UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

May 12, 2014

Mr. Scott Batson
Site Vice President
Duke Energy Carolinas, LLC
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000269/2014002, 05000270/2014002, 05000287/2014002

Dear Mr. Batson:

On March 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oconee Nuclear Station Units 1, 2, and 3. On April 10, 2014, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The inspectors documented the inspection results in the enclosed inspection report.

The enclosed inspection report discusses a finding for which the NRC has not yet reached a preliminary significance determination. As described in Section 4OA3 of the enclosed report, the procedure for performing ultrasonic examinations of piping welds did not contain the necessary steps to achieve acceptable coverage when limitations were encountered. This prevented the detection of a crack that subsequently resulted reactor coolant system pressure boundary leakage and a forced shutdown of Unit 1. The finding did not present an immediate safety concern because the leakage has been repaired. The NRC will inform you in a separate correspondence when the preliminary significance has been determined. This finding is also an apparent violation of NRC requirements and is being considered for escalated enforcement action in accordance with the Enforcement Policy. However, because the NRC has not made a final determination in this matter, no notice of violation is being issued for this inspection finding at this time.

We intend to complete and issue our final safety significance determination within 90 days from the date of this letter. The NRC's significance determination process (SDP) is designed to encourage an open dialogue between your staff and the NRC; however, the dialogue should not affect the timeliness of our final determination.

Additionally, as we informed you in the fourth quarter 2013 integrated inspection report, cross-cutting aspects identified in the last six months of 2013 using the previous terminology were being converted in accordance with the cross-reference in Inspection Manual Chapter 0310. Section 4OA5 of the enclosed report documents the conversion of these cross-cutting aspects which will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the 2014 mid-cycle assessment review. If you disagree with the cross cutting aspect reassignment, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at the Oconee Nuclear Station.

In accordance with 10 Code of Federal Regulations 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Gerald McCoy, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: NRC Integrated Inspection Report
05000269/2014002, 05000270/2014002,
05000287/2014002
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Letter to Scott L. Batson from Gerald McCoy dated May 12, 2014

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000269/2014002, 05000270/2014002, 05000287/2014002

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-269, 50-270, 50-287

License Nos: DPR-38, DPR-47, DPR-55

Report Nos: 05000269/2014002, 05000270/2014002, 05000287/2014002

Licensee: Duke Energy Carolinas, LLC

Facility: Oconee Nuclear Station, Units 1, 2 and 3

Location: Seneca, SC 29672

Dates: January 1, 2014, through March 31, 2014

Inspectors: E. Crowe, Senior Resident Inspector
G. Croon, Resident Inspector
N. Childs, Resident Inspector
J. Dymek, Reactor Inspector (Section 1R17)
M. Riley, Reactor Inspector (Section 1R17)
R. Williams, Reactor Inspector (Section 4OA3)
D. Bollock, Reactor Operations Engineer (Section 4OA5)
J. Jacobson, Senior Reactor Operations Engineer (Section 4OA5)
B. Clarke, Reactor Operations Engineer (Section 4OA5)
R. Cureton, Resident Inspector – Catawba Nuclear Station (Section 4OA5)

Approved by: Gerald McCoy, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000269/2014-002, 05000270/2014-002, 05000287/2014-002; 01/01/2014 – 03/31/2014; Oconee Nuclear Station Units 1, 2 and 3; Follow-up of Events and Notices of Enforcement Discretion (NOED)

The report covered a three-month period of inspection by the Oconee resident inspectors, two Region-based inspectors, three Headquarters-based inspectors, and one Catawba resident inspector. One Apparent Violation was identified. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP) dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within Cross-Cutting Areas" dated December 19, 2013. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Initiating Events

- TBD. A NRC-identified potentially Greater than Green Apparent Violation (AV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when the licensee failed to ensure that procedure NDE-995, "Ultrasonic Examination of Small Diameter Piping Butt Welds and Base Material for Thermal Fatigue Damage," was adequate to achieve acceptable coverage for the ultrasonic (UT) examination of weld 1-RC-201-205. NDE-995 did not contain the necessary steps to achieve acceptable coverage for UT examinations when limitations were encountered. The licensee entered this finding into their corrective action program as PIP O-13-13168.

