

## RMIS View/Print Document Cover Sheet

This document was retrieved from the Documentation and Records Management (DRM) ISEARCH System. It is intended for Information only and may not be the most recent or updated version. Contact a Document Service Center (see Hanford Info for locations) if you need additional retrieval information.

Accession #: D196012500

Document #: SD-WM-ATR-163

Title/Desc:

241T107 INTERIM STABILIZATION FLAMMABLE GAS  
MONITOR SYSTEM SAFETY CLASS 3 ACCEPTANCE TEST  
REPORT

Pages: 50

Sta. 4 (w)

JAN 25 '96

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT No 613387

|  |   |   |
|--|---|---|
| 2. To: (Receiving Organization)<br>Distribution  | 3. From: (Originating Organization)<br>Interim Stabilization<br>Engineering | 4. Related EDT No.:<br>N/A                |
| 5. Proj./Prog./Dept./Div.:<br>241-T-107 Interim<br>Stabilization Flammable Gas<br>Monitor System         | 6. Cog. Engr.:<br>M. R. Koch  | 7. Purchase Order No.:<br>N/A             |
| 8. Originator Remarks:<br>ETN-96-0012<br>The following ATR is distributed for release.                   |   | 9. Equip./Component No.:<br>N/A           |
| 11. Receiver Remarks:<br>See attached ATR approval sheet - approved in accordance<br>with SQ designator. |   | 10. System/Bldg./Facility:<br>241-T-107   |
|  |   | 12. Major Assm. Dwg. No.:<br>N/A          |
|  |   | 13. Permit/Permit Application No.:<br>N/A |
|  |   | 14. Required Response Date:<br>N/A        |

| 15. DATA TRANSMITTED |                          |                     |                    |   | (F)                    | (G)                               | (H)                            | (I)                          |
|----------------------|--------------------------|---------------------|--------------------|---|------------------------|-----------------------------------|--------------------------------|------------------------------|
| (A)<br>Item<br>No.   | (B) Document/Drawing No. | (C)<br>Sheet<br>No. | (D)<br>Rev.<br>No. | (E) Title or Description of Data<br>Transmitted                             | Approval<br>Designator | Reason<br>for<br>Trans-<br>mittal | Originator<br>Dispo-<br>sition | Receiver<br>Dispo-<br>sition |
| 1                    | WHC-SD-WM-ATR-163        | ALL                 | 0                  | Interim Stabilization<br>Flammable Gas Monitor<br>Acceptance Test<br>Report | N/A                    | 2                                 |                                |                              |
|                      |                          |                     |                    |   |                        |                                   |                                |                              |
|                      |                          |                     |                    |   |                        |                                   |                                |                              |

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

| 17. SIGNATURE/DISTRIBUTION<br>(See Approval Designator for required signatures) |       |   |  |  |  |  |  |  |  |        |       |
|---|-------|---|--|--|--|--|--|--|--|--------|-------|
| (G)   | (H)   | (J) Name (K) Signature (L) Date (M) MSIN                  |  |  |  | (J) Name (K) Signature (L) Date (M) MSIN |  |  |  | (G)    | (H)   |
| Reason  | Disp. |   |  |  |  |  |  |  |  | Reason | Disp. |
| 1   | 1     | Cog. Eng. M. R. Koch <i>[Signature]</i> 1/25/96 RI-49     |  |  |  |  |  |  |  |        |       |
| 1   | 1     | Cog. Mgr. D. B. Engelman <i>[Signature]</i> 1/25/96 RI-49 |  |  |  |  |  |  |  |        |       |
|   |       | QA  |  |  |  |  |  |  |  |        |       |
|   |       | Safety  |  |  |  |  |  |  |  |        |       |
|   |       | Env.  |  |  |  |  |  |  |  |        |       |

|  |      |   |      |   |      |   |
|--|------|---|------|---|------|---|
| 18. <i>[Signature]</i><br>Signature of EDT<br>Originator | Date | 19. <i>[Signature]</i><br>Authorized Representative<br>for Receiving Organization | Date | 20. <i>[Signature]</i><br>Cognizant Manager | Date | 21. DOE APPROVAL (if required)<br>Ctrl. No.<br><input type="checkbox"/> Approved<br><input type="checkbox"/> Approved w/comments<br><input type="checkbox"/> Disapproved w/comments |
|--|------|---|------|---|------|---|

# 241-T-107 INTERIM STABILIZATION FLAMMABLE GAS MONITOR SYSTEM (SAFETY CLASS 3), ACCEPTANCE TEST REPORT

**B. J. Webb**  
Westinghouse Hanford Company, Richland, WA 99352  
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 613387                      UC: 2030  
Org Code: 77420                      Charge Code: N-1918  
B&R Code: EW3120071              Total Pages: 48

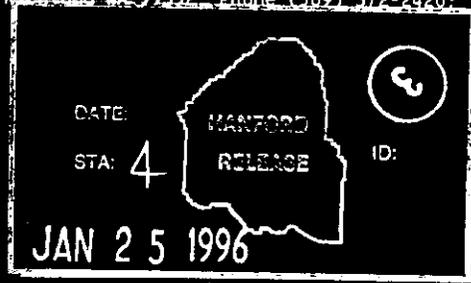
Key Words: 241-T-107  
              Flammable Gas Monitor  
              TWRS

Abstract: This Acceptance Test Report provides the acceptance test to be performed at the vendor prior to delivery to Westinghouse Hanford Company.

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: WHC/BCS Document Control Services, P.O. Box 1970, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

*Kara J. Bow*                      1/25/96  
\_\_\_\_\_  
Release Approval                      Date



**Approved for Public Release**

**TANK FARM  
ACCEPTANCE TEST PROCEDURE**

**SYSTEM  
INTERIM STABILIZATION**

**ATR FOR THE BELHAVEN FLAMMABLE GAS MONITOR**

# TANK FARM ACCEPTANCE TEST PROCEDURE

## TEST EXECUTION SHEET

Date: ~~1/11/96~~ <sup>1/13/96</sup> Document Number: WHC-SD-WM-ATR-163 REV. 0  
 FGM Unit Number: FGM 4

### TEST PERSONNEL

WHC PROJECT ENGINEER: ~~MICHAEL A KOCH~~ <sup>Brent J Webb</sup> TEST DIRECTOR: Brent J Webb  
 RECORDER: ~~MICHAEL A KOCH~~ <sup>Brent J Webb</sup> WITNESSES: ~~RANDY DUKEMAN~~ <sup>Mark Brown</sup>

EXCEPTION # 1

### TEST EXECUTION

WHC TITLE III AT

Brent J Webb 1/13/96 Brent J Webb 1/13/96 Project Date  
 Test Director Date Project Engineer Date

