

June 12, 2014

Mr. Charles Ginn, Quality Assurance Manager
Westinghouse Electric Company
Carolina Energy Solutions
244 East Mount Gallant Road
Rock Hill, SC 29730

SUBJECT: WESTINGHOUSE CAROLINA ENERGY SOLUTIONS—U.S. NUCLEAR
REGULATORY COMMISSION VENDOR INSPECTION REPORT
NO. 99901438/2014-201

Dear Mr. Ginn:

On April 28 to May 2, 2014, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Westinghouse Electric Company (WEC) Carolina Energy Solutions (CES) facility in Rock Hill, SC. The purpose of the inspection was to assess CES's compliance with the provisions of selected portions 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," and 10 CFR Part 21, "Reporting of Defects and Noncompliance."

During this inspection, the NRC staff looked at documentation and controls related to fabrication activities associated with the inspections, tests, analyses, and acceptance criteria (ITAAC) from Revision 19 of the approved AP1000 design certification document. Specifically, these activities were associated with ITAAC 2.1.02.02a, 2.1.02.02b, 2.1.02.03a, and 2.1.02.03b related to welded installation and nondestructive examination in accordance with the requirements of Section III of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code. The following were reviewed: 1) 1-inch special bore bosses, wide and narrow range thermowell bosses, and pressurizer spray half cap scoop components on the reactor coolant loop piping spool pieces, and 2) the buttering of the reactor coolant pump (RCP) suction casing to dilute the sulfur content in the RCP base material. The NRC inspection team did not identify any findings associated with the ITAAC contained in Section 4 of the attachment to this report. This NRC inspection report does not constitute NRC endorsement of your overall quality assurance (QA) or Part 21 programs.

During this inspection, the inspectors found that the implementation of your QA program failed to meet certain NRC requirements imposed on you by your customers. The first finding involves failure to assure that applicable regulatory requirements, design bases, and other requirements, which are necessary to assure adequate quality, are suitably included or referenced in the documents for procurement of material, equipment, and services for penetrant materials. The second finding documents the failure to promptly identify and correct a condition adverse to quality related to the use of commercial calibration services for safety-related applications. The specific findings and references to the pertinent requirements are identified in the enclosures to this letter. Please provide a written statement or explanation within 30 days from the date of this

letter in accordance with the instructions specified in the enclosed Notice of Nonconformance. 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 enclosure(s), and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (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/

Edward H. Roach, Chief
Mechanical Vendor Inspection Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901438

Enclosure:

1. Notice of Nonconformance
2. Inspection Report 99901438/2014-201

letter in accordance with the instructions specified in the enclosed Notice of Nonconformance. 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 enclosure(s), and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (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/

Edward H. Roach, Chief
Mechanical Vendor Inspection Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901438

Enclosure:

1. Notice of Nonconformance
2. Inspection Report 99901438/2014-201

DISTRIBUTION:

ASakadales
ERoach
KKavanagh
RRasmussen
ginncd@westinghouse.com

ADAMS ACCESSION No.: ML14155A399

*Concurred via email

NRO-002

OFFICE	NRO/DCIP/MVIB	NRO/DCIP/MVIB	NRO/DE/MCB	RII/DCI/CIB3
NAME	MAnderson*	ABelen*	EReichelt*	PCarman*
DATE	06/03/2014	06/03/2014	06/03/2014	06/03/2014
OFFICE	NRO/DCIP/MVIB	NRO/DCIP	NRO/DCIP/MVIB	
NAME	SCrane*	TFrye*	ERoach*	
DATE	06/04/2014	06/02/2014	06/12/2014	

OFFICIAL RECORD COPY

NOTICE OF NONCONFORMANCE

Carolina Energy Solutions
Rock Hill, SC

Docket No. 99901438
Report No. 2014-201

Based on the results of the U.S. Nuclear Regulatory Commission (NRC) inspection conducted at Westinghouse Carolina Energy Solutions (CES) at the Rock Hill, SC, facility from April 28, 2014, through May 2, 2014, certain activities were not conducted in accordance with NRC requirements, which were contractually imposed on CES by its customers or NRC licensees.

- A. Criterion IV, "Procurement Document Control," 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, "measures shall be established to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the applicant or by its contractors or subcontractors."

APP-PL01-Z0-201, revision 1, "Reactor Coolant Loop Piping Fabrication Specification Including Welding," governs the production of the reactor coolant loop piping for the Vogtle and Summer projects. APP-PL01-Z0-201 invokes the 1998 Edition through the 2000 Addenda of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV).

ASME B&PV Code Section V, "Nondestructive Examination," Subsection A, "Nondestructive Examination Methods," Article 6, "Liquid Penetrant Examination," Mandatory Appendix II, "Control of Contaminants for Liquid Penetrant Examination," Paragraph 642 requires all penetrant materials used for examining austenitic steel be analyzed individually for total halogen content in accordance with Annex 4 of SE-165, "Standard Test Method for Liquid Penetrant Examination." Alternatively, the material may be decomposed and analyzed in accordance with SE-165, Annex 2 for chlorine and SE-165, Annex 3 for fluorine.

Contrary to the above, as of May 2, 2014, CES failed to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services. Specifically, CES failed to ensure that testing of the penetrant materials performed by NLS Analytical Services, Inc., under Purchase Order (PO) 4500619362, was performed in accordance with ASME SE-165.

This issue has been identified as Nonconformance 99901438/2014-201-01.

- B. Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50, states, in part, that "Measures shall be established to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."

Carolina Energy Solutions' "Quality Assurance Program Manual," Revision 6, dated February 22, 2013, Section 16, states that "measures 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.”

