

December 23, 2003

U.S. Nuclear Regulatory Commission
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116 Radiation Center
Corvallis, Oregon
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Subject: Reply to NRC Notice of Nonconformance 99901351/2003-01-01 and
Nonconformance 99901351/2003-01-02

Dear Sirs:

This letter responds to your Notice of Nonconformance issued on November 26, 2003. This letter includes a description of the measures that will be taken to correct each nonconformance, the steps that will be taken to prevent their future recurrence and the dates for completion of the corrective actions and preventative measures.

The OSU APEX-1000 reduced scale test data is being used by Westinghouse to assess their AP1000 evaluation models. OSU ATHRL does not produce hardware or software, nor any other component that will be directly used in the AP1000 plant. The reduced-scale APEX-1000 data is not being used in the design of the AP1000 plant. Our quality product is data to be used for evaluation model assessment.

NONCONFORMANCE 99901351/2003-01-01

The NRC Notice of Nonconformance indicates that the OSU Advanced Thermal Hydraulic Research Laboratory (ATHRL) Quality Plan did not meet the following requirements of 10 CFR 50 Appendix B:

- i. *It did not establish measures to identify and correct conditions adverse to quality that could affect the integrity and reliability of test data used to support 10 CFR Part 52 certification of the AP1000 design.*
- ii. *It failed to include Personnel Training and Qualification Records on the defined list of required quality records for the APEX-1000 test facility.*

Corrective Actions

The OSU ATHRL Quality Plan will be revised to include a Corrective Actions Procedure that is consistent with 10 CFR 50 Appendix B Criterion XVI. The Corrective Actions Procedure will include measures to identify and report conditions that could adversely impact data quality. It will also include procedures for assuring that such conditions are promptly reported and corrected.

The OSU ATHRL Quality Plan will also be revised to require that Personnel and Training Records be maintained as quality records.

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Preventative Measures

All OSU ATHRL personnel will receive training on the revised requirements of the OSU ATHRL Quality Plan and the proper implementation of the Corrective Actions Procedure. The OSU ATHRL Administrative Assistant will maintain the Personnel Training and Qualification Records in the physically separate and secure filing system established for quality records.

Completion Dates

The corrective actions will be completed and the preventative measures established by January 30, 2004.

NONCONFORMANCE 99901351/2003-01-01

The NRC Notice of Nonconformance indicates that ATHRL personnel did not adequately implement certain requirements of the OSU ATHRL Quality Plan. Specifically, the NRC identified the following:

- i. *Discrepancies were found in the APEX-1000 Piping and Instrumentation Diagrams (P&IDs) and in the As-Built Drawings relative to the actual configuration.*

Corrective Actions

A complete "walk-down" of the APEX-1000 test facility will be conducted to assure that the APEX-1000 P&IDs and As-Built drawings reflect the actual test facility configuration. Changes to the P&IDs and As-Built drawings will be made in accordance with the Corrective Actions Procedure that will be included in the revised ATHRL Quality Plan.

Preventative Measures

All OSU ATHRL personnel will receive training on the proper implementation of the Corrective Actions Procedure as they relate to test facility modifications and configuration control.

Completion Dates

The corrective actions will be completed and the preventative measures established by January 30, 2004.

- ii *The test procedure change process was not established and implemented consistent with the requirements of Section 11.0 of the OSU ATHRL Quality Plan.*

Explanation

Section 11.0 of the OSU ATHRL Quality Plan, Revision 3, establishes a process for changes to tests procedures that require review and approval of test procedures to the same extent as the original procedure. However, for minor changes, such as typographical errors, the test engineer may make changes. Major changes to the test procedure requires a change notice with OSU Program Manager signature. The two cases cited by NRC involved a correction to initial test conditions due to a physical limitation on heater power or due to a change required by the Program Manager. The need to make the changes were known and documented in advance however, the procedures as prepared reflected the prior initial conditions. Because the changes were approved in advance, the Test Engineer viewed the initial conditions stated in the test procedure as typographical errors and made the changes.

