf

1.3 Scanner is triggered via photo eye.

1.7- Test step is irrelevant - Bar code scanner shown to scan 3 of 9 bar codes.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 20 OF 27

9:57 8-27-96 Serial # ~~SLD 412614~~ 7025 LR - 013857

Data Sheet 7.0.0				
RF BAR CODE SCANNER / TERMINAL at LLW Process Glovebox				
Terminal #3 12-NT/NE-310				
Step #	Description	Pass	Fail	Check
1.1	RF Bar Code Scanner / Terminal is powered on.	✓		mgf
1.2	RF Bar Code Scanner / Terminal is configured properly as terminal # 3 to read Code 39 ASCII bar codes. See attached configuration sheet for the Telkogix 7025-ILR RF Bar Code Scanners.	✓		mgf
1.3	PCS Server is running. HP-UX X-Terminal is running with an HPterm window open.	✓		mgf
1.4	Establish Telnet session with RF Terminal 3 to observe scanned bar codes by typing the following at the "S" prompt: telnet ny106 10003	✓		mgf
1.5	Verify specification requirements 13406-2.04.G.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		mgf
1.6	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mgf
1.7	Verify specification requirements 13406-2.04.A.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code at a maximum distance of 20 inches.	✓		mgf
1.8	Verify specification requirements 13406-2.04.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in both ambient indoor and outdoor light similar to that expected at the WRAP facility.	✓		9-12-96 mgf
1.9	Verify specification requirement 13461-3.05.A.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met by scanning a test case bar code identification number from the most remote location in the plant where a bar code would be normally read during operation and also at any locations where transmission difficulties might be expected. Observe the bar code transmissions in the HPterm window on the X-Terminal. If testing is not performed at the plant, distant and difficult scanning locations shall be simulated.	✓		9-12-96 mgf
1.10	Close telnet session when finished observing bar code scans by typing "Ctrl-]" in the HPterm window to get the "telnet>" prompt, then typing "close" to close the session and return to the "S" prompt.	✓		9-12-96 mgf

1.4 Must also establish sess 1 at terminal

1.9 scanned outside building at loading dock, closest to ASRS.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1

PAGE 21 OF 27

SIN SLD 412617

Serial ~~SBD JJB~~

~~8-23-96~~ ~~8-156 AIA~~

Data Sheet 7.0.P

FIXED BAR CODE SCANNER / TERMINAL at LLW Process Glovebox

12-NT/NE-311

Step #	Description	Pass	Fail	Check
1.1	Fixed Bar Code Scanner / Terminal is powered on.	✓		mpf
1.2	Fixed Bar Code Scanner / Terminal is configured properly as terminal # 12 to read Code 39 ASCII bar codes. See attached configuration sheet for 2755 Bar Code Decoders.	✓		mpf
1.3	Verify specification requirements 13406-2.04.F.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner. <i>activating package detect protocol</i>	✓		mpf
1.4	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mpf
1.5	Verify specification requirements 13406-2.04.C.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code at distances from 10 to 36 inches (approximate bar code element width of 1mm).	✓		mpf
1.6	Verify specification requirements 13406-2.04.C.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in industrial lighting levels similar to that expected at the WRAP facility.	✓		mpf
1.7	Verify specification requirements 13406-2.04.C.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes of all types to be used in the facility.	✓		mpf
1.8	Verify specification requirements 13406-2.04.C.6 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code through 1/4 laminated glass.	✓		mpf

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 22 OF 27

Serial # B01450 9-12-96

Data Sheet 7.0.Q

WAND BAR CODE SCANNER / TERMINAL at LLW Process Glovebox
 12-NT/NE-312

Step #	Description	Pass	Fail	Check
1.1	Wand Bar Code Scanner / Terminal is powered on. 14	✓		mgf
1.2	Wand Bar Code Scanner / Terminal is configured properly as terminal #15 to read Code 39 ASCII bar codes. See attached configuration sheet for 2708 Bar Code Decoders.	✓		mgf
1.3	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mgf
1.4	Verify specification requirements 13406-2.04.D.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample low to medium density bar codes.	✓		mgf
1.5	Verify specification requirements 13406-2.04.D.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes at angles of 0 to 35 degrees from vertical.	✓		mgf
1.6	Verify specification requirements 13406-2.04.D.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by verifying that 9 out of 10 bar codes are successfully read on the first scan.	✓		mgf

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
BAR CODE EQUIPMENT

2/1/96
REV. 1.1
PAGE 23 OF 27

Serial # 7025 LR- 013860

Data Sheet 7.0.R				
RF BAR CODE SCANNER / TERMINAL at LLW RWM Glovebox				
12-NT/NE-313				
Step #	Description	Pass	Fail	Check
1.1	RF Bar Code Scanner / Terminal is powered on.	✓		mrf
1.2	RF Bar Code Scanner / Terminal is configured properly as terminal # 5 to read Code 39 ASCII bar codes. See attached configuration sheet for the Telkogix 7025-ILR RF Bar Code Scanners.	✓		mrf
1.3	PCS Server is running. HP-UX X-Terminal is running with an HPterm window open.	✓		mrf
1.4	Establish Telnet session with RF Terminal 5 to observe scanned bar codes by typing the following at the "S" prompt: telnet ny106 10005	✓		mrf
1.5	Verify specification requirements 13406-2.04.G.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		mrf
1.6	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mrf
1.7	Verify specification requirements 13406-2.04.A.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code at a maximum distance of 20 inches.	✓		mrf
1.8	Verify specification requirements 13406-2.04.A.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in both ambient indoor and outdoor light similar to that expected at the WRAP facility.	✓		9-12-96 mrf
1.9	Verify specification requirement 13461-3.05.A.4 as called for in the ATP QA checklist in the Hardware Requirements matrix are met by scanning a test case bar code identification number from the most remote location in the plant where a bar code would be normally read during operation and also at any locations where transmission difficulties might be expected. Observe the bar code transmissions in the HPterm window on the X-Terminal. If testing is not performed at the plant, distant and difficult scanning locations shall be simulated.	✓		9-12-96 mrf
1.10	Close telnet session when finished observing bar code scans by typing "Ctrl-J" in the HPterm window to get the "telnet>" prompt, then typing "close" to close the session and return to the "S" prompt.	✓		9-12-96 mrf