Contrary to the above, as of May 2, 2014, Carolina Energy Solutions failed to promptly identify and correct a condition adverse to quality. Specifically:

1. The 2013 Nuclear Procurement Issues Committee (NUPIC) audit of CES identified that CGQP-7.0, Control of Purchased Material, Equipment, and Services, allows for the acceptance of commercial calibration services for use in safety-related applications without performing dedication. CES opened Issue Report 13-074-P001 to revise the procedure. However, CES had issued POs for commercial calibration services to be used in safety-related applications without performing dedication before the procedure was corrected and did not evaluate the effect of using any commercially calibrated equipment on basic components, including items that had shipped.
2. The CES 2013 Internal Audit performed by Global QA Inc. identified that CGQP-18.0, Audits, allows for the acceptance of commercial calibration services for use in safety-related applications without performing dedication. CES failed to open an issue report to correct the procedure, issued POs for commercial calibration services to be used in safety-related applications without performing dedication, and did not evaluate the effect of using any commercially calibrated equipment on basic components, including items that had shipped

This issue has been identified as Nonconformance 99901438/2014-201-02.

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Chief, Mechanical Vendor Inspection Branch, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Nonconformance. 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 noncompliances, and (4) the date when your corrective action will be completed. Where good cause is shown, consideration will be given to 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 document system (ADAMS), 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 withholding of such material, 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.

Dated this 12th day of June 2014.

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

Docket No.: 99901438

Report No.: 99901438/2014-201

Vendor: Westinghouse Carolina Energy Solutions
244 East Mount Gallant Road
Rock Hill, SC 29730

Vendor Contact: Mr. Charles Ginn, Quality Assurance Manager
ginncd@westinghouse.com

Nuclear Industry Activity: Westinghouse Carolina Energy Solutions (CES), located in Rock Hill, SC, has been providing shop fabrication, production and field services to erect, modify, or replace piping, vessels, and plant components for the nuclear industry since 1998. CES's scope of supply includes fabrication, installation, assembly, nondestructive examination (NDE), and welding of ASME Class 1, 2 & 3 components.

Inspection Dates: April 28 – May 2, 2014

Inspectors: Samantha Crane NRO/DCIP/MVIB
Aixa Belen NRO/DCIP/MVIB
Mary Anderson NRO/DCIP/MVIB
Eric Reichelt NRO/DE/MCB
Paul Carman R-II/DCI/CIB3

Approved by: Edward H. Roach, Chief
Mechanical Vendor Inspection Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

EXECUTIVE SUMMARY

Carolina Energy Solutions
99901438/2014-201

The U.S. Nuclear Regulatory Commission (NRC) conducted this vendor inspection to verify that Westinghouse Carolina Energy Solutions (hereafter referred to as CES), implemented an adequate quality assurance program that complies with the requirements 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," and 10 CFR Part 21 "Reporting of Defects and Noncompliance."

The NRC staff looked at documentation and controls for fabrication activities associated with the inspections, tests, analyses, and acceptance criteria (ITAAC) from revision 19 of the approved AP1000 design certification document. Specifically, these activities were associated with ITAAC 2.1.02.02a, 2.1.02.02b, 2.1.02.03a, and 2.1.02.03b related to welded installation and nondestructive examination in accordance with the requirements of Section III of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The following were reviewed: 1) 1-inch special bore bosses, wide and narrow range thermowell bosses, and pressurizer spray half cap scoop components on the reactor coolant loop (RCL) piping spool pieces, and 2) the buttering of the reactor coolant pump (RCP) suction casing to dilute the sulfur content in the RCP base material. The inspectors reviewed 10 CFR Part 21, Order Entry, Oversight of Contracted Activities, Control of Special Processes, Control of Measuring and Test Equipment, Nonconformance/Corrective Action Program, and ITAAC.

The following regulations served as the bases for this NRC inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21

Inspection procedures (IP) that were used included: IP 43002, "Routine Inspections of Nuclear Vendors" dated July 15, 2013, and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance" dated February 13, 2012.

The results of the inspection are summarized below.

Oversight of Contracted Activities

The inspectors issued NON 99901438/2014-201-01 for CES's failure to ensure that testing of the penetrant materials performed by NLS Analytical Services, Inc., under Purchase Order 4500619362, was performed in accordance with ASME SE-165. With the exception of the above cited nonconformance, the inspectors found that CES's oversight of contracted activities met the requirements of Criteria IV, "Procurement Document Control"; VII, "Control of Purchased Material, Equipment, and Services"; and XVIII, "Audits," of Appendix B to 10 CFR 50.

Nonconformance/Corrective Action

The inspectors issued NON 99901438/2014-201-02 for CES's failure to promptly identify and correct a condition adverse to quality related to the use of commercially calibrated equipment for safety-related applications. With the exception of the above cited nonconformance, the

inspectors determined that the implementation of CES's programs for control of nonconforming material, parts, or components and corrective action were consistent with the regulatory requirements in Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50.

Other Inspection Areas

The inspectors determined that CES is implementing its programs for 10 CFR Part 21, order entry, control of special processes, control of measuring and test equipment, nonconforming materials parts and components, and corrective actions in accordance with the applicable regulatory requirements of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and activities observed, the inspectors also determined that CES is implementing its policies and procedures associated with these programs. No findings of significance were identified.

REPORT DETAILS

1. 10 CFR Part 21 Program

a. Inspection Scope

The inspectors reviewed Carolina Energy Solutions' (CES's) policies and implementing procedures that govern its Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," program to verify that the requirements had been effectively implemented for evaluating deviations and failures to comply. The inspectors reviewed CES's procedures that govern corrective actions, the control and correction of nonconforming items, as well as interviewed quality assurance staff members and engineers, to verify an adequate and direct connection to the 10 CFR Part 21 program, and compliance with regulatory requirements. Additionally, the inspectors reviewed and evaluated postings for compliance with 10 CFR 21.6, "Posting Requirements."