### TEST WITNESS

Dan O'Driscoll 1/13/96 Dan O'Driscoll 1-13-96  
 Witness Date Witness Date

### TEST APPROVAL AND ACCEPTANCE

Westinghouse Hanford Company

Without Exception  With Exception/Resolved  With Exception/Outstanding

Brent J Webb 1/13/96 Quality Assurance \_\_\_\_\_ Date \_\_\_\_\_  
 Test Director Date  
 \_\_\_\_\_ 1/22/96 Project Engineer Date \_\_\_\_\_  
 Witness Date

2:34 PM  
 Saturday  
 Jan 13 1996  
 T-107 BJW  
 1/25/96

# TANK FARM ACCEPTANCE TEST PROCEDURE

| TABLE OF CONTENTS                     | PAGE |
|---------------------------------------|------|
| TEST EXECUTION SHEET . . . . .        | 2    |
| 1.0 PURPOSE . . . . .                 | 4    |
| 2.0 INFORMATION . . . . .             | 4    |
| 2.1 REFERENCES . . . . .              | 4    |
| 2.2 TERMS AND DEFINITIONS . . . . .   | 5    |
| 2.3 SAFETY . . . . .                  | 5    |
| 2.3 GENERAL INFORMATION . . . . .     | 5    |
| 2.4 SYSTEM DESCRIPTION . . . . .      | 6    |
| 3.0 RESPONSIBILITIES . . . . .        | 7    |
| 4.0 PREREQUISITES . . . . .           | 9    |
| 5.0 PROCEDURE . . . . .               | 11   |
| 5.1 POWER SYSTEM CHECK . . . . .      | 11   |
| 5.2 PNEUMATIC SYSTEMS CHECK . . . . . | 12   |
| 5.3 FGM SYSTEM TEST . . . . .         | 14   |
| 5.4 SHUTDOWN FGM SYSTEM . . . . .     | 20   |
| ATP EXCEPTION LOG . . . . .           | 21   |
| ATP EXCEPTION RECORD . . . . .        | 22   |

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 1.0 PURPOSE

- 1.1 There is a concern that flammable gases may exceed the LFL during interim stabilization. Therefore, there is a need for a system that will measure the flammable gas concentration and shut down all required pump pit pumping equipment (e.g. all equipment considered to be a potential sparking source such as the electric centrifugal pump) when the LFL criteria is exceeded. This ATP will test and verify the operability of the Flammable Gas Monitor system.

## 2.0 INFORMATION

### 2.1 REFERENCES

- 2.1.1 The following documents were used to write or are referenced in this procedure:
- WHC-CM-CM-10-1, SAFETY MANUAL, "WKS-15, ELECTRICAL WORK SAFETY"
  - WHC-CM-6-1 EP 4.2., STANDARD ENGINEERING PRACTICE "TESTING PRACTICES"
  - WHC-IP-1026 APPX M, ENGINEERING PRACTICE GUIDELINES "ACCEPTANCE TEST PROCEDURES AND REPORTS"
  - Appropriate vendor (Belhaven) documents and drawings.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 2.2 TERMS AND DEFINITIONS

- 2.2.1 ADC - Analog to Digital Converter
- 2.2.2 ATR - Acceptance Iest Report
- 2.2.3 ATP - Acceptance Iest Procedure
- 2.2.4 FGM - Flammable Gas Monitor
- 2.2.5 MMI - Man Machine Interface
- 2.2.6 PLC - Programmable Logic Controller
- 2.2.7 QC - Quality Control
- 2.2.8 SST - Single Shell Ianks

## 2.3 SAFETY

Warning - Energized circuits and leads are contained inside the cabinet. Observe appropriate electrical precautions.

## 2.4 GENERAL INFORMATION

- 2.4.1 Complete each procedure step in the given order, unless otherwise noted or as directed by the Test Director.
- 2.4.2 All entries recorded in this procedure shall be made in black ink except for those noted using the redline method.
- 2.4.3 Any non-conformance of the instrumentation, unexpected results or exceptions during testing shall be sequentially numbered and recorded in the ATP EXCEPTION LOG. Thus, case-by-case resolution, recording, approval, and distribution of each exception will be achieved.
- 2.4.4 Do not perform any part of this procedure on faulty equipment. If faulty equipment is discovered, STOP the execution of this procedure and resolve the problem (i.e. repair equipment or write up faulty equipment as an exception and continue).
- 2.4.5 This procedure DOES NOT contain any separate data/verification sheets. Verification of procedural steps and validity of the data is incorporated into the specific section.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 2.4 GENERAL INFORMATION (continued)

- 2.4.6 ATP will be performed by the vendor, Belhaven, and witnessed by personnel from WHC.
- 2.4.7 ATP will be witnessed by an ICF KH title 3 Acceptance Inspector.
- 2.4.8 For this ATP the use of sound deadening materials (i.e., a rag stuffed in the horn) shall be allowed.

## 2.5 SYSTEM DESCRIPTION

- 2.5.1 The FGM system consists of an air operated vacuum pump, a catalytic bead flammable gas sensor, programmable logic controller, NIST traceable calibration gas bottle and associated piping, valving and electrical connections. The air operated vacuum pump provides a system vacuum so that sample and calibration gases can flow through the catalytic bead flammable gas sensor. A mixture of air, sample gas (from the cognizant SST pump pit), and calibration gas (Methane) will flow into the sensor where the hydrogen concentration is measured via a temperature rise in the catalytic bead flammable gas sensor. A resultant voltage is produced that is linear to the temperature rise.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 3.0 RESPONSIBILITIES

3.1 WHC Project Engineer is responsible for:

- Designation of a test director.
- Coordinate testing with facility management.
- Act as liaison between the participants in acceptance testing.
- Distribute the approved testing schedule as soon as possible, but at least two days prior to testing.
- Ensure field testing and inspection has been completed.
- Schedule and conduct a pre-ATP meeting with test participants prior to start of testing.
- Notify the persons performing and witnessing the test prior to the start of testing.
- Notify all concerned parties when a change is made in the testing schedule.
- Sign Test Execution Sheet when ATP is approved and accepted.
- Take necessary action to clear exceptions to the ATP.
- Sign Exception Sheet when exception has been resolved.
- Provide a distribution list for the approved and accepted ATP.

