September 7, 2011

Mr. David Barry, President
Nuclear Division, Shaw Power Group
128 South Tryon Street, Suite 400
Charlotte, NC 28202

SUBJECT: NRC INSPECTION REPORT NO. 99901387/2011-201, NOTICE OF NONCONFORMANCE

Dear Mr. Barry:

On June 27–28, 2011, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Shaw Nuclear Services (hereafter referred to as "Shaw") facility in Charlotte, NC. The purpose of the inspection was to perform a limited scope inspection to assess Shaw's compliance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The enclosed report presents the results of this inspection. This inspection report does not constitute an NRC endorsement of your overall quality assurance (QA) or 10 CFR Part 21 programs.

The NRC inspection team reviewed the corrective actions from the previous inspection performed on March 1–5, 2010. The items that required corrective actions are documented in Inspection Report 99901387/2010-201, dated April 22, 2010, and further discussed in a letter from the NRC dated June 23, 2010, titled "Shaw Nuclear Services Response to NRC Inspection Report No. 99901387/2010-201, Notice of Violation, Notice of Nonconformance (NON), and Unresolved Item." During the June 27–28, 2011 inspection, the NRC inspection team found that the implementation of your QA program failed to meet certain NRC requirements imposed on you by your customers. Specifically, the NRC inspection team determined that Shaw failed to effectively correct the procedural guidance for the timely evaluation of deviations and failures to comply associated with substantial safety hazards consistent with the requirements of 10 CFR Part 21. The specific findings and references to the pertinent requirements are identified in the enclosures to this letter.

Please provide a written statement of the corrective actions taken within 30 days from the date of this letter in accordance with the instructions specified in the enclosed NON. We will consider extending the response time if you show good cause for us to do so.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's Rules of Practice, a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, accessible at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response (if applicable), should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a

redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

***/RA/ G. Galletti for***

Juan D. Peralta, Chief
Quality and Vendor Branch 1
Division of Construction Inspection
& Operational Programs
Office of New Reactors

Docket No. 99901387

Enclosures:
1. Notice of Nonconformance
2. Inspection Report No. 99901387/2011-201 and Attachment

redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

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Docket No. 99901387

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1. Notice of Nonconformance
2. Inspection Report No. 99901387/2011-201 and Attachment

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| DATE | 8/ 9 /2011* | 8/15/2011 | 8/ 17 /2011 | 09/06/2011 |

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**NOTICE OF NONCONFORMANCE**

Shaw Nuclear Services
Charlotte, NC 28202

Docket Number 99901387
Inspection Report Number 2010-201

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Shaw Nuclear Services facility in Charlotte, NC, on June 27–28, 2011, certain activities were not conducted in accordance with NRC requirements that were contractually imposed on Shaw Nuclear Services (hereafter referred to as "Shaw") by NRC licensees:

A. Criterion XVI, "Corrective Action," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," states that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

   Shaw SWSQAP 1-74A, Section 16, "Corrective Action," states that the corrective action program shall provide for prompt identification, documentation, classification, and correction of the conditions. Section 16 further states, in part, that corrective action taken to correct deficient conditions discovered by inspection, test, or audits shall be verified by reinspection, retesting, subsequent audits including corrective action audits, and the review of corrective action documentation to assure that corrective actions have been satisfactorily implemented.

   Contrary to the above, as of June 28, 2011, Shaw failed to implement corrective actions documented in Corrective Action Report (CAR) No. 2010-04-29-558 that was issued in response to NRC Violation 99901387/2010-201-01. Specifically, Shaw failed to adequately revise QS-16.3, "Identifying and Reporting Defects and Failures to Comply under 10CFR21," to address NRC-identified deficiencies associated with the evaluation process described in 10 CFR 21.21(a)(1) and (a)(2). The NRC inspection team determined that the QS 16.3 continued to describe the review to determine if a deviation or failure to comply is potentially associated with a substantial safety hazard as part of the discovery process and not part of the 60 day evaluation period in accordance with the NRC requirements. As a result, the revision to QS 16.3 did not correct the deficiency identified in CAR No. 2010-04-29-558, and is not consistent with the definitions and requirements set forth in 10 CFR 21.3 and 10 CFR 21.21(a), respectively.

