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		Date 2/13/95
Project Title/Work Order Acceptance Test Report for the 241-SY-101 Flexible Receiver Gamma Detector System.		EDT No. <u>611532</u>
		ECN No. NA

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From: Nuclear Analysis and Characterization
Phone: 376-4669 H0-38
Date: February 10, 1995
Subject: 241-SY-101 FLEXIBLE RECEIVER GAMMA DETECTOR SYSTEM ACCEPTANCE TEST
REPORT BRIEF

To: C. E. Hanson H5-09
cc: Distribution
GAR file/LB

ACCEPTANCE TEST SUMMARY

The 241-SY-101 Flexible Receiver Gamma Detector System Acceptance Test Procedure (ATP), WHC-SD-WM-ATP-106, was performed on January 9 and 10, 1995. Testing was performed at the 305 Facility under the direction of Jack Dowell, of the Control Systems Engineering Group. A Hanford Job Hazard Analysis Checklist was filled out prior to any testing and a copy is included in the Test Data Sheets section of the acceptance test report (ATR).

During testing, ten (10) test exceptions were generated. Most of the exceptions (TE# 4 through 8) were to document minor changes in the procedure, test data sheets, or to correct typos. The test exceptions are documented in Appendix B of the ATR. Three test exceptions (TE# 1, 2 and 10) were due to the radiation detectors not being tested as part of this ATP. The radiation detectors are already calibrated with a radioactive source, and it was therefore determined that exposing the detectors to a radioactive source as part of this ATP was not necessary. Any steps associated with the radiation detectors were not performed or deleted. The complete system together with the crane line counter will be checked out as part of the Operability Test Procedure. Test exception #9 documented the fact that the data logger did not perform as expected. After troubleshooting the data logger, an acceptable retest was performed. Test exception #3 was to use the "DeTerminal" software package instead of the "DeCipher" software package, as it is much easier to use. The files associated with using the "DeTerminal" software with the data logger are also included as part of the Test Data Sheets section of the ATR.

C. E. Hanson
Page 2
February 10, 1995

CONCLUSION

The equipment tested by WHC-SD-WM-ATP-106 performed as expected following test exception resolution and is ready for field use. If you have any questions, concerns, or comments please feel free to call myself or Jack Dowell on 376-9301.

A handwritten signature in black ink, appearing to read "G A Ritter". The signature is written in a cursive style with a long horizontal stroke at the end.

Glenn A. Ritter, Advanced Engineer
Nuclear Analysis and Characterization

gar

FEB 17 1995

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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT

No 611532

2. To: (Receiving Organization) See Distribution List	3. From: (Originating Organization) Control Systems Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: 241-SY-101	6. Cog. Engr.: J. L. Dowell/N2B2K	7. Purchase Order No.: NA
8. Originator Remarks: The attached ATR is routed for approval & release. The ATR brief is transmitted for information.		9. Equip./Component No.: NA
11. Receiver Remarks:		10. System/BLdg./Facility: 241-SY-101
		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date: ASAP

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.	WHC-SD-WM-ATR-106	A11	0	Acceptance Test Report for the 241-SY-101 Flexible Receiver Gamma Detector System	SQ	1	1	
2.				ATR Brief		3	6	

16. KEY		
Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
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17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
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1		Cog.Eng. J. L. Dowell	<i>J. L. Dowell</i>	2/13/95	H5-05						
1	1	Cog. Mgr. C. E. Hanson	<i>C. E. Hanson</i>	2/13/95	H5-09						
1	1	QA M. L. McElroy	<i>M. L. McElroy</i>	2/14/95	S1-57						
1	1	Safety L. S. Krogsrud	<i>L. S. Krogsrud</i>	2/16/95	R3-08						
		Env.									
1	1	Other G. A. Ritter	<i>G. A. Ritter</i>	2/13/95	H0-38						
		Ind. Rev.									

18. G. A. Ritter <i>G. A. Ritter</i> 2/13/95 Signature of EDT Originator Date	19. C. E. Hanson <i>C. E. Hanson</i> 2/13/95 Authorized Representative Date for Receiving Organization	20. C. E. Hanson <i>C. E. Hanson</i> 2/13/95 Cognizant Manager Date	21. DOE APPROVAL (if required) Ctrl. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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Release Date: 2/17/95

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

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

V. L. Birkland
V.L. Birkland

2/17/95

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SUPPORTING DOCUMENT

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6. Author

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J. L. Dowell 213-95
Signature

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N2B2K

7. Abstract

This Acceptance Test Report is for the 241-SY-101 Flexible Receiver Gamma Detector System. This test verified that the data logger and data converter for the gamma detector system functions as intended.

8. RELEASE STAMP

OFFICIAL RELEASE **(21)**
BY WHC
DATE FEB 17 1995
Sta. 21

ACCEPTANCE TEST REPORT
FOR THE 241-SY-101
FLEXIBLE RECEIVER GAMMA DETECTOR SYSTEM

February 1995

J. L. Dowell

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TEST CONTROL COPY

ACCEPTANCE TEST PROCEDURE FOR
THE 241-SY-101 FLEXIBLE RECEIVER GAMMA DETECTOR SYSTEM

1.0 INSTRUCTION SECTION

1.1 PURPOSE/SCOPE

The purpose of this document is to demonstrate that the Radiation Detectors, Data Converter and Data Logger functions as intended by design. Actual test execution steps are in Section 1.6. All portions of the test shall be completed before the system is either accepted or rejected. Testing is expected to be at the 306E Building. As of this writing, testing is expected to be performed in October 1994 and will take less than one week to complete.

1.2 DESCRIPTION OF THE SYSTEM

The Data converter and Data logger are a part of the 101-SY Flexible Receiver Gamma Radiation detector system that will measure the gross radiation from the mixer pump being removed from tank 101-SY. The four (4) analog voltages generated by the 0-200 R/hr Eberline RO-7 probes are fed to the Data Converter. The Data converter box passes the analog voltage to the RO-7 chassis and converts the voltages to 4-20 mA signals. The 4-20 mA signals are sent to the Data Logger box which will log the signals periodically. In order to correlate the radiation reading to the vertical position of the pump, the lifting crane supplies a linear signal that is fed to the Data Logger.

The following items will be tested for functionality: the RO-7 detectors and chassis, Data Logger Box assembly (H-2-824286), Data Converter Box assembly (H-2-824284) and the interconnecting cables (H-2-824285).

1.3 REFERENCES

1.3.1 Drawings

- H-2-821385, FLEXIBLE RECEIVER DRAWING TREE
- H-2-824445, PUMP RETRIEVAL INTERCONNECT DIAGRAM
- H-2-824280, FLEXIBLE RECEIVER GAMMA DETECTOR INSTALLATION
- H-2-824283, FLEXIBLE RECEIVER DATA CONVERTER BOX ASSEMBLY
- H-2-824284, FLEXIBLE RECEIVER DATA CONVERTER BOX WIRING DIAGRAM
- H-2-824285, FLEXIBLE RECEIVER DATA CONVERTER CABLE ASSEMBLIES
- H-2-824286, FLEXIBLE RECEIVER DATA LOGGER BOX ASSEMBLY
- H-2-824287, FLEXIBLE RECEIVER DATA LOGGER BOX INTERCONNECT DIAGRAM
- H-2-824288, FLEXIBLE RECEIVER DATA CONVERTER CABLING INTERCONNECT ARRANGEMENT

Note: Not all these drawings are released at the time of this writing.

1.3.2 Procedures

- R-011, REV 001, STORAGE AND USE OF Co-60 AND Ir-192 SOURCES

1.3.3 Other

- Manual for DataTaker™ 50
- Manual for DeTerminal software
- Manual for DeCipher Plus software
- NFPA 70, National Electric Code, 1993 Edition

1.4 RESPONSIBILITIES

Each organization participating in the conduct of this ATP will designate personnel for the responsibilities and duties as defined herein for their respective roles. The names of these designees shall be provided to the Recorder for listing on the Recorder's copy of the Test Execution Sheet prior to the performance of any part of this ATP.

All individuals shall carry out their assigned work in a safe manner to protect themselves, others, and the equipment from undue hazards and to prevent damage to property and environment. Facility line managers shall assure the safety of all activities within their areas to prevent injury, property damage, or interruption of operation. Performance of test activities shall always include safety and health aspects as delineated in the Operations Manuals and as directed by the Project Engineer. Any hazard identified during the performance of the ATP shall be reported to the Test Director.

1.4.1 Project Engineer

- 1.4.1.1 Designate a Test Director.
- 1.4.1.2 Coordinate testing with facility management.
- 1.4.1.3 Act as liaison between the participants in acceptance testing.
- 1.4.1.4 Ensure informal testing and inspection is complete.
- 1.4.1.5 Schedule and conduct a pre-ATP meeting with test participants prior to start of testing.
- 1.4.1.6 Notify the persons performing and witnessing the test prior to the start of testing.
- 1.4.1.7 Notify all concerned parties when a change is made in the testing schedule.
- 1.4.1.8 Sign/date Test Execution Sheet (Appendix D) when ATP is approved and accepted.
- 1.4.1.9 Take necessary action to clear exceptions to the ATP.
- 1.4.1.10 Sign/date Test Exception Sheet (Appendix B) when an exception has been resolved.
- 1.4.1.11 Provide a distribution list for the approved and accepted ATP.