1.9. Scanned outside building at loading dock closest to ASRS.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 24 OF 27

Serial #S0412615

Data Sheet 7.0.S

FIXED BAR CODE SCANNER / TERMINAL at LLW RWM Glovebox

12-NT/NE-314

Step #	Description	Pass	Fail	Check
1.1	Fixed Bar Code Scanner / Terminal is powered on.	✓		mgf
1.2	Fixed Bar Code Scanner / Terminal is configured properly as terminal # 15 to read Code 39 ASCII bar codes. See attached configuration sheet for 2755 Bar Code Decoders.	✓		mgf
1.3	Verify specification requirements 13406-2.04.F.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by pulling the scan trigger and observing the laser scanner.	✓		mgf
1.4	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		mgf
1.5	Verify specification requirements 13406-2.04.C.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code at distances from 10 to 36 inches (approximate bar code element width of 1mm).	✓		mgf
1.6	Verify specification requirements 13406-2.04.C.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in industrial lighting levels similar to that expected at the WRAP facility.	✓		mgf
1.7	Verify specification requirements 13406-2.04.C.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes of all types to be used in the facility.	✓		mgf
1.8	Verify specification requirements 13406-2.04.C.6 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code through 1/4 laminated glass.	✓		mgf

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1

PAGE 25 OF 27

Serial # SLD412612

Data Sheet 7.0.T

FIXED BAR CODE SCANNER / TERMINAL at LLW RWM Glovebox

12-NT/NE-315

Step #	Description	Pass	Fail	Check
1.1	Fixed Bar Code Scanner / Terminal is powered on.	✓		msf
1.2	Fixed Bar Code Scanner / Terminal is configured properly as terminal # 16 to read Code 39 ASCII bar codes. See attached configuration sheet for 2755 Bar Code Decoders.	✓		msf
1.3	Verify specification requirements 13406-2.04.F.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by manually triggering and observing the laser scanner. activating the package detect photoeye	✓		msf
1.4	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		msf
1.5	Verify specification requirements 13406-2.04.C.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code at distances from 10 to 36 inches (approximate bar code element width of 1mm).	✓		msf
1.6	Verify specification requirements 13406-2.04.C.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code in industrial lighting levels similar to that expected at the WRAP facility.	✓		msf
1.7	Verify specification requirements 13406-2.04.C.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes of all types to be used in the facility.	✓		msf
1.8	Verify specification requirements 13406-2.04.C.6 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample bar code through 1/4 laminated glass.	✓		msf

1.7 Test step is irrelevant.

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 26 OF 27

9-12-96

Serial # SBDJJ13 Serial # B01408

Data Sheet 7.0.U

WAND BAR CODE SCANNER / TERMINAL at LLW Process Glovebox
 12-NT/NE-316

Step #	Description	Pass	Fail	Check
1.1	Wand Bar Code Scanner / Terminal is powered on. 13	✓		met
1.2	Wand Bar Code Scanner / Terminal is configured properly as terminal #14 to read Code 39 ASCII bar codes. See attached configuration sheet for 2708 Bar Code Decoders.	✓		met
1.3	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.	✓		met
1.4	Verify specification requirements 13406-2.04.D.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample low to medium density bar codes.	✓		met
1.5	Verify specification requirements 13406-2.04.D.5 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample bar codes at angles of 0 to 35 degrees from vertical.	✓		met
1.6	Verify specification requirements 13406-2.04.D.7 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by verifying that 9 out of 10 bar codes are successfully read on the first scan.	✓		met

WRAP MODULE 1 - PLANT MANAGEMENT SYSTEM
 HARDWARE ACCEPTANCE TEST PROCEDURE: HATP-12
 BAR CODE EQUIPMENT

2/1/96
 REV. 1.1
 PAGE 27 OF 27

Data Sheet 7.0.V				
Sample Management Office FIXED BAR CODE WEDGE / TERMINAL				
12-NT/NE-317				
Step #	Description	Pass	Fail	Check
1.1	Fixed Bar Code Wedge / Terminal is powered on and connected to the Sample Management Office DMS terminal.		✓	mtf
1.2	Fixed Bar Code Wedge / Terminal is configured properly to read Code 39 ASCII bar codes.		✓	mtf
1.3	Verify specification requirements 13406-3.05.A.1 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning a sample Code 39 bar code.		✓	mtf
1.4	Verify specification requirements 13406-2.04.E.2 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by verifying that all necessary software to drive the reader is loaded onto the DMS Terminal.		✓	mtf
1.5	Verify specification requirements 13406-2.04.E.3 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by scanning sample high to medium density bar codes.		✓	mtf
1.6	Verify specification requirements 13406-2.04.E.4 as called for in the ATP QA checklist of the Hardware Requirements matrix are met by verifying that 9 out of 10 bar codes are successfully read on the first scan.		✓	mtf

Retested on 10/4/96 AND ACCEPTED. JMS

512*1

WRAP ACCEPTANCE TEST PROCEDURE
EXCEPTION LOG

HNF-SD-W026-ATR-022, Rev. 0 Page 254

Tracking #: 577

ATP_YN : Y

ICF KEH ATP# :

Test : HATP 12

Exception : 1

Step : 7.OV:1.1-1.6

Equipment Tag #: 12-NE-317

Revision :

Specification Section : 13406

Test Witness/Author : Lane

Test Operator:

Responsible Company: PCL

Responsible Subcontractor : SII

Responsible Individual: Linklater

Exception Description :

Reference Retest Log 9-12-96, 1:35 entry: Bar code wedge/ terminal for shipping/receiving area (12-NE/NT-317) is not present and cannot be tested.

Exception Disposition :

Obtain item and successfully test.