   This issue is identified as Nonconformance 99901387/2011-201-01.

   Please provide a written statement of the corrective actions taken to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Quality and Vendor Branch 1, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Nonconformances. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance, or if contested, the basis for disputing the noncompliance, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid noncompliance, and (4) the date when your corrective

action will be completed. Where good cause is shown, the NRC will consider extending the response time.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC'S Agencywide Documents Access and Management System, which is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this the 6th day of September 2011.

**U.S. NUCLEAR REGULATORY COMMISSION**
**OFFICE OF NEW REACTORS**
**DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS**
**VENDOR INSPECTION REPORT**

| | |
|---|---|
| Docket No.: | 99901387 |
| Report No.: | 99901387/2011-201 |
| Vendor: | Shaw Nuclear Services<br>128 South Tryon Street, Suite 400<br>Charlotte, NC 28202 |
| Vendor Contact: | Mr. Robert Otis, Manager<br>Quality Assurance<br>(704) 343-7628<br>E-mail: robert.otis@shawgrp.com |
| Nuclear Industry Activities: | Shaw provides new plant design and construction services worldwide. Shaw is a member of the AP1000 Consortium with Westinghouse Electric Company, of which Shaw is a 20-percent owner. |
| Inspection Dates: | June 27–28, 2011 |
| Inspectors: | Robert Prato NRO/DCIP/CQVA |
| Approved by: | Juan D. Peralta, Chief<br>Quality and Vendor Branch 1<br>Division of Construction Inspection<br>& Operational Programs<br>Office of New Reactors |

## EXECUTIVE SUMMARY

Shaw Nuclear Services, Inc.
99901387/2011-201

The purpose of this inspection was to verify that Shaw Nuclear Services, Inc. (Shaw) effectively implemented corrective actions for violations and nonconformances identified during the March 1-5, 2010 inspection consistent with Criterion XVI, "Corrective Actions," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." The inspection was conducted at the Shaw facility in Charlotte, NC, during the period June 27–28, 2011.

The following served as the bases for the U.S. Nuclear Regulatory Commission (NRC) inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21, "Reporting of Defects and Noncompliance"

The NRC inspection team implemented Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," during the conduct of this inspection.
During the initial inspection performed on March 1–5, 2010, Shaw was cited for not providing procedural guidance for including the evaluation of deviations and failures to comply associated with substantial safety hazards (SSH) within the 60-day period from the date of discovery. During the inspection conducted in June 2011, the NRC inspection team reviewed the corrective actions associated with this finding and determined that adequate measures had not been established to correct this violation. Specifically, the NRC inspection team determined that QS 16.3 was revised to state that an initial review shall be conducted to determine whether a deviation or failure to comply is potentially associated with an SSH if it were to remain uncorrected. If the result of this review is positive, the initial reviewer shall document this determination, and the date of this determination shall be documented as the "Discovery Date." Contrary to 10 CFR 21.21(a)(1), the change to QS 16.3 continued to allow the initial evaluation to determine if a deviation or failure to comply is associated with SSH to be excluded from the 60-day evaluation period from the date of discovery. This item is identified as Nonconformance 99901387/2011-201-01.

With the exception of one nonconformance described below, the NRC inspection team concluded that the Shaw's quality assurance program policies and procedures complies with the applicable requirements of of Appendix B to 10 CFR Part 50. The NRC inspection team further concluded that Shaw personnel were implementing these policies and procedures effectively.

## REPORT DETAILS

1. 10 CFR Part 21 Program and Appendix B to 10 CFR Part 50 Program

   a. Inspection Scope

   The NRC inspection team reviewed Shaw's corrective actions for one violation, four nonconformances, and one unresolved item identified during the March 1–5, 2010, inspection as documented in Inspection Report No. 99901387/2010-201, dated May 22, 2010. The inspection team reviewed each of these items to verify compliance with the requirements of 10 CFR Part 21 and Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team reviewed the following Shaw policies and procedures, Shaw's response to Inspection Report No. 99901387/2010-201, dated May 13, 2010, the applicable corrective action reports, and supporting documentation:

   - SWSQAP 1-74A, "Standard Nuclear Quality Assurance Program," Section 2, "Quality Assurance Program," Revision B, dated June 1, 2009
   - Quality Standard (QS) 16.2, "Notifying Clients of Potentially Reportable Deficiencies under 10CFR50.55(e)," Revision B, dated January 12, 2010
   - QS 16.3, "Identifying and Reporting Defects and Failures To Comply under 10CFR21," Revision K, dated January 12, 2010
   - QS 16.3, "Identifying and Reporting Defects and Failures To Comply under 10CFR21," Revision L, dated May 11, 2010
   - QS 16.3, "Identifying and Reporting Defects and Failures To Comply under 10CFR21," Revision M, dated June 28, 2011
   - QS 18.1, "Quality Audit Program," Revision Q, dated July 14, 2000
   - QAD 18.1, "Quality Assurance Internal Audits," Revision P, dated July 07, 2010
   - QAD 18.1, "Quality Assurance Internal Audits," Revision Q, dated September 10, 2010
   - QAD 18.2, "Quality Audit Plans," Revision H, dated March 1, 2005
   - QAD 18.11, "Post Award QA Audits of Sellers and Site Contractors," Revision R, dated August 14, 2009
   - QAD 18.12, "QA Surveillances," Revision A, dated December 3, 2009
   - CAR 2010-04-29-558, "IR Item 99901387/2010-201-01, QS 16.3 Required Change for Compliance with 10 CFR 21.21(a)(1)," dated March 5, 2010
   - CAR 2010-03-05-469, "IR Item 99901387/2010-201-01, QS 16.3 Required Change for Compliance with 10 CFR 21.3," dated March 2, 2010

- CAR 2011-0167, “IR Item 99901387/2010-201-01, QS 16.3 Required Change for Compliance with 10 CFR 21.21(a)(1),” dated June 28, 2011

- CAR 2010-03-04-464, “IR Item 99901387/2010-201-02, Code Compliance with Design Specification and Evaluate Extent of Condition,” dated March 4, 2010

- CAR 2010-03-05-471, “IR Item 99901387/2010-201-03, Consistency between Regulatory Guides Revisions Used in Design Packages and DCD,” dated March 5, 2010

- CAR 2010-05-04-563, “IR Item 99901387/2010-201-03, References to Applicable Regulatory Guides in Design Packages and DCD,” dated May 4, 2010

- CAR 2011-159, “IR Item 99901387/2010-201-03, Consistency between Regulatory Guides Revisions Used in Design Packages and DCD Extent of Condition Review,” dated June 26, 2011

- CAR 2010-03-04-465, “IR Item 99901387/2010-201-04, Calibration Services with Walsh Engineering Services,” dated March 4, 2010

- CAR 2010-03-05-468, “IR Item 99901387/2010-201-05, Tracking and Timely Completion of Corrective Actions,” dated March 4, 2010

- CAR 2010-03-05-467, “IR Item 99901387/2010-201-06, Corrective Actions To Ensure Audit Findings Are Promptly Corrected,” dated March 4, 2010

- CAR 2010-03-05-472, “IR Item 99901387/2010-201-06, Implementation of Corrective Actions Related to Good Engineering Practices,” dated March 5, 2010

b. Observations and Findings

b.1 10 CFR Part 21

In 10 CFR 21.21(a)(1), the NRC states, in part, that licensees must “[e]valuate deviations and failures to comply to identify defects and failures to comply associated with substantial safety hazards as soon as practicable, and, except as provided in paragraph (a)(2) of this section, in all cases within 60 days of discovery, in order to identify a reportable defect or failure to comply that could create a substantial safety hazard, were it to remain uncorrected.” The regulation in 10 CFR 21.3, “Definitions,” defines “discovery” as “the completion of the documentation first identifying the existence of a deviation or failure to comply potentially associated with a substantial safety hazard within the evaluation procedures discussed in § 21.21(a).” In 10 CFR Part 21, the NRC defines “evaluation” as the process of determining whether a particular deviation could create a substantial hazard or determining whether a failure to comply is associated with a substantial safety hazard (SSH).