1.4.1.12 Confirm that all equipment required for performing this test (as listed in Section 1.5.2) will be available for the test duration.

1.4.1.13 Provide equipment required for performing this acceptance test, which has not been designated as being provided by others.

1.4.2 Test Director

1.4.2.1 Witness the tests.

1.4.2.2 Coordinate all acceptance testing.

1.4.2.3 Confirm that shop testing (if any) and/or inspection (if any) of the test unit(s) or portion of the test unit(s) has been completed.

1.4.2.4 Stop any test which may cause damage to the test unit(s) until the test procedure has been revised.

1.4.2.5 Approve field changes to the ATP.

1.4.2.6 Obtain revisions to the ATP, as necessary, to comply with authorized field changes or to accommodate existing field conditions.

1.4.2.7 Evaluate recorded data, discrepancies, and exceptions.

1.4.2.8 Obtain from the Project Engineer, any information or changes necessary to clear or resolve objections.

1.4.2.9 Sign/date Test Data Sheet and Test Execution sheet (Appendix A & D) when ATP has been performed.

1.4.2.10 Sign/date Test Exception Sheet (Appendix B) when acceptable retest has been performed.

1.4.2.11 Obtain required signatures on the ATP prior to reproduction and distribution.

1.4.3 Safety

- 1.4.3.1 Witness the tests.
- 1.4.3.2 Evaluate results of testing.
- 1.4.3.3 Assist the Test Director when requested.
- 1.4.3.4 Sign/date Test Execution Sheet (Appendix D) when ATP has been performed and when the ATP is approved and accepted.
- 1.4.3.5 Sign/date Test Exception sheet (Appendix B) when acceptable retest has been performed.
- 1.4.3.6 Approve field changes to the ATP.

1.4.4 Recorder

- 1.4.4.1 Witness testing and perform all recording using black ink.
- 1.4.4.2 Record names of all designated personnel on the Test Execution sheet (Appendix D) on the Recorder's copy of ATP prior to testing.
- 1.4.4.3 Observe tests, record test data and maintain Test Log (Appendix C).
- 1.4.4.4 Sign/date the Test Execution Sheet, Test Data sheets and Test Exception sheet(s) (Appendices A, B & D) as the Recorder.
- 1.4.4.5 Initial and date every test step on the Recorder's copy as it is completed, next to the step number or on a table, when provided. On tables where there is not room for both the initial and date, date may be entered in space provided at bottom of column.
- 1.4.4.6 Record authorized field changes to the ATP.
- 1.4.4.7 Record exceptions and test steps that are not performed on a Test Exception Sheet. Record the transferred information (ink or typed) onto a blank Test Exception Sheet. Additional Test Exception Sheets can be reproduced as needed (Appendix B).
- 1.4.4.8 Orally notify the Test Director at the time an objection is made.
- 1.4.4.9 After ATP is complete assign page numbers to Test Exception Sheets. Record page numbers for these items and make corrections, as necessary, to page numbers shown for these pages in the index.
- 1.4.4.10 Transfer the final test results with Recorder's signature and dates for each step to the Recorder's ATP copy in ink or type. Submit the completed ATP to the Test Director for approval signatures and distribution.

1.4.5 Quality

- 1.4.5.1 Witness the tests.
- 1.4.5.2 Evaluate results of testing and field changes to ATP.
- 1.4.5.3 Sign/date Test Execution Sheet (Appendix D) when ATP is performed and when it is approved and accepted.
- 1.4.5.4 Sign/date Test Exception Sheet (Appendix B) when an exception has been resolved.
- 1.4.5.5 Initial/mark Test Data Sheet (Appendix A) assuring data is entered correctly.

1.4.6 306E NDE Technician

- 1.4.6.1 Use radiation source(s) in 306E per the applicable procedure.
- 1.4.6.2 Read and understand RWP for handling Co⁶⁰ and Ir¹⁹² sources.
- 1.4.6.3 Setup and verify safe zone for other test participants.
- 1.4.6.4 Setup all test apparatus within the radiation test zone.
- 1.4.6.5 Provide test equipment to verify gamma fields of 10, 100 and 140 (± 10) R/hr.

1.5 TEST CONDITIONS & EQUIPMENT REQUIRED

1.5.1 Test Conditions

No unique or unusual chemical, fire, release of energy, or criticality safety hazards are involved with performing or supporting these tests. Normal laboratory and facility safety rules shall be followed during these tests. All electrical and mechanical apparatus shall be operated as designed.

The test items, equipment and facilities used in this test procedure are not expected to be affected permanently by this procedure. Test equipment that has been damaged shall be repaired or replaced.

The testing of the Data Logger and Data Converter will be performed in the 306E Building. The 306E Area NDE technicians shall be responsible for all work performed with radioactive source(s). The source(s) used will consist of either a Co⁶⁰ or an Ir¹⁹² source. It is not expected that any person involved in this testing shall receive more than 10 mrem whole-body dose as a consequence of this work per the RWP (Section 1.3.2).

1.5.2 Equipment Required

The Project Engineer shall assure all test equipment is available unless otherwise noted. The following list is provided as an aid and is not intended to be all an exhaustive list.

Qty	Description
1	- 3 1/2 digit multi-meter with current valid calibration
1	- 4 1/2 digit multi-meter with current valid calibration
1	- Adjustable DC power supply, 0-2 volt (min) @ 100 mA (nominal)
1	- Adjustable DC power supply, 0-10 volt (min) @ 100 mA (nominal)
1	- Interface cable, 9 pin "D"
1	- IBM™ (or compatible) computer/monitor with DeTerminal software
1	- Radiation source, Co ⁶⁰ isotope or Ir ¹⁹² isotope
1	- Manual for DataTaker™ 50.
A/R	- Assorted hand tools
A/R	- Jumper wires

1.6 ACCEPTANCE TEST

1.6.1 Preliminary Conditions

The following shall be satisfactorily completed before performing Section 1.6.2.

- ✓ 1.6.1.1 The Data Logger has been inspected for workmanship and for compliance with design per drawing H-2-824286.
- ✓ 1.6.1.2 The Data Converter has been inspected for workmanship and for compliance with design per drawing H-2-824283.
- N/A
TEJ 1.6.1.3 The RO-7 detectors have been calibrated for proper operation over the full range with their associated RO-7 readout units. Assure a copy of the calibration test reports are on hand. Record serial/identity numbers for the four (4) detectors and chassis and calibration sticker numbers.
- N/A
TEJ 1.6.1.4 Assure the RO-7 detectors are installed in the explosion-proof electrical conduit. The explosion-proof electrical conduit has been inspected for workmanship and for compliance with design per drawing H-2-824280 and Article 500 of the National Electric Code.
- ✓ 1.6.1.5 Continuity and megger tests have been performed on portions of the electrical and instrument systems being tested, as required.
- ✓ 1.6.1.6 Continuity and megger tests have been performed on cable assemblies.
- ✓ 1.6.1.7 All cables have been inspected for workmanship and for compliance with design per drawing H-2-824285.
- ✓ 1.6.1.8 All test instruments requiring calibration have a currently valid calibration stamp attached that indicates a calibration traceable to the National Institute of Standards and Testing.
- ✓ 1.6.1.9 Personnel responsible for directing and witnessing the performance of the tests described in this ATP have read and understand their roles.
- ✓ 1.6.1.10 All other items have been tested to insure their proper function.
- ✓ 1.6.1.11 All nameplates, equipment tags, etc. are installed/attached per the design drawings.

- ✓ 1.6.1.12 All penetrations into enclosures, structures etc. have been sealed to keep dust, rain snow etc. out.
- ✓ 1.6.1.13 The test unit(s) and associated components have been checked and informally operated to ensure that they are in good general working order.
- ✓ 1.6.1.14 All components and equipment are de-energized.

J. L. Dowell 1-9-95
 Test Director Date

1.6.2 Data Logger Setup

- ✓ 1.6.2.1 Verify all the steps in section 1.6.1 are complete.
- ✓ 1.6.2.2 Set up computer and connect Data Logger to computer using the 9 pin "D" interface cable.
- ✓ 1.6.2.3 Turn power to the computer and datalogger on. Assure computer boots up normally.
- ✓ 1.6.2.4 Go to the subdirectory where ^{DE TERMINAL SCREEN 3} "DeTerminal" is located; type DT <Enter> to start the "DeTerminal". Assure the appropriate messages and screen appears (see pages 7 & 8 of the DataTaker manual, "Getting Started with Dataloader").
- ✓ 1.6.2.5 Load a "report schedule" to log all 5 analog data channels when the switch connected to digital input #1 transitions from open to closed.
- ✓
TE4 1.6.2.6 Verify the "report schedule" was correctly loaded by using the "STATUS2" command (see page 4, headed "Schedules" of The DataTaker Manual).
- ✓ 1.6.2.7 Turn off power to the Data logger.
- ✓ 1.6.2.8 Disconnect the interface cable from the data logger.

