UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555 - 0001

November 4, 2003

Mr. W.E. Cummins, Director
AP600 and AP1000 Projects
Westinghouse Electric Company
Nuclear Power Plants
P.O. Box 355
Pittsburgh, PA 15230-0355

SUBJECT: NRC INSPECTION REPORT NO. 99900404/03-01 AND NOTICE OF NONCONFORMANCE

Dear Mr. Cummins:

This refers to the inspection conducted September 15-18, 2003, at your Monroeville, Pennsylvania office. The purpose of the inspection was to review the implementation of the Westinghouse Electric Company (WEC) AP1000 project specific quality plan to verify that design activities conducted for the AP1000 project complied with the Westinghouse Quality Management System and the requirements of 10 CFR Part 50, Appendix B. The enclosed report presents the results of this inspection which will be used as input to the closure of the staff's draft safety evaluation, specifically Open Item 17.3.2-2.

During this inspection it was found that the implementation of your quality assurance program failed to meet certain NRC requirements for suppliers used in safety-related activities for the AP1000 project. Specifically, Westinghouse could not produce objective evidence during the inspection necessary to demonstrate compliance with their quality program and procedures to support the basis for supplier qualification and evaluation.

As a result of this issue, the inspection team concluded that WEC needs to evaluate the impact of this finding on the AP1000 Project and establish the adequacy of the quality assurance review process, including the integrity of the design, and also demonstrate that the requirements of 10 CFR 50, Appendix B, and the applicable design certification provisions of 10 CFR Part 52 are being satisfied. Therefore, the effectiveness of WEC's implementation of the AP1000 QA program, with respect to control of suppliers, remains indeterminate pending an acceptable response to this Notice of Nonconformance.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Sincerely,

/RA/

Theodore R. Quay, Chief
Emergency Preparedness and Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

Docket No.: 99900404

Enclosures: 1. Notice of Nonconformance
2. Inspection Report 99900404/03-01

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Accession Number:

OFFIC	IEPB:DIPM	SC:IEPB:DIP	BC:IEPB:DIP
NAME	RLPettis, Jr.	DFThatcher	TRQuay
DATE	10/ 31/03	10/31/03	11/04/03

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NOTICE OF NONCONFORMANCE

Westinghouse Electric Company
Pittsburgh, Pennsylvania

Docket No. 99900404
Report No. 03-01

Based on the results of a Nuclear Regulatory Commission (NRC) inspection conducted September 15-18, 2003, of activities supporting Westinghouse Electric Company's (WEC's) design certification for AP1000, it appears that certain activities were not conducted in accordance with NRC requirements.

Criterion VII, "Control of Purchased Material, Equipment, and Services," of 10 CFR 50, Appendix B, states, in part, that measures shall be established to assure that purchased material, equipment, and services, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, source inspection, and examination of products upon delivery.

Westinghouse Electric Company Quality Management System (QMS), Revision 5, dated October 1, 2002, states in Section 4.3.1 that suppliers of safety-related items are evaluated and approved prior to designation as an approved supplier, or placement of a purchase order, and that active suppliers are evaluated annually and audited at least every three years. Furthermore, Section 4.3.2 states that suppliers of safety-related items and services are evaluated and selected prior to their designation as a qualified supplier.

Westinghouse Electric Company Policy/Procedure WEC 6.3, "Supplier Qualification and Evaluation," Revision 4, dated May 16, 2003, is a documented procedure which provides requirements for the selection of suppliers for the AP1000 Project. WEC 6.3 states, in part, in Section 2.0, "Policy," that suppliers of safety-related items and services be evaluated and approved prior to their designation as a qualified supplier, or placement of a purchase order, while Section 7.2 states, in part, that an audit must be performed prior to the acceptance of any product or service. Furthermore, Section 7.11 requires an annual evaluation of each qualified supplier to assess the supplier's capability to supply acceptable items and services. Additionally, Section 4.3.1 of QMS Revision 5, states, in part, that procurement activities are controlled through documented procedures and instructions that include requirements for bid selection and selection of suppliers. The results of each evaluation shall be approved by WEC Quality Management and documented on a Supplier Audit/Evaluation Summary Form F-6.3-2.