During the initial inspection performed on March 1–5, 2010, Shaw was cited for its implementing procedure, QS 16.3, not providing the required procedural guidance for including the evaluation of deviations and failures to comply

associated with SSH within the 60-day period after the date of discovery. On March 5, 2010, Shaw issued a corrective action report (CAR), CAR 2010-03-05-558, and revised QS 16.3, Revision K to address inspection report violation 99901387/2010-201-01. In its initial response to the Notice, dated May 13, 2010, Shaw stated, in part, that QS 16.3 was revised "to clarify the evaluation process and ensure the evaluation to identify a reportable defect and failure to comply that could create a substantial safety hazard, is done within 60 days from the time of discovery." During the June 27–28, 2011, inspection, the NRC inspection team reviewed QS 16.3 and determined that the changes included in QS 16.3, Revision L did not provide for the inclusion of the evaluation of deviations and failures to comply associated with SSH within the 60-day period from the date of discovery.

Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50 states that "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Shaw's SWSQAP 1-74A, Section 16, "Corrective Action," states, in part, that the corrective action program shall provide for prompt identification, documentation, classification, and correction of the conditions. Section 16 further states that corrective action taken to correct deficient conditions discovered by inspection, test, or audits shall be verified by reinspection, retesting, subsequent audits including corrective action audits, and the review of corrective action documentation to assure that corrective actions have been satisfactorily implemented. The area of concern shall be reaudited in a timely manner to assure that the corrective action has been accomplished.

Contrary to the above, QS 16.3 was not revised to include procedural guidance for including the evaluation of deviations and failures to comply associated with SSH within the 60-day period after the date of discovery. Specifically, the NRC inspection team determined that QS 16.3 was revised to state, in part, that "the Initial Reviewer shall conduct a review to determine whether the condition meets the criteria for a deviation or failure to comply (refer to definitions in Section 4.1) and if the criteria are met, determine if the condition is potentially associated with a SSH if it were to remain uncorrected. If the result of this review are positive, the Initial Reviewer shall document this determination on the Initiation/Review/Evaluation Form (attachment 3.3, Evaluation Required – Yes"). The date of this determination shall be documented as the "Discovery Date." The change made to QS 16.3 allowed the evaluation of deviations and failures to comply to remain outside of the 60-day evaluation period required by 10 CFR 21.21(a)(1).

This issue is identified as Nonconformance 99901387/2011-201-01.

Prior to the exit meeting for the June 27–28, 2011, inspection, Shaw revised QS 16.3, Revision L to state that, for deviations or failures to comply, "the Initial Reviewer shall document the date of receipt of the condition for review as the 'Discovery Date' which will constitute the start of the mandatory 60 day evaluation period. The Initial Reviewer shall conduct a review of the reported

condition(s) to determine whether the condition(s) meet the criteria for a deviation or failure to comply."

b.2 Design Control Requirements and Implementation

During the initial inspection performed on March 1–5, 2010, the NRC inspection team determined that Shaw was failing to correctly translate the correct revisions or editions of industry standards and regulatory guides (RGs) as specified in Westinghouse Electric Company (WEC) specifications and required by Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection identified errors in the following design documents:

- APP-CC01-Z0-026, "Design Specification, Safety-Related Mixing and Delivering Concrete," Revision 2, dated February 11, 2010, references American Society for Testing and Materials (ASTM) C 150-09, "Standard Specification for Portland Cement." Westinghouse's APP-GW-G1X-001, "Governing AP1000 Codes and Standards," Revision 4, requires the use of ASTM C 150-02. In addition, this specification invokes the use of RG 1.29, "Seismic Design Classification," Revision 4, issued March 2007, while the AP1000 design control document (DCD), Revision 17, requires the use of RG 1.29, Revision 3, issued September 1978.

- APP-CC01-Z0-027, "Design Specification, Safety-Related Concrete Testing Services," Revision 1, dated January 26, 2010, references ASTM C 150-08. Westinghouse's APP-GW-G1X-001, Revision 4, requires the use of ASTM C 150-02. In addition, this specification invokes the use of RG 1.29, Revision 4 while the AP1000 DCD, Revision 17 requires the use of RG 1.29, Revision 3.

- APP-G1-EWC-002, "Calculation, Development of Power Cable Ampacities," Revision 1, dated January 18, 2009, references ICEA P-54-440, "Ampacities of Cables Installed in Cable Trays," 1994 edition. Westinghouse's APP-GW-G1X-001, Revision 4, requires the use of ICEA P-54-440, 1986 edition.