1.6.3 Data Converter & Data Logger Test

- ✓ 1.6.3.1 Verify all the steps in section 1.6.2 are complete.
- ✓ 1.6.3.2 Assure no signal cables are connected to the Data Converter enclosure.
- ✓ 1.6.3.3 Open the Data Converter enclosure; apply power to the Data Converter.
- ✓ 1.6.3.4 Measure and record the outputs of each power supply (5 total) using the 3 1/2 digit voltmeter.

- ✓ 1.6.3.5 Remove power from the Data Converter enclosure.
- ✓ TR5 1.6.3.6 Verify continuity from the (external) contacts of connector P5-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.7 Verify continuity from the (external) contacts of connector R1-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.8 Verify continuity from the (external) contacts of connector P6-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.9 Verify continuity from the (external) contacts of connector R2-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.10 Verify continuity from the (external) contacts of connector P7-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.11 Verify continuity from the (external) contacts of connector R3-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.12 Verify continuity from the (external) contacts of connector P8-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.13 Verify continuity from the (external) contacts of connector R4-1 to TB1 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.14 Verify continuity from the (external) contacts of connector P10-1 to VIC5 using the 3 1/2 digit multimeter.
- ✓ TR5 1.6.3.15 Verify continuity from the (external) contacts of connector P9-1 to TB2 using the 3 1/2 digit multimeter.
- ✓ 1.6.3.16 Connect the four (4) R0-7 chassis/readouts to the Data Converter using the four (4) Eberline R0-7-C-200 cables. Connect the cable that goes from the Data Converter to the Data Logger.
- ✓ 1.6.3.17 Turn on the Data Logger and the R0-7 readouts.

Note: The following steps check the function of Voltage-to-Current Converter #1.

- ✓ TR6 1.6.3.18 Assure the output voltage of the 0-2 volt power supply is set to zero. Connect this power supply to TB1; connect the positive lead to TB1-2 and connect the negative lead to TB1-12.
- ✓ 1.6.3.19 Connect a 3 1/2 digit meter to TB1 or the terminals of the power supply to monitor the input voltage.

- ✓ 1.6.3.20 Disconnect a wire from TB2-8; connect a 4 1/2 digit meter between TB2-8 and the wire removed to monitor the output current.
- ✓ 1.6.3.21 Apply power to the Data Converter; turn on the 0-2 volt power supply.
- ✓ 1.6.3.22 Set the input voltage to 0.00 (± 0.01 volts).
- ✓ 1.6.3.23 Measure and record the output current.
- ✓ 1.6.3.24 Log the signals on the Data Logger.
- ✓ 1.6.3.25 Record the reading from the R0-7 display.
- ✓ 1.6.3.26 Set the input voltage to -0.25 (± 0.01 volts).
- ✓ 1.6.3.27 Measure and record the output current.
- ✓ 1.6.3.28 Log the current on the Data Logger.
- ✓ 1.6.3.29 Record the reading from the R0-7 display.
- ✓ 1.6.3.30 Set the input voltage to -0.50 (± 0.01 volts).
- ✓ 1.6.3.31 Measure and record the output current.
- ✓ 1.6.3.32 Log the current on the Data Logger.
- ✓ 1.6.3.33 Record the reading from the R0-7 display.
- ✓ 1.6.3.34 Set the input voltage to -0.75 (± 0.01 volts).
- ✓ 1.6.3.35 Measure and record the output current.
- ✓ 1.6.3.36 Log the current on the Data Logger.
- ✓ 1.6.3.37 Record the reading from the R0-7 display.
- ✓ 1.6.3.38 Set the input voltage to -1.00 (± 0.01 volts).
- ✓ 1.6.3.39 Measure and record the output current.
- ✓ 1.6.3.40 Log the current on the Data Logger.
- ✓ 1.6.3.41 Record the reading from the R0-7 display.
- ✓ 1.6.3.42 Turn off power to the Data Converter and the power supply.
- ✓ 1.6.3.43 Remove the current meter and replace the wire previously removed.

Note: The following steps check the function of Voltage-to-Current Converter #2.

- ✓ 1.6.3.44 Assure the output voltage of the 0-2 volt power supply is set to zero. Connect this power supply to TB1; connect the positive lead to TB1-3 and connect the negative lead to TB1-13.
- ✓ 1.6.3.45 Connect a 3 1/2 digit meter to TB1 or the terminals of the power supply to monitor the input voltage.
- ✓ 1.6.3.46 Disconnect a wire from TB2-6; connect a 4 1/2 digit meter between TB2-6 and the wire removed to monitor the output current.
- ✓ 1.6.3.47 Apply power to the Data Converter; turn on the 0-2 volt power supply.
- ✓ 1.6.3.48 Repeat steps 1.6.3.22 through 1.6.3.43 inclusive.

Note: The following steps check the function of Voltage-to-Current Converter #3.

- ✓ 1.6.3.49 Assure the output voltage of the 0-2 volt power supply is set to zero. Connect this power supply to TB1; connect the positive lead to TB1-4 and connect the negative lead to TB1-14.
- ✓ 1.6.3.50 Connect a 3 1/2 digit meter to TB1 or the terminals of the power supply to monitor the input voltage.
- ✓ 1.6.3.51 Disconnect a wire from TB2-4; connect a 4 1/2 digit meter between TB2-4 and the wire removed to monitor the output current.
- ✓ 1.6.3.52 Apply power to the Data Converter; turn on the 0-2 volt power supply.
- ✓ 1.6.3.53 Repeat steps 1.6.3.22 through 1.6.3.43 inclusive.

Note: The following steps check the function of Voltage-to-Current Converter #4.

- ✓ 1.6.3.54 Assure the output voltage of the 0-2 volt power supply is set to zero. Connect this power supply to TB1; connect the positive lead to TB1-5 and connect the negative lead to TB1-15.
- ✓ 1.6.3.55 Connect a 3 1/2 digit meter to TB1 or the terminals of the power supply to monitor the input voltage.

- ✓ 1.6.3.56 Disconnect a wire from TB2-2; connect a 4 1/2 digit meter between TB2-2 and the wire removed to monitor the output current.
- ✓ 1.6.3.57 Apply power to the Data Converter; turn on the 0-2 volt power supply.
- ✓ 1.6.3.58 Repeat steps 1.6.3.22 through 1.6.3.43 inclusive.

Note: The following steps check the function of Voltage-to-Current Converter #5.

- ✓ 1.6.3.59 Assure the output voltage of the 0-10 volt power supply is set to zero. Connect this power supply to TB1; connect the positive lead to VIC5-41 and connect the negative lead to VIC5-42.
- ✓ 1.6.3.60 Connect a 3 1/2 digit meter to TB1 or the terminals of the power supply to monitor the input voltage.
- ✓ 1.6.3.61 Disconnect a wire from TB2-10 ; connect a 4 1/2 digit meter between TB2-10 and the wire removed to monitor the output current.
- ✓ 1.6.3.62 Apply power to the Data Converter; turn on the 0-10 volt power supply.
- ✓ 1.6.3.63 Set the input voltage to 0.00 (± 0.01 volts).
- ✓ 1.6.3.64 Measure and record the output current.
- ✓ 1.6.3.65 Log the current on the Data Logger.
- ✓ 1.6.3.66 Set the input voltage to 2.50 (± 0.01 volts).
- ✓ 1.6.3.67 Measure and record the output current.
- ✓ 1.6.3.68 Log the current on the Data Logger.
- ✓ 1.6.3.69 Set the input voltage to 5.00 (± 0.01 volts).
- ✓ 1.6.3.70 Measure and record the output current.
- ✓ 1.6.3.71 Log the current on the Data Logger.
- ✓ 1.6.3.72 Set the input voltage to 7.50 (± 0.01 volts).
- ✓ 1.6.3.73 Measure and record the output current.
- ✓ 1.6.3.74 Log the current on the Data Logger.

- ✓ 1.6.3.75 Set the input voltage to 10.00 (±0.01 volts).
- ✓ 1.6.3.76 Measure and record the output current.
- ✓ 1.6.3.77 Log the current on the Data Logger.
- ✓ 1.6.3.78 Remove the current meter and replace the wire previously removed.
- ✓ 1.6.3.79 Turn off power to the Data Converter and the power supply.

Note: the following steps display to data stored on the data logger.