Contrary to the above, WEC could not produce objective evidence demonstrating compliance with their quality program and procedures to support the basis for qualification and evaluation of suppliers used in support of safety-related design certification activities for the AP1000 Project. Specifically, as of the August 19, 2003, AP1000 Suppliers List, a total of 27 suppliers are listed however, WEC could not produce objective evidence demonstrating that 21 suppliers, active in providing safety-related services for AP1000 Design Certification, have been evaluated and audited consistent with the above requirements. This issue is identified as Nonconformance 99900404/03-01-01. The team intends to address this issue during the resolution of DSER Open Item 17.3.2-2.

As a result of this issue, the inspection team concluded that WEC needs to evaluate the impact of this finding on the AP1000 Project and establish the adequacy of the quality assurance review process, including the integrity of the design. In addition, WEC must also demonstrate that the requirements of 10 CFR 50, Appendix B, and the applicable design certification provisions of 10 CFR Part 52 are being satisfied. Therefore, the effectiveness of WEC's implementation of the AP1000 QA program, with respect to control of suppliers, remains indeterminate pending an acceptable response to this Notice of Nonconformance.

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Chief, Emergency Preparedness & Plant Support Branch, Division of Inspection Program Management, Office of Nuclear Reactor Regulation, within 30 days of the date of this letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include: (1) a description of steps that have been or will be taken to correct these items; (2) a description of steps that have been or will be taken to prevent recurrence; and (3) the dates your corrective actions and preventative measures were or will be completed.

Dated at Rockville, Maryland
this 4th day of November, 2003

US NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF INSPECTION PROGRAM MANAGEMENT
EMERGENCY PREPAREDNESS AND PLANT SUPPORT BRANCH
QUALITY ASSURANCE AND MAINTENANCE SECTION

INSPECTION REPORT

ORGANIZATION:	Westinghouse Electric Company Nuclear Power Plants P.O. Box 355 Pittsburgh, PA 15230-0355
DOCKET:	99900404
REPORT NO:	99900404/03-01
ORGANIZATIONAL CONTACT:	W.E. Cummins, Director AP600 and AP1000 Projects
NUCLEAR ACTIVITY:	Nuclear steam supply system design, components, and services
INSPECTION LOCATION:	Monroeville, PA
INSPECTION DATES:	September 15-18, 2003
INSPECTORS:	R. Pettis, Jr., K. Coyne, and F. Talbot Quality and Maintenance Section Emergency Preparedness and Plant Support Division of Inspection and Program Management Office of Nuclear Reactor Regulation
APPROVED BY:	Dale F. Thatcher, Chief Quality and Maintenance Section Emergency Preparedness and Plant Support Division of Inspection and Program Management Office of Nuclear Reactor Regulation

1 INSPECTION SUMMARY

In the AP1000 Design Control Document (DCD) Section 17.3, "Quality Assurance During Design, Procurement, Fabrication, Inspection and/or Testing of Nuclear Power Plant Items," Westinghouse Electric Company (WEC) stated that a project specific quality control plan was used to implement the requirements of the WEC Quality Management System (QMS) program. The inspection team conducted a review of the implementation of the project specific quality assurance (QA) plan to verify that design activities conducted for the AP1000 project complied with the WEC QMS, Revision 5, dated October 1, 2002, and the requirements of 10 CFR 50, Appendix B. The inspection team also addressed implementation of the QA requirements in 10 CFR 50.34(f)(3) and NUREG-0933, Item I.F.2, in support of the staff's draft safety evaluation report (DSER) Open Item 17.3.2-2.

As part of the resolution of the open item, the team reviewed the QA program and evaluated design change proposals (DCPs) and related documents on important to safety systems, structures and components (SSCs) in the AP1000 design as governed by WCAP-12600, "AP600 Advanced Light Water Reactor Design Quality Assurance Program Plan," Revision 4, dated January 1998, and QMS Revision 5, the most recent WEC QA Plan approved by the staff.

1.1 Nonconformance

Nonconformance 99900404/03-01-01 was identified during this inspection and is discussed in Section 3.4 of this report.

2 STATUS OF PREVIOUS INSPECTION FINDINGS

No previous inspection findings were reviewed during this inspection.