  The failure to ensure that station procedure NDE-995 was adequate to achieve acceptable coverage for the UT examination of weld 1-RC-201-205 was more than minor because it affected the Design Control attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective in that an undetected crack resulted in reactor coolant system pressure boundary leakage and a forced shutdown of Unit 1. The inspectors determined that detailed risk analysis was required. There was no immediate safety concern because the crack was repaired. The inspectors determined this finding has a cross-cutting aspect of H.7 in the Documentation component of the Human Performance area because the licensee did not create and maintain complete, accurate, and up-to-date documentation in procedure NDE-995 to ensure acceptable coverage for UT examinations. (Section 4OA3)

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at approximately 100 percent rated thermal power (RTP) for the inspection period.

Unit 2 operated at approximately 100 percent RTP for the inspection period.

Unit 3 operated at approximately 100 percent RTP for the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Readiness for Extreme Seasonal Weather Conditions: The inspectors reviewed the licensee's preparations for adverse weather associated with the cold ambient temperatures at the site. This included field walkdowns to assess the material condition and operation of freeze protection equipment, as well as other preparations made to protect plant equipment from freezing conditions. In addition, the inspectors reviewed the licensee's procedures for preparing for cold weather and conducted interviews with personnel responsible for implementing the licensee's cold weather protection program to assess the licensee's ability to identify and resolve deficient conditions associated with cold weather protection equipment prior to cold weather events. Documents reviewed are listed in the Attachment.

Impending Adverse Weather Conditions: The inspectors evaluated implementation of adverse weather preparation procedures and compensatory measures for the following adverse weather condition. The inspectors walked-down portions of the emergency feedwater systems, safe shutdown facility, low pressure service water, and portions of the auxiliary building. These systems and areas were selected because their safety-related functions could be affected by freezing weather.

- Projected freezing temperatures for February 11 - 12, 2014

External Flooding: The inspectors reviewed the licensee's compensatory measures identified in CAL 2-10-003, "Confirmatory Action Letter – Oconee Nuclear Station Units 1, 2, and 3 Commitments to Address External Flooding Concerns" to ensure the measures were available and properly maintained. This review included field walkdowns of temporary equipment to assess its material condition and operability. In addition, the inspectors reviewed the licensee's procedures for external flood mitigation and conducted interviews with personnel responsible for implementing the licensee's program to assess the licensee's ability to respond to potential events.

b. Findings

No findings were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdown: The inspectors performed the three partial walkdowns listed below to assess the operability of redundant or diverse trains and components when safety-related equipment was inoperable or out-of-service and to identify any discrepancies that could impact the function of the system potentially increasing overall risk. The inspectors reviewed applicable operating procedures and walked down system components, selected breakers, valves, and support equipment to determine if they were correctly aligned to support system operation. The inspectors reviewed protected equipment sheets, maintenance plans, and system drawings to determine if the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program (CAP). Documents reviewed are listed in the Attachment.

- Keowee Underground Path during KHU-2 Pole Outage
- 4160 volt Electrical Bus SL-1 Alignment during KHU Dual Unit Outage
- Lee Combustion Turbine Alignment during KHU-2 Pole Outage

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Tours: The inspectors walked down accessible portions of the four plant areas listed below to assess the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The inspectors observed the fire protection suppression and detection equipment to determine if any conditions or deficiencies existed which could impair the operability of that equipment. The inspectors selected the areas based on a review of the licensee's safe shutdown analysis probabilistic risk assessment and sensitivity studies for fire-related core damage accident sequences. Documents reviewed are listed in the Attachment.