- ✓ TR9 1.6.3.80 Connect the computer and bring up ^{DR CIPPER TR3} ~~DeTerminal~~.
- ✓ 1.6.3.81 Display the data stored on the data logger.
- ✓ 1.6.3.82 Verify the data agrees with the data recorded for VIC1 through VIC5.
- ✓ 1.6.3.83 Erase the data stored in the internal memory of the data logger.

1.6.4 Detector Test

- ✓ 1.6.4.1 Verify all the steps in section 1.6.3 are complete.
- N/A 1.6.4.2 Connect the four (4) detectors to the Data Converter using the four (4) cables (H-2-824285, p/n 1, 2, 3 & 4). Verify the detectors are connected to the readouts they were calibrated with per the calibration test reports.
- 1.6.4.3 Connect the cable that goes from the Data Converter to the Data Logger.

NOTE: The following steps require the use of a high radiation source. Proceed only under the direct guidance of the 306E NDE technician. The order of these steps may be changed as requested by the NDE technician to attain the safest (ALARA) operating conditions

TR 2

- 1.6.4.4 Record the high radiation source isotope being used.
- 1.6.4.5 Expose Detector #1 to a 10 R/hr (nominal) field. Record the field strength as stated by the NDE technician.
- 1.6.4.6 Log the current on the Data Logger.
- N/A 1.6.4.7 Record the reading from the RO-7 display (#1).

1.6.5 Review

✓ 1.6.5.1 Verify that steps 1.6.1.1 through 1.6.4.51 inclusive have been completed.

✓
TE 10 1.6.5.2 The cognizant engineer(s), by their signature below state the ~~RO 7 detectors and readouts~~, Data Converter, Data Logger, ~~Blast Shield Detectors~~ and associated equipment is functional and ready for its intended use.

J. L. Dowell 1-10-95
Cognizant Engineer Date

G. L. A. Pitt 1/11/95
Cognizant Engineer Date

1.7 TEST DATA SHEETS

The Test Data Sheets are used to document any procedure step requiring verification. All entries are made in black ink. A description of the data sheet format follows.

1. Date--Record the date the test is performed.
2. Title Of Test Section--There are several sections of this one test being performed by this procedure, e.g. the Preliminary Conditions, Data logger Setup, etc.
3. Test Unit Number--Record the unit number of the test unit, if any.
4. Equipment Serial Number(s)--Record the serial numbers of any device used during the tests.
5. Test Performed By--Print the name of the person performing the test.
6. Procedure Step Number--This column contains the test steps requiring verification.
7. Item--This column contains the item being verified, (Pump, Air Conditioner, Heater, etc). or the parameter (voltage, pressure, etc.) being recorded.
8. Value--This column contains the quantitative or qualitative measure of the item being verified, i.e. a line voltage may have a value of 120V, whereas a pump may have a value of ON or OFF.
9. Range--This column indicates the anticipated value of the item being measured. If a value is recorded for later analysis, there may not be a tolerance associated with it.
10. Accept/Reject--Indicate whether the value obtained is acceptable in comparison with the Range. If a value is recorded for later analysis, the accept/reject decision may be determined later.
11. Comment--If the value is rejected, give a justification for denial.

Test Data Sheets are in Appendix A.

1.8 TEST LOG SHEET

Test Log Sheets are used to document test start and stop times and to document any other notes concerning the execution of the Acceptance Test Procedure. A Test Log Sheet is included in Appendix C.

2.0 CHANGE CONTROL AND EXCEPTIONS TO ACCEPTANCE TEST SECTION

2.1 ACCEPTANCE TEST PROCEDURE CHANGE CONTROL

Acceptance testing is to be conducted in accordance with the steps and requirements specified in this procedure. Any required field changes must be per Sections 1.4.2, 1.4.3, and 1.4.4. Field changes shall also be recorded as an exception.

2.2 TEST EXECUTION

The acceptance test procedures detailed in Section 1.6 shall be performed in sequential steps starting with Section 1.6.1. As required by Section 1.4.4, the Recorder will initial and date every test step in the space provided on the Recorder's copy of the ATP as each step is completed. Any step that requires verification must also be recorded on the Test Data Sheet.

2.2.1 Without Exception

- 2.2.1.1 Check applicable space on the Test Execution Sheet (Appendix D) to show that the ATP has been performed and no exceptions have been recorded.
- 2.2.1.2 Sign and date the Test Execution Sheet in the spaces provided.
- 2.2.1.3 Distribute requisite copies of ATP.

2.2.2 With Exception/Resolved

- 2.2.2.1 Check applicable space on the Test Execution Sheet to show that the ATP has been performed with exceptions recorded and resolved.
- 2.2.2.2 Sign and date the Test Execution Sheet in the spaces provided.
- 2.2.2.3 Distribute requisite copies of ATP.

2.2.3 With Exception/Outstanding

- 2.2.3.1 Check applicable space on the Test Execution Sheet to show that the ATP has been performed with exceptions recorded, part or all of which are presently outstanding, unresolved.
- 2.2.3.2 Sign and date the Test Execution Sheet in the spaces provided.
- 2.2.3.3 Distribute requisite copies of ATP.

3.0 RECORDING AND RESOLVING EXCEPTIONS

3.1 GENERAL

Exceptions to the ATP are sequentially numbered and recorded on individual Exception Sheets. This enables case-by-case resolution, recording, approval, and distribution of each exception.

3.2 RECORDING

3.2.1 Number each exception sequentially as it occurs and record it on a Test Exception Sheet.

3.2.2 Enter name and organization of objecting party for each exception.

3.2.3 Enter planned action to resolve each exception when such determination is made.

3.3 RETEST/RESOLUTION

3.3.1 Record the action taken to resolve each exception on the Test Exception Sheet. Action taken may not be the same as planned action.

3.3.2 When action taken results in an acceptable retest, sign and date Acceptable Retest section of the Test Exception Sheet.

3.3.3 When action taken does not involve an acceptable retest, strike out the Acceptable Retest section of the Test Exception Sheet. Resolve exception per section 3.4 below.

3.4 APPROVAL AND ACCEPTANCE

3.4.1 The Project Engineer provides final approval and acceptance of exception by checking one of the following on the Test Exception Sheet:

- Retest Approved and Accepted: Applicable when Retest Execution and Acceptance section is completed.
- Exception Accepted-As-Is: Requires detailed explanation.
- Other: Requires detailed explanation.

3.4.2 The Project Engineer signs and dates the Test Exception Sheet and obtains other internal approval, if required.

3.5 DISTRIBUTION

Distribute requisite copies of completed the Test Exception Sheets to the client.

APPENDIX A - TEST DATA SHEETS

TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:						
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.1.3	Detector #1		Record serial or ID number	NA		
	Chassis #1					
	Cal. #					
	Detector #2					
	Chassis #2					
	Cal. #					
	Detector #3					
	Chassis #3					
	Cal. #					
	Detector #4					
	Chassis #4					
	Cal. #					
1.6.2.1	Section 1.6.1	YES	Completed (yes)	A		WHC 115 04/06
1.6.2.6	Report Schedule	NO RA1+E1#..5# (S1, FF2) TE4	Matches: RA1+E1#..5# (yes)	A	SEIZ TE 4	WHC 115 04/06

(S1, FF2)
TE4

1/19/95

1/19/95

TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			752-45-08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.1	Section 1.6.2	YES	Completed (yes)	A		WHC 115 04/00
1.6.3.4	PS1-OUT(+) PS1-RET(-)	24.0	24 ± 0.5 V	A		WHC 115 04/00
	PS2-OUT(+) PS2-RET(-)	24.0	24 ± 0.5 V	A		WHC 115 04/00
	PS3: TB1-39(+) TB1-50(-)	-8.98	-9 ± 0.5 V	A		WHC 115 04/00
	PS4: TB1-43(+) TB1-50(-)	8.98	9 ± 0.5 V	A		WHC 115 04/00
	PS5: TB1-47(+) TB1-50(-)	2/-59.9	-60 ± 1 V	A		WHC 115 04/00
1.6.3.6	P5-1-B TB1-2	Y 2 Ω	less than 0.5 ohm (yes)	A		WHC 115 04/00
	P5-1-C TB1-7	Y		A		WHC 115 04/00
	P5-1-D TB1-12	Y		A		WHC 115 04/00
	P5-1-E TB1-17	Y		A		WHC 115 04/00
	P5-1-F TB1-22	Y		A		WHC 115 04/00
	P5-1-H TB1-27	Y		A		WHC 115 04/00
	P5-1-J ^{TR5} TB1-28	Y		A	TR5	WHC 115 04/00
1.6.3.7	R1-1-B TB1-2	Y	less than 0.5 ohm (yes)	A		WHC 115 04/00