3 INSPECTION FINDINGS AND OTHER COMMENTS

3.1 Organization

a. Inspection Scope

The inspectors reviewed the Westinghouse management and quality organizational structure. The purpose of this review was to determine if personnel responsible for implementation of the quality assurance program for the AP1000 project had sufficient authority and independence to perform their assigned duties.

b. Observations and Findings

QMS Section 2.0, "Management Responsibility," documented Westinghouse commitments associated with organizational structure, management responsibility, and quality functions. Additionally, QMS Section 2.4, "Management Review," states commitments for communicating quality assurance process effectiveness, including audit performance, corrective action status, and known changes that may significantly affect the QMS to executive management. The inspectors reviewed organizational charts associated with the AP1000 project and verified that the management and quality

assurance organizational structure was consistent with the QMS. The quality organization had sufficient independence and authority to identify quality problems, initiate actions, and verify the implementation of corrective actions. Additionally, Westinghouse procedure WEC 1.1, "Management Review," provided guidance for performing periodic management reviews of quality assurance process effectiveness. The inspectors reviewed the scope of the most recent management review briefing provided to Westinghouse executive management responsible for the AP1000 project and determined that the management briefing was provided to an appropriate level of management and was consistent with QMS and WEC 1.1 requirements.

c. Conclusions

Based on the areas reviewed, the inspectors concluded that the Westinghouse quality organization responsible for oversight of the AP1000 project met the commitments of the WEC QMS.

3.2 Corrective Action Program

a. Inspection Scope

The inspectors reviewed the Westinghouse corrective action program to verify that conditions adverse to quality associated with the AP1000 project were identified and corrected in accordance with the approved QMS. The inspectors reviewed a sampling of identified conditions adverse to quality to verify that corrective actions were timely and appropriately addressed the identified condition.

b. Observations and Findings

QMS Section 5.5, "Corrective and Preventive Action," stated that conditions adverse to the quality of items and services are identified, documented, analyzed, and corrected in accordance with established procedures. Westinghouse procedures WEC 14.4, "Westinghouse Corrective Action Process," and WEC 21.0, "Identification and Reporting of Conditions Adverse to Safety," defined the method for identifying, documenting, reporting and resolving conditions adverse to safety or quality. The inspectors reviewed WEC 14.4 and WEC 21.0 and sampled corrective action issue reports that identified conditions adverse to quality associated with the AP1000 project. On the basis of the samples selected for review the inspectors concluded that, in general, problems were properly identified, evaluated, and corrected by the corrective action program. However, the inspectors noted two examples of weak corrective actions:

- Issue Report (IR) 02-326-M004 initiated on November 22, 2002, identified that AP1000 self-assessments did not get below the procedural adherence level and into the technical application of the calculation. Further, the issue report identified a corrective action to conduct an additional self-assessment to verify the technical validity of approximately twenty calculations. This corrective action was completed on July 31, 2003 following the issuance of a July 2003 self-assessment on calculation note verification. The inspectors reviewed the self-assessment and determined that the self-assessment did not appear to adequately address the corrective actions specified in IR 02-326-M004. Specifically, the inspectors

determined that the July 2003 self-assessment reviewed the technical validity of only one calculation rather than a sample of approximately twenty calculation notes. However, the inspectors determined that the IR 02-236-M004 corrective action to perform a calculation self-assessment, though reasonable, was not intended to correct a condition adverse to quality. Therefore, the inspectors concluded that this issue indicated weaknesses in the self-assessment program, but did not constitute a nonconformance with the Westinghouse QMS.

- Issue Report 01-003480 identified that, during internal audit WEC-01-50, quality assurance personnel identified that suppliers not listed on the Westinghouse qualified suppliers list were used to supply safety-related engineering analyses for the AP1000 project. This issue report included a corrective action to update the AP1000 approved suppliers list in accordance with project procedures AP 7.1, 7.2 and 7.3. However, as discussed in Section 3.4 of this report, the team identified that Westinghouse failed to adequately evaluate AP1000 suppliers in accordance with these procedures, indicating that the corrective actions of IR 01-003480 were not effectively implemented. Because this issue was closely associated with Nonconformance 99900404/03-01-01, the inspectors determined that identification of this corrective action weakness as a separate nonconformance was not warranted. However, the inspectors intended to resolve concerns related to the effectiveness of the IR 01-003480 corrective actions during the resolution of AP1000 DSER Open Item 17.3.2-2.