- Unit 2 main feedwater pump area (zone 15)
- Unit 2 pipe room (Zone 66)
- Unit 3 6900/4160V switchgear area (zone 29)
- Unit 3 tank room (Zone 58)

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Review: The inspectors reviewed the licensee's program for maintenance and testing of risk-important heat exchangers in the low pressure injection system including the testing and analysis program of the Unit 3 decay heat removal heat exchanger 3A. The inspector's review was to verify that the frequency of inspection was sufficient to detect degradation prior to loss of heat removal capability below design requirements; that the inspection results were appropriately categories against pre-established engineering acceptance criteria.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

Routine Operator Requalification Review: On February 26, 2014, the inspectors observed one active simulator training session to assess the performance of licensed operators during the session. The scenario involved a failed component cooling pump, two dropped control rods, a steam generator tube rupture, and a loss of main feed water. Events progressed to a point where the crew entered an Unusual Event emergency declaration. The post-scenario critique conducted by the training instructor and the crew was also observed. Documents reviewed are listed in the Attachment.

Observation of Operator Performance: The inspectors observed operator performance in the main control room on March 6, 2014, during critical evolution to bleed and feed the 3B Bleed Hold-up Tank for reactivity control on Unit 1. Additionally on March 18, 2014, the inspectors observed operator performance in the main control room during elevated risk conditions from the SSF being out of service as well as PSW power being unavailable from the Fant line. Inspectors observed licensed operator performance to assess the following:

- Use of plant procedures
- Control board manipulations
- Communications between crew members
- Use and interpretation of instruments, indications, and alarms
- Use of human error prevention techniques
- Documentation of activities
- Management and supervision

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing the following four corrective maintenance activities. These reviews included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions, as well as common cause failure evaluations. For each activity selected, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. For those structures, systems and components (SSCs) scoped in the Maintenance Rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified in light of the reviewed degraded equipment condition. Documents reviewed are listed in the Attachment.

- PIP O-14-00746, Increased Unit 3 RCP Seal Leakage
- PIP-O-14-00544, Switchyard battery SY-2 cell 30 discovered with low voltage of 2.06 vDC
- PIP-O-14-14538, HPI motor cooler flow test failed to meet acceptance for the 3B HPIP
- PIP-O-14-00755, Operations request for engineering evaluation of HPI motor oil additions

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated the following attributes for the five activities listed below: 1) the completeness of the risk assessments performed before maintenance activities were conducted; 2) the management of risk; 3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and 4) that maintenance risk assessments and emergent work problems were adequately identified and resolved. Documents reviewed are listed in the Attachment.

- Orange risk condition during KHU-1 and KHU-2 dual outage due to dewatered condition
- Orange risk condition during monthly SSF surveillance in parallel with KHU-2 pole replacement outage
- Yellow risk condition during 3A LPI DHR Cooler Eddy Current Testing
- Risk associated with maintenance on Keowee Hydro DC bus 2DA during the Keowee Unit 2 rotor pole outage
- Yellow risk condition with potential to have been an orange risk condition due to ASW maintenance during monthly SSF surveillance

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments

a. Inspection Scope

The inspectors reviewed the following seven operability evaluations or functionality assessments affecting risk significant systems to assess: 1) the technical adequacy of the evaluations; 2) whether continued system operability was warranted; 3) whether other existing degraded conditions were considered; 4) if compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; and 5) where continued operability was considered unjustified, the impact on Technical Specifications (TS) limiting condition for operations. Operating Experience Smart Sample (OpESS) 2012/02, Technical Specification Interpretation and Operability Determination was used by the inspectors during the review.