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TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			752-45-08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
	R1-1-C TB1-7	Y		A		WHC 115 04/00
	R1-1-D TB1-12	Y		A		WHC 115 04/00
	R1-1-E TB1-17	Y		A		WHC 115 04/00
	R1-1-F TB1-22	Y		A		WHC 115 04/00
	R1-1-H TB1-28 ²⁷	Y		A	TE 5	WHC 115 04/00
	R1-1-J TB1-28	Y		A		WHC 115 04/00
	1.6.3.8	P6-1-B TB1-3		Y	less than 0.5 ohm (yes)	A
	P6-1-C TB1-8	Y	A			WHC 115 04/00
	P6-1-D TB1-13	Y	A			WHC 115 04/00
	P6-1-E TB1-18	Y	A			WHC 115 04/00
	P6-1-F TB1-23	Y	A			WHC 115 04/00
	P6-1-H TB1-29	Y	A			WHC 115 04/00
	P6-1-J TB1-29 ³⁰	Y	A	TE 5		WHC 115 04/00
1.6.3.9	R2-1-B TB1-3	Y	less than 0.5 ohm (yes)	A		WHC 115 04/00
	R2-1-C TB1-8	Y		A		WHC 115 04/00

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TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			752-45-08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
	R2-1-D TB1-13	Y		A		WHC T15 04/00
	R2-1-E TB1-18	Y		A		WHC T15 04/00
	R2-1-F TB1-23	Y		A		WHC T15 04/00
	R2-1-H TB1- 30 29	Y		A	TE5	WHC T15 04/00
	R2-1-J TB1-30	Y		A		WHC T15 04/00
1.6.3.10	P7-1-B TB1-4	Y	less than 0.5 ohm (yes)	A		WHC T15 04/00
	P7-1-C TB1-9	Y		A		WHC T15 04/00
	P7-1-D TB1-14	Y		A		WHC T15 04/00
	P7-1-E TB1-19	Y		A		WHC T15 04/00
	P7-1-F TB1-24	Y		A		WHC T15 04/00
	P7-1-H TB1-31	Y		A		WHC T15 04/00
	P7-1-J TB1- 31 32	Y		A	TE5	WHC T15 04/00
1.6.3.11	R3-1-B TB1-4	Y	less than 0.5 ohm (yes)	A		WHC T15 04/00
	R3-1-C TB1-9	Y		A		WHC T15 04/00
	R3-1-D TB1-14	Y		A		WHC T15 04/00

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TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			757-45-08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
	R3-1-E TB1-19	Y		A		
	R3-1-F TB1-24	Y		A		
	R3-1-H TB1-32 31	Y		A	TE 5	
	R3-1-J TB1-32	Y		A		
1.6.3.12	P8-1-B TB1-5	Y	less than 0.5 ohm (yes)	A		
	P8-1-C TB1-10	Y		A		
	P8-1-D TB1-15	Y		A		
	P8-1-E TB1-20	Y		A		
	P8-1-F TB1-25	Y		A		
	P8-1-H TB1-33	Y		A		
	P8-1-J TB1-33 34	Y		A	TE 5	
1.6.3.13	R4-1-B TB1-5	Y	less than 0.5 ohm (yes)	A		
	R4-1-C TB1-10	Y		A		
	R4-1-D TB1-15	Y		A		
	R4-1-E TB1-20	Y		A		

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TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			752-45-08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
	R4-1-F TB1-25	Y		A		
	R4-1-H TB1-34 33	Y		A	FE5	
	R4-1-J TB1-34	Y		A		
1.6.3.14	P10-1-A VIC5-42	Y	less than 0.5 ohm (yes)	A		
	P10-1-B VIC5-41	Y		A		

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TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			752-45-08-012 752-45-08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.15	P9-1-A TB2-10	Y	less than 0.5 ohm (yes)	A		
	P9-1-B TB2-9	Y		A		
	P9-1-C TB2-8	Y		A		
	P9-1-D TB2-7	Y A12		A		
	P9-1-E TB2-6	Y		A		
	P9-1-F TB2-5	Y		A		
	P9-1-H-G TB2-4	Y		A	T125	
	P9-1-I-H TB2-3	Y		A	T125	
	P9-1-K-J TB2-2	Y		A	T125	
	P9-1-L-K TB2-1	Y		A	T125	
1.6.3.23	Current	3.977 ²	4 ± 0.16 mA	A		
1.6.3.25	Display	-0.01	0 ± 5 R/Hr	A		
1.6.3.27	Current	7.96	8 ± 0.16 mA	A		
1.6.3.29	RO-7 display	4 ² 8.97	50 ± 5 R/Hr	A	T127	
1.6.3.31	Current	11.95	12 ± 0.16 mA	A		
1.6.3.33	RO-7 display	9.97	100 ± 5 R/Hr	A	T127	

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TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By: Retest per Test Ex #9			752-45 -08-012 752-45 -08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.15	P9-1-A TB2-10		less than 0.5 ohm (yes)			
	P9-1-B TB2-9					
	P9-1-C TB2-8					
	P9-1-D TB2-7					
	P9-1-E TB2-6					
	P9-1-F TB2-5					
	P9-1-H TB2-4					
	P9-1-J TB2-3					
	P9-1-K TB2-2					
	P9-1-L TB2-1					
1.6.3.23	Current	3.98	4 ± 0.16 mA	A		11/16/95
1.6.3.25	Display	N/A	0 ± 5 R/Hr	N/A		11/16/95
1.6.3.27	Current	7.96	8 ± 0.16 mA	A		11/16/95
1.6.3.29	R0-7 display	N/A	50 ± 5 R/Hr	N/A		11/16/95
1.6.3.31	Current	11.96	12 ± 0.16 mA	A		11/16/95
1.6.3.33	R0-7 display	N/A	100 ± 5 R/Hr	N/A		11/16/95

TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			752-45-08-012 752-45-08-001			
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.35	Current	15.95	16 ± 0.16 mA	A		WHC 115 04/00
1.6.3.37	RO-7 display	14.97	150 ± 5 R/Hr	A	TR7	WHC 115 04/00
1.6.3.39	Current	19.94	20 ± 0.16 mA	A		WHC 115 04/00
1.6.3.41	RO-7 display	19.96	200 ± 5 R/Hr	A	TR7	WHC 115 04/00
1.6.3.48	Current	3.95	4 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	-0.15	0 ± 5 R/Hr	A	TR7	WHC 115 04/00
	Current	7.93	8 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	4.84	50 ± 5 R/Hr	A	TR7	WHC 115 04/00
	Current	11.92	12 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	9.83	100 ± 5 R/Hr	A	TR7	WHC 115 04/00
	Current	15.91	16 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	14.83	150 ± 5 R/Hr	A	TR7	WHC 115 04/00
	Current	19.89	20 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	19.83	200 ± 5 R/Hr	A	TR7	WHC 115 04/00

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TEST DATA SHEET

Date of test:			Test Unit Numbers:			
Test Section Title: <i>Retest per Test Exception #9</i>			Equipment Serial Number(s): <i>752-45-08-012</i> <i>752-45-08-001</i>			
Test Performed By:						
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.35	Current	<i>15.95</i>	16 ± 0.16 mA	<i>A</i>		
1.6.3.37	RO-7 display	<i>N/A</i>	150 ± 5 R/Hr	<i>N/A</i>		
1.6.3.39	Current	<i>19.93</i>	20 ± 0.16 mA	<i>A</i>		
1.6.3.41	RO-7 display	<i>N/A</i>	200 ± 5 R/Hr	<i>N/A</i>		
1.6.3.48	Current	<i>3.97</i>	4 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	0 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>7.94</i>	8 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	50 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>11.93</i>	12 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	100 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>15.92</i>	16 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	150 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>19.90</i>	20 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	200 ± 5 R/Hr	<i>N/A</i>		

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TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:			752-45-08-012 752-45-08-001			
Procedure Step Number	item	Value	Range	(A/R)	Comment	QA
1.6.3.53	Current	3.97	4 ± 0.16 mA	A		WHD T15 04/09
	RO-7 display	0.00	0 ± 5 R/Hr	A	TR7	WHD T15 04/09
	Current	7.95	8 ± 0.16 mA	A		WHD T15 04/09
	RO-7 display	5.00	50 ± 5 R/Hr	A	TE7	WHD T15 04/09
	Current	11.94	12 ± 0.16 mA	A		WHD T15 04/09
	RO-7 display	10.00	100 ± 5 R/Hr	A	TR7	WHD T15 04/09
	Current	15.93	16 ± 0.16 mA	A		WHD T15 04/09
	RO-7 display	15.00	150 ± 5 R/Hr	A	TE7	WHD T15 04/09
	Current	19.91	20 ± 0.16 mA	A		WHD T15 04/09
	RO-7 display	19.98	200 ± 5 R/Hr	A	TR7	WHD T15 04/09

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11/9/96

TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title: <i>Retest Per Test Ex #9</i>			Equipment Serial Number(s): <i>752-45-08-012</i> <i>752-45-08-001</i>			
Test Performed By:						
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.53	Current	<i>3.97</i>	4 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	0 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>7.45</i>	8 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	50 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>11.94</i>	12 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	100 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>15.92</i>	16 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	150 ± 5 R/Hr	<i>N/A</i>		
	Current	<i>19.90</i>	20 ± 0.16 mA	<i>A</i>		
	RO-7 display	<i>N/A</i>	200 ± 5 R/Hr	<i>N/A</i>		