3.2 Test Director is responsible for:

- Coordinate all acceptance testing.
- Confirm that field testing and inspection of the system or portion of the system to be tested has been completed.
- Stop any test which may cause damage to the system until the test procedure has been revised.
- Approve field changes to the ATP.
- Obtain revisions to the ATP, as necessary, to comply with authorized field changes or to accommodate existing field conditions.
- Evaluate recorded data, discrepancies, and exceptions.
- Obtain from the WHC project engineer, any information or changes necessary to clear or resolve objections.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 3.0 RESPONSIBILITIES (continued)

- Sign Test Execution Sheet when ATP has been performed.
- Sign Test Exception Sheet when retest has been executed and accepted.
- Obtain required signatures on the ATP master prior to reproduction and distribution.
- Record and print names of all designated personnel on the working copy of ATP prior to the start of testing.
- Observe tests, record test data and maintain test log.
- Sign and date every procedure section on the working copy as it is completed.
- Record authorized field changes to the ATP.
- Record exceptions and test steps that are not performed on the ATP EXCEPTION RECORD. Have the information transferred in ink or typed to the Master Exception Sheet(s). Additional ATP EXCEPTION RECORD sheets are to be added as needed.
- Assign and/or make corrections, as necessary, to the ATP EXCEPTION RECORD sheet(s) page number(s) after ATP is complete.
- Transfer the final test results with Quality Control's signatures and dates for each section to the master in ink or type. Retain the working copy and a copy of the master in the field project files.

### 3.3 Witness(es) is (are) responsible for:

- Witness the tests.
- Evaluate results of testing.
- Assist the Test Director when requested.
- Sign Test Exception Sheet as a witness.
- Sign Test Exception Sheet as a witness when retest has been executed and accepted.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 4.0 PREREQUISITES

EXCEPTION # 2

4.1 The following supplies shall be available at the test site:

- Stopwatch
- Pressure Gauge BEL-96-3 Expiration Date; 1/13/97 <sup>B/W</sup>
- Ohmmeter

Calibration No. BEL-1295-27 Expiration Date 9/15/96

- NIST traceable Methane gas.

Gas concentration as defined by the LFL percentage: 25 % LFL

- NIST traceable Hydrogen gas.

Gas concentration as defined by the LFL percentage: 25 % LFL

4.2 The following documents are required to be at the test site, before and during the performance of this procedure:

- ATP FOR THE BELHAVEN FLAMMABLE GAS MONITOR, WHC-SD-WM-ATP-163

4.3 The following conditions must be met before this test may commence:

exception #3

4.3.1 A pre-job safety meeting has been held before performing this procedure.

[Signature] <sup>B/W</sup> [Signature] <sup>B/W</sup>  
Test Director Date 1/11/96 1/13/96

4.3.2 Verify that all voltage checks have been performed on the required instrument and electrical systems. This can be achieved by reviewing the vendor supplied ETL checklist that is contained within the procurement package.

[Signature]  
Test Director Signature Date 1/13/96

EXCEPTION # 4

4.3.3 Verify that leak tests on the pneumatic systems have been performed. Provide test documentation. <sup>B/W</sup>

[Signature]  
Test Director Date 1/13/96

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 4.0 PREREQUISITES (continued)

4.3.4 Verify that all personnel responsible for directing and witnessing the ATP have read and understand appropriate vendor information and/or the Flammable Gas Monitor system procurement package.

*[Signature]*  
Test Director Signature

1/13/96  
Date

NOTE - QC Inspector shall verify current calibration by inspecting calibration stickers on the required instruments at the test site. In the event a sticker is missing or a device is out of calibration, consult the vendor to obtain the corresponding certification of calibration.

EXCEPTION #5

4.3.5 QC Inspector shall verify the current <sup>system</sup> calibration and, <sup>Be</sup> record the calibration date and calibration due date on the table below.

| INSTRUMENT                                      | CALIBRATION DATE   | CALIBRATION DUE DATE |
|---|--------------------|----------------------|
| <del>CATALYTIC BEAD SENSOR SMC4101 02</del>     |                    |                      |
| <del>ANALOG TO DIGITAL CONVERTER E204AD-1</del> | <del>9/15/95</del> | <del>9/15/96</del>   |

~~At Mt. Airy Station 8000 Fluke BEC 1095 27 9/15/95 9/15/96~~  
Flammable Gas Monitor FGM4 1/13/96 1/15/96

EXCEPTION #6

4.3.6 QC Inspector SHALL VERIFY that section 4.0 has been COMPLETED by SIGNING below.

*Mark N. Brown*  
QC Inspector Signature

1-13-96  
Date

4.3.7 Test Director SHALL VERIFY that section 4.0 has been COMPLETED by SIGNING below.

*[Signature]*  
Test Director

1-13-96  
Date

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.0 PROCEDURE

### 5.1 POWER SYSTEM CHECK

5.1.1 INSPECT the FGM system AND VERIFY that all equipment is properly CONNECTED.

5.1.2 START the FGM system by PLUGGING in the power cord to the nearest available power source.

EXCEPTION # 7

5.1.3 VERIFY that there is power to the FGM system BY OBSERVING if the FGM system MMI screen ~~light is ILLUMINATED.~~ *KBW* display is active.   
*"System Warning OK"*

#### WARNING

Energized circuits and leads are contained inside the cabinet. Observe appropriate electrical precautions.

5.1.4 REMOVE the flammable gas sensor's cover.

5.1.5 WAIT approximately five (5) minutes for the Flammable Gas sensor calibration red light to CLEAR.

EXCEPTION # 8

5.1.5.a *Bring System under Normal operating conditions.*

5.1.6 Test Director SHALL VERIFY that section 5.1 is COMPLETE by SIGNING below.

*[Signature]*  
Test Director Signature

*1/13/96*  
Date

5.1.7 QC Inspector SHALL VERIFY that section 5.1 is COMPLETE by SIGNING below.

*Mad D Boon*  
QC Inspector Signature

*1-13-96*  
Date

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.2 PNEUMATIC SYSTEMS CHECK

5.2.1 CONNECT the air driven vacuum pump to the nearest compressed air supply.

5.2.2 ENSURE there is air flow to the vacuum pump.

EXCEPTION # 9

5.2.3 ENSURE that the NIST traceable Methane calibration gas bottle is ~~75% to 100% FULL~~ *greater than 250 psi.*

*Bottle pressure 490 psi.  
Bottle Volume: 103 Liters*

*B/W*

~~5.2.4 OPEN the calibration gas bottle valve one FULL TURN.~~

*B/W*

~~5.2.5 VERIFY that there is calibration gas flow by OBSERVING the ILLUMINATION of the FGM system PLC green indicating light.~~

EXCEPTION # 10

*B/W*

~~5.2.6 VERIFY sample gas is flowing by OBSERVING a flow INDICATION on the FGM system FI-1 rotameter.~~

*B/W*

~~5.2.7 RECORD sample gas flow on the table below.~~

EXCEPTION # 11

|  |         |
|--|---------|
| <i>Pressure</i><br>SAMPLE GAS FLOW AS INDICATED BY<br>ROTAMETER FI-1 | 490 psi |
|--|---------|

5.2.8 Test Director SHALL VERIFY that section 5.2 is COMPLETE by SIGNING below.

*[Signature]*  
Test Director Signature

*1/13/95* *B/W*  
Date

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.2 PNEUMATIC SYSTEMS CHECK (continued)

5.2.9 QC Inspector SHALL VERIFY that section 5.2 is COMPLETE by SIGNING below.

Maui N. Brown  
QC Inspector Signature

Date 1-13-96

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.3 FGM SYSTEM TEST

NOTE - The "dry contacts" are defined as the relay that will cut power to the appropriate skid equipment.