- PIP-O-13-13443, Unit 2 containment tendons discovered below minimum lift off requirements
- PIP-O-13-13685, 2HP 4 was found in an overthrust condition during Viper testing
- PIP-O-14-00470, 230KV switchyard battery SY-1 cell 38 below minimum TS voltage of 2.13vDC
- PIP-O-14-00447, 230KV switchyard 125VDC breakers oversized
- PIP-O-14-00746, Unit 3B2 RCP lower seal cavity pressure behaving erratically
- PIP-O-14-02746, Unit-1 HELB door 507C unlisted in SD 3.2.16 and surveillance program
- PIP-O-14-03093, Air Leaks on ACB-3 at Keowee exceed acceptable criteria

b. Findings

No findings were identified.

1R17 Evaluation of Changes, Tests, or Experiments and Permanent Plant Modifications

a. Inspection Scope

Evaluations of Changes, Tests, and Experiments: The inspector reviewed screening for EC 91856, PSW Support Equipment Installation and Testing, Rev. 051, where the licensee had determined that a 10 CFR 50.59 evaluation was not necessary. The inspectors performed this review to determine if:

- the changes, tests, or experiments performed were evaluated in accordance with 10 CFR 50.59 and that sufficient documentation existed to confirm that a license amendment was not required;
- the safety issues requiring the changes, tests, or experiments were resolved;
- the licensee conclusions for evaluations of changes, tests, or experiments were correct and consistent with 10 CFR 50.59; and
- the design and licensing basis documentation used to support the change was updated to reflect the change.

The inspector used, in part, Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Implementation," Revision 1, to determine acceptability of the completed screenings. The NEI document was endorsed by the NRC in Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," dated November 2000. Documents reviewed are listed in the Attachment.

Permanent Plant Modifications: The inspector reviewed licensee activities associated with the following permanent plant modification.

Tornado and High Energy Line Break (HELB) Project Modification – Protected Service Water (PSW) Building Equipment Installation - The inspector reviewed EC 91856 - PSW Support Equipment Installation and Testing, to verify equipment installed in the PSW building was afforded appropriate fire detection and protection capabilities. The inspector reviewed the completed acceptance testing procedures and work orders for fire suppression hose stations and heat and smoke fire detection systems. The inspector conducted direct observations of this equipment to verify that the location and installation conformed to design specifications and installation drawings and was capable of performing the intended functions of detection and suppression of fires occurring within the PSW Building. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following plant modification to verify the adequacy of the modification package and the 10 CFR 50.59 screenings and to evaluate the modification for adverse effects on system availability, reliability, and functional capability. Documents reviewed are listed in the Attachment.

Temporary Plant Modifications

- EC 102446; Unit 2 Temporary NI Modification to Support ES/RPS Project Install

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following five post-maintenance test procedures and/or test activities to assess if: 1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; 2) testing was adequate for the maintenance performed; 3) acceptance criteria were clear and demonstrated operational readiness consistent with design and licensing basis documents; 4) test instrumentation had current calibrations, range, and accuracy consistent with the application; 5) tests were performed as written with applicable prerequisites satisfied; 6) jumpers installed or leads lifted were properly controlled; 7) test equipment was removed following testing; and 8) equipment was returned to the status required to perform its safety function. Documents reviewed are listed in the Attachment.

- IP/0/A/0203/001 E, Low Pressure Injection System RB Emergency Sump Pump Instrumentation Calibration following replacement of 3B LPI emergency sump pump instrumentation
- PT/3/A/0204/007, Reactor Building Spray Pump Test following periodic maintenance
- PT/0/A/0610/024, Keowee Emergency Start for Troubleshooting and Post Maintenance Checkouts, after Keowee Unit 2 pole replacement outage
- IP/3/A/4980/050 A, 3B Motor Driven Emergency Feedwater Pump breaker and relay test following periodic maintenance and inspection of 3TE-0 breakers.
- PT/3/A/0600/013 B, Post Maintenance test of 3B Motor Driven Emergency Feedwater Pump following periodic maintenance

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors either witnessed and/or reviewed test data for the five surveillance tests listed below to assess if the SSCs met TS, Updated Final Safety Analysis Report (UFSAR), and licensee procedure requirements. In addition, the inspectors determined if the testing effectively demonstrated that the SSCs were ready and capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