These items were identified as examples of Nonconformance 99901387/2010-201-02.

The NRC inspection team reviewed Shaw's corrective actions to this nonconformance. In response to the above, Shaw initiated the following CARs:

- CAR 2010-03-04-464, Standards Effective Years Listed within Specifications Are Contrary to WEC Codes and Standards Specification, dated March 4, 2010. The NRC inspection team verified that Shaw prepared a design change package to obtain authorization to utilize updated codes and standards that are required to establish relevant design document requirements. In the end, Westinghouse revised APP-GW-G1X-001 and issued Revision 6 on November 3, 2010, that included a rewrite of the introductory statement that categorized the codes and standards into four groups and added/removed applicable

codes and standards and removed certain references to revisions of standards to become congruent with the AP1000 DCD, Revision 17. Additional modifications to the governing AP1000 codes and standards were issued on January 28, 2011, to align the DCD with APP-GW-G1X-001, Revision 6. This corrective action took much longer than the completion date of May 11, 2010, given to the NRC but included a much more detailed and encompassing review of design documents and a much more comprehensive response.

In addition, an extent of the condition was performed to include a review of potentially affected instrumentation and control, mechanical, piping, civil, and electrical specifications, calculations, and drawings and verification that all documents were consistent with APP-GW-G1X-001, Revision 6.

- CAR 2010-03-05-471, Specifications Reference Regulatory Guide Revision that Does Not Match DCD, dated March 5, 2010. The NRC inspection team verified that Shaw revised calculations in APP-GW-G1X-001, Revision 4 that referenced RG 1.29, Revision 4 to be consistent with the AP1000 DCD, Revision 17 that requires the use of RG 1.29, Revision 3. In addition, the inspection team verified that Shaw performed a review of the extent of this condition. Initially, the review performed by Shaw was determined to be inadequate by the Shaw QA organization, and CAR 2011-0159 was issued to correct this condition. Eventually, Shaw performed 100-percent reviews of applicable civil and electrical design documents and sample mechanical and instrumentation and control documents. The NRC verified that these actions were taken and documented in accordance with Shaw's Corrective Action Program.

The NRC inspection team determined that the corrective actions implemented in response to Nonconformance 99901387/2010-201-02 were adequate and complete.

b.3 Procurement Document Control Requirements and Implementation

During the initial inspection performed on March 1–5, 2010, the NRC inspection team questioned Shaw's determination to not include references to applicable RGs for soil testing as it relates to the early site permit for Vogtle Electric Generating Plant (Vogtle), Units 3 and 4 as specified in WEC specifications and required by Criterion IV, "Procurement Document Control," of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection identified that Subcontract 132175-1004-1421 procures soil and concrete testing services in support of the Vogtle Units 3 and 4 Project. Subcontract 132175-1004-1421 requires that work related to nuclear safety shall be performed in accordance with QA requirements defined in Shaw AP1000 Project Specification SVO-000-T1-001. The NRC inspection team observed that SVO-000-T1-000 references ASME NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications," 1994 Edition with 1995 Addenda, 79 ASTM standards, and 6 American Concrete Institute (ACI) standards related to soil and concrete testing of engineering fill material and building concrete installations over the fill material. In addition, the NRC inspection team observed that SVO-000-T1-001 provides a cross-reference to NRC RG 1.132, "Site

Investigations for Foundations of Nuclear Power Plants," Revision 2, issued October 2003, and RG 1.138, "Laboratory Investigations of Soils and Rocks for Engineering Analysis and Design of Nuclear Power Plants," Revision 2, issued December 2003.

These RGs contain technical requirements from ASTM and ACI that do not appear to be addressed in the purchase order (PO). The NRC inspection team observed that SVO-000-T1-001 did not reference these RGs and, therefore, may not have imposed RGs 1.132 and 1.138 in Subcontract 132175-1004-1421. During the exit meeting conducted with Shaw management, the NRC inspection team requested that Shaw determine whether or not SNC had committed to these RGs as part of its early site permit and/or combined license application, and, if so, whether the technical requirements are adequately covered in the PO. This is identified as Unresolved Item 99901387/2010-201-03.