5.3.1 CONNECT an ohmmeter to the "dry contacts".

### WARNING

Energized circuits and leads are contained inside the cabinet. Observe appropriate electrical precautions.

EXCEPTION #12

EXCEPTION #13

~~5.3.1a, Bring system under normal operations.~~

5.3.2 OPEN the FGM system PLC ADC loop. by *lifting wire in VCAR, TB-1, Number 28.*

5.3.3 VERIFY the FGM system PLC ADC responds to a loss of loop condition by OBSERVING the following:

5.3.3.1 Ohmmeter reading indicates that the "dry contacts" are OPEN.

5.3.3.2 Horn is SOUNDING.

5.3.4 ACKNOWLEDGE horn by PRESSING the ALARM SILENCE pushbutton located on the MMI.

EXCEPTION #14

5.3.4.a *Restore PLC ADC loop, and restart system.*

5.3.5 ENSURE that the FGM system setpoint is SET to 10% LFL.

# TANK FARM ACCEPTANCE TEST PROCEDURE

EXCEPTION # 15

NOTE - The FGM system PLC should start to respond in 30 seconds but, it will take up to 52 seconds for a ~~full scale~~ reading.  
~~25 LFL~~ <sup>25%</sup> ~~LFL~~

5.3.6 TEST the FGM system by PERFORMING the following:

EXCEPTION # 16

5.3.6.1 SIMULTANEOUSLY INTRODUCE a <sup>sample</sup> two (2) second burst of Methane gas into the sample line AND START the stopwatch.



5.3.6.2 RECORD the data as INDICATED by the table below.

| METHANE GAS FGM SYSTEM TEST      | FGM SYSTEM RESPONSE TIME    | HORN ANNUNCIATES (YES/NO)             | % LFL THAT GIVES AN ALARM INDICATION | OHMMETER READING OF THE "DRY CONTACTS" (RELAY) |
|----------------------------------|-----------------------------|---------------------------------------|--------------------------------------|--|
| TEST 1                           | 29 Sec<br><del>35 sec</del> | Yes, 39 sec<br><del>Yes, 42 sec</del> | 12.0<br><del>12.0</del>              | Open<br><del>Open</del>                        |
| TEST 2                           | 28 Sec<br><del>29 sec</del> | Yes, 36 sec<br><del>Yes</del>         | 10.5                                 | Open   |
| TEST 3                           | 29 Sec                      | Yes, 37 sec                           | 11.6                                 | open   |
| TEST 4                           | 31 Sec                      | Yes, 40 sec                           | 10.4                                 | open   |
| TEST 5                           | 32 Sec                      | Yes, 41 sec                           | 11.2                                 | Open   |
| FGM SYSTEM RESPONSE TIME AVERAGE | ~30 sec                     |                                       |                                      |  |

5.3.6.3 ACKNOWLEDGE the horn by PRESSING the ALARM SILENCE pushbutton located on the MMI.

5.3.6.4 VERIFY that the MMI screen light is FLASHING.

5.3.6.5 RESET the FGM system.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.3 FGM SYSTEM TEST (continued)

5.3.6.6 VERIFY that the MMI screen DISPLAYS 0% LFL.

5.3.6.7 REPEAT steps 5.3.6.1 through 5.3.6.6 four (4) more times AND RECORD the data as test 2 through test 5 in the table provided in step 5.3.6.2.

5.3.7 AVERAGE FGM system response times AND RECORD in the space provided in the table above.

EXCEPTION # 17

*OK*  
*5/24*

~~5.3.8 IF ~~any~~ of the FGM system response times are ~~≥~~ thirty (30) seconds, PERFORM the following:~~

*average*

~~30~~  
~~32~~  
~~35~~  
*30*  
*32*  
*35*  
*30*  
*32*  
*35*

*BLW*  
*11*

~~5.3.8.1 DETERMINE the cause of the abnormal FGM system response time.~~

~~5.3.8.2 LOG AND RECORD the abnormal FGM system response time and the resolution on the ATP EXCEPTION LOG and ATP EXCEPTION RECORD respectively.~~

~~5.3.8.3 REPEAT steps 5.3.5 through 5.3.7.~~

5.3.9 ENSURE that the FGM system setpoint is SET to 10% LFL.

5.3.10 ALLOW the sample line to CLEAR by WAITING approximately one (1) minute before proceeding to the next step.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.3 FGM SYSTEM TEST (continued)

NOTE - The FGM system PLC should start to respond in 30 seconds but, it will take up to 52 seconds for a full scale reading.

5.3.11 TEST the FGM system by PERFORMING the following:

EXCEPTION # 18

5.3.11.1 SIMULTANEOUSLY INTRODUCE a two <sup>Sample</sup> ~~(2)~~ second burst of Hydrogen gas into the sample line AND START the stopwatch.



