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Accession #: D196037769

Document #: SD-WM-OTP-199

Title/Desc: OPERABILITY TEST PROCEDURE FOR THE ANNULUS THERMOCOUPLE TREE

Pages: 11
2. To: (Receiving Organization)  
See Distribution

3. From: (Originating Organization)  
Surveillance Systems Int.

4. Related EDT No.:  

5. Proj./Prog./Dept./Div.:  
241-AN-107

6. Cog. Engr.:  
RJ Steele

7. Purchase Order No.:  
NA

8. Originator Remarks:  
THIS OPERABILITY TEST PLAN IS BEING RELEASED FOR APPROVAL.

9. Equip./Component No.:  
NA

10. System/Bldg./Facility:  
NA

11. Receiver Remarks:  

12. Major Assm. Dwg. No.:  
NA

13. Permit/Permit Application No.:  
NA

14. Required Response Date:  
NA

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15. DATA TRANSMITTED

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<th>(B) Document/Drawing No.</th>
<th>(C) Sheet No</th>
<th>(D) Rev No</th>
<th>(E) Title or Description of Data Transmitted</th>
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<th>Reason for Transmittal</th>
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18. Signature of EDT Originator: [Signature]  
Date: 2/24/96

19. Authorized Representative: [Signature]  
Date: [Date]

20. Cognizant Manager: [Signature]  
Date: [Date]

21. DOE APPROVAL (if required)

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BD-7400-172-2 (04/94) GEF097
OPERABILITY TEST PROCEDURE (OTP) FOR THE ANNULUS THERMOCOUPLE TREE

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

EDT/ECN: 611288 UC: 2030
Org Code: 74430 Charge Code: N2167
B&R Code: EW3120072 Total Pages: 9

Key Words: 241-AN-107, Thermocouple tree, temperature

Abstract:

This document outlines the steps required to properly document the operability testing of this prototypical system.

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OPERABILITY TEST PROCEDURE (OTP)
FOR THE
ANNULUS THERMOCOUPLE TREE

Approval Designator: N/A

Robert J. Steele
Surveillance Systems Integration
February 5, 1996
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OPERABILITY TEST PROCEDURE
OF THE
ANNULUS THERMOCOUPLE TREE (ANTC)

1.0 PURPOSE/SCOPE

This Operability Test Procedure (OTP) provides step by step instructions for the functional testing of the Annulus Thermocouple Tree deployed into the annulus of underground nuclear waste storage tank 241-AN-107. The ANTC is designed to monitor the temperature gradient of the primary containment wall by using three arrays of contact thermocouples. The ANTC was deployed into the annulus under work plan WTWP-95-015, package number 2E-95-0039. The final acceptance of this system will be based upon satisfactory completion of this test.

The acceptance criteria for successful completion of this operability test procedure involves verification of engagement of 100% of the electromagnets and thermocouples as well as temperature indication and recording of each thermocouple.

Test deviations and corrective actions will be addressed when anomalies arise. It is envisioned that no corrective actions will be taken if thermocouples do not engage the primary containment wall, but will be documented and deactivated on the computer. Minor adjustments will be required to place the footing magnets and array magnets in optimum position.

2.0 REFERENCES

N/A

3.0 RESPONSIBILITIES

3.1 Surveillance Systems Integration (SSI)

Surveillance Systems Integration shall provide and operate all the required equipment including computers, cabling, hardware, and the field control unit which houses the temperature measurement test equipment, power supplies, and associated hardware.

3.2 Test Witnesses

East Tank Farms Operations shall provide a Person In Charge (PIC), East Tank Farms Surveillance Operators, and any ancillary personnel and equipment required for this activity.

Test witnesses are responsible for verifying that organizational requirements are met throughout the testing and documentation sequences of the procedure.
4.0 DOCUMENTATION

4.1 Test Records

All personnel involved in the performance of this test shall fill out applicable sections of this test procedure.

4.2 Exceptions

Exceptions by step number, and other notes shall be recorded in section 7. This section must be dispositioned and signed off prior to final OTP approval. If no exceptions are encountered, this section shall be noted and closed out with the required signatures. Errors noted during the performance of this test shall be corrected to facilitate test completion. Each correction shall be noted and listed in section 7.0 of this procedure.

4.3 Test Exception Record

Approval of the OTP results shall be accepted by the Caustic Addition Project Engineer as indicated by signature in Section 7.0 and 10.0.

5.0 PREREQUISITES

5.1 Work Plan WTWP-95-015: Work Plan: “AN-107 Annulus Thermocouple Tree Installation and Removal” shall have the installation portion completed prior to the initiation of this operability test procedure.

6.0 OPERABILITY TEST

NOTE: The following steps should only be followed sequentially as they pertain to each ANTC.

6.1 Verify all Electromagnets engage the exterior of the primary containment wall as directed in WTWP-95-015.

ANTC 1: ________________________________  ________________________________
SSI Cognizant Engineer  Date

ANTC 2: ________________________________  ________________________________
SSI Cognizant Engineer  Date

ANTC 3: ________________________________  ________________________________
SSI Cognizant Engineer  Date
6.2 Verify all thermocouples engage the primary containment wall as directed in WTWP-95-015.

ANTC 1: ______________________________ 
SSI Cognizant Engineer  
Date

ANTC 2: ______________________________ 
SSI Cognizant Engineer  
Date

ANTC 3: ______________________________ 
SSI Cognizant Engineer  
Date

6.3 Record the temperatures for all thermocouples on the data/verification sheets.

______________________________  
SSI Cognizant Engineer  
Date

6.4 Verify all temperature data is recorded on the diskette in drive a: on the field computer at an interval of once every ten (10) minutes.

______________________________  
SSI Cognizant Engineer  
Date
7.0 EXCEPTION TO OPERABILITY TEST

<table>
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<tr>
<th>Step No.</th>
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TEST APPROVED WITH EXCEPTIONS

SSI TEST ENGINEER

CAUSTIC ADDITION PROJECT ENGINEER
8.0 TEST EXECUTION DATA SHEETS

DATE: ___________ DOCUMENT NUMBER_______________

SERIAL OR TEST NUMBER __________ TITLE OF TEST: ___________________

TEST PERFORMED BY: __________

| TABLE 1 |
|-----------------|-----------------|-----------------|
| ThermoCoup. #  | ANTC #           | Temperature     |
| 1               |                 |                 |
| 2               |                 |                 |
| 3               |                 |                 |
| 4               |                 |                 |
| 5               |                 |                 |
| 6               |                 |                 |
| 7               |                 |                 |
| 8               |                 |                 |
| 9               |                 |                 |
| 10              |                 |                 |
| 11              |                 |                 |
| 12              |                 |                 |
| 13              |                 |                 |
| 14              |                 |                 |
| 15              |                 |                 |
| 16              |                 |                 |
| 17              |                 |                 |
| 18              |                 |                 |
| 19              |                 |                 |
| 20              |                 |                 |
| 21              |                 |                 |

TEST WITNESSES:

Cognizant Engineer Date

Caustic Addition Project Engineer Date
9.0 TEST EXECUTION RECORD

<table>
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TEST WITNESSES

SSI Test Engineer/Date

Caustic Addition Project Engineer/Date

10.0 FINAL ACCEPTANCE

Testing per this procedure has been satisfactorily and the Annulus Thermocouple Tree is ready for be placed into service.

Caustic Addition Project Engineer    Date