The documents reviewed by the inspectors are included in the attachment to this inspection report.

b. Observations and Findings

The inspectors reviewed CES procedure CGQP 16.1 "10 CFR 21 Notification," Revision 0, dated June 19, 2012 and verified that the procedure addressed the requirements of 10 CFR 21.21(a) with respect to the timelines for performing an evaluation and reporting, and the responsibilities of the responsible officer; however, the procedure did not provide procedural steps that described how to evaluate deviations or failures to comply to determine if they are a defect or failure to comply associated with a substantial safety hazard. At the time of the inspection, the inspectors noted that CES had not performed any evaluations or issued any Part 21 reports. Based on the sample of nonconformance reports and corrective action and "Discrete Issue/Suggestion for Improvement" reports reviewed, the inspectors did not find any examples that should have been evaluated or reported under the Part 21 requirements. As a result of the inspection, CES wrote Discrete Issue/Suggestion for Improvement Number 100009893 related to its 10 CFR Part 21 evaluation procedure. This issue constitutes a nonconformance of minor significance and is not subject to formal enforcement action.

c. Conclusions

The inspectors determined that CES appropriately translated the requirements of 10 CFR Part 21 into implementing procedures and, for those activities that the inspectors reviewed, implemented them in accordance with CES's procedures.

2. Order Entry

a. Inspection Scope

The inspectors reviewed CES's policies and procedures governing the translation of technical requirements and design bases into specifications, drawings, procedures, and instructions to verify compliance with the requirements of Criterion III, "Design Control," 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 inspectors reviewed the AP1000 design certification document and associated Westinghouse Specifications for the installation of thermowell boss and pipe scoop components in the AP1000 reactor coolant loop piping for V.C. Summer Unit 2, Vogtle Units 3 and 4, and the buttering of the reactor coolant pump casings for V.C. Summer Units 2 and 3. The NRC inspection team interviewed personnel and verified that Westinghouse technical and quality requirements were properly translated into the preparation of purchase orders, Project Quality Plans, Project Instructions, welding procedures, and weld travelers. In addition, the NRC inspection team verified that the materials of construction conformed to the appropriate material specification identified.

The NRC inspection team noted that Westinghouse provided the manufacturing drawings to CES and CES reviewed them before starting the work. After the review, CES sent any changes or recommendations about the drawings to Westinghouse for approval and incorporation in the new revision of the drawings. The NRC inspection verified that these changes were performed in accordance with the approved procedures and processes.

The documents reviewed by the inspectors are included in the attachment to this inspection report.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

Based on the samples reviewed, the inspectors determined the sampled requirements set forth in the customer purchase specifications were effectively translated into specifications, drawings, procedures, and instructions.

3. Oversight of Contracted Activities

a. Inspection Scope

The inspectors reviewed CES’s policies and procedures for the oversight of contracted activities to verify compliance with Criteria IV, “Procurement Document Control”; VII, “Control of Purchased Material, Equipment, and Services”; and XVIII, “Audits,” of Appendix B to 10 CFR Part 50. The inspectors evaluated CES’s procurement controls and procedures established in CES’s Quality Assurance Program Manual and implementing procedures.

The inspectors reviewed a sample of purchase orders for calibration services, testing services, welding consumables, and material to ensure they included the regulatory requirements, design basis, and other applicable requirements in procurement documents for safety-related components for the U.S. operating reactors.

The inspectors also reviewed a sample of external audits and CES’s acceptance of those audits, to verify that CES appropriately qualified its suppliers. The inspectors reviewed the audits to verify that scheduled audits were performed using checklists that

included an audit plan, audit results, documented objective evidence, and a review of audit results by responsible management, that the audits were performed at the minimum frequency as specified in the regulatory and CES requirements, and that follow-up action was taken where indicated.

The documents reviewed by the inspectors are included in the attachment to this inspection report.

b. Observations and Findings

APP-PL01-Z0-201, "Reactor Coolant Loop Piping Fabrication Specification Including Welding," revision 1, governs the production of the reactor coolant loop piping for the Vogtle and Summer projects. The inspectors reviewed APP-PL01-Z0-201 to identify the applicable quality and technical requirements and verify that they were appropriately considered and included in procurement activities. APP-PL01-Z0-201 invokes, in part: 10 CFR Part 21, 10 CFR 50 Appendix B, ASME B&PV Code, APP-GW-VLR-002 Revision 1, "Technical Requirements of Stainless Steels, Nickel-Base Alloys, Carbon and Low Alloy Steels, and Welding Materials for the AP1000," and APP-GW-Z0-602, "AP1000 Cleaning and Cleanliness Requirements of Equipment for Use in Nuclear Steam Supply and Associated Systems."

ASME B&PV Code Section V, Article 6, Appendix II-642 requires all penetrant materials used for examining austenitic steel be analyzed individually for total halogen content in accordance with Annex 4 of SE-165, "Standard Test Method for Liquid Penetrant Examination." Alternatively, the material may be decomposed and analyzed in accordance with SE-165, Annex 2 for chlorine and SE-165, Annex 3 for fluorine.

APP-GW-VLR-002, APP-GW-Z0-602, and Project Instruction 4401541-02 all require non-metallic material that comes into contact with the reactor coolant loop piping, including penetrant material, to be analyzed before use and set a maximum halide limit of 200 parts per million (ppm).

The inspectors reviewed Purchase Order (PO) 4500619362 to NSL Analytical Services, Inc., for the chemical analysis of penetrant materials and identified that CES failed to ensure that the testing of the penetrant material was performed to ASME SE-165. This issue was identified as Notice of Nonconformance (NON) 99901438/2014-201-01.