Although the inspectors identified two examples of weak corrective actions; overall, the inspectors concluded that Westinghouse maintained a corrective action program capable of identifying and resolving conditions adverse to quality for the AP1000 project.

c. Conclusions

The inspectors determined that Westinghouse maintained a corrective action consistent with QMS commitments. Although the inspectors determined that the corrective action program was capable of identifying and resolving conditions adverse to quality, the inspectors noted two examples of weak corrective action implementation involving the qualification of AP1000 suppliers and the conduct of self-assessments.

3.3 Audits and Self-Assessments

a. Inspection Scope

The inspectors reviewed audits and self-assessments performed for the AP1000 project to verify that these activities were performed consistently with QMS requirements and that identified issues were adequately identified and corrected. The inspectors also verified that audits were of sufficient scope and depth to reliably identify performance issues.

b. Observations and Findings

QMS Section 5.6.1, “Internal Audits,” stated that the quality organization is responsible for implementing and maintaining an internal audit program to examine and evaluate objective evidence for compliance with the QMS and evaluating the effectiveness of

implementation. Westinghouse procedure WEC 17.1, “Internal Audits,” established the procedural responsibilities and requirements for quality assurance audits performed to evaluate the effectiveness of the QMS. At the time of the inspection, Westinghouse had completed two internal audits of the AP1000 project: (1) Audit WEC 01-50, performed during the period of November 13-16, 2001 and, (2) WEC-02-20, performed during the period November 19 - 22, 2002. The inspectors noted that both of the AP1000 audits were performed by quality assurance personnel without the assistance of technical support personnel. Consequently, the audits focused on compliance with quality requirements rather than a review of the technical validity of the AP1000 design process.

Based upon a review of audit reports WEC-01-50 and WEC-02-20, procedure WEC 17.1, and discussions with the lead QA auditor for the AP1000 audits, the inspectors concluded that, in general, the AP1000 quality assurance audits met the requirements of the QMS. However, the inspectors noted that the 2001 internal audit identified a finding associated with use of AP1000 suppliers not listed on the WEC Qualified Suppliers List (QSL), referred to hereinafter as the WEC QSL. As noted in Nonconformance 99900404/03-01-01, discussed in Section 3.4 below, the team identified continuing deficiencies in the process used to qualify AP1000 suppliers similar to those identified by Westinghouse during the 2001 internal audit. Although the 2002 internal audit included a specific review of the corrective actions for 2001 supplier qualification audit finding, Westinghouse failed to identify the continuing supplier qualification deficiencies noted by the NRC inspectors. Because the inspectors determined that the 2002 internal audit should have reasonably identified the AP1000 supplier qualification deficiencies, this issue indicated a potential weakness in the internal audit process. The team intends to address this potential internal audit weakness during the resolution of AP1000 DSER Open Item 17.3.2-2.

QMS Section 5.6.3, “Self-Assessments,” addresses requirements for the performance of self-assessments performed to evaluate compliance with established requirements and identify opportunities for improvement. Westinghouse procedure AP-18.1, “Self-Assessments,” provided procedural guidance for the conduct of self-assessments within the AP1000 project. Westinghouse stated that two self-assessments had been performed for the AP1000 project, one in 2001 and a second in 2003. The 2001 self-assessment was performed to verify the AP1000 calculations were performed and verified in accordance with procedural requirements. The 2003 self-assessment was intended to verify the technical validity of a sampling of calculations generated within the Westinghouse New Plant Department.

In general, the 2001 self-assessment focused on administrative compliance with design control procedures; documentation of signatures; and identification of design analysis objectives, purpose and associated computer codes. During internal audit WEC-02-20, Westinghouse identified that the self-assessment process had not been adequately implemented. Specifically, the WEC-02-20 audit report noted that the 2001 self-assessment focused on procedural adherence and did not verify the technical validity of the calculation process. Consequently, IR 02-326-M004, written to document audit WEC-02-20 findings, included a corrective action to perform a self-assessment to verify the technical validity of the calculation process on a sample of approximately twenty calculations. Westinghouse later closed this corrective action based on completion of a July 18, 2003 self-assessment. The inspectors reviewed the 2003 self-assessment and concluded that Westinghouse failed to adequately address the concerns noted in internal

audit WEC 02-20 and IR 02-326-M004. In particular, the 2003 audit focused on verifying the procedural adherence and proper documentation of reviewer comments for a sample of six calculations. The inspectors noted that only one calculation reviewed during the 2003 self-assessment appeared to have been independently reviewed for technical validity. Additionally, the inspectors noted that the technical reviewer performing the 2003 self-assessment was the author of one of the assessed calculations, contrary to the guidance in Westinghouse procedure AP 18.1, which stated that self-assessments are not to be by the same person that performed the activity. Although the inspectors determined that this issue did not constitute a nonconformance with the general self-assessment commitments of the QMS, the inspectors questioned if the self-assessment process was capable of reliably detecting technical deficiencies in the design control process. These issues will also be addressed during the resolution of AP1000 DSER Open Item 17.3.2-2.