Routine Surveillances

- PT/0/A/0600/021, Standby Shutdown Facility Diesel-Generator Operation, monthly surveillance
- PT/1/A/026/010, 1C ESV Pump Test (Train A)
- PT/3/A/0251/003, Concentrated Boric Acid Storage Tank Pump Test – Periodic testing of 3A CBAST pump

In-Service Tests

- PT/1/A/0203/006 A, Low Pressure Injection Pump Test – Recirculation for periodic testing of 1A LPI pump
- PT/2/A/0203/006 A, Low Pressure Injection Pump Test – Recirculation for periodic testing of 2A LPI pump

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors evaluated the licensee's performance in the Technical Support Center on February 11, 2014. The drill involved a steam generator tube leak and reactor coolant pump seal failures. The NRC assessment focused on the timeliness and location of classification, offsite agency notification, and the licensee's expectations of response. The performance of emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. The inspectors attended the post-exercise critique for the drill to evaluate the licensee's self-assessment process for identifying potential deficiencies relating to failures in classification and notification. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported PI data for the following nine PIs. To determine the accuracy of the report PI elements, the reviewed data was assessed against PI definitions and guidance contained in Nuclear Energy Institute 99-02, Regulatory Assessment Indicator Guideline, Revision 6. Documents reviewed are listed in the Attachment.

Cornerstone: Initiating Events

- Unplanned Trips (3 units)
- Unplanned Trips w/ complications (3 units)
- Unplanned Power Changes (3 units)

For the period of April 1, 2013, through March 31, 2014, the inspectors reviewed Operating Logs, Train Unavailability Data, Maintenance Records, Maintenance Rule Data, PIPs, Consolidated Derivation Entry Reports, and System Health Reports to verify the accuracy of the PI data reported for each PI.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

Daily Screening of Corrective Action Reports: In accordance with Inspection Procedure (IP) 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing copies of PIPs, attending daily screening meetings, and accessing the licensee's computerized database.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (NOED)

.1 (Closed) LER 05000287/2013-001, Unit 3 Manual Reactor Trip due to Main Feedwater Oscillations

On October 24, 2013, with Unit 3 operating at 100 percent RTP (Mode 1), control room operators observed main feedwater flow indicators oscillating outside of normal parameters. Control room operators attempted to stabilize feedwater flow by taking manual control of the integrated control system (ICS). When it was recognized that feedwater flow would not stabilize, the control room supervisor made the decision to manually trip the Unit 3 reactor. The flow oscillations were caused by actuator O-ring failure resulting in air leakage past the upper and lower bushings of the Unit 3 train "A"

main feedwater control valve (3FDW-32) actuator. The licensee determined the root cause of the event to be premature failure of the actuator o-rings due to piston shaft misalignment and insufficient preventive maintenance activities. The inspectors verified the accuracy of the LER, the appropriateness of completed and planned corrective actions, and reviewed the licensee's root cause evaluation. The licensee entered this issue into their CAP as PIP O-13-11963. No findings were identified.

.2 (Closed) LER 05000269/2013-04, High Cycle Fatigue Resulted in Reactor Coolant Leak and Unit Shutdown

On November 11, 2013, the licensee determined that a leak in the 1B2 high pressure injection line was pressure boundary leakage. Unit 1 was subsequently shutdown as required by TS 3.4.13. The residents monitored the orderly shutdown of Unit 1. The resident inspectors and a regional inspector monitored the licensee's repair activities. The NRC inspectors also evaluated the licensee's extent of condition review and activities associated with additional non-destructive evaluations performed on other Unit 1 high pressure injection nozzles. Unit 2 was shutdown for a refueling outage at the time of this event; therefore, the high pressure injection nozzles of this unit were accessible for non-destructive evaluations which were also reviewed by NRC inspectors. The inspectors verified the accuracy of the LER, the appropriateness of completed and planned corrective actions, and reviewed the licensee's root cause evaluation. The licensee entered this issue into their corrective action program as PIP O-13-13168.