Exception Status :

Wedge reader installed and tested on 10/9/96

Exception Closed By :

MARK PALMER

Date : 10/9/96

APPROVAL OF RESOLUTION

Contractor Representative:

[Signature]

Date: 10/9/96

WHC Projects Representative:

[Signature]

Date: 10-10-96

WHC NFS Representative:

[Signature]

Date: 10/9/96

NFS = New Facility Startup

ICF KEH Representative:

[Signature]

Date: 10/15/96

Systems Interface Inc
TEST LOG

Test Procedure: BAR CODE Hardware Test

Test Procedure ID: HATP - 12

Test Type: BUYER PLANT Revision Number: 0

Date: 2-15-96

Time	Test Step #	Event Description (with minor problem resolution test procedure AS-BUILT notes)	Recorder Initials	Minor Problem (M/S)?	WHC Approval Signature for "minor" problems
10:00		INITIATED TESTING ON BAR CODE PRINTER ONLY	lew		
	1.2	WHC WILL TAKE POSSESSION OF PRINTER TO SUPPORT DMS SOFTWARE TESTS - THEREFORE WILL BE RESPONSIBLE FOR FINAL PC CORRECTIONS			
12:00		FINISHED PRINTER TEST - NO EXCEPTIONS	lew		
10:00		Begin setting up for testing	mrf		
10:25		Begin testing using data sheet 7.0.B. need to reset due to baud rate for console 9600 vs 19200	mrf		
10:55		12-NY-108 examined using data sheet 7.0.C.	mrf		
11:17		12/NT/NE-102 examined using data sheet 7.0.H. Only confirmation for bar code read is yellow scanning + green "good read" indicator on gun. Barcodes verified to be 615 ml printed and scanned.	mrf		
11:32		Page 3 "Auto refresh" not configured, "Rules" not active, "ANY TERMINAL DATA ENTRY" not used, Scanner 304 examined	mrf		
12:00		Break for lunch			
12:39		Testing resumes - Examine 305			
1:54		After attempting TRM RNM software test, return to hardware			
8:25		Testing setup begins - computer online, etc	mrf		
9:23	26.12	NETIP message not sent. Gang indicates NET DTL problem - communication down. Validation at terminal yet A-560-A-9 does not change. This fault is totally unacceptable. Processor switched from run to program reset and back. 2nd problem noted - initial scan not cleared after error acknowledged			

Systems Interface Inc
TEST LOG

Test Procedure: Barcode Hardware Test

Test Procedure ID: HATP12

Test Type: BP HATP

Revision Number: 0

Date: 8-23-96

Time	Test Step #	Event Description (with minor problem resolution test procedure AS-BUILT notes)	Recorder Initials	Minor Problem (M/S)?	WHC Approval Signature for "minor" problems
8-23-96	8:55	Last 5 lines of 8-21-96 log crossed out - These belong with SATP 3.10 log.	mgf		
	8:55	Begin testing 12NT/NE-311. Straight through connection to PC with Pro console allows configuration to be verified sheet 7.0.4 accidentally marked instead of 7.0.P. when examined, prototype is found to be bad; causes power fault. Scanner form tested.	mgf		
8-23-96	7:50	Testing resumes	mgf		
	8:37	Difficulty noted establishing telnet session with PCs X-term - sess.0 is initial telnet between netcam and terminal. Sess 1 established and can hard enter codes, but scanning barcode labels causes telnet session to drop out. Configuration is reconfirmed.	mgf		
	9:10	Cannot make unlabeled #4 of terminal work (12-NT-300) Begin examining terminal 101.	mgf		
	11:20	Remaining terminals examined (rf), yet 2 new terminals still don't work. Problem resolved by tech support - menu problem - "Barcode Usage Parameters menu" "Code 39" "Size 1 chars" is 3rd level menu with right side not fully displayed. Press <ESC> 3x + "." (period) to view full menu to determine that suffix character was ASCII 18, but should have been ASCII 13.	mgf		
	11:40	Change configuration for all rf scanners so that	mgf		

SUPPORTING DOCUMENTS

8/4/95

Page 1 of 1

Allen-Bradley 2708 Wand Bar Code Decoder Configuration Sheet

2708 Configuration

Network Menu:

Workstation: [Bar Code Terminal ID #]
 Workstation Type: [Master (ID # 14) or Normal (ID # 13)]
 Host Port: COM 312 316
 Host Mode: XON/XOFF

NOTE:

Access menu by pulling
 power cord, press
 right arrow, enter
 buttons simultaneously
 while powering up.

Comm Port Menu:

Com Baud Rate: 9600
 Com Char: 7 Even
 Com Stop Bits: 1
 Com CRLF: Enabled
 Com Echo: Disabled
 Com XON/XOFF: Enabled

Bar Code Parameters Menu:

3 Of 9: Enabled

2708 - PLC Messaging (in BARCODE Submodule of LCU 103)

PLC - to - 2708 Commands

Format:	Byte Count (Word 1) HEX	Source (Word 2) HEX	Dest. (Word 3) HEX	Command (Words 3 - ...) ASCII
	00nn	05	0X	AA...

nn - Total Bytes in message

X - Port # that 2708 is connected to (1, 2, 3)

AA - ASCII Command

i.e. Display Text Message:

mm-nn:>D TEXT

mm - Master 2708 node #

nn - Normal (slave) 2708 node # (where text is to
 be displayed)

TEXT - Text to be displayed

2708 - to - PLC Messages

Format	Words 0 - 1	Header Data
Word 2	Master Terminal ID	ASCII
Word 3	Normal (slave) Terminal ID	ASCII
Word 7	Bar Code Data	ASCII

2755 Configuration

2755-DS1A/DS4A V2.01 Bar Code Decoder Copyright 1992 Allen-Bradley Company, Inc.

CONFIGURATION

- 1) Symbology
- 2) Scanner Control, Primary Match Table, Discrete I/O
- 3) Extended Match Table and Counters
- 4) Aux and LCD Display Format
- 5) Host Message Replacement Rules
- 6) Host Message Format
- 7) Host Communications
- 8) Aux Terminal Data Entry

Display

- A) Bar Code Strings
- B) Status and Primary Counters
- C) Reset Status and Primary Counters
- D) Reset Extended Match Counters
- E) Restart System
- F) Select Language
- G) Save Configuration

System

Press 1...8, A...G or ESC

CAUTION Changing Configuration Parameters may cause the discrete outputs to switch unexpectedly. To configure the decoder with the outputs DISABLED, press any key except the ESC key, make changes, SAVE and RESTART the decoder. If outputs are to remain ENABLED during configuration, press the ESC key to view configuration screens.