The NRC inspection team reviewed Shaw's evaluation of this unresolved item. In response to the above, Shaw determined that SV0-0000-T1-001 does not include the investigation phase relating to geologic settling and evaluation of backfill. Investigation of alternative borrow source has been and continues to be performed as part of SV0-0000-T1-001 specified testing but does not constitute "foundation investigation"; therefore, RG 1.132 does not apply. In addition, the scope of SV0-0000-T1-001 does not include "determining soil and rock properties and characteristics needed for engineering and design for foundations and earthworks for nuclear power plants" as defined in the "Purpose" section of RG 1.138; therefore, Shaw determined that RG 1.138 does not apply as well.

The NRC inspection team determined that the evaluation and determination that RG 1.132 and RG 1.138 are not within the scope of SV0-0000-T1-001 is an acceptable and complete response to Unresolved Item 99901387/2010-201-03.

b.4 Procurement Document Control Requirements and Implementation

During the initial inspection performed on March 1–5, 2010, the NRC inspection team determined that Shaw accepted calibration services identified in a safety-related PO from a safety-related supplier without performing an audit of the supplier's QA program. Specifically, the NRC inspection team reviewed PO 546009 for Essco Calibration Laboratory safety-related calibration services. The PO required an Appendix B to 10 CFR Part 50 QA program and compliance with 10 CFR Part 21. In response to the NRC inspection team's request for the audit report of this supplier, the inspection team was told that an audit had not been performed and an audit was not planned for this supplier. Instead, the NRC inspection team was provided a copy of a certificate from the American Association for Laboratory Accreditation as Shaw's justification for placing a safety-related PO with Essco Calibration Laboratory without performing a QA audit. Placing a safety-related PO without performing a supplier qualification audit is not consistent with the requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. This item was identified as Nonconformance 99901387/2010-201-04.

The NRC inspection team reviewed Shaw's corrective actions to this nonconformance. In response to the above, Shaw initiated CAR 2010-03-04-465 that determined PO 546009 as only requiring commercial calibration services, allowing commercially accredited labs to perform the services being requested. The PO was revised to remove Appendix B to 10 CFR Part 50, ASME NQA-1, and 10 CFR Part 21 requirements from the PO. In addition, Metrology Standard (MS) 1.9 was revised to address procurement of commercial-grade service from commercially accredited laboratories that are qualified solely based on accreditation by NAVLAP, the American Association for Laboratory Accreditation, or other accreditation bodies recognized by NAVLAP. Shaw also revised MS 1.5 to ensure that Appendix B to 10 CFR Part 50 requirements are applied to procurement of safety-related services. Finally, Shaw verified that PO 546009 was the only request for safety-related calibration services awarded for Vogtle, Units 3 and 4 and Virgil C. Summer Nuclear Station, Units 2 and 3.

The NRC inspection team reviewed these corrective actions and verified that they were effectively implemented. The inspection team verified that these corrective actions adequately provided for source verification through external audits of safety-related suppliers in response to Nonconformance 99901387/2010-201-04.

b.5 Internal Audits

During the initial inspection performed on March 1–5, 2010, the NRC inspection team observed that Shaw combined the internal and external audit programs into a single, self-contained, manually implemented program. During interviews with Shaw personnel, the NRC inspection team learned that all audit documents are scanned into Shaw's "Documentum" record retention database upon receipt. The original copies are retained by the QA Manager for audits, manually entered into a log, and filed until all issues are resolved. Open items are documented, tracked, evaluated, and resolved independent of Shaw's corrective action program. A separate "Audit Finding Report" is prepared and presented to Shaw management annually. Contrary to external and internal audit requirements, as well as Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR Part 50, there are no implementing procedures governing audit activities including scheduling, implementing, and the tracking of audit open items to closure. In addition, during preparation for its 2009 internal QA audit, Shaw determined that the 2008 internal QA audit of the Shaw Charlotte Office Nuclear Project Activities was not performed. The 2008 annual "Audit Finding Report" did not identify that the 2008 internal QA audit of the Shaw Charlotte Office Nuclear Project Activities was not performed. These issues were identified as Nonconformance 99901387/2009-201-05.