11/10/95

11/10/95

TEST DATA SHEET

Date of test:		Test Unit Number:				
Test Section Title:		Equipment Serial Number(s):				
Test Performed By:		752-45-08-012 752-45-08-001				
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.58	Current	3.96	4 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	0.08	0 ± 5 R/Hr	A	TE 7	WHC 115 04/00
	Current	7.94	8 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	4.91	50 ± 5 R/Hr	A	TE 7	WHC 115 04/00
	Current	11.93	12 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	9.90	100 ± 5 R/Hr	A	TE 7	WHC 115 04/00
	Current	15.93	16 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	14.90 15.90	150 ± 5 R/Hr	A	TE 7	WHC 115 04/00
	Current	19.92	20 ± 0.16 mA	A		WHC 115 04/00
	RO-7 display	19.90	200 ± 5 R/Hr	A	TE 7	WHC 115 04/00
1.6.3.64	Current	3.95	Record reading	A	TE 8	WHC 115 04/00
1.6.3.67	Current	7.94	Record reading	A	TE 8	WHC 115 04/00
1.6.3.70	Current	11.94	Record reading	A	TE 8	WHC 115 04/00
1.6.3.73	Current	15.95	Record reading	A	TE 8	WHC 115 04/00
1.6.3.76	Current	19.94	Record reading	A	TE 8	WHC 115 04/00
1.6.3.82	Data	NO	Matches (yes)	A	TE 9	WHC 115 04/00

11/9/95

11/9/95

11/10/95

11/10/95

TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title: Retest per Test Ex #9			Equipment Serial Number(s): 752-415-08-012 752-415-08-001			
Test Performed By:						
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.3.58	Current	3.96	4 ± 0.16 mA	A		WHD 115 04/00
	RO-7 display	N/A	0 ± 5 R/Hr	N/A		
	Current	7.93	8 ± 0.16 mA	A		WHD 115 04/00
	RO-7 display	N/A	50 ± 5 R/Hr	N/A		
	Current	11.93	12 ± 0.16 mA	A		WHD 115 04/00
	RO-7 display	N/A	100 ± 5 R/Hr	N/A		
	Current	15.92	16 ± 0.16 mA	A		WHD 115 04/00
	RO-7 display	N/A	150 ± 5 R/Hr	N/A		
	Current	19.91	20 ± 0.16 mA	A		WHD 115 04/00
RO-7 display	N/A	200 ± 5 R/Hr	N/A			
1.6.3.64	Current	3.94	Record reading	A	TEB	WHD 115 04/00
1.6.3.67	Current	7.93	Record reading	A	TEB	WHD 115 04/00
1.6.3.70	Current	11.94	Record reading	A	TEB	WHD 115 04/00
1.6.3.73	Current	15.93	Record reading	A	TEB	WHD 115 04/00
1.6.3.76	Current	19.93	Record reading	A	TEB	WHD 115 04/00
1.6.3.82	Data	Y	Matches (yes)	A	PRINTOUT ATTACHED TO TROT REPORT	WHD 115 04/00

11/10/96

11/10/96

TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:						
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.4.1	Section 1.6.3	Y	Completed (yes)	A		
1.6.4.2	Detector #1 Readout #1	N/A	Match (yes)	N/A	TE 2	N/A
	Detector #2 Readout #2	↑	Match (yes)	↑	↑	↑
	Detector #3 Readout #3		Match (yes)			
	Detector #4 Readout #4		Match (yes)			
1.6.4.4	Radiation Source		Record ID# & isotope			
1.6.4.5	Rad field		10 R/hr (nominal)			
1.6.4.7	Ro-7 display		10 R/hr*			
1.6.4.8	Rad field		100±10 R/hr			
1.6.4.10	RO-7 display		100±10 R/hr*			
1.6.4.11	Rad field		140±10 R/hr			
1.6.4.13	RO-7 display		140±10 R/hr*			
1.6.4.15	Rad field		10 R/hr (nominal)			
1.6.4.17	RO-7 display		10 R/hr*			
1.6.4.18	Rad field		100±10 R/hr			
1.6.4.20	RO-7 display	N/A	100±10 R/hr*	N/A	TE 2	N/A

11/1/95

TEST DATA SHEET

Date of test:			Test Unit Number:			
Test Section Title:			Equipment Serial Number(s):			
Test Performed By:						
Procedure Step Number	Item	Value	Range	(A/R)	Comment	QA
1.6.4.21	Rad field	N/A	140±10 R/hr	N/A	T/E 2	N/A
1.6.4.23	RO-7 display	~	140±10 R/hr*	~	~	~
1.6.4.25	Rad field		10 R/hr (nominal)			
1.6.4.27	RO-7 display		10 R/hr*			
1.6.4.28	Rad field		100±10 R/hr			
1.6.4.30	RO-7 display		100±10 R/hr*			
1.6.4.31	Rad field		140±10 R/hr			
1.6.4.33	RO-7 display		140±10 R/hr*			
1.6.4.35	Rad field		10 R/hr (nominal)			
1.6.4.37	RO-7 display		10 R/hr*			
1.6.4.38	Rad field		100±10 R/hr			
1.6.4.40	RO-7 display		100±10 R/hr*			
1.6.4.41	Rad field		140±10 R/hr			
1.6.4.43	RO-7 display	~ N/A	140±10 R/hr*	~ N/A	~ T/E 2	~ N/A
For steps with a *; adjust readings to account for measured field strength, detector shielding & geometry, detector tolerance, field measurement tolerance and detector photon energy response before accepting/rejecting reading.						

HANFORD JOB HAZARD ANALYSIS CHECKLIST

Page 1 of 1

Prepared By Glenn Ritter, Jack Powell, Steve Date 1/9/95 Area 300 Bldg. 305

pe/Description:

ACCEPTABLE TESTING OF 101-SY FLEXIBLE RECEIVER GAMMA DETECTOR / DATA LOGGER SYSTEM

New
 Revised

Emergency Contact Person(s):
Primary: Glenn A. Ritter 376-4669
Secondary: JACK POWELL 376-9301
Emergency Radio/Phone Number:

JHA Number (not required):
N/A

Specific Work Location(s): 305 BLOC ~~FOR~~ LAB

KNOWN OR POTENTIAL HAZARDS

	Yes	No	✓	●	Reference		Yes	No	✓	●	Reference
1. Radiation Area Work			✓	✓		10. Respiratory Hazards			✓	✓	
2. Hazardous Waste Operations			✓	✓		11. Electrical Hazards	✓		✓		<u>Insulate Terminal</u>
3. Confined Space Entry			✓	✓		12. Lock and Tag			✓	✓	
4. Cutting/Welding			✓			13. Scaffolding			✓		
5. Roof Work			✓			14. Aerial Lifts			✓	✓	
6. Fall Hazards (> = 10')			✓			15. Asbestos Removal			✓	✓	●
7. Excavation/Trenching			✓			16. Other (see JHA Sht. 2):			✓		
8. Asbestos Inspection Report			✓	●		✓ = Formal training required.					
9. Hazardous Materials			✓	✓		● = Items than require a permit/form/report.					

Other Hazards	Yes	No	Control Measures
1. Temperature Extremes			✓
2. Noise			✓
3. Poor Lighting			✓
Animals/Insects			✓
5. Process Chemicals/Steam			✓
6. Dust			✓
7. Flammable/Combustible Materials			✓
8. Ladders			✓
9. Wet/Slippery Floors			✓
10. Uneven Terrain			✓
11. Open Excavations/Trenches			✓
12. Adjacent Water Hazard			✓
13. Vehicle Traffic			✓
14. Heavy Equipment			✓
15. Rigging Operation			✓
16. Manual Lifting			✓
17. Power Tools			✓
18. Pinch Points			✓
19. Falling Objects			✓
20. Sharp Objects			✓
21. Overhead Obstructions			✓
22. Site Control (Signs/Barricades)			✓
23. Remote Work Area			✓
24. Other (see JHA Sht. 2):			✓

MINIMUM DRESS REQUIREMENTS:

APPROVALS

Does further evaluation of the job steps, associated hazards, or safety measures need to be performed? Yes No

If Yes, continue job hazard analysis on the following pages.