Where a satisfactory substitute material free of such contaminants cannot be found, APP-PL01-Z0-201 requires all surfaces, crevices, blind holes, etc., to be thoroughly cleaned to remove all of the contaminant prior to any operation involving elevated temperatures, and Westinghouse approval of the cleaning procedure and the inspection procedure for removal of the contaminant. It also requires approved procedures to meet APP-GW-Z0-602, which states that the cleaning procedure must contain the chemistry of the non-product material and proof that the detrimental material can be removed by cleaning. APP-GW-Z0-602 requires one-time qualification of the cleaning method on a representative sample using a swipe test and chemical analysis by ion chromatography. The swipe test procedure is described in Attachment 5 of PI 4401541-02.

The inspectors reviewed PO 4500618184 to RJ Lee Group Inc., for the qualification of the swipe test procedure and identified that the CES failed to specifically require the testing be done by ion chromatography. However, since the test report identified that

the testing was performed by ion chromatography, this failure constitutes a nonconformance of minor significance and is not subject to formal enforcement action.

c. Conclusions

With the exception of NON 99901438/2014-201-01 for failure to require testing be performed per appropriate technical requirements, the inspectors concluded that CES adequately approved and controlled activities performed by its suppliers consistent with the regulatory requirements of Criteria IV, VII, and XVIII of Appendix B to 10 CFR Part 50. Based on the documentation reviewed, the NRC inspectors determined that CES was effectively implementing its quality assurance manual and the associated procedures.

4. Control of Special Processes

a. Inspection Scope

The inspectors reviewed CES's policies and procedures for the control of special processes to verify compliance with the regulatory requirements of Criterion IX, "Control of Special Processes," in Appendix B to 10 CFR Part 50.

To verify that procedures that govern the control of special processes had been established and implemented, the inspectors performed shop surveillances, personnel interviews, and procedural reviews. The inspectors performed a shop surveillance of the Welding and Material Control area, and interviewed shop managers and inspectors to gain an understanding of the implementation of the quality assurance process. The inspectors reviewed welding and nondestructive examination (NDE) documentation in the Quality Assurance Data Package for the AP1000 Reactor Coolant Pump (RCP) Casings. The inspectors also reviewed a sample of welding and NDE documents, weld procedures, welding procedure specifications (WPS), procedure qualification records (PQR), and welder qualifications associated with the fabrication activities of the AP1000 RCP Casings and Reactor Coolant Loop (RCL) piping. The inspectors reviewed shop travelers, process sheets, instructions, and checklists and reviewed CES's controls for traceability of material. The inspectors also reviewed CES's established processes to evaluate whether adequate guidance existed for generation of these control documents. The inspectors reviewed a sampling of welding certified material test reports, Penetrant Examination test documentation, calibration records, completed travelers, heat treatment records, and NDE test reports. The inspectors also verified that they comply with CES procedures and applicable code.

The documents reviewed by the inspectors are included in the attachment to this inspection report.

b. Observations and Findings

Nonconformance Report (NCR) 38-13 was opened to address unacceptable base metal defects and weld buttering defects for the serial number 1288 and serial number 1290 V.C. Summer Unit 2 RCP Casings. The NCR was dispositioned as a repair and required the RCP Casing base metal to be repaired with weld filler metal type 308L and the associated weld buttering with weld filler metal type 309L. The inspectors identified that Revision 0 of Attachment 10 for Weld Travelers 4401721-01-1288 and 4401721-01-1290

for the serial number 1288 and 1290 RCP casings, respectively, identified the weld type as base metal repair, but the repair filler material was identified as type 309L. The inspector noted that the weld traveler should have identified the type of repair as weld buttering repair (type 309L) and not base metal repair (308L). The two RCP casings had been shipped to the customer and accepted for use. CES opened Discrete Issue/Suggestion for Improvement 100008319 for "Discrepancy in Weld Travelers from typo," and evaluated the deviation for 10 CFR Part 21 reportability. CES verified that the discrepancy was a transcription error and that the weld repair performed was on the buttering with the correct weld filler.

In addition, Attachment 8 of Traveler 4401721-01-1290 for RCP casing serial number 1290 required dimensional inspections of the weld buttering buildup. One dimension of the raised lip of the buttering specified a dimensional range of 0.085–0.090 inches. The recorded dimension was 0.90 inches. The RCP casing had been shipped to SCE&G and accepted for use. CES verified that the actual dimension was 0.090 inches and was within the acceptable range. These issues constitute nonconformances of minor significance and are not subject to formal enforcement action.

c. Conclusions

The inspectors determined that the implementation of CES's programs for control of special processes were consistent with the regulatory requirements in Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50.

5. Control of Measuring and Test Equipment

a. Inspection Scope

The inspectors reviewed CES's policies and procedures for measuring and test equipment (M&TE) to verify compliance with the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," in Appendix B to 10 CFR Part 50. The NRC inspectors performed a visual inspection of M&TE, including those used during the fabrication of the AP1000 reactor coolant pump casings and reactor coolant loop piping. The M&TE was inspected for the appropriate identification markings indicating the M&TE identification number, calibration date, calibration due date, and name of person that performed the last calibration. The inspectors compared the M&TE identification markings on the equipment to the tracking database and the M&TE sign-out and usage sheet used by CES for proper handling, storage, and control.

The inspectors reviewed a sample of calibration certificates and verified that the M&TE was calibrated using procedures traceable to known industry standards. The inspectors reviewed M&TE records to ensure they included the as-found and as-left conditions, required accuracy, calibration results, calibration standards, calibration dates, and calibration due dates. The inspectors also reviewed four CES nonconformance reports (NCRs) related to M&TE found to be out of calibration. The inspectors reviewed CES's actions taken to verify that the out of calibration equipment did not affect previous inspection or test results, and that the devices found out of calibration were repaired or replaced.