The NRC inspection team reviewed Shaw's response to this nonconformance that included initiating CAR 2010-03-04-468. This CAR resulted in revising QA Directives (QADs) 7.17, 18.1, and 18.11 to provide detailed and specific actions to address delinquent responses to internal audit findings; and to proceduralize requirements for tracking the status of responses to audit findings, the status of corrective and preventive actions, and audit finding closures. However, the NRC inspection team noted that Shaw's initial response to Nonconformance 99901387/2010-201-05 did not address missed internal audits,

how scheduling of audits will be controlled, and how the existing Shaw procedures will prevent recurrence of internal audits being missed. Shaw noted that its review of this nonconformance indicated that the 2008 internal QA audit was an isolated incident and was not a result of procedural deficiencies; however, QAD 18.1 was enhanced to include quarterly updates of the annual audit schedule and to post the audit schedule on the ShawNet home page. The procedural changes included enhancements for audit scheduling that will provide sufficient controls and heightened awareness of audit scheduling needs and prevent missing future internal QA audits.

The NRC inspection team reviewed these corrective actions and verified that they were effectively implemented. The inspection team verified that these corrective actions were sufficient to provide for audit scheduling and implementation, and to track and ensure timely closing of audit findings in response to Nonconformance 99901387/2010-201-05.

b.6 Corrective Actions

During the initial inspection performed on March 1–5, 2010, the NRC inspection team observed that QAD 18.1 stated, in part, that an auditor shall evaluate each response to verify that reported conditions have been appropriately addressed as to cause, extent of conditions, corrective action, and action to prevent recurrence; and that the timeframes specified for completion of committed actions are reasonable and appropriate for the reported conditions. However, QAD 18.1 does not require a CAR to be opened to address internal audit findings, and, as such, the responses are not evaluated and tracked consistent with QA 16.5. In interviews with Shaw staff, the NRC inspection team was informed that, while Shaw performs a casual analysis for internal audit findings when required, these casual analyses are not done to the same level of rigor as that required in QS 16.5 for significant conditions adverse to quality.

In addition, the NRC inspection team observed that corrective actions associated with internal audit findings are not implemented in a timely fashion. QAD 18.1 prescribes that audit reports shall include the dates by which replies are due and that the dates shall not exceed 30 days from the date of the audit report. The lead auditor shall monitor the due dates for responses to audit observations, follow up on delinquent responses, and issue a written delinquency notice when the due dates have been exceeded by more than 7 days. The NRC inspection team noted that no additional measures are in place to ensure that the corrective actions from internal audit findings are received and promptly corrected as required by regulations.

The NRC inspection team also observed that the 2007 and the 2009 internal QA audits both identified the same issues with engineering practices and attention to detail, indicating that the corrective actions for the 2007 internal QA audit were not effectively implemented. In addition, the NRC inspection team determined that a CAR (CAR 2009-03-19-85) was closed based on addressing the related hardware issue rather than addressing and correcting Shaw's failure to issue a Nonconformance and Disposition Report prior to correcting a deficiency.

These items were identified as Nonconformance 99901387/2010-201-06.

The NRC inspection team reviewed Shaw's response to Nonconformance 99901387/2010-201-06 that included initiating CAR 2010-03-05-467 to further revise QAD 18.1 to address audit-identified conditions affecting quality and significant conditions affecting quality consistent with Criterion XVI of Appendix B to 10 CFR Part 50. The NRC inspection team verified that conditions affecting quality and significant conditions affecting quality were added to the procedure, as well as sufficient guidance for evaluating each audit finding for their effects on quality consistent with Criterion XVI of Appendix B to 10 CFR Part 50.

With regard to the timely response to audit findings, Shaw indicated that QAD 18.1 had been revised to require more rigorous follow-up and actions for delinquent corrective actions. The inspection team reviewed QAD 18.1 and verified that sufficient guidance exists to address audit items in a timely manner.