--SYMBOLGY-- -----LENGTHS----- --CHECK CHARACTERS--

CODE 39: Yes No INCLUDE: No
I 2/5: No No INCLUDE: No GUARD BARS: No
CODABAR: No No INCLUDE: No
CODE 128: No FNC1 CHAR:

UPC-A: No SUPPLEMENTS: None
UPC-E: No SUPPLEMENTS: None EXPAND: No
EAN-8: No SUPPLEMENTS: None
EAN-13: No SUPPLEMENTS: None

QUIET ZONE RATIO: Default

Commands:ESC Change:SPACE Cursor Control:ARROWS

Allen-Bradley 2755 Fixed Bar Code Decoder
Configuration Sheet

8/4/95
Page 2 of 4

-----SCANNER (A) CONTROL-----

LASER LIGHT: Triggered
DECODE MODE: Package Detect
NO-READ TIMER: None (msec)
INTER-SCAN TIMER: None (msec)
CAPTURE COUNT: 2
SYMBOLS/SCAN: 1 -----PACKAGE DETECT INPUT-----
SYMBOLS/PACKAGE: 1 (A) FILTER: No SENSE: LO=Package
MATCH COMPLETE: 1

-----MATCH CODE TABLE-----DISCRETE I/O [Enabled]-1) Any

	☐ A None	0
2) Any	☐ A None	0
3) Any	☐ A None	0
4) Any	☐ A None	0
5) Any	☐ A None	0
6) Any	☐ A None	0
7) Any	☐ A None	0
8) Any	☐ A None	0

Commands:ESC Change:SPACE Cursor Control:ARROWS

-----AUX and LCD DISPLAY FORMAT-----

DISPLAY DATA: LCD Only
MESSAGE FORMAT: Host Format
SCROLL LCD: No

POSITION

0 BAR CODE STRINGS
0 DECODER PERFORMANCE
0 PACKAGE COUNTER
0 SYMBOLS NOT READ COUNTER

---PRIMARY COUNTERS---

0 1) None
0 2) None
0 3) None
0 4) None
0 5) None
0 6) None
0 7) None
0 8) None

Commands:ESC Change:SPACE Cursor Control:ARROWS

START CHARACTER: None 255
SOURCE IDENTIFIER for (AUX): (A):
HEADER STRING:
FIELD DELIMITER: None 255 NUMBER OF FIELDS IN MESSAGE: 1
SEND SYMBOLGY: No SEND PACKAGE COUNT: No
SEND BAR CODE STRINGS: Yes SEND DECODER PERFORMANCE: No
END MESSAGE: Lf

DEFAULT NO-READ STRING: NO-READ
FIELD NUMBER NO-READ REPLACEMENT STRING FIELD NUMBER NO-READ REPLACEMENT
STRING 1 9
2 10
3 11
4 12
5 13
6 14
7 15
8 16

COMMAND -- Exit:ESC Select:RETURN Next:SPACE

-----HOST COMMUNICATIONS-----

BAUD RATE*: 19200
BITS/CHAR*: 8 Data 1 Stop
PARITY*: Even
HOST PROTOCOL*: DH485 ASCII - 1
DEVICE ADDRESS*: 11¹
ACK CHAR*: None
NAK CHAR*: None

*Save and Restart required for these parameters to take effect.

SCANNER A
START SCAN CHAR: None 255
STOP SCAN CHAR: None 255

LARGE BUFFER: No
SEND HOST MESSAGE: Immediately After Valid Package
TRANSMISSION CHECK: None

COMMAND -- Exit:ESC Select:RETURN Next:SPACE

¹ Insert Bar Code Decoder Terminal ID here.

Allen-Bradley 2755 Fixed Bar Code Decoder
Configuration Sheet

8/4/95
Page 4 of 4

2755 - PLC Messaging (in BARCODE Submodule of LCU 103)

PLC - to - 2755 Commands

Format:	Byte Count (Word 1) HEX	Source (Word 2) HEX	Dest. (Word 3) HEX	LSAP (Word 3) HEX	Node (Word 3) HEX	ASCII Command (Words 4 - ...) ASCII
	00nn	05	0X	01	YY	AA...

nn - Total Bytes in message

X - Port # that 2755 is connected to (1, 2, 3)

YY - Node # of 2755 (0 - 30)

AA - ASCII Command

i.e. Display Text Message:

TMkccTEXT

k - Enable (1) / Disable (0) keyboard entry

cc - Number of Characters in TEXT

TEXT - Text to be displayed

If cc = 0, Default Prompt Message (Defined in
AUX DATA ENTRY Menu) will be displayed.

2755 - to - PLC Messages

Format:	Words 0 - 1	Header Data
	Word 2	Terminal ID (2nd Byte) HEX
	Word 3	Bar Code Data ASCII

Allen-Bradley 2760-RB Flexible Interface Module
Configuration Sheet

8/4/95
Page 1 of 7

2760-RB Configuration

2760-RB SERIES A REVISION J
COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.

1X - CONFIGURATION PARAMETERS	2X - IDENTIFICATION NUMBERS
3 - DEVICE PORT PROTOCOL NAMES	4DM - MATCH CODE ENTRIES
5I - DISCRETE BYTE INPUT ENTRIES	6 - THE DATA MATRIX ENTRIES
7 - THE PASS THROUGH ENTRIES	8 - NON-VOLATILE SCRATCH PAD AREA
9XF - RB MODULE FUNCTIONS	AX - HARDWARE DIAGNOSTICS
BX - SOFTWARE DIAGNOSTICS	C - EXIT CONFIGURATION MODE

WHERE X (0 TO 7) AND D (1 TO 3) ARE PORT NUMBERS WHICH ARE DEFINED BELOW:

0 - RB CMMND PRCSS 2 - SERIAL PORT 2 4 - CONFIG PORT 6 - I/O RACK SLT 1
1 - SERIAL PORT 1 3 - SERIAL PORT 3 5 - I/O RACK SLT 0 7 - RESERVED

WHERE F (A TO E) ARE FUNCTIONS THAT RB CAN PERFORM WHICH ARE DEFINED BELOW:

A - RESET B - SET DEFAULTS C - FLUSH D - INITIALIZE E - CLEAR DIAGS

WHERE M (A TO T) AND I (A TO H) ARE ENTRY NUMBERS FOR THE SELECTION MADE ABOVE.