Supervisor, Person in Charge (Signature) [Signature] Industrial Safety/Hygiene (Signature) SA [Signature] 1-9-95

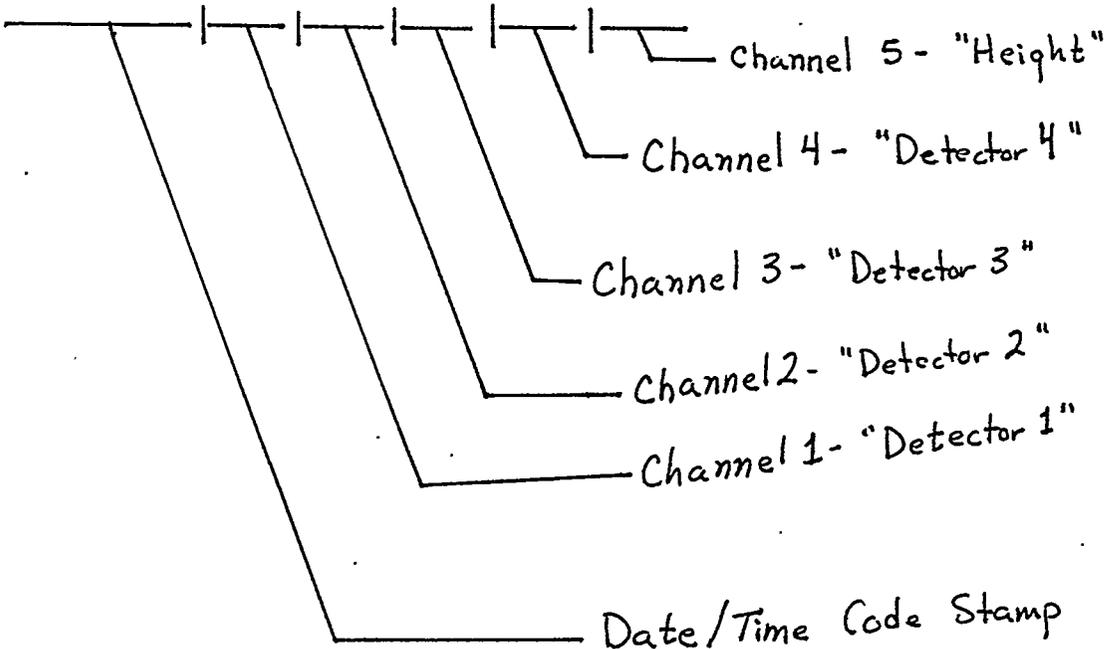
The following Test Data sheets relate to the data logger and the data recorded.

- Sheet A-16A: The "program" (called a schedule by the data logger)
- Sheet A-16B: Raw data from the data logger, w/annotations
- Sheet A-16C: Raw data w/ values [in boxes] compared to manually recorded data in test data sheets
- Sheet A-16D: Printout of data imported in Lotus 1-2-3 spreadsheet

```
' program for the SY Flex Rec ATP
' written by NJ Leech 372-0591
'scaleing paramaters for inputs (ie 4ma=0 20ma)
P15=2                                'disable sleep
D=\D T=\T                            'set date/time to pc
/S                                    'sync time to midnite
S1=4,20                              'scale 4-20ma
BEGIN                                 'sched A start
RA1+E                                'when d1 (acquire switch transitions)
      1#..5#L(S1,FF2,)              'channels 1-5 "I" 4-20 mA(scale,2fixed dec)
END                                   'sched A end
LOGON                                 'start logging to memory
```

2200.41711,4.00,3.99,3.99,3.98,3.97
2200.41718,7.99,3.99,3.99,3.98,3.97
2200.41727,12.00,3.99,3.99,3.99,3.97
2200.41743,16.00,3.99,3.99,3.98,3.97
2200.41760,16.00,3.99,3.99,3.98,3.97
2200.41770,20.00,3.99,3.99,3.98,3.97
2200.41899,3.99,3.99,3.99,3.98,3.96
2200.41909,3.99,7.98,3.99,3.98,3.97
2200.41918,3.99,11.98,3.99,3.98,3.96
2200.41929,3.99,15.98,3.99,3.98,3.96
2200.41939,3.99,19.98,3.99,3.98,3.97
2200.42142,3.99,3.99,3.99,3.98,3.97
2200.42152,3.99,3.99,7.99,3.98,3.97
2200.42161,4.00,3.99,11.99,3.98,3.97
2200.42171,4.00,3.99,15.99,3.98,3.97
2200.42178,3.99,3.99,19.98,3.98,3.97
2200.42269,3.99,3.99,3.99,3.98,3.96
2200.42278,3.99,3.99,3.99,7.97,3.96
2200.42289,3.99,3.99,3.99,11.97,3.96
2200.42299,3.99,3.99,3.99,15.98,3.97
2200.42308,3.99,3.99,3.99,19.98,3.97
2200.42405,3.99,3.99,3.99,3.91,3.96
2200.42413,3.99,3.99,3.99,3.91,7.97
2200.42422,3.99,3.99,3.99,3.91,11.98
2200.42434,3.99,3.99,3.99,3.91,16.00
2200.42443,4.00,3.99,3.99,3.91,20.01

Raw data stored on logger.
Data is comma delimited



2200.41711	4.00	3.99	3.99	3.98	3.97
2200.41718	7.99	3.99	3.99	3.98	3.97
2200.41727	12.00	3.99	3.99	3.99	3.97
2200.41743	16.00	3.99	3.99	3.98	3.97
2200.41760	16.00	3.99	3.99	3.98	3.97
2200.41770	20.00	3.99	3.99	3.98	3.97
2200.41899	3.99	3.99	3.99	3.98	3.96
2200.41909	3.99	7.98	3.99	3.98	3.97
2200.41918	3.99	11.98	3.99	3.98	3.96
2200.41929	3.99	15.98	3.99	3.98	3.96
2200.41939	3.99	19.98	3.99	3.98	3.97
2200.42142	3.99	3.99	3.99	3.98	3.97
2200.42152	3.99	3.99	7.99	3.98	3.97
2200.42161	4.00	3.99	11.99	3.98	3.97
2200.42171	4.00	3.99	15.99	3.98	3.97
2200.42178	3.99	3.99	19.98	3.98	3.97
2200.42269	3.99	3.99	3.99	3.98	3.96
2200.42278	3.99	3.99	3.99	7.97	3.96
2200.42289	3.99	3.99	3.99	11.97	3.96
2200.42299	3.99	3.99	3.99	15.98	3.97
2200.42308	3.99	3.99	3.99	19.98	3.97
2200.42405	3.99	3.99	3.99	3.91	3.96
2200.42413	3.99	3.99	3.99	3.91	7.97
2200.42422	3.99	3.99	3.99	3.91	11.98
2200.42434	3.99	3.99	3.99	3.91	16.00
2200.42443	4.00	3.99	3.99	3.91	20.01

Raw data showing data entered during test & compared to manual data recorded in Test Data sheets (Retest due to TE # 9)

FLEX REC SCRATCH WORKSHEET 10-Jan-95

DATE	TIME	GAMMA 1	GAMMA 2	GAMMA 3	GAMMA 4	HEIGHT
10-Jan-95	10:00:38	4.00	3.99	3.99	3.98	3.97
10-Jan-95	10:00:44	7.99	3.99	3.99	3.98	3.97
10-Jan-95	10:00:52	12.00	3.99	3.99	3.99	3.97
10-Jan-95	10:01:06	16.00	3.99	3.99	3.98	3.97
10-Jan-95	10:01:21	16.00	3.99	3.99	3.98	3.97
10-Jan-95	10:01:29	20.00	3.99	3.99	3.98	3.97
10-Jan-95	10:03:21	3.99	3.99	3.99	3.98	3.96
10-Jan-95	10:03:29	3.99	7.98	3.99	3.98	3.97
10-Jan-95	10:03:37	3.99	11.98	3.99	3.98	3.96
10-Jan-95	10:03:47	3.99	15.98	3.99	3.98	3.96
10-Jan-95	10:03:55	3.99	19.98	3.99	3.98	3.97
10-Jan-95	10:06:51	3.99	3.99	3.99	3.98	3.97
10-Jan-95	10:06:59	3.99	3.99	7.99	3.98	3.97
10-Jan-95	10:07:07	4.00	3.99	11.99	3.98	3.97
10-Jan-95	10:07:16	4.00	3.99	15.99	3.98	3.97
10-Jan-95	10:07:22	3.99	3.99	19.98	3.98	3.97
10-Jan-95	10:08:40	3.99	3.99	3.99	3.98	3.96
10-Jan-95	10:08:48	3.99	3.99	3.99	7.97	3.96
10-Jan-95	10:08:58	3.99	3.99	3.99	11.97	3.96
10-Jan-95	10:09:06	3.99	3.99	3.99	15.98	3.97
10-Jan-95	10:09:14	3.99	3.99	3.99	19.98	3.97
10-Jan-95	10:10:38	3.99	3.99	3.99	3.91	3.96
10-Jan-95	10:10:45	3.99	3.99	3.99	3.91	7.97
10-Jan-95	10:10:53	3.99	3.99	3.99	3.91	11.98
10-Jan-95	10:11:03	3.99	3.99	3.99	3.91	16.00
10-Jan-95	10:11:11	4.00	3.99	3.99	3.91	20.01

Printout of Raw data imported in Lotus 1-2-3 worksheet.