5.3.11.2 RECORD the data as INDICATED by the table below.

| HYDROGEN GAS<br>FGM SYSTEM TEST        | FGM SYSTEM<br>RESPONSE TIME | HORN ANNUNCIATES<br>(YES/NO) | % LFL THAT<br>GIVES AN ALARM<br>INDICATION | OHMMETER<br>READING OF THE<br>"DRY CONTACTS"<br>(RELAY) |
|--|-----------------------------|------------------------------|--|---|
| TEST 1                                 | 28 sec                      | 36 sec, yes                  | 10.2                                       | open  |
| TEST 2                                 | 27 sec                      | 32 sec, yes                  | 10.6                                       | open  |
| TEST 3                                 | 29 sec                      | 34 sec, yes                  | 11.2                                       | open  |
| TEST 4                                 | 27 sec                      | 35 sec, yes                  | 10.6                                       | open  |
| TEST 5                                 | 27 sec                      | 34 sec, yes                  | 10.6                                       | open  |
| FGM SYSTEM<br>RESPONSE TIME<br>AVERAGE | ~28 sec                     |                              |  |   |

5.3.11.3 ACKNOWLEDGE the horn by PRESSING the ALARM SILENCE pushbutton located on the MMI.



5.3.11.4 VERIFY that the MMI screen light is FLASHING.



# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.3 FGM SYSTEM TEST (continued)

- 5.3.11.5 RESET the FGM system.
- 5.3.11.6 VERIFY that the MMI screen DISPLAYS 0% LFL.
- 5.3.12 REPEAT steps 5.3.11.1 through 5.3.11.6 four (4) more times AND RECORD the data as test 2 through test 5 in the table provided in step 5.3.11.2.
- 5.3.13 AVERAGE FGM system response times AND RECORD in the space provided in the table above.
- EXCEPTION # 19 5.3.14 IF any of the FGM system response times are  $\geq$  ~~thirty (30)~~ <sup>Safety Test (32)</sup> seconds, PERFORM the following: ~~Forty (40)~~
- 5.3.14.1 DETERMINE the cause of the abnormal FGM system response time.
- 5.3.14.2 LOG AND RECORD the abnormal FGM system response time and the resolution on the ATP EXCEPTION LOG and ATP EXCEPTION RECORD respectively.
- 5.3.14.3 REPEAT steps 5.3.9 through 5.3.13.
- 5.3.15 PLUG the sample line AND SIMULTANEOUSLY START the stopwatch.
- 5.3.16 WHEN horn ANNUNCIATES, STOP the stopwatch.
- 5.3.17 WHEN horn ANNUNCIATES, OBSERVE the %LFL reading on the MMI.

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.3 FGM SYSTEM TEST (continued)

5.3.18 VERIFY that the horn ANNUNCIATES.

5.3.19 RECORD the time, the "dry contacts" ohmmeter reading, and % LFL reading on the table below.

|                                       |        |
|---------------------------------------|--------|
| STOPWATCH TIME FROM STEP 5.3.16       | 13 sec |
| DRY CONTACTS (RELAY) OHMMETER READING | open   |
| MMI % LFL READING                     | 0%     |

5.3.20 Test Director SHALL VERIFY that section 5.3 is COMPLETE by SIGNING below.



Test Director Signature

1/13/96

Date

5.3.21 QC Inspector SHALL VERIFY that section 5.3 is COMPLETE by SIGNING below.



QC Inspector Signature

1-13-96

Date

# TANK FARM ACCEPTANCE TEST PROCEDURE

## 5.4 SHUTDOWN OF THE FGM SYSTEM

- 5.4.1 CLOSE the calibration gas bottle valve.
- EXCEPTION # 20 5.4.2 ALLOW the FGM system to CLEAR of flammable gases by WAITING approximately ~~five (5)~~ *two (2)* minutes before proceeding to the next step.
- 5.4.3 VERIFY that the MMI is INDICATING 0% LFL.
- 5.4.4 REMOVE the power cord from the power source.
- 5.4.5 DISCONNECT the vacuum pump from the compressed air supply.
- 5.4.6 REPLACE the Flammable Gas sensor cover.
- 5.4.7 Test Director SHALL VERIFY that section 5.4 is COMPLETE by SIGNING below.
- [Signature]* 1/13/96  
Test Director Signature Date
- 5.4.8 QC Inspector SHALL VERIFY that section 5.4 is COMPLETE by SIGNING below.
- [Signature]* 1-13-96  
QC Inspector Signature Date



# TANK FARM ACCEPTANCE TEST PROCEDURE

## ATP EXCEPTION RECORD

This page may be reproduced as necessary.

|                              |                           |
|------------------------------|---------------------------|
| ATP step number:             | ATP Exception Log Number: |
| Description of Exception:    |                           |
|                              |                           |
|                              |                           |
|                              |                           |
|                              |                           |
|                              |                           |
|                              |                           |
| Resolution of Exception:     |                           |
|                              |                           |
|                              |                           |
|                              |                           |
|                              |                           |
|                              |                           |
|                              |                           |
|                              |                           |
| Date of Resolution:          |                           |
| Test Director signature:     |                           |
| Project Engineer signature:  |                           |
| Quality Assurance signature: |                           |

Date 1/13/96  
 Company WHC  
 Project FGM4-UNIT 1  
E-CAB  
V-CAB

WHC-SD-WM-ATR-163 Rev. 0

|    | Pass | Fail |  |
|----|------|------|--|
| 1  | ✓    | —    | Hardware secure  |
| 2  | ✓    | —    | Component Tags   |
| 3  | ✓    | —    | Correct AWG, wire, color, Temp, Rating, Voltage                                      |
| 4  | ✓    | —    | Wire Markers (all control conductors)  |
| 5  | ✓    | —    | Main Ground  |
| 6  | ✓    | —    | Manuals & Drawings   |
| 7  | N/A  | —    | High Voltage Placard if applicable   |
| 8  | ✓    | —    | Model #/Serial #/Voltage - Frequency - Phase   |
| 9  | ✓    | —    | Door Ground Strap  |
| 10 | ✓    | —    | Control Circuit Function Test  |
| 11 | ✓    | —    | Check Full Load Current of Control Circuit   |
| 12 | ✓    | —    | Proper Voltage Output from DC power Supplies   |
| 13 | N/A  | —    | Check Function of Disconnect   |
| 14 | ✓    | —    | Proper Overloads / Overload Settings   |
| 15 | ✓    | —    | Proper Fuse Values   |
| 16 | ✓    | —    | Line Isolation Test  |
| 17 | ✓    | —    | Non-Listed Non-Recognized Checked For Proper Over Current Protection                 |
| 18 | ✓    | —    | Non-Listed Non-Recognized Checked Components Used Recorded In Proper File            |
| 19 | ✓    | —    | Dielectric Voltage-Withstand Test ( 1min @ 2Xv+1000)<br>Test Voltage <u>2400 VAC</u> |
| 20 | ✓    | —    | Approval Label Affixed Number _____<br>Date of Manufacture <u>1/13/96</u>            |

*Checked* 1/13/96

**CERTIFICATE OF ANALYSIS**

Norco  
Kennewick Warehouse  
102 E. Columbia Dr.  
Kennewick, WA 99336-0000

Date: January 16, 1996

Cylinder Type: One 103 Liter Cylinder

PO Number: None

Norco Order Number: 683371-00

| Component | Reported Concentration | Requested Concentration |
|-----------|------------------------|-------------------------|
| Methane   | 1.26% (25% L.E.L.)     | 1.25%                   |
| Air       | Balance                |                         |

Analysis +/- 2 %

Lot #: 5-331-15

Approved: \_\_\_\_\_

  
John Hettinger  
Senior Lab Technician

24

**CERTIFICATE OF ANALYSIS**

Norco  
Kennewick Warehouse  
102 E. Columbia Dr.  
Kennewick, WA 99336-0000

Date: January 17, 1996

Cylinder Type: One 103 Liter Cylinder

PO Number: None

Norco Order Number: 690153-00

| Component | Reported Concentration | Requested Concentration |
|-----------|------------------------|-------------------------|
| Hydrogen  | 1.0% (25% L.E.L.)      | 1.0%                    |
| Air       | Balance                |                         |

Analysis +/- 2 %

Lot #: 5-093-15

Approved: \_\_\_\_\_

  
John Hettinger  
Senior Lab Technician

# ATP EXCEPTION LOG

This page may be reproduced as necessary.