c. Conclusions

The inspectors concluded that, in general, internal audits and self-assessments for the AP1000 project met the requirements of the QMS. The inspectors determined that audit performance was consistent with Westinghouse internal procedures and audit were distributed to an appropriate level of management. However, a 2002 internal audit failed to identify that corrective actions for a 2001 internal audit finding associated with AP1000 suppliers were not effectively implemented. Additionally, audits and self-assessments performed for the AP1000 have not performed a comprehensive review of calculation or design analysis technical validity.

3.4 AP1000 Supplier Evaluation and Approval

a. Scope

The inspectors reviewed the process used by WEC to demonstrate compliance with the QMS to support the basis for qualification and evaluation of suppliers used in support of safety-related design certification activities for the AP1000 Project.

b. Observations and Findings

The inspection team reviewed WEC QMS, Revision 5, dated October 1, 2002, which states in Section 4.3.1 that suppliers of safety-related items are evaluated and approved prior to designation as an approved supplier, or placement of a purchase order, and that active suppliers are evaluated annually and audited at least every three years. Further, Section 4.3.2 states that suppliers of safety-related items and services are evaluated and selected prior to their designation as a qualified supplier. The team also reviewed WEC AP1000 DCD, Section 17.3, “Quality Assurance During Design, Procurement, Fabrication, Inspection and/or Testing of Nuclear Power Plant Items,” which states, in part, that in accordance with the QMS, WEC performs an initial evaluation of quality assurance programs developed by outside organizations for the AP1000 Project and monitors their continued effective implementation through audits and surveillance. WEC Policy/Procedure 6.1, “Control of Purchased Items and Services,” Revision 5, dated May 16, 2003, states in part, in Section 7.1, that a supplier may be designated as a Qualified Supplier and listed on the WEC QSL when WEC Quality determines that the

supplier satisfies the requirements of Section 4.5 of this procedure. Section 4.5 states that a Qualified Supplier is a supplier who implements a quality assurance program which has been found acceptable by a WEC quality assurance audit and has demonstrated the capability to meet the administrative, technical, and quality requirements specified for the procurement. Furthermore, the WEC QSL shall indicate that the supplier's quality assurance program has been evaluated and found acceptable through audit.

Review of WEC Nuclear Plant Projects AP1000, Program Operating Procedure, APP-GW-GAP-100, Revision 9, dated July 17, 2003, Section II, Quality Assurance Procedures, AP-7.1, "Supplier, Evaluation, Audit and Approval," dated March 1, 2002, identified the methods and actions for evaluation, audit, and approval of suppliers for the AP1000 Program. The procedure states applicability to the procurement of items and services by WEC for the AP1000 Program, including, but not limited to, services for design, design verification and testing, configuration management, and Design Certification. The procedure provides several evaluation methods, including survey and objective evaluation of the supplier's history, to determine technical and quality program capability prior to use of the supplier's deliverables to support AP1000 Design Certification.

WEC Policy/Procedure 6.3, "Supplier Qualification and Evaluation," Revision 4, dated May 16, 2003, provides requirements for the selection of suppliers for the AP1000 Project and states, in part, in Section 2.0, "Policy," that suppliers of safety-related items and services be evaluated and approved prior to their designation as a qualified supplier, or placement of a purchase order (PO). Section 7.2 states, in part, that an audit must be performed prior to the acceptance of any product or service. Furthermore, Section 7.11 requires an annual evaluation of each qualified supplier to assess the supplier's capability to supply acceptable items and services. Additionally, Section 4.3.1 of QMS Revision 5 states, in part, that the results of each supplier evaluation shall be approved by WEC Quality Management and be documented on WEC Supplier Audit/Evaluation Summary (SAES) Form F-6.3-2.