b. Findings

Introduction: A NRC-identified potentially Greater than Green AV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when the licensee failed to ensure that procedure NDE-995, "Ultrasonic Examination of Small Diameter Piping Butt Welds and Base Material for Thermal Fatigue Damage," was adequate to achieve acceptable coverage for the ultrasonic (UT) examination of weld 1-RC-201-205. NDE-995 did not contain the necessary steps to achieve acceptable coverage for UT examinations when limitations were encountered.

Description: In 2004, the licensee issued procedure NDE-995, This procedure limited the number and type of UT probes permitted for use (i.e. eliminated the potential to use a 70° angle probe) and omitted earlier guidance on how to address limitations encountered during the examination which result in the required examination coverage not being achieved. As a result, numerous examinations performed on HPI safe end-to-piping welds using procedure NDE-995 did not completely cover the affected area and the less than adequate coverage was not assessed.

On November 11, 2013, the licensee investigated increased unidentified leakage and discovered a circumferential crack in weld 1-RC-201-105 located on the Unit 1 HPI nozzle to cold leg interface of the 1B2 reactor coolant pump suction pipe. The crack ran along the pipe side edge of the weld root from approximately 0° to 65° (~1.2 inches in length). The licensee reviewed the results of the previous UT examination performed in 2012 using procedure NDE-995 and found no reportable indications. However, in 2011, the licensee performed a radiographic examination specifically to check the condition

and position of the 1B2 thermal sleeve. The focus of the review was limited to that area; however, the safe end area containing weld 1-RC-201-105 was incidentally visible on the film. Following the current event, the licensee re-reviewed the 2011 radiographic film and a crack-like indication was identified in the side wall image of the weld at approximately the same location as corresponding to the current crack location. From the re-review of the film, this crack-like indication appeared to be approximately 50 percent through-wall.

Following the identification of the 1B2 through-wall crack, the licensee performed an extent of condition using phased-array UT on the eight HPI safe end-to-pipe welds in Unit 1 and Unit 2 (Unit 3 was still operating at the time so the inspections were not performed). The inspections showed additional recordable indications on nozzles 1B1, 2A2 and 2B2. All of these indications were analyzed and found to be acceptable for continued service.

Analysis: The inspectors determined that the failure to ensure that station procedure NDE-995 was adequate to achieve acceptable coverage for the ultrasonic (UT) examination of weld 1-RC-201-205 was a performance deficiency. Procedure NDE-995 did not contain necessary steps to achieve acceptable examination coverage when limitations were encountered nor did it contain guidance on actions to take when acceptable examination coverage was unattainable. The inspectors determined that the finding was more than minor because it affected the Design Control attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective in that an undetected crack resulted in reactor coolant system pressure boundary leakage and a forced shutdown of Unit 1. Using the Inspection Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheet, dated 6/19/2012, the finding was determined to require a detailed risk analysis because the finding could result in a leak which exceeded the RCS leak rate for a small-break LOCA. There was no immediate safety concern because the crack was repaired. The inspectors determined this finding has a cross-cutting aspect of H.7 in the Documentation component of the Human Performance area because the licensee did not create and maintain complete, accurate, and up-to-date documentation in procedure NDE-995 to ensure acceptable coverage for UT examinations.

Enforcement: No enforcement is being issued at this time because the NRC has not made a final safety significance determination. Because the finding is potentially Greater than Green, the associated violation is being treated as an AV consistent with the NRC Enforcement Policy and is identified as AV 05000269/2014002-01: Inadequate Procedure to Ensure Adequate Piping Weld Inspections.