PAGE 01 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

| Number | Date     | Description   |
|--------|----------|---|
| 001    | 01/13/96 | Page 2, Test Execution Sheet, Signatures and Test Date changed.   |
| 002    | 01/13/96 | Page 9, Section 4.0, <u>Prerequisites</u> , Subsection 4.1, Inclusion of Additional Test Articles.                          |
| 003    | 01/13/96 | Page 9, Section 4.0, <u>Prerequisites</u> , Subsection 4.3, Item 4.3.1, Signatures and Test Date changed.                   |
| 004    | 01/13/96 | Page 9, Section 4.0, <u>Prerequisites</u> , Subsection 4.3, Item 4.3.3, Inclusion of Additional Test documentation.         |
| 005    | 01/13/96 | Page 10, Section 4.0, <u>Prerequisites</u> , Subsection 4.3, Item 4.3.4, Inclusion of the word "system".                    |
| 006    | 01/13/96 | Page 10, Section 4.0, <u>Prerequisites</u> , Subsection 4.3, Item 4.3.5, Change in Instrument Calibration Description.      |
| 007    | 01/13/96 | Page 11, Section 5.0, <u>Procedure</u> , Subsection 5.1, Item 5.1.3, Change in Man-Machine Interface display description.   |
| 008    | 01/13/96 | Page 11, Section 5.0, <u>Procedure</u> , Subsection 5.1, Item 5.1.5.a, Inclusion of addition procedural step.               |
| 009    | 01/13/96 | Page 12, Section 5.0, <u>Procedure</u> , Subsection 5.2, Item 5.2.3, Clarification of Test Gas Calibration Bottle contents. |
| 010    | 01/13/96 | Page 12, Section 5.0, <u>Procedure</u> , Subsection 5.2, Item 5.2.4 - 7, Deletion of Steps.                                 |

# ATP EXCEPTION LOG

This page may be reproduced as necessary.

PAGE 02 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATR-163, Rev. 0, January 9, 1996