The documents reviewed by the inspectors are included in the attachment to this inspection report.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

Based on the sample of documents reviewed, and activities observed, the inspectors determined that CES is implementing its policies and procedures associated with the control of measuring and test equipment. No findings of significance were identified.

6. Nonconformance/Corrective Action Program

a. Inspection Scope

The inspectors reviewed CES's policies and procedures governing control of nonconforming components and corrective actions to verify compliance with Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. The inspectors reviewed CES's documented conditions adverse to quality such as corrective action reports, NCRs, and Discrete Issue/Suggestion for Improvements. In addition, the inspectors conducted several interviews of CES's management and technical staff about the evaluation of nonconforming components and corrective actions. The inspectors also verified that CES's nonconformance process provides guidance to evaluate nonconformances for reportability under CES's 10 CFR Part 21 program.

The documents reviewed by the inspectors are included in the attachment to this inspection report.

b. Observations and Findings

The inspectors reviewed a sample of customer and internal audit reports to verify that audit findings are adequately assessed and entered into either the nonconformance or corrective action program. The inspectors identified that both the 2013 NUPIC audit and 2013 CES internal audit identified issues with CES's supplier audit practices, which allow the use of commercial calibration services for safety-related applications without dedicating. CES opened a Discrete Issue/Suggestion for Improvement Report to address the NUPIC finding and revised procedure CGQP 7.0; however, they did not revise procedure CGQP 18.0 nor conduct an extent of condition to determine the effect of using the commercially calibrated equipment on basic components, including items that had shipped. CES took immediate corrective action to address the revision to CGQP-18.0 and opened Discrete Issue/Suggestion for Improvement Report 100009233. This issue is identified as NON 99901438/2014-201-02.

b. Conclusions

With the exception of NON 99901438/2014-201-02 for failure to promptly identify and correct a condition adverse to quality related to the use of commercially calibrated equipment for safety-related applications, the inspectors determined that the implementation of CES's programs for control of nonconforming material, parts, or components and corrective action were consistent with the regulatory requirements in

Criterion XV, "Nonconforming Materials, Parts, or Components," and with Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50.

7. Entrance and Exit Meetings

On April 28, 2014, the inspectors discussed the scope of the inspection with Mr. Gregg Auld, President of CES, and other members of CES management and staff. On May 2, 2014, the inspectors presented the inspection results and observations during an exit meeting with Mr. Auld and other CES personnel. The attachment to this report lists the attendees of the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES

Name	Title	Affiliation	Entrance	Exit	Interviewed
S. Crane	Inspection Team Leader	NRC	X	X	
M. Anderson	Inspection Team Member	NRC	X	X	
A. Belen	Inspection Team Member	NRC	X	X	
E. Reichelt	Inspection Team Member	NRC	X	X	
P. Carman	Inspection Team Member	NRC	X	X	
Gregg Auld	President	CES	X	X	
Charles Ginn	QA Manager	CES	X	X	X
Thomas Franchuk Jr	QA Engineer	CES	X	X	X
Robert Miller	QA Engineer	CES	X	X	X
Walt Garris	Project Engineer	CES	X		X
Luis Yopez	Welding Engineering Manager	CES	X	X	X
Jared Hilton	Manager Shop Operations	CES	X	X	X
Katie Vang	Document Control Administrator	CES	X	X	
Jeff Grogg	Quality Control	CES		X	X
Scott Carver	APM	CES		X	X
Chester Rodriguez III	NND Quality Systems Engineer	SCE&G	X	X	
Steve Hamilton	Senior Vice President QEHS&CI	WEC	X		X

2. INSPECTION PROCEDURES USED:

IP 43002, "Routine Inspections of Nuclear Vendors" dated July 15, 2013.

IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance" dated February 13, 2012.

3. ITEMS OPENED, CLOSED, AND DISCUSSED:

<u>Item Number</u>	<u>Status</u>	<u>Type</u>	<u>Description</u>	<u>Applicable ITAAC</u>
99901438/2014-201-01	Opened	NON	Criterion IV	N/A
99901438/2014-201-02	Opened	NON	Criterion XVI	N/A

4. INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA:

The U.S. Nuclear Regulatory Commission (NRC) inspectors identified the following inspections, tests, analyses, and acceptance criteria (ITAAC) listed below related to components being fabricated by Carolina Energy Solutions. At the time of the inspection, installation of AP1000 1-inch special bore bosses, wide and narrow range thermowell bosses, and pressurizer spray half cap scoop components on the reactor coolant loop (RCL) piping spool pieces was completed for V.C. Summer Unit 2 and Vogtle Unit 3. CES was also involved in buttering of the reactor coolant pump (RCP) suction casing to dilute the sulfur content in the base material for V.C. Summer Unit 2 and Vogtle Units 3 and 4. For the ITAAC listed below, the NRC inspection team reviewed CES's quality assurance controls in the areas of special processes; control of measuring and test equipment; nonconforming materials, parts, and components; and corrective actions. The ITAAC's design commitment referenced below are for future use by the NRC staff during the ITAAC closure process; the listing of these ITAAC design commitments does not constitute that they have been met and closed. The NRC inspection team did not identify any findings associated with the ITAAC identified below.