APPENDIX B - TEST EXCEPTIONS

TEST EXCEPTION # 1

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.1.3 1.6.1.4	1-9-95	Steps require calibration reports for RO-7 detectors to be on-hand & for RO-7 detectors to be installed in explosion proof conduit. As the detectors are not needed for testing (see Test Exception #2) these steps will be deleted.	GAK 1/1/95 C	WHC TIE 01/05	SN

OBJECTING PARTY: Test Director



1-9-95

RECORDER

Date

ACCEPTABLE RETEST PERFORMED: YES ___ NO ___ N/A ✓



1-9-95

J. J. Donald
Test Director

1-9-95

Quality

Date

Date

SA Harding 1-9-95
Safety Date

EXCEPTION RESOLVED: CLH 1-11-95
Project Engineer Date



1-9-95

Quality

Date

TEST EXCEPTION # 2

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.4.2 thru 1.6.4.50	1-9-95	Steps describe exposure of detectors to radiation. Delete these steps per project engineer. (Test can also now be performed at 305 Bldg.) Exposure of detectors with to radiation will be covered elsewhere, in project testing.	CLM 1/11/95		SN

OBJECTING PARTY: Test Director  1-9-95
RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES NO N/A
 1-9-95 J. Howell 1-9-95
 Quality Date Test Director Date

SA Harding 1-9-95
Safety Date

EXCEPTION RESOLVED: CLM 1/11/95
 Project Engineer Date
 1-9-95
 Quality Date

TEST EXCEPTION # 3

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.2.4 1.6.4.46 1.6.3.80	1-9-95	Use "DeTerminal" software. Alter test to use "DeCipher".	GAA 1/11/95		SN

OBJECTING PARTY: Test Director  1-9-95
 RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES ___ NO ___ N/A ✓
 1-9-95 J. J. Donald 1-9-95
 Quality Date Test Director Date

SA Harding 1-9-95
 Safety Date

EXCEPTION RESOLVED: GLA Little 1/11/95
 Project Engineer Date
 1-9-95
 Quality Date

TEST EXCEPTION # 4

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.2.6	1-9-95	Report Schedule display is RA1+E1#..5#L (S1,FFZ,)	GAH 1/11/95		SN
		Resolution - Accept above - ("L" is 4-20mA parameter, S1 is a scaling parameter & FFZ says to show figures to 2 decimal points).	GAH 1/11/95		SN

OBJECTING PARTY: Test Director  1-9-95
RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES ___ NO ___ N/A ✓
 1-9-95 GAH 1-9-95
Quality Date Test Director Date

SA Nading 1-9-95
Safety Date

EXCEPTION RESOLVED: GLob Litt 1/11/95
Project Engineer Date
 1-9-95
Quality Date

TEST EXCEPTION # 5

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:					
EXCEPTIONS			CORRECTION APPROVAL					
Procedure Step Number	Date	Description	Initials/Date					
			Project Engineer	Quality	Safety			
1.6.3.6	1-9-95	For P5-1-J, change TB1-27 to TB1-28	GAA 1/11/95	  	SN			
1.6.3.7		For R1-1-H, change TB1-28 to TB1-27						
1.6.3.8		For P6-1-J, change TB1-29 to TB1-30						
1.6.3.9		For R2-1-H, change TB1-30 to TB1-29						
1.6.3.10		For P7-1-J, change TB1-31 to TB1-32						
1.6.3.11		For R3-1-H, change TB1-32 to TB1-31						
1.6.3.12		For P8-1-J, change TB1-33 to TB1-34						
1.6.3.13		For R4-1-H, change TB1-34 to TB1-33						
1.6.3.14		For TB2-4, change P9-1-H to P9-1-G						
1.6.3.15		For TB2-3, change P9-1-J to P9-1-H						
		For TB2-2, change P9-1-K to P9-1-J						
		For TB2-1, change P9-1-L to P9-1-K						
		The above corrects typos in Test Data Sheets.				GAA 1/11/95	 	SN

OBJECTING PARTY: Test Director  1-9-95
RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES NO N/A
 1-9-95 J. J. Donald 1-9-95
 Quality Date Test Director Date

SA Naliny 1-9-95
Safety Date

EXCEPTION RESOLVED: G L A Pitt 1/11/95
 Project Engineer Date
 1-9-95
 Quality Date

TEST EXCEPTION # 6

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.3.18 thru 1.6.3.78	1-9-95	Add steps to short input of Voltage-to-Current converters not being tested, as the inputs tend to "float" & give mis-leading readings when there is nothing connected to the VIC inputs.	GAA 1/11/95		SN

OBJECTING PARTY: Test Director  1-9-95
 RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES ___ NO ___ N/A ✓
 1-9-95 [Signature] 1-9-95
 Quality Date Test Director Date

[Signature] 1-9-95
 Safety Date

EXCEPTION RESOLVED: GLJ. [Signature] 1/11/95
 Project Engineer Date
 1-9-95
 Quality Date

TEST EXCEPTION # 7

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.3.25 thru 1.6.3.58	1-9-95	RO-7 Display Readings are not matching values in "Range" column of Test data sheet. R Values shown on Test data sheet are based on a 0-200 R/hr range. Re-calculate measured values for a 0-20 R/hr scale & then marked values with "A" or "R" per the following: 50 Value should be 5.0 R/hr 100 " " " 10.0 " 150 " " " 15.0 " 200 " " " 20.0 R/hr ±5 " " " ±.5 R/hr	GLH 1/11/95		SN

OBJECTING PARTY: Test Director  1-9-95
RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES NO N/A ✓
 1-9-95 J.L. Dowell 1-9-95
Quality Date Test Director Date

GA Harding 1-9-95
Safety Date

EXCEPTION RESOLVED: GLH 1/11/95
Project Engineer Date
 1-9-95
Quality Date

TEST EXCEPTION # 8

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.3.64 thru 1.6.3.76	1-9-95	Output Current of VIC5 shows "Record Value". Replace with values shown below:	GAL 1/11/95		SN
		Step Range	GAL 1/11/95		SN
		1.6.3.64 4 ± 0.16 mA			
		1.6.3.67 8 ± 0.16 mA			
		1.6.3.70 12 ± 0.16 mA			
		1.6.3.73 16 ± 0.16 mA			
		20 ± 0.16 mA			
		Re-evaluate recorded values based on above ranges			

OBJECTING PARTY: Test Director  1-9-95
RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES ___ NO ___ N/A ✓
 1-9-95 J. J. Doull 1-9-95
Quality Date Test Director Date

SA Norling 1-9-95
Safety Date

EXCEPTION RESOLVED: GL A With 4/6/95
Project Engineer Date
 1-9-95
Quality Date

TEST EXCEPTION # 10

Test Title: WHC-SD-WM-ATP-106, REV 0			Test Item Number:		
EXCEPTIONS			CORRECTION APPROVAL		
Procedure Step Number	Date	Description	Initials/Date		
			Project Engineer	Quality	Safety
1.6.5.2	1-10-95	Remove detectors from listings as they were NOT tested.			SN

OBJECTING PARTY: Test Director  1-10-95
RECORDER Date

ACCEPTABLE RETEST PERFORMED: YES ___ NO ___ N/A ✓
 1-10-95 J. J. Dowell 1-10-95
Quality Date Test Director Date

SA Nohling 1-9-95
Safety Date

EXCEPTION RESOLVED: GL de [Signature] 1/11/95
Project Engineer Date

 1-11-95
Quality Date

Unclassified

WHC-SD-WM-ATR-106
Revision 0

APPENDIX C - TEST LOG

TEST LOG: WHC-SD-WM-ATP-106, REV 0

DATE/TIME	COMMENTS
1-9-95 1:30 pm	Begin Test
1-9-95 3:15	Stop Test @ 1.6.3.81
1-10-95 9:00 Am	Begin Testing; Retest per Test Ex. #9.
1-10-95 10:45	Testing End - test completed.

APPENDIX D - TEST EXECUTION SHEET

TEST EXECUTION SHEET

Date: 1/9/95

Document Number: WHC-SD-WM-ATP-106, REV 0

Test Unit Number:

TEST PERSONNEL

Project Engineer: GL L Pitt 1/9/95 Test Director: J L Powell 1-9-95

Recorder: Erinoh Wegener 1/9/95 Quality: Erinoh Wegener 1/9/95

Safety: SA Kobering 1-9-95

TEST EXECUTION

J L Powell 1-9-95  1-9-95
Test Director Date Recorder Date

SA Kobering 1-9-95  1-9-95
Safety Date Quality Date

TEST APPROVAL AND ACCEPTANCE

Without Exception With Exception/Resolved With Exception/Outstanding

GL L Pitt 1/9/95  1-9-95
Project Engineer Date Quality Date

SA Kobering 1-9-95
Safety Date