ENTER A MAIN MENU SELECTION: 12

SLOT TIME (NO. CHARS) (DEC 0...255) = 7.
INTER-CHAR TIME (NO. CHARS) (DEC 0...255) = 7.
IDLE TIME (NO. CHARS) (DEC 0...255) = 3.
RETRIES (DEC 0...255) = 3.
19200 BITS PER SECOND (YES/NO) = YES.
BCD NODE NUMBERS (ENABLE/DISABLE) = ENABLE.
BYTE SWAPPING (ENABLE/DISABLE) = ENABLE.
RECEIVE MATRIXING (ENABLE/DISABLE) = DISABLE.
MATRIX ADDRESS (HEX 0...ffff) = 0.
RE-ESTABLISH FREQUENCY (DEC 0...255) = 5.
POLL FREQUENCY/DESTINATION[0] (HEX 0...ffff) = 5.¹
POLL FREQUENCY/DESTINATION[1] (HEX 0...ffff) = 5.
POLL FREQUENCY/DESTINATION[2] (HEX 0...ffff) = 5.

note: 105 indicates
enabled.

POLL FREQUENCY/DESTINATION[10] (HEX 0...ffff) = 5.
POLL FREQUENCY/DESTINATION[11] (HEX 0...ffff) = 105.
POLL FREQUENCY/DESTINATION[12] (HEX 0...ffff) = 5. 105

15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

¹ For each bar code terminal number on the current port, activate scanning by setting DESTINATION = 105.

Allen-Bradley 2760-RB Flexible Interface Module
Configuration Sheet

8/4/95
Page 2 of 7

POLL FREQUENCY/DESTINATION[30] (HEX 0...fff) = 5.
 MATRX SEND DESTINATIONS [RB SRC][0] (DEC 0...255) = 255.
 MATRX SEND DESTINATIONS [RB SRC][1] (DEC 0...255) = 255.
 MATRX SEND DESTINATIONS [RB SRC][2] (DEC 0...255) = 255.
 MATRX SEND DESTINATIONS [RB SRC][3] (DEC 0...255) = 255.
 MATRX SEND DESTINATIONS [RB SRC][4] (DEC 0...255) = 255.
 MATRX SEND DESTINATIONS [RB SRC][5] (DEC 0...255) = 255.
 MATRX SEND DESTINATIONS [RB SRC][6] (DEC 0...255) = 255.
 MATRX SEND DESTINATIONS [RB SRC][7] (DEC 0...255) = 255.
 DATA LSAP[0] (DEC 0...255) = 128.
 DATA LSAP[1] (DEC 0...255) = 128.

DATA LSAP[30] (DEC 0...255) = 128.

ENTER A MAIN MENU SELECTION: 22

RS485 LAN 2755-DM6 ASCII MODE 3, 0h (YES/NO) = YES.

ENTER A MAIN MENU SELECTION: 3

PORT 1 = COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.
 2760-SFC2 LAN , SERIES A , REVISION B (YES/NO) = YES.

PORT 2 = COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.
 2760-SFC2 LAN , SERIES A , REVISION B (YES/NO) = YES.

PORT 3 = COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.
 2760-SFC2 DT , SERIES A , REVISION B (YES/NO) = YES.

2760-RB SERIES A REVISION J
 COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.

1X - CONFIGURATION PARAMETERS	2X - IDENTIFICATION NUMBERS
3 - DEVICE PORT PROTOCOL NAMES	4DM - MATCH CODE ENTRIES
5I - DISCRETE BYTE INPUT ENTRIES	6 - THE DATA MATRIX ENTRIES
7 - THE PASS THROUGH ENTRIES	8 - NON-VOLATILE SCRATCH PAD AREA
9XF - RB MODULE FUNCTIONS	AX - HARDWARE DIAGNOSTICS
BX - SOFTWARE DIAGNOSTICS	C - EXIT CONFIGURATION MODE

WHERE X (0 TO 7) AND D (1 TO 3) ARE PORT NUMBERS WHICH ARE DEFINED BELOW :

0 - RB CMMND PRCSS 2 - SERIAL PORT 2 4 - CONFIG PORT 6 - I/O RACK SLT 1
 1 - SERIAL PORT 1 3 - SERIAL PORT 3 5 - I/O RACK SLT 0 7 - RESERVED

WHERE F (A TO E) ARE FUNCTIONS THAT RB CAN PERFORM WHICH ARE DEFINED BELOW :

A - RESET B - SET DEFAULTS C - FLUSH D - INITIALIZE E - CLEAR DIAGS

WHERE M (A TO T) AND I (A TO H) ARE ENTRY NUMBERS FOR THE SELECTION MADE ABOVE.

ENTER A MAIN MENU SELECTION: 13

MODEM CONTROL (ENABLE/DISABLE) = DISABLE.

9600 BITS PER SECOND (YES/NO) = YES.

7 BITS EVEN PARITY (YES/NO) = YES.

XON/XOFF (ENABLE/DISABLE) = ENABLE.

13012
~~88232~~ (YES/NO) = YES.

RECEIVE MATRIXING (ENABLE/DISABLE) = ENABLE.

BYTE SWAPPING (ENABLE/DISABLE) = ENABLE.

BINARY DATA NO CONVERSIONS (YES/NO) = YES.

HDR/TLR ON OUTPUT (ENABLE/DISABLE) = ~~DISABLE~~ *ENABLED CB*

HEADER BYTE LENGTH (DEC 0...4) = 0.

HEADER DATA[0] (HEX 0...ff) = 0.

HEADER DATA[1] (HEX 0...ff) = 0.