Appendix C from the Combined License for Vogtle Units 3 and 4 and V.C. Summer Unit 2	No. 13	2.1.02.02a
Appendix C from the Combined License for Vogtle Units 3 and 4 and V.C. Summer Unit 2	No. 14	2.1.02.02b
Appendix C from the Combined License for Vogtle Units 3 and 4 and V.C. Summer Unit 2	No. 15	2.1.02.03a
Appendix C from the Combined License for Vogtle Units 3 and 4 and V.C. Summer Unit 2	No. 16	2.1.02.03b

5. DOCUMENTS REVIEWED:

Policies and Procedures

- Quality Assurance Program Manual, Revision 6, dated February 22, 2013
- ASME Quality Assurance Manual, Revision 2, dated April 25, 2013
- CES Welding Procedures Manual, Revision 11, dated January 16, 2014
- CGQP-2.1, "Control of Welding Control Procedures, General Welding Standards, Weld Procedure Specifications (CES WPS), Procedure Qualification Records (CES PQR)," Revision 0, dated June 19, 2012
- CGQP-3.0, "Design Control," Revision 0, dated June 19, 2012
- CGQP-3.1, "CES Equipment and Process Functional Specifications," Revision 0, dated June 19, 2012

- CGQP-4.0, "Procurement Document Control," Revision 1, dated January 11, 2013
- CGQP-7.0, "Control of Purchased Material, Equipment and Services," Revision 2, dated March 15, 2013
- CGQP-7.1, "Procurement, Receipt, Storage, and Issuance of ASME III Subsection NCA-3800 Weld Materials, Revision 0, dated June 19, 2012
- CGQP-8.1, "Process Traveler," Revision 1, dated January 11, 2013
- CGQP-9.0, "Training, Qualification, Examination, and Certification of NDE, Inspection and Testing Personnel in Accordance with SNT-TC-1A and CP-189," Revision 0, dated June 19, 2012
- CGQP-9.6, "Visual Examination of Welds," Revision 0, dated January 13, 2012
- CGQP-9.7, "Solvent Removable Liquid Penetrant Examination and Acceptance Standards for Welds, Base Materials, and Cladding (50°F - 125°F)," Revision 0, dated January 13, 2012
- CGQP-9.14, "Visual Acuity Examinations," Revision 1, dated January 11, 2013
- CGQP-10.0, "Inspection," Revision 1, dated January 11, 2013
- CGQP-12.0, "Control of Measuring and Test Equipment," Revision 1, dated January 11, 2013
- CGQP-15.0 "Nonconforming Items", Revision 0, dated June 19, 2012
- CGQP-16.0 "Corrective Action Process (CAP) & Stop Work Policy", Revision 0, dated June 19, 2012
- CGQP-16.1 "10 CFR 21 Notification," Revision 0, dated June 19, 2012
- CGQP-16.2 "Root Cause Analysis (RCA)," Revision 0, dated June 19, 2012
- CGQP-16.3 "Apparent Cause Analysis (ACA)," Revision 1, dated January 11, 2013
- CGQP-17.0 "Quality Records," Revision 0, dated June 19, 2012

Purchase Orders

- PO 4500380163 – Weldstar Company PO for ER 308L (3/32 Dia.) and 1/8 Dia.
- PO 4500436283 to Transcat, dated May 22, 2012
- PO 4500439491 to CMI, dated June 22, 2012
- PO 4500443066 to Weldstar, dated July 27, 2012
- PO 4500443207 – for AP1000 Reactor Coolant Pump (RCP) Casing Suction Nozzle Weld Buttering (S/N 1290)
- PO 4500446817 to NewCo for PT developer, solvent, penetrant dated August 31, 2012
- PO 4500452677 to Lincoln Electric PO for ER309L (.045 Dia.)
- PO 4500465725, dated March 1, 2013, to Exelon power labs for calibration services
- PO 4500616742 to DuBose National Energy Service Inc, dated September 18, 2013
- PO 4500618184 to RJ Lee Group Inc, dated October 3, 2013
- PO 4500619362 to NSL Analytical Services, Inc., dated October 16, 2013
- PO. 4500435847 Purchase order from Westinghouse to CES for the installation of thermowell boss and pipe scoop components in the AP1000 reactor coolant piping for Vogtle Unit 3 and Vogtle Unit 4, May 17, 2012
- PO. 4500435880 Purchase order from Westinghouse to CES for the installation of thermowell boss and pipe scoop components in the AP1000 reactor coolant piping for V.C. Summer Unit 2 and Unit 3, May 17, 2012

Audits

- Internal Audit Performed by Global QA Inc, dated January 21, 2013
- Internal Audit Performed by Global QA Inc, dated January 3, 2014
- NIAC Audit 18072 of Mistras Group Inc, issued April 2013
- NIAC Audit 17012 of Dubose National Energy Services, issued July 2012
- NIAC Audit 17107 of Exelon Power Labs in Madison PA issued February 2012
- NIAC Audit 17195 of Exelon Power Labs in Coatesville, PA, issued January 2012
- NIAC Audit 18044 of Weldstar Company, issued March 2012
- NIAC Audit 19045 of Applied Technical Services, dated January 2014
- NIAC Audit 19117 of WEC Carolina Energy Solutions, issued March 2014
- Notification of Vendor/Supplier Approval for Applied Technical Services, dated February 28, 2014
- Notification of Vendor/Supplier Approval for Exelon Power Labs, dated April 5, 2012
- Notification of Vendor/Supplier Approval for Exelon Power Labs, dated February 29, 2012