4OA5 Other Activities

.1 Review of Commercial Grade Dedication Process

a. Inspection Scope

The NRC inspectors reviewed Oconee’s program for commercial-grade dedication (CGD) of items used in safety-related applications to determine if the established

controls were in compliance with the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50 and 10 CFR Part 21. The NRC inspection team used IP 43004, Inspection of Commercial-Grade Dedication Programs, to assess the licensee's program. This assessment included a review of the procedures governing the implementation of CGD activities, interviews with Oconee personnel, a review of related documentation, and inspection of installed items. In addition, the inspectors reviewed a sample of inputs to the Oconee CGD plans such as: 1) licensee Purchase Orders (PO), 2) engineering analysis of safety function, 3) development of critical characteristics, and 4) test or methods of acceptance. The inspectors also reviewed corrective action documents related to the CGD activities and internal audits of the quality assurance and procurement activities. The inspected commercial-grade dedication packages included:

- General purpose Potter and Brumfield relays (CGD-3009.01-01-0001 and CGPA-3000.00-00-0130)
- Acopian Power Supplies (CGD-3011.09.002)
- Brown and Sharpe pumps and replacement parts (CGPA-2000.00-00-0009)
- OSECO Rupture Disks (CGD-1026.00-00-0002)
- Three different bulk oils (CGD-2012.02-02-0007)

The inspection team also verified that Oconee provided adequate oversight of third party dedicating entities by reviewing the dedication documentation and correspondence with the third party dedicating entities. The inspection team reviewed oversight of the following Third Party dedications.

- Low and medium voltage switchgear and components from AZZ/NLI (VR-29411642-9 and VP-29411642-17)
- Protected Service Water (PSW) building dampers from Scientech (EGS-DP-927701-289 and EGS-TR-927701-302)

b. Findings and Observations

No findings were identified. The inspectors observed that the licensee performed an in-depth audit of their procurement and CGD programs prior to the NRC inspection. The licensee identified weaknesses in their CGD packages noting approximately 75 percent did not contain documentation to show they meet the requirements of 10 CFR Part 21 and 10 CFR Part 50 Appendix B. However, they were able to provide documentation showing reasonable assurance that the components in question could perform their intended safety function in each of the noted weaknesses. The licensee was conducting an Apparent Cause Evaluation and, over the next three years, a review of all CGD packages to correct the packages. The NRC inspection team identified additional examples consistent with the Oconee audit findings; however, the correct actions stemming from the audit were adequate to address these examples.

.2 Reassignment of Cross Cutting Aspects

The table below provides a cross-reference from the 2013 and earlier findings and associated cross-cutting aspects to the new cross-cutting aspects resulting from the common language initiative. These aspects and any others identified since January 2014, will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the 2014 mid-cycle assessment review.

Inspection Report	Old Cross-Cutting Aspect	New Cross-Cutting Aspect
2013004	H.4(c)	H.2
2013004	H.1(b)	H.13
2013005	H.2(c)	H.7
2013007	H.4(b)	H.8

4OA6 Management Meetings (Including Exit Meeting)

On April 10, 2014, the resident inspectors presented the inspection results to Mr. Scott Batson and other members of licensee management. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee
S. Batson, Site Vice President
S. Boggs, Emergency Services Coordinator
E. Burchfield, Engineering Manager
S. Burton, Keowee Hydro Station Plant Manager
T. Cheslak; Oconee Fire Protection Engineer
G. Childs, Keowee Hydro Station Operations
P. Fisk; Superintendent of Operations
R. Guy, Organization Effectiveness Manager
M. McNeely, Security Manager
A. Lotfi, Duke - Construction
T. Patterson, Safety Assurance Manager
J. Pounds, OMP Tornado/HELB QA Oversight
T. Ray, Station Manager
F. Rickenbaker, OMP Manager
D. Robinson, Radiation Protection Manager
J. Smith, Regulatory Compliance
P. Street, Emergency Planning Manager
M. Swim, Fleet Regulatory Affairs Engineer
J. Thomas, Manager, Fleet Procurement Engineering
C. Wasik, Regulatory Compliance Manager
J. Yankoglu, Electrical Procurement Engineering Manager