HEADER DATA[2] (HEX 0...ff) = 0.

HEADER DATA[3] (HEX 0...ff) = 0.

TRAILER BYTE LENGTH (DEC 0...4) = 2.

TRAILER DATA[0] (HEX 0...ff) = a.

TRAILER DATA[1] (HEX 0...ff) = d.

TRAILER DATA[2] (HEX 0...ff) = 0.

TRAILER DATA[3] (HEX 0...ff) = 0.

MAX DATA BYTE LENGTH (DEC 0...124) = 0.

MIN DATA BYTE LENGTH (DEC 0...124) = *8 30 CB*

PAD CHARACTER (HEX 0...ff) = *8 d*

BIG MESSAGES (ENABLE/DISABLE) = DISABLE.

DEFAULT DESTINATION (DEC 0...255) = 5.

DEFAULT SOURCE (DEC 0...255) = 255.

DEFAULT ADDRESS (HEX 0...ffff) = 200.

SETUP TIMEOUT/SECS (DEC 0...255) = 0.

SETUP BYTE LENGTH (DEC 0...78) = 0.

SETUP DATA[0] (HEX 0...ff) = 0.

SETUP DATA[1] (HEX 0...ff) = 0.

SETUP DATA[2] (HEX 0...ff) = 0.

SETUP DATA[77] (HEX 0...ff) = 0.

2760-RB SERIES A REVISION J
COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.

1X - CONFIGURATION PARAMETERS
3 - DEVICE PORT PROTOCOL NAMES
5I - DISCRETE BYTE INPUT ENTRIES
7 - THE PASS THROUGH ENTRIES
9XF - RB MODULE FUNCTIONS
BX - SOFTWARE DIAGNOSTICS

2X - IDENTIFICATION NUMBERS
4DM - MATCH CODE ENTRIES
6 - THE DATA MATRIX ENTRIES
8 - NON-VOLATILE SCRATCH PAD AREA
AX - HARDWARE DIAGNOSTICS
C - EXIT CONFIGURATION MODE

WHERE X (0 TO 7) AND D (1 TO 3) ARE PORT NUMBERS WHICH ARE DEFINED BELOW:

0 - RB CMMND PRCSS 2 - SERIAL PORT 2 4 - CONFIG PORT 6 - I/O RACK SLT 1
1 - SERIAL PORT 1 3 - SERIAL PORT 3 5 - I/O RACK SLT 0 7 - RESERVED

WHERE F (A TO E) ARE FUNCTIONS THAT RB CAN PERFORM WHICH ARE DEFINED BELOW:

A - RESET B - SET DEFAULTS C - FLUSH D - INITIALIZE E - CLEAR DIAGS

WHERE M (A TO T) AND I (A TO H) ARE ENTRY NUMBERS FOR THE SELECTION MADE ABOVE.

ENTER A MAIN MENU SELECTION: 23

DUMB TERM. UNSPECIFIED PROTOCOL, 13th (YES/NO) = YES.

2760-RB SERIES A REVISION J
COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.

1X - CONFIGURATION PARAMETERS	2X - IDENTIFICATION NUMBERS
3 - DEVICE PORT PROTOCOL NAMES	4DM - MATCH CODE ENTRIES
5I - DISCRETE BYTE INPUT ENTRIES	6 - THE DATA MATRIX ENTRIES
7 - THE PASS THROUGH ENTRIES	8 - NON-VOLATILE SCRATCH PAD AREA
9XF - RB MODULE FUNCTIONS	AX - HARDWARE DIAGNOSTICS
BX - SOFTWARE DIAGNOSTICS	C - EXIT CONFIGURATION MODE

WHERE X (0 TO 7) AND D (1 TO 3) ARE PORT NUMBERS WHICH ARE DEFINED BELOW:

0 - RB CMMND PRCSS 2 - SERIAL PORT 2 4 - CONFIG PORT 6 - I/O RACK SLT 1
1 - SERIAL PORT 1 3 - SERIAL PORT 3 5 - I/O RACK SLT 0 7 - RESERVED

WHERE F (A TO E) ARE FUNCTIONS THAT RB CAN PERFORM WHICH ARE DEFINED BELOW:

A - RESET B - SET DEFAULTS C - FLUSH D - INITIALIZE E - CLEAR DIAGS

WHERE M (A TO T) AND I (A TO H) ARE ENTRY NUMBERS FOR THE SELECTION MADE ABOVE.

ENTER A MAIN MENU SELECTION: 3

PORT 1 = COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.
2760-SFC2 DT , SERIES A, REVISION B (YES/NO) = YES.

PORT 2 = COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.
2760-SFC2 DT , SERIES A, REVISION B (YES/NO) = YES.

PORT 3 = COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.
2760-SFC2 DT , SERIES A, REVISION B (YES/NO) = YES.

2760-RB SERIES A REVISION J
COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.

1X - CONFIGURATION PARAMETERS	2X - IDENTIFICATION NUMBERS
3 - DEVICE PORT PROTOCOL NAMES	4DM - MATCH CODE ENTRIES
5I - DISCRETE BYTE INPUT ENTRIES	6 - THE DATA MATRIX ENTRIES
7 - THE PASS THROUGH ENTRIES	8 - NON-VOLATILE SCRATCH PAD AREA
9XF - RB MODULE FUNCTIONS	AX - HARDWARE DIAGNOSTICS
BX - SOFTWARE DIAGNOSTICS	C - EXIT CONFIGURATION MODE

WHERE X (0 TO 7) AND D (1 TO 3) ARE PORT NUMBERS WHICH ARE DEFINED BELOW:

0 - RB CMMND PRCSS 2 - SERIAL PORT 2 4 - CONFIG PORT 6 - I/O RACK SLT 1
1 - SERIAL PORT 1 3 - SERIAL PORT 3 5 - I/O RACK SLT 0 7 - RESERVED

WHERE F (A TO E) ARE FUNCTIONS THAT RB CAN PERFORM WHICH ARE DEFINED BELOW:

A - RESET B - SET DEFAULTS C - FLUSH D - INITIALIZE E - CLEAR DIAGS

WHERE M (A TO T) AND I (A TO H) ARE ENTRY NUMBERS FOR THE SELECTION MADE ABOVE.