Miscellaneous Documents

- APP-MP01-M2-001, "AP1000 Reactor Coolant Pump Design Specification," Revision 3, March 1, 2012
- APP-PL01-V6-001, "Drawing -AP1000 Primary Coolant Loop Piping Spool Pieces Hot Leg," Revision 5, June 20, 2012
- APP-PL01-V6-004, "Drawing -AP1000 Primary Coolant Loop Details Section Views," Revision 3, June 20, 2012
- APP-PL01-V6-005, "Drawing -AP1000 Primary Coolant Loop Piping Spool Pieces Cold Leg," Revision 0, June 20, 2012
- APP-PL01-Z0-201, "Reactor Coolant Loop Piping Fabrication Specification Including Welding," Revision 1, January 4, 2010
- APP-PL01-Z0-201, "Reactor Coolant Loop Piping Fabrication Specification Including Welding," Revision 1
- APP-PY72-V8-001, "Drawing -AP1000 RCS Hot and Cold Leg RTD Thermowell Installation," Revision 1, June 20, 2012
- APP-VW20-Z0-090 – AP1000 Filler Metal Specification SFA-5.9 Class ER308L/EC308L Bare Stainless Steel Material for GTAW, PAW, or GMAW of ASME Section III Applications
- APP-VW20-Z0-091 – AP1000 Filler Metal Specification SFA-5.9 Class ER309L/EC309L Bare Stainless Steel Material for GTAW, PAW, or GMAW of ASME Section III Applications
- ASL dated April 25, 2014
- ASL dated July 17, 2012
- Attachment 8 – Dimensional check on weld buttering of S/N1290
- CAQ Corrective Action Report
- CES Project 4401721-01 AP1000 Reactor Coolant Pump (RCP) Casing Suction Nozzle Weld Buttering (S/N 1288)
- CES Project 4401721-02 – AP1000 Reactor Coolant Pump (RCP) Casing Suction Nozzle Weld Buttering (S/N 1290)
- CMTR from Arcos (Weldstar Company) for 3/32 Dia.
- CMTR from Lincoln Electric Company

- Cooper Nuclear Station “Service Water Discharge Piping Master Project File for 4402082”
- CWPS-8-8-TS-A01 Rev. 1 WPS for Repair Welding
- CWPS-8-8-TS-A-01, “WEC Carolina Energy Solutions, LLC ASME Section IX Welding Procedure Specification,” Revision 1, March 6, 2012
- M&TE Equipment ID: CES-M02, CES-M03, CES-M026, CES-M037, CES-M038, CES-M055, CES-M060, CES-M078, CES-M083
- Multiple Weld Data Card – Traveler No. 4401721-01-1288 Attachment 9 Revision 0
- Multiple Weld Data Card – Traveler No. 4401721-01-1288 Attachment 10 Revision 0
- Multiple Weld Data Card – Traveler No. 4401721-01-1290 Attachment 9 Revision 0
- Multiple Weld Data Card – Traveler No. 4401721-01-1290 Attachment 10 Revision 0
- NSL Lab Reports 260968, dated October 23, 2013
- Part 21 Posting, Revision 2, dated April 15, 2014
- PI-4401541-01, AP-1000 RCL Piping: Installation of Thermowell Boss and Pipe Scoop Components, Revision 3, dated February 22, 2013
- PI-4401704-01, “AP-1000 RCL Piping: Installation of Thermowell Boss and Pipe Scoop components- Vogtle Unit 3,” Revision 3
- PI-4401705-01, “AP-1000 RCL Piping: Installation of Thermowell Boss and Pipe Scoop components- Vogtle Unit 4,” Revision 0, April 8, 2014
- PI-MUULT-EM-SC-114 – Welding Power Supply ID # 6806773 Maintenance Records
- PQP-4401541-01, “Project Quality Plan RCL Piping Vogtle Unit 4,” Revision 0, March 18, 2012
- Procurement Advisory Request (PAR) – 4500443207-021-C dated 03/28/2014 – Westinghouse response to NCR-38-13 for RCP Pump Casings (S/N-1288 and 1290)
- Project instruction (PI)-4401541-01, “AP-1000 RCL Piping: Installation of Thermowell Boss and Pipe Scoop components- VC Summer Unit 2,” Revision 3, February 22, 2013
- Project Quality Plan (PQP) – 4401541-01, “Project Quality Plan RCL Piping VC Summer Unit 2,” Revision 3, September 11, 2012
- PT0021 – PT-0037 – PT report of S/N1288
- PT0021 – PT-0037 – PT report of S/N1290
- Receipt Inspection Report for V.C. Summer Unit 2 Reactor Coolant Loop Piping for PO 4500435880, May 23, 2013
- Receipt Inspection Report for Vogtle Unit 3 Reactor Coolant Loop Piping, June 14, 2013
- Report, “2013 Annual Quality Assurance Assessment Report”, dated January 28, 2014
- Report, “CAPs Data Analysis / Breakdown part of 2012/2013 for 2014 Report”
- RJ Lee Group Test Report for PO 4500618184, rev 1 , dated October 22, 2013
- Vogtle “RCL Piping Master Project File for 4401704”
- VSG-PL01-Z5-009, “Appendix 3 Technical Requirements for the Installation of the Bosses and Scoops into the Reactor Coolant Piping (PL01) for V.C. Summer Units 2 and 3,” Revision 0, April 27, 2012
- VT Report 4401721-VT-0013 – VT report reviewing excavations of all indications a PT was performed and no indications were found. Sketch of the indications were provided. In accordance with NCR-38-13
- VT Report 4401721-VT-0016 – VT report reviewing excavations of all indications a PT was performed and no indications were found. Sketch of the indications were provided. In accordance with NCR-38-13. S/N 1288
- Welder Qualification Data Sheets for four welders
- WT-4401541-10, “Weld Process Traveler for Weld No. 10 for VC Summer Unit 2,” Revision 0, October 16, 2012

- WT-4401541-20, "Weld Process Traveler for Weld No. 20 for VC Summer Unit 2," Revision 0, October 16, 2012
- QA Data Package