Shaw initiated CAR 2010-03-05-472 to reevaluate the corrective actions taken for CAR 2009-03-19-85, which was closed based on addressing the related hardware issue rather than addressing and correcting Shaw's failure to issue a Nonconformance and Disposition Report prior to correcting a deficiency. Shaw's reevaluation determined that the cause for not issuing a Nonconformance and Disposition Report prior to correcting a deficiency was an oversight and that procedural guidance for the Control of Nonconforming Materials, Parts, or Components and the Corrective Action Program provides adequate guidance for issuing Nonconformance and Disposition Reports. The NRC inspection team reviewed applicable procedures and confirmed adequate guidance is available.

The NRC inspection team determined that the corrective actions implemented in response to Nonconformance 99901387/2010-201-06 were adequate and complete.

c. Conclusion:

With the exception of Nonconformance 99901387/2011-201-01, the NRC inspection team found that the portions of Shaw's corrective action program reviewed as part of this inspection met the requirements of Criterion XVI of Appendix B to 10 CFR Part 50. The NRC inspection team issued Nonconformance 99901387/2011-201-01 for Shaw's failure to effectively correct procedural guidance for the timely evaluation of deviations and failures to comply associated with substantial safety hazards consistent with the requirements of 10 CFR 21.21(a).

2. Entrance and Exit Meetings

On June 27, 2010, the NRC inspection team discussed the scope of the inspection with Mr. Dennis Dreyfus, Shaw Nuclear Services, Vice President Quality, and with the Shaw management, engineering, and administrative staff. On June 28, 2010, the NRC inspection team presented the inspection results and observations during an exit meeting with Dennis Dreyfus, Shaw Nuclear Services, Vice President Quality, and other Shaw management and engineering staff. Lists of entrance and exit meeting attendees are listed in the attachment to this report.

## ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES

| Name | Title | Affiliation | Entrance | Exit | Interviewed |
|---|---|---|---|---|---|
| Geoff Grant | Director, QA | Shaw Nuclear | X | X | X |
| Hal Thornberry | VP Nuclear Construction | Shaw Nuclear | X | X | |
| Chuck Richards | Sr. Director Construction | Shaw Nuclear | X | X | X |
| Rick Stevenson | Chief Engineer—QA Stoughton | Shaw Nuclear | X | | X |
| Randy Vigor | Sr. Director Operations | Shaw Nuclear | X | X | |
| James Carr | HUP Program Manager | Shaw Nuclear | X | X | |
| Bruce Williams | Compliance | Shaw Nuclear | X | | |
| Monte Velardi | APM | Shaw Nuclear | X | | |
| Rob Otis | Office QA Manager | Shaw Nuclear | X | X | X |
| Kimberly Harsley | QA Specialist/CAR Coordinator | Shaw Nuclear | X | X | X |
| John M. Oddo | Nuclear Licensing Manager | Shaw Nuclear | X | X | X |
| Virgil Barton | Sr. VP QA/Lic/EHS | Shaw Nuclear | X | X | |
| Richard Fay | Ops/QA Director | Shaw Nuclear | | X | X |
| David Jantasi | Director Quality Programs | Shaw Nuclear | X | | X |
| Robert Prato | Team Leader | U.S. NRC | | | X |
| Eric Fries | Inspector | U.S. NRC | | | X |
| Roger Lanksburry | Inspector | U.S. NRC | | | X |

2. INSPECTION PROCEDURES USED

IP 43002, “Routine Inspections of Nuclear Vendors”

IP 36100, “Inspection of 10 CFR Parts 21 and 50.55(e) Programs for Reporting Defects and Noncompliance”

4. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

One previous NRC inspections had been performed at Shaw’s facility in Charlotte, NC, prior to this inspection.

The following items were found during the previous inspection:

| Item Number | Status | Type | Description |
|---|---|---|---|
| 99901387/2010-201-01 | Closed | NOV | 21.21 |
| 99901387/2010-201-02 | Closed | NON | Criterion III |
| 99901387/2010-201-03 | Closed | URI | Criterion IV |
| 99901387/2010-201-04 | Closed | NON | Criterion VII |
| 99901387/2010-201-05 | Closed | NON | Criteria XVIII and V |
| 99901387/2010-201-06 | Closed | NON | Criterion XVI |

The following items were found during this inspection:

| Item Number | Status | Type | Description |
|---|---|---|---|
| 99901387/2011-201-01 | Closed | NON | Criterion XVI |