To verify implementation of the above, the team performed a review of the suppliers used by WEC for safety-related and design certification activities for the AP1000 Project. The ASLs reviewed were dated August 22, 2002, November 20, 2002, January 6, 2003, March 6, 2003, and August 19, 2003. WEC estimated that AP1000 activities began around April 2000.

The team selected suppliers from the latest version of the AP1000 ASL, dated August 19, 2003. The suppliers selected for review included Obayashi Corporation (structural analysis and design), INITEC (civil and structural design), Oregon State University (thermal hydraulic and flow testing), Ansaldo (seismic and structural analysis), DTN (piping structural analysis), Colenco Power Engineering, Ltd. (independent fuel core studies), NOK (finite element modeling), Fortum Nuclear Services, Ltd. (work scope not identified), and Electricite de France (soil-structure interaction). WEC stated in correspondence with these suppliers that work must be performed in accordance with a QA program equivalent to that required by 10 CFR 50, Appendix B, or ASME NQA-1.

However, WEC could not produce objective evidence demonstrating compliance with their quality program and procedures to support the basis for qualification and evaluation of the selected suppliers which were used in support of safety-related and design certification activities for the AP1000 Project. Furthermore as of the August 19, 2003, AP1000 ASL, approximately 21 out of a total of 27 suppliers are currently active in providing safety-related and design certification services for the AP1000 Project in either Group 1 or Group 2 categories. Group 1 suppliers provide services to WEC via a formal PO while Group 2 suppliers provide services via a formal contract as a Contributed Labor Participant (organizations other than WEC or its compensated subcontractors), but no formal PO exists. The only exception to this was INITEC (SAES ID 3538), a subsidiary of WEC classified as an Independent Participant on the WEC AP1000 Suppliers List, which was found acceptable by WEC during a November 2000 audit. An Independent Participant is an organization outside WEC who provide contributed labor as if they were a compensated subcontractor, using their own procedures, at their own location. WEC Form F6.3-2 was utilized which documented INITEC's QA program procedural compliance to WEC 6.3 and 10 CFR 50, Appendix B. The team noted that INITEC also appears on the WEC QSL as a supplier of engineering services.

The team also noted during the review that an audit of Oregon State University (OSU) was performed by WEC in July 2003. Although WEC identified two findings related to documentation issues associated with test parameter changes and as-built test facility differences with the piping and instrumentation drawings, WEC concluded in the audit report (QLA/OSU0001, dated August 12, 2003) that the OSU Quality Plan, Revision 2, was acceptable and that OSU will be listed on the WEC QSL for AP1000 for a period of three years. However current approval will be maintained as "conditional" until such time that satisfactory resolution of the findings identified has been achieved. The report also stated that the QSL listing will include the restriction that OSU provide Thermal Hydraulic and Flow Testing at WEC's direction for AP1000 only. The team reviewed the latest version of the WEC AP1000 ASL (August 19, 2003) to confirm the restrictions placed on OSU. The ASL entry for OSU stated only that an audit was performed in July 2003 and that OSU's program was found to be acceptable to provide test data to support AP1000 Design Certification. No mention was made as to the "conditional" status of OSU.

The team discussed with WEC the need for them to evaluate the impact of this finding on the AP1000 Project and establish the adequacy of the QA review process, including the integrity of the design, and also demonstrate that the requirements of 10 CFR 50, Appendix B, and the applicable design certification provisions of 10 CFR Part 52, are being satisfied. The failure of Westinghouse to produce objective evidence of AP1000 supplier qualification, in accordance with the WEC AP1000 Program Operating Procedures, is identified as Nonconformance 99900404/03-01-01.

c. Conclusions

WEC could not produce objective evidence demonstrating compliance with their quality program and procedures to support the basis for qualification and evaluation of suppliers used in support of safety-related design certification activities for the AP1000 Project. Specifically, as of the August 19, 2003, AP1000 Suppliers List, a total of 27 suppliers are listed however WEC could not produce objective evidence demonstrating that 21of these suppliers, active in providing services used for safety-related activities in support of

AP1000 Design Certification, have been evaluated and qualified in accordance with WEC procedural requirements. This issue has been identified as Nonconformance 99900404/03-01-01.