Certificates of Calibration

- CMI Certificate of Calibration 1000300562
- CMI Certificate of Calibration 1000300565
- CMI Certificate of Calibration 1000319988
- CMI Certificate of Calibration 1000319990
- CMI Certificate of Calibration 1000319991
- CMI Certificate of Calibration 1000317398
- Certificate of Calibration # 0010806816 for Clamp On Amp Meter Fluke Model 337, CES-M02, dated February 13, 2014
- Certificate of Calibration # 0010750757 for Clamp On Amp Meter Fluke Model 337, CES-M02, dated March 12, 2014
- Certificate of Calibration # 1000314299 for Clamp On Amp Meter Fluke Model 337, CES-M02, dated March 20, 2012
- Certificate of Calibration # CES-M03-120913 for Brown & Sharpe Dial Calipers, CES-M03, dated December 9, 2013
- Certificate of Calibration for Brown & Sharpe Dial Calipers, CES-M03, dated March 28, 2013
- Certificate of Calibration for Brown & Sharpe Dial Calipers, CES-M03, dated June 4, 2012
- Certificate of Calibration # CES-M026-120913 for Mitutoyo Outside Micrometer 1"-2", CES-M026, dated December 9, 2013
- Certificate of Calibration for Mitutoyo Outside Micrometer 1"-2", CES-M026, dated October 10, 2013
- Certificate of Calibration # 0010806820 for Thermometer Fluke 51 II, CES-M037, dated February 13, 2014
- Certificate of Calibration # 1000319990 for Thermometer Fluke 51 II, CES-M037, dated June 27, 2013
- Certificate of Calibration # 0010806817 for Thermometer Fluke 51 II, CES-M038, dated February 13, 2014
- Certificate of Calibration # 0010750750 for Thermometer Fluke 51 II, CES-M038, dated March 12, 2013
- Certificate of Calibration # 1000319991 for Thermometer Fluke 51 II, CES-M038, dated June 27, 2012
- Certificate of Calibration # 0010793774 for 4" Thermometer Model TI.30, CES-M055, dated December 22, 2013
- Certificate of Calibration # 0010731596 for 4" Thermometer Model TI.30, CES-M055, dated December 3, 2012
- Certificate of Calibration # 0010764770 for Mitutoyo Digital Protractor, CES-M060, dated June 20, 2012
- Certificate of Calibration # 0010732830 for Mitutoyo Digital Protractor, CES-M060, dated December 11, 2012
- Certificate of Calibration # 0010785632 for Starrett Dial Calipers, CES-M078, dated October 23, 2013

- Certificate of Calibration # 0010809944 for McDaniel Pressure Gage, CES-M083, dated March 3, 2014
- Certificate of Calibration # 0010799428 for McDaniel Pressure Gage, CES-M083, dated January 12, 2014
- Certificate of Calibration # 0010760399 for Craftsman Torque Wrench, CES-M07, dated May 21, 2013
- Certificate of Calibration # 1000319988 for Craftsman Torque Wrench, CES-M07, dated June 27, 2012
- Certificate of Calibration # 0010760400 for Craftsman Torque Wrench, CES-M040, dated May 21, 2013
- Certificate of Calibration # 1000319992 for Craftsman Torque Wrench, CES-M040, dated June 27, 2012
- Certificate of Calibration # 0010760411 for K-D Tools Torque Wrench, CES-M040, dated June 27, 2012

Nonconformance Reports

- NCR 06-13
- NCR 07-13
- NCR 16-13
- NCR 17-13
- NCR 18-13
- NCR 22-13
- NCR 23-13
- NCR 24-13
- NCR 27-13
- NCR 28-13
- NCR 29-13
- NCR 31-13
- NCR 38-13
- NCR 46-13
- NCR 47-13
- NCR 49-12
- NCR 57-12
- NCR 58-12
- NCR 59-12
- NCR 68-12
- NCR 69-12
- NCR 70-12
- NCR 71-12
- NCR 72-12
- NCR 73-12
- NCR-16-13
- NCR-17-13
- NCR-18-13
- NCR-22-13
- NCR-28-13
- NCR-57-12

- NCR-58-12
- NCR-59-12
- NCR-4401705-02
- NCR 4401721-01
- NCR 4401721-02
- NCR 4401722-03
- NCR-440541-01

Issue Reports

- IR-12-311-M031
- IR-13-007-M019
- IR-13-022-M031
- IR-13-074-P001
- IR-13-128-M044
- IR-13-134-M037
- IR-13-278-P001
- IR-13-296-M006
- IR-13-298-M023
- IR-14-035-M001
- IR-14-035-M001.01

Discrete Issue/Suggestion for Improvements

- 100009893
- 100006641
- 100009233
- 100009788
- 100009807
- 100008123
- 100008142
- 100008100
- 100008319

Procedure Qualification Records

- 062 Revision 3
- 600 Revision 4
- 063

Weld Travelers

- 4401721-01-1288 Attachment 1 – 6
- 4401721-01-1288 Attachment 9 and 10
- 4401721-01-1288 Weld Map RCP 1288 Attachment 7

Nondestructive Examination Reports

- 4401721-VT-0014
- 4401721-VT-0016
- 4401721-VT-0018
- 4401721-PT-0021
- 4401721-PT-0024
- 4401721-PT-0026
- 4401721-PT-0027
- 4401721-PT-0028
- 4401721-PT-0029
- 4401721-PT-0030
- 4401721-PT-0031
- 4401721-PT-0032
- 4401721-PT-0033
- 4401721-PT-0034
- 4401721-PT-0035
- 4401721-PT-0036
- 4401721-PT-0037
- 4401721-PT-0038
- 4401721-PT-0039
- 4401721-PT-0040
- 4401721-DI-001
- 4401722-PT-0022
- 4401722-PT-0025