| Number | Date     | Description  |
|--------|----------|--|
| 011    | 01/13/96 | Page 12, Section 5.0, <u>Procedure</u> , Subsection 5.2, Item 5.2.7, Data Title Correction.                              |
| 012    | 01/13/96 | Page 14, Section 5.0, <u>Procedure</u> , Subsection 5.3, Item 5.3.1.a, Step added, then deleted.                         |
| 013    | 01/13/96 | Page 14, Section 5.0, <u>Procedure</u> , Subsection 5.3, Item 5.3.2, Step clarification.                                 |
| 014    | 01/13/96 | Page 14, Section 5.0, <u>Procedure</u> , Subsection 5.3, Item 5.3.4.a, Inclusion of addition procedural step.            |
| 015    | 01/13/96 | Page 15, Section 5.0, <u>Procedure</u> , Subsection 5.3, Note clarification.   |
| 016    | 01/13/96 | Page 15, Section 5.0, <u>Procedure</u> , Subsection 5.3, Item 5.3.6.1, Step clarification.                               |
| 017    | 01/13/96 | Page 16, Section 5.0, <u>Procedure</u> , Subsection 5.3, Item 5.3.8, Step change to average response and time response.  |
| 018    | 01/13/96 | Page 17, Section 5.0, <u>Procedure</u> , Subsection 5.3, Item 5.3.11.1, Step clarification.                              |
| 019    | 01/13/96 | Page 18, Section 5.0, <u>Procedure</u> , Subsection 5.3, Item 5.3.14, Step change to average response and time response. |
| 020    | 01/13/96 | Page 20, Section 5.0, <u>Procedure</u> , Subsection 5.4, Item 5.4.2, Step clarification.                                 |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 03 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                                       |
|--|---------------------------------------|
| <b>ATP Step Number:</b> Signature Sheet  | <b>ATP Exception Log Number:</b> 001  |
| <b>Description of Exception:</b> Signatures and Test Date changed.                   |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
| <b>Resolution of Exception:</b> Changes accurately reflect performance date and test |                                       |
| personnel.   |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
| <b>Date of Resolution:</b>   | <i>January 22, 1996</i>               |
| <b>Test Director signature:</b>  | <i>[Signature]</i>                    |
| <b>Project Engineer signature:</b>   | <i>Michael L. [Signature] 1/22/96</i> |
| <b>Quality Assurance signature:</b>  | <i>Mark &amp; Brown</i>               |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 04 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |  |                                      |  |
|--|--|--------------------------------------|--|
| <b>ATP Step Number: 4.1</b>  |  | <b>ATP Exception Log Number: 002</b> |  |
| <b>Description of Exception:</b> Inclusion of Additional Test Articles.        |  |                                      |  |
| The pressure gauge was necessary to ensure                                     |  |                                      |  |
| test bottles were charged.   |  |                                      |  |
|  |  |                                      |  |
| <b>Resolution of Exception:</b> Change accurately reflects test articles used. |  |                                      |  |
| Pressure Guage, Calibration No. BEL-96-3, Expiration Date: 1/13/97             |  |                                      |  |
|  |  |                                      |  |
|  |  |                                      |  |
|  |  |                                      |  |
|  |  |                                      |  |
| <b>Date of Resolution:</b>   |  | 1/22/96                              |  |
| <b>Test Director signature:</b>  |  | <i>[Signature]</i>                   |  |
| <b>Project Engineer signature:</b>   |  | <i>M. H. A. K. H. 1/22/96</i>        |  |
| <b>Quality Assurance signature:</b>  |  | <i>Michael D. Brown</i>              |  |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 05 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|   |                               |
|---|-------------------------------|
| ATP Step Number: 4.3.1  | ATP Exception Log Number: 003 |
| <b>Description of Exception:</b> Signatures and Test Date changed.                              |                               |
| <b>Resolution of Exception:</b> Changes accurately reflect performance date and test personnel. |                               |
| <b>Date of Resolution:</b>  | 1/22/96                       |
| <b>Test Director signature:</b>   | <i>[Signature]</i>            |
| <b>Project Engineer signature:</b>  | <i>[Signature]</i> 1/22/96    |
| <b>Quality Assurance signature:</b>   | <i>[Signature]</i>            |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 06 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP Step Number: 4.3.3   | ATP Exception Log Number: 004 |
| <p><b>Description of Exception:</b> Inclusion of Additional Test documentation, of pressure and leak testing at vendor facility is desirable.</p>                    |                               |
| <p><b>Resolution of Exception:</b> Leak test data is requested to document accurate measurement of loop response time. Added step to request test documentation.</p> |                               |
| Date of Resolution:  | 1/22/96                       |
| Test Director signature:   | <i>[Signature]</i>            |
| Project Engineer signature:  | Mark R. W. 1/22/96            |
| Quality Assurance signature:   | M. J. Brown                   |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 07 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|   |                               |
|---|-------------------------------|
| ATP Step Number: 4.3.45   | ATP Exception Log Number: 005 |
| <p><b>Description of Exception:</b> Inclusion of the word "system".</p>       |                               |
| <p><b>Resolution of Exception:</b> Description changed for clarification.</p> |                               |
| Date of Resolution:   | 1/22/96                       |
| Test Director signature:  | <i>[Signature]</i>            |
| Project Engineer signature:   | M. J. A. Koch 1/22/96         |
| Quality Assurance signature:  | M. D. Brown                   |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 08 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP Step Number: 4.3.5   | ATP Exception Log Number: 006 |
| <b>Description of Exception:</b> Change in Instrument Calibration Description.       |                               |
| TEST STEP REQUIRED CORRECTION TO REFLECT A SYSTEM CAL.                               |                               |
| TEST RATHER THAN COMPONENT CALIBRATION.  |                               |
|  |                               |
| <b>Resolution of Exception:</b> Flammable Gas Monitor calibrated as a complete unit, |                               |
| dates recorded. Documentation required and signed by technician.                     |                               |
| REVISED TEST STEP  |                               |
|  |                               |
|  |                               |
| <b>Date of Resolution:</b>   | 1/22/96                       |
| <b>Test Director signature:</b>  | <i>[Signature]</i>            |
| <b>Project Engineer signature:</b>   | M. Mark 1/22/96               |
| <b>Quality Assurance signature:</b>  | M. D. Brown                   |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 09 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.1.3   | ATP Exception Log Number: 007 |
| <p><b>Description of Exception:</b> Change in Man-Machine Interface display description, caused test step to be incorrect.</p>   |                               |
| <p><b>Resolution of Exception:</b> Flammable Gas Monitor uses a "LCD" display, and software message has been changed during "Warm-Up". Procedure changed to reflect software change.</p> |                               |
| <b>Date of Resolution:</b>   | 1/22/96                       |
| <b>Test Director signature:</b>  | <i>[Signature]</i>            |
| <b>Project Engineer signature:</b>   | <i>[Signature]</i> 1/22/96    |
| <b>Quality Assurance signature:</b>  | <i>[Signature]</i>            |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 10 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|   |                               |
|---|-------------------------------|
| ATP step number: 5.1.5.a  | ATP Exception Log Number: 008 |
| <b>Description of Exception:</b> Inclusion of addition procedural step.             |                               |
| <p>Procedure did not clearly state a system warm up was required.</p>               |                               |
| <b>Resolution of Exception:</b> Step included for test operator to return Flammable |                               |
| Gas Monitor to "Normal Operating Condition" before proceeding to next system        |                               |
| check.  |                               |
| <b>Date of Resolution:</b>  | 1/22/96                       |
| <b>Test Director signature:</b>   | <i>[Signature]</i>            |
| <b>Project Engineer signature:</b>  | Michael KL 1/22/96            |
| <b>Quality Assurance signature:</b>   | M. P. Brown                   |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 11 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.2.3   | ATP Exception Log Number: 009 |
| <p><b>Description of Exception:</b> Clarification of Test Gas Calibration Bottle contents, was required.</p>   |                               |
| <p><b>Resolution of Exception:</b> Gas bottle contents are correctly described by pressure and volume. Gas bottle pressure should be greater than 250 psi to ensure enough calibration gas to perform tests. Procedure modified to correct for appropriate gas bottle check.</p> |                               |
| Date of Resolution:  | 4/22/96                       |
| Test Director signature:   | <i>[Signature]</i>            |
| Project Engineer signature:  | <i>M. J. R. Kh</i> 4/22/96    |
| Quality Assurance signature:   | <i>Michael Brown</i>          |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 12 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATR-163, Rev. 0, January 9, 1996