Furthermore, the effectiveness of WEC's implementation of the AP1000 QA program with respect to this issue remains indeterminate pending an acceptable response to the Notice of Nonconformance. The staff will address this issue during the resolution of DSER Open Item 17.3.2-2.

3.5 Review of AP1000 Design Change Control Process

a. Scope

The inspectors reviewed various selected design change proposal (DCP) packages to determine whether the design changes met the design control measures in AP1000 Nuclear Plant Projects Program Operating Procedures.

b. Observations and Findings

The inspection team reviewed the following DCPs to determine procedural compliance with the AP1000 QA Program:

- APP-SGS-M3C-010, "AP1000 Revised SGS Valve Sizing and Set Points," Revision 0, dated November 21, 2001, incorporated calculations and plant parameter changes to these safety valves (SVs). The calculations determined the required SV capacity and set points incorporated into this AP1000 design change.

- APP-SSAR-GSC-545, "AP1000 PRZ Safety Valves and Steam Generator Valves Sizing," dated May 22, 2002. The team found that this document summarized the results of the AP1000 pressurizer and steam generator SVs, and power-operated relief valves sizing capacity. The team found that the SG SV sizing capacity in the DCP is consistent with the main steam SV relief capacity in Revision 0 to DCD Section 10.3.2.2.2, "Main Steam Safety Valves," Table 10.3.2-2, "Design Data for Main Steam Safety Valves."

- APP-GW-GEE-010, "Logic Changes to Improve ATWS," Revision 0, dated September 4, 2003. The DCP is consistent with Revision 4 to DCD Section 7.7.1, Diverse Actuation System, page 7.7-15 which now includes a diverse automatic actuation that states "trip rods via the motor generator set, trip turbine, initiate the passive residual heat removal, actuate the core makeup tank, and trip the reactor coolant pumps."

- APP-GW-GEEE-003, Revision 1, dated January 17, 2003. The team concluded that adding the transmitters will prevent a single failure from causing a loss of SG level control that could lead to a plant trip on SG level.

The inspection team also reviewed several DCPs related to reactor vessel components that were implemented due to needed changes in the velocity profile of reactor coolant flowing through the vessel with an increased power level of 3400 Mwt. The inspectors determined that the DCPs reviewed were performed consistently with AP1000 design control procedures and the QMS.

c. Conclusions

Based on a review of design change packages and design control procedures, the inspection team determined that the design control measures for the AP1000 design certification program met the requirements of 10 CFR 50, Appendix B, Criterion III, "Design Control."

3.6 Role of QA in AP1000 Design Process

a. Scope

The inspectors reviewed the implementation of QA requirements in 10 CFR 50.34(f)(3) and NUREG-0933, Item I.F.2, during this inspection to determine WEC's QA organizational role, specifically the role of QA personnel in the review and approval of plant procedures during the AP1000 design process. This issue is discussed in Chapter 20, "Generic Issues," of the staff's DSER for AP1000.

b. Observations and Findings

The inspection team verified that QA personnel were involved in the approval of QA procedures. The QA procedures for the AP1000 project were prepared by the WEC Passive Plant Project and Development Staff, were independently reviewed by qualified QA personnel, and were signed by either the Passive Plant Project & Development Manager and the Westinghouse AP600 and AP1000 Projects Director. In addition, QA personnel reviewed DCPs in accordance with AP1000 Program Operating Procedure AP-3.2, "Change Control for the AP1000 Program." The team did not review information on QA personnel involved in construction, installation, testing and operation activities since this is a COL applicant responsibility. The size of the QA staff involved in the AP1000 design certification project was adequate; however, the COL applicant will be responsible for increasing the QA staff and verification that QA organizational reporting levels are sufficient during the design and construction phases. The team also verified that WEC QA organizational reporting levels are adequate for the AP1000 design certification.

c. Conclusions

The inspection team verified that QA personnel were involved in the review and approval of AP1000 plant procedures; that the procedures prepared by the WEC Passive Plant Project and Development Staff were independently reviewed by qualified personnel; that the procedures were signed by the responsible managers, and that the size of the QA staff, and the organizational reporting levels, was adequate.

4 PERSONS CONTACTED

Westinghouse Electric Company

C. Cummins, Director
J. Winters, Project Manager
M. Corletti, Quality Engineer
T. Kautz, Quality Control Inspector
E. Renaud, Lead Quality Control Inspector