ENTER A MAIN MENU SELECTION: 14

XON/XOFF PROTOCOL (ENABLE/DISABLE) = DISABLE.
BYTE SWAPPING ON OUTPUT ONLY (ENABLE/DISABLE) = DISABLE.
BINARY DATA NO CONVERSIONS (YES/NO) = YES.
HDR/TLR ON OUTPUT (ENABLE/DISABLE) = ~~DISABLE~~ *ENABLE*
HEADER BYTE LENGTH (DEC 0...4) = 0.
HEADER DATA[0] (HEX 0...ff) = 0.
HEADER DATA[1] (HEX 0...ff) = 0.
HEADER DATA[2] (HEX 0...ff) = 0.
HEADER DATA[3] (HEX 0...ff) = 0.
TRAILER BYTE LENGTH (DEC 0...4) = *0.2*
TRAILER DATA[0] (HEX 0...ff) = *d*.
TRAILER DATA[1] (HEX 0...ff) = *0*.
TRAILER DATA[2] (HEX 0...ff) = 0.
TRAILER DATA[3] (HEX 0...ff) = 0.
MAX DATA LENGTH IN (DEC 0...124) = 124.
MIN DATA LENGTH OUT (DEC 0...255) = 0.
PAD CHARACTER (HEX 0...ff) = 0.
DEFAULT RB DESTINATION (HEX 0...ff) = 5.
DEFAULT RB SOURCE (HEX 0...ff) = 4.

Allen-Bradley 2760-RB Flexible Interface Module
Configuration Sheet

8/4/95
Page 6 of 7

DEFAULT RB ADDRESS (HEX 0...fff) = 0.
SETUP TIMEOUT/SECS (DEC 0...255) = 0.
SETUP BYTE LENGTH (DEC 0...78) = 26.
SETUP DATA[0] (HEX 0...ff) = d.
SETUP DATA[1] (HEX 0...ff) = a.
SETUP DATA[2] (HEX 0...ff) = a.
SETUP DATA[3] (HEX 0...ff) = a.
SETUP DATA[4] (HEX 0...ff) = a.

SETUP DATA[25] (HEX 0...ff) = a.
SETUP DATA[26] (HEX 0...ff) = 0.
SETUP DATA[27] (HEX 0...ff) = 0.

SETUP DATA[77] (HEX 0...ff) = 0.

2760-RB SERIES A REVISION J
COPYRIGHT 1989 ALLEN-BRADLEY COMPANY, INC.

1X - CONFIGURATION PARAMETERS	2X - IDENTIFICATION NUMBERS
3 - DEVICE PORT PROTOCOL NAMES	4DM - MATCH CODE ENTRIES
5I - DISCRETE BYTE INPUT ENTRIES	6 - THE DATA MATRIX ENTRIES
7 - THE PASS THROUGH ENTRIES	8 - NON-VOLATILE SCRATCH PAD AREA
9XF - RB MODULE FUNCTIONS	AX - HARDWARE DIAGNOSTICS
BX - SOFTWARE DIAGNOSTICS	C - EXIT CONFIGURATION MODE

WHERE X (0 TO 7) AND D (1 TO 3) ARE PORT NUMBERS WHICH ARE DEFINED BELOW:

0 - RB CMMND PRCSS 2 - SERIAL PORT 2 4 - CONFIG PORT 6 - I/O RACK SLT 1
1 - SERIAL PORT 1 3 - SERIAL PORT 3 5 - I/O RACK SLT 0 7 - RESERVED

WHERE F (A TO E) ARE FUNCTIONS THAT RB CAN PERFORM WHICH ARE DEFINED BELOW:

A - RESET B - SET DEFAULTS C - FLUSH D - INITIALIZE E - CLEAR DIAGS

WHERE M (A TO T) AND I (A TO H) ARE ENTRY NUMBERS FOR THE SELECTION MADE ABOVE.

ENTER A MAIN MENU SELECTION: 24

~~DUMB TERM.~~ UNSPECIFIED PROTOCOL, 13th (YES/NO) = YES.

2760-RB module configuration only, (SOL (YES/NO)) = YES

2760 - PLC Messaging

PLC - to - 2760 Commands

Format (HEX):	Byte Count (Word 1)	Source (Word 2)	Dest. (Word 2)	Status (Word 3)	Cmd (Word 3)	Trans # (Word 4)	Cmd Addr. (Word 5)
---------------	------------------------	--------------------	-------------------	--------------------	-----------------	---------------------	-----------------------

0010	05	00	00	08	0001	1X0Y
------	----	----	----	----	------	------

X - Port # (0, 1, 2, 3, 4)

Y - Command: 2 - Reset Port

4 - Flush Port

5 - Clear Port Diagnostics

Teklogix 7025-ILR RF Portable Bar Code Scanner / Terminal
Configuration Sheet8/4/95
Page 1 of 4

RF Portable Scanner Configuration

Radio Parameters Menu:

Narrow Band

Synthesized

Spread Spectrum:

Channel:

Chan #	1
Power-up chan	N
Voice Chan	0
Chan1 enable	Y
Chan2 enable	N
Chan3 enable	Y
Chan4 enable	N
Chan5 enable	Y
Chan6 enable	N
Chan7 enable	N
Chan-auto:	
Next ch-auto	1
Next ch-auto	3
Next ch-auto	5
Next ch-auto	0
Next ch-auto	0
Next ch-auto	0
Next ch-auto	0

Contants:

Power	Hi
Baud Rate	122k
Sync Delay	4
TX on Time	10
Poll Tmout	3
PwrON time	0
PwrOFF time	0

Voice:

Speaker low	Y
Speaker med	Y

Wlan N

Tests:

Online	Y
Rcv Once	N
Rcv Test	N
Xmt Test	N
Xmt Long	N
Xmt -Mod	N
Stop	N
Tst Chan	0
Pattern	0
Msg Size	30
Xmit Time	30

Barcode Usage Parameters Menu:

Code 39 Y

Teklogix 7025-ILR RF Portable Bar Code Scanner / Terminal
Configuration Sheet8/4/95
Page 2 of 4

Full Ascii	Y
Mod 43 Chk	N
Mod 10 Chk	N
Include Chk	N
AIAG Strip	N
Err Accept	N
Size/Chars:	
Field Size	0
Prefix Char	0
Suffix Char	13
Strip 1st Char	N
Code 128	N
.	.
.	.
D 2 of 5	N
Options:	
Translate:	(No Translations)
Verify	0
Security	30
Large	Y
Beam Lockout	N
Long Scan	N

View Manager Parameters Menu:

Shut-down	10
Backlight	10
LCD change	N
LCD Contrast	5
Block Cursor	Y
ESC protect	Y
'.' -> ','	N
Display shift	Y
Use increment	N
X-increment	5
Y-increment	5
Beeper defaults:	
kb-klik time	1
kb-klik tone	61
kb-err time	10
kb-err tone	60
Scanner Trigger:	
Timeout	0
Character	0
Scan Indication	N -> Y
Scan Results	N -> Y
Function Lock:	
Summary (Enter)	N
.	.
.	.
.	.
View Mode	N

Select Scanner Parameters Menu:

Scanner Y
 Wand N
 Custom N

Global Macros Parameters Menu:
 (None)

Character Set Parameters Menu:

National:
 US ASCII Y
 British N
 .
 .
 .
 Other Sets N
 Extended:
 IBM PC Y
 DEC Multinat'l N
 ISO Latin Nr 1 n
 IBM 5250 Multi N
 Custom N
 Custom ASCII:
 (No Changes)
 Custom Extended:
 (No Changes)
 CTRL F1 - F6 keys:
 (No Changes)

Applications Parameters Menu:

Name #1 ansi
 Title #1 TERMn n = Scanner Terminal ID # (1 - 6)

Ports Set-up Parameters Menu:

Console:
 Select Disable
 (Not Applicable)
 Serial:
 Select Disable
 (Not Applicable)

TERMn Parameters Menu: n = Scanner Terminal ID # (1 - 6)

Terminal # n
 Screen:
 # of pages 2
 # of rows 16
 # of columns 32
 Default font 16x32
 Video:
 Bold NONE
 Blink BLNK
 Reverse REV
 Underline ULIN

Xmit Modes:
 Xmit Count 3

(Reset terminal prior
 to screen setup - screen
 menu varies according
 to screen type. Reset
 causes ANSI terminal
 screen menu to be
 displayed)

Teklogix 7025-ILR RF Portable Bar Code Scanner / Terminal
Configuration Sheet8/4/95
Page 4 of 4

Xmit Wait 0
 Dev Attr <[?62;1;2;6e (lowercase 'e')
 7 bit Y

Block Mode:

Kbd lock N

. .
. .

TTM N

EOL chars (None)

EOB chars (None)

Kbd Modes:

Arrow mode cursor

Echo mode Smart

DEL key DEL

Xmit Enter N

Insert N

Newline N

Disable kbd N

Edit Modes:

Auto wrap N

Erasure mode N

Tab Stop mode N

Edit extent Disp

Disp controls N

Serial:

Async In N

Start 0

End 0

Low

XXXXXXXXXXXX

medium

XXXXXXXXXXXX

Teklogix 9130 Radio Link Controller
Configuration Sheet

8/4/95
Page 1 of 1

9130 Configuration

Dip-switch Settings:

	1	2	3	4	5	6	7	8	
NY-104	On	Off <i>ON</i>	On <i>OFF</i>	Off	Off	Off	Off	Off	
		Channel 3			Base station mode, on-line				
NY-105	On	Off	Off	Off	Off	Off	Off	Off	
		Channel 1			Base station mode, on-line				
NY-306	On	On <i>OFF</i>	Off <i>ON</i>	Off	Off	Off	Off	Off	
		Channel 3			Base station mode, on-line				

5
CLB

**Teklogix 9200 Network Controller
Configuration Sheet**

 8/4/95
 Page 1 of 1

9200 Configuration

Terminals = 16 Hosts = 1 Base Stations = 3 RRM Groups = 0

Host 1 Submenu:

 Protocol = TCP/IP Emulation = ANSI Name = NY-106
 Port = E1 Speed = 19200 Terminals: 1...16
 North American

Base Station 1 Submenu:

 Port = M2 Speed = 122000 Terminals: 1...16
 Poll Windows: 4 Size = 8 Message Mode: Factor = 0 Limit = 4 Retries = 3
 Message Size = 100
 Poll Period = 10 Poll Timeout = 2 CRC = YES Auto Startup = YES
 Full Duplex = NO

Base Station 2 Submenu:

 Port = M3 Speed = 122000 Terminals: 1...16
 Poll Windows: 4 Size = 8 Message Mode: Factor = 0 Limit = 4 Retries = 3
 Message Size = 100
 Poll Period = 10 Poll Timeout = 2 CRC = YES Auto Startup = YES
 Full Duplex = NO

Base Station 3 Submenu:

 Port = M4 Speed = 122000 Terminals: 1...16
 Poll Windows: 4 Size = 8 Message Mode: Factor = 0 Limit = 4 Retries = 3
 Message Size = 100
 Poll Period = 10 Poll Timeout = 2 CRC = YES Auto Startup = YES
 Full Duplex = NO

Ports Submenu:

 M2 = Base Station 1 Speed = 122000
 M3 = Base Station 2 Speed = 122000
 M4 = Base Station 3 Speed = 122000

Console Speed = 19200

Screen Features Submenu:

 Alarm = NO Clear = NO Procedures = NO Passthru = NO Transmit Line = 0 AIAG = 0
 Visible Match = 0 Hidden Match = 0 Barcode Input Only = 0 Serial I/O = 0
 Host Print = NO Remote Print = NO Print Line = 0 Print Formlength = 0
 Entry Line = 0 Command Region = 0,0 - 0,0
 Local = NO Queuing = NO

Radio-Link Features Submenu:

 Poll ID = 0 Terminal Offline: Timeout = 60 Percent = 75
 Pages = 8 Field Overhead = 5