|  |                                      |
|--|--------------------------------------|
| <b>ATP step number:</b> 5.2.4 - 7  | <b>ATP Exception Log Number:</b> 010 |
| <p><b>Description of Exception:</b> Deletion of Steps. These steps are incorrectly placed in the procedure. Self verification mode is not used to determine response time.</p>   |                                      |
| <p><b>Resolution of Exception:</b> Steps reflect operation of the Flammable Gas Monitor in self verification mode, which was not used in testing of response time in this ATP. Modified procedure by deleting steps.</p> |                                      |
| <b>Date of Resolution:</b>   | 1/22/96                              |
| <b>Test Director signature:</b>  | <i>[Signature]</i>                   |
| <b>Project Engineer signature:</b>   | Michael K... 1/22/96                 |
| <b>Quality Assurance signature:</b>  | M. J. D. Brown                       |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 13 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.2.7   | ATP Exception Log Number: 011 |
| Description of Exception: Data Title Correction, required.   |                               |
| Resolution of Exception: Data block to be changed to record calibration gas<br>bottle pressure and volume. |                               |
| Date of Resolution:  | 1/22/96                       |
| Test Director signature:   | <i>[Signature]</i>            |
| Project Engineer signature:  | <i>[Signature]</i> 1/22/96    |
| Quality Assurance signature:   | <i>[Signature]</i>            |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 14 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.3.1.a   | ATP Exception Log Number: 012 |
| <p><b>Description of Exception:</b> Step added, then deleted.</p>  |                               |
| <p><b>Resolution of Exception:</b> Operational step added to Section 5.1 as Item 5.1.5.a.</p> <p>A recheck of bringing system to normal operation is not required as this was accomplished in previous test steps.</p> |                               |
| <b>Date of Resolution:</b>   | 1/22/96                       |
| <b>Test Director signature:</b>  | <i>[Signature]</i>            |
| <b>Project Engineer signature:</b>   | <i>[Signature]</i> 1/22/96    |
| <b>Quality Assurance signature:</b>  | <i>[Signature]</i>            |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 15 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.3.2   | ATP Exception Log Number: 013 |
| <p><b>Description of Exception:</b> Step clarification, required, procedure does not include wire and termination numbers.</p>   |                               |
| <p><b>Resolution of Exception:</b> Description enhanced to describe how it is to be performed. "Open the FGM system PLC ADC loop by lifting wire in VCAB, TB-1 (terminal block), number 28."</p> |                               |
| Date of Resolution:  | 1/22/96                       |
| Test Director signature:   | <i>[Signature]</i>            |
| Project Engineer signature:  | <i>[Signature]</i> 1/22/96    |
| Quality Assurance signature:   | <i>[Signature]</i>            |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 16 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.3.4.a   | ATP Exception Log Number: 014 |
| <p><b>Description of Exception:</b> Inclusion of addition procedural step, required to restore PLC loop and restore system to operation.</p>         |                               |
| <p><b>Resolution of Exception:</b> Step need to ensure PLC ADC Loop is restored and Flammable Gas Monitor is restarted. Added step to procedure.</p> |                               |
| Date of Resolution:  | 1/22/96                       |
| Test Director signature:   | <i>[Signature]</i>            |
| Project Engineer signature:  | <i>[Signature]</i> 1/22/96    |
| Quality Assurance signature:   | <i>[Signature]</i>            |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 17 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.3.5 note  | ATP Exception Log Number: 015 |
| <p><b>Description of Exception:</b> Note clarification, required to specify Full scale reading.</p>                |                               |
| <p><b>Resolution of Exception:</b> The Term "Full Scale" is replaced with calibration gas LFL value. (25% LFL)</p> |                               |
| <b>Date of Resolution:</b>   | 1/22/96                       |
| <b>Test Director signature:</b>  | <i>[Signature]</i>            |
| <b>Project Engineer signature:</b>   | m/hl k/h 1/22/96              |
| <b>Quality Assurance signature:</b>  | M. D. B. <i>[Signature]</i>   |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 18 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|   |                               |
|---|-------------------------------|
| ATP step number: 5.3.6.1  | ATP Exception Log Number: 016 |
| <p><b>Description of Exception:</b> Step clarification, is required to allow technician some latitude in introducing sample gas. specification of 2 second burst is too stringent.</p>  |                               |
| <p><b>Resolution of Exception:</b> A two (2) second burst of test gas is insufficient to ensure alarm response at sensor trip point. Technician is allowed to increase release time to ensure alarm sequence is observed.</p> |                               |
| Date of Resolution:   | 1/22/96                       |
| Test Director signature:  | <i>[Signature]</i>            |
| Project Engineer signature:   | Michael 1/22/96               |
| Quality Assurance signature:  | Mel D. Brown                  |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 19 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.3.8   | ATP Exception Log Number: 017 |
| <b>Description of Exception:</b> Step change to average response and time response.  |                               |
| <p>Test does not allow acceptance of data which indicates response time &gt; 30s. while 2 response times were greater than 30s (31s ; 32s), these times were due to operator gas introduction times. Monitor response acceptable.</p>  |                               |
| <p><b>Resolution of Exception:</b> Individual test times may vary by several seconds due to operator error. As such, the average response time is considered representative of the systems true behavior. A forty (40) second response time is considered adequate to meet current accident scenarios. Procedure step modified and troubleshooting steps were deleted.</p> |                               |
| <b>Date of Resolution:</b>   | 1/22/96                       |
| <b>Test Director signature:</b>  | <i>[Signature]</i>            |
| <b>Project Engineer signature:</b>   | M. R. Kirk 1/22/96            |
| <b>Quality Assurance signature:</b>  | M. D. Brown                   |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 20 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|  |                               |
|--|-------------------------------|
| ATP step number: 5.3.11.1  | ATP Exception Log Number: 018 |
| <p><b>Description of Exception:</b> Step clarification, required to allow tech latitude in introducing sample gas. 2 second burst to tight.</p>  |                               |
| <p><b>Resolution of Exception:</b> A two (2) second burst of test gas is insufficient to ensure alarm response at sensor trip point. Technician is allowed to increase release time to ensure alarm sequence is observed. Procedure modified</p> |                               |
| Date of Resolution:  | 1/22/96                       |
| Test Director signature:   | <i>[Signature]</i>            |
| Project Engineer signature:  | Muhl & Koh 1/22/96            |
| Quality Assurance signature:   | Mal D. Brown                  |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 21 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATR-163, Rev. 0, January 9, 1996

|   |                                      |
|---|--------------------------------------|
| <b>ATP step number:</b> 5.3.14  | <b>ATP Exception Log Number:</b> 019 |
| <b>Description of Exception:</b> Step change to average response and time response.   |                                      |
| 30s is to tight of tolerance when operator variance considered.   |                                      |
| <b>Resolution of Exception:</b> Individual test times may vary by several seconds due to operator error. As such, the average response time is considered representative of the systems true behavior. A forty (40) second response time is considered adequete to meet current accident scenarios. Procedure modified. |                                      |
| <b>Date of Resolution:</b>  | 1/22/96                              |
| <b>Test Director signature:</b>   | <i>[Signature]</i>                   |
| <b>Project Engineer signature:</b>  | Mark K Kell 1/22/96                  |
| <b>Quality Assurance signature:</b>   | <i>[Signature]</i>                   |

# ATP EXCEPTION RECORD

This page may be reproduced as necessary.

PAGE 22 of 22

241-T-107 Interim Stabilization Flammable Gas Monitor System (Safety Class 3),  
Acceptance Test Procedure, WHC-SD-WM-ATP-163, Rev. 0, January 9, 1996

|   |                                      |
|---|--------------------------------------|
| <b>ATP step number:</b> 5.4.2   | <b>ATP Exception Log Number:</b> 020 |
| <p><b>Description of Exception:</b> Step clarification, required. Allowing 2 minutes was sufficient to clear system. 5 minutes was not required</p>   |                                      |
| <p><b>Resolution of Exception:</b> Samples rates within the Flammable Gas Monitor are sufficiently large to allow the sensor to "clear" within one (1) minute after completion of the test.</p> |                                      |
| <b>Date of Resolution:</b>  | 4/22/96                              |
| <b>Test Director signature:</b>   | <i>[Signature]</i>                   |
| <b>Project Engineer signature:</b>  | <i>[Signature]</i> 1/22/96           |
| <b>Quality Assurance signature:</b>   | <i>[Signature]</i>                   |