Corrective Actions

The OSU ATHRL Quality Plan will be revised to provide clearer guidance regarding changes to test procedures based on prior review and approvals and the scope of minor changes.

Preventative Measures

All OSU ATHRL personnel will receive training on the proper implementation of the Section 11.0 of the revised OSU ATHRL Quality Plan as it relates to test procedure changes.

Completion Dates

The corrective actions will be completed and the preventative measures established by January 30, 2004.

iii The NRC identified two examples of a failure to adequately implement the OSU ATHRL Quality Plan for the control of measuring and test equipment. Specific examples related to misplaced calibration records and outdated instrument calibration labels.

Corrective Actions

OSU ATHRL has a complete and accurate calibration history, in hard copy form, for every APEX-1000 instrument. A calibration audit of all configurable instruments was conducted by ATHRL personnel and completed on November 5, 2003. The audit identified a discrepancy in the calibration database with respect to the calibration date field. As a result, several instruments were discovered with incorrect calibration labels. OSU ATHRL is correcting all of the inaccurate labels and will correct the calibration database.

Preventative Measures

All OSU ATHRL personnel will receive training on the proper implementation of the Corrective Actions Procedure as they relate to instrument calibration records.

Completion Dates

The corrective actions and preventative measures will be completed by January 30, 2004.

iv ATHRL Personnel failed to confirm that the APEX-1000 test facility data acquisition system (DAS) software was validated prior to beginning Matrix Testing.

Explanation

On December 3-5, 2002, the U.S. Department of Energy (DOE) led a readiness assessment of the APEX Facility for APEX-1000 Testing. As a result of that audit, Westinghouse and DOE agreed that matrix testing could proceed with validation of a subset of instruments identified as "critical instruments." This decision was based on the fact that previous analyses of the APEX system were regularly conducted with less than 100 of the 750 instruments installed on the APEX facility. These instruments were generally those needed to conduct mass and energy balances for APEX. The list of critical instruments was documented in correspondence from Westinghouse to OSU on December 30, 2002 with the agreement that OSU would proceed with Matrix Testing provided that the critical instruments were validated. The validation for all of the critical instruments was completed on January 31, 2003 as documented in OSU-D-03, *APEX AP1000 Critical Instrument Channel Validation*, Revision 0 prior to the start of Matrix Testing. As part of all test procedures, the Test Engineer is required to verify that all critical instruments are functioning. In addition, all test procedures include the following statement. "Testing may not start if a Critical Instrument listed on the Critical Instrumentation List, is out of service." All of the Matrix Test procedures, as completed, have been reviewed and accepted by Westinghouse as documented in their letter to OSU dated September 3, 2003 (Reference Number DCP/OSU0071).

Corrective Actions

Documentation will be placed in the OSU ATHRL quality records indicating that matrix testing was permitted to begin subsequent to completing the validation of the critical instruments. The December 30, 2002 correspondence from Westinghouse to OSU identifying the critical instrument list shall also be treated as quality related correspondence and placed in the OSU ATHRL quality records.

Preventative Measures

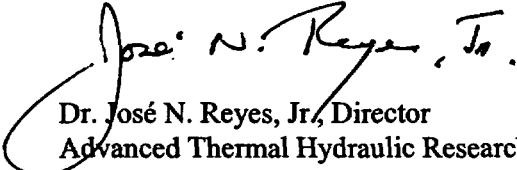
All OSU ATHRL personnel will receive training on identifying, logging, and filing quality related correspondence.

Completion Dates

The corrective actions and preventative measures will be completed by January 30, 2004.

In conclusion, the OSU ATHRL seeks to address each nonconformance in a thorough and expeditious manner. It is our goal to provide the U.S. Department of Energy and Westinghouse with high quality data in support of AP1000 evaluation model assessment. As recognized by the NRC Inspectors, and as per our assessment, the nonconformances cited by NRC did not significantly affect the integrity or reliability of the APEX-1000 test facility data.

Sincerely,


Dr. José N. Reyes, Jr., Director
Advanced Thermal Hydraulic Research Laboratory

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