LIST OF REPORT ITEMS

Opened

AV 05000269/2014002-01	Inadequate Procedure to Ensure Adequate Piping Weld Inspections (4OA3.2)

Closed

LER 05000287/2013-001-00	Unit 3 Manual Reactor Trip due to Main Feedwater Oscillations (4OA3.1)
LER 05000269/2013-004-00	High Cycle Fatigue Resulted in Reactor Coolant Leak and Unit Shutdown (4OA3.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures:

AP/0/A/1700/047, Jocassee Dam Failure, Rev. 0
AP/1/A/1700/013, Dam Failure, Rev. 31
AP/1/A/1700/034, Degraded Grid, Rev. 011
IP/0/B/1606/009, Preventive Maintenance and Operational Check of Freeze Protection, Rev. 32
MP/0/B/3007/059, Plant Heater Testing, Rev. 7
OP/0/A/1104/041, Auxiliary Building Ventilation, Rev. 39
OP/0/A/1106/041, Turbine Building Ventilation, Rev. 3
OP/0/A/1106/042, Hale Portable Pump Operation, Rev. 007
OP/0/A/1107/016, Removal and Restoration of Switchyard Electrical Equipment, Rev 034
OP/0/B/1104/050, Weather Related Activities, Rev. 4
OP/2/A/1102/020D, AAF and Outside Rounds, Rev. 065
PT/0/A/0110/017, Cold Weather Preparation, Rev. 7
RP/0/A/1000/035, Severe Weather Preparations, Rev. 0

Section 1R04: Equipment Alignment

Complex Activity Plans:

NSD-213-1, 91-01, Complex Critical Activity Plan, KHU-2 Rotor - Critical Activity Plan – EC101837- Keowee Unit 2 Field Pole Replacement, Rev. 000
NSD-213-1, 91-01, Complex Critical Activity Plan, Diving Operations Keowee 4 Year Inspection, Rev. 013

Section 1R05: Fire Protection

Procedures:

O-FS-2-AB-9796-001, Unit 2 Auxiliary Bldg Pre-Fire Plan El 796', Rev 1
O-FS-2-TB-9775-001, Unit 2 Turbine Bldg Pre-Fire Plan El 775', Rev 0
O-FS-3-AB-9783-001, Unit 2 Auxiliary Bldg Pre-Fire Plan El 783', Rev 0
O-FS-3-TB-9796-001, Unit 3 Turbine Bldg Pre-Fire Plan El 796', Rev 0

Section 1R07: Heat Sink Performance

Documents:

Complex critical activity plan for 3A LPI DHR cooler E/C testing, Rev. 1
Curtiss Wright Flow Control Company Balance of Plant Eddy Current Inspection Report for LPI-3A, dated 2/27/2014

Procedures:

MP/0/A/1100/020, Cooler – LPI – Tube Plugging, Rev. 5

Section 1R11: Licensed Operator Requalification

Procedures:

RP/0/A/1000/01, Emergency Classification Rev. 00
OP/1/A/1103/004 Soluble Poison Control, Rev. 101

Other:

Active Simulator Exam OP-OC-ASE-32, Rev 0

Section 1R12: Maintenance Effectiveness

Drawings:

OFD-101-3.1, Flow Diagram of High Pressure Injection (Letdown Section), Rev 039; OFD-101-3.1A, Flow Diagram of High Pressure Injection (Charging Section), Rev. 030; OFD-101-3.4, Flow Diagram of High Pressure Injection (Charging Section), Rev. 030

Problem Identification Program Reports (PIPs):

O-12-0072; O-12-0154; O-13-03117; O-14-00470; O-14-0544; O-14-0633; O-14-00681; O-14-00746

Work Order:

WR: 01103497

02088069; 02103273; 02116642; 02124720; 021266424; 02135938

Other:

Tagout ID: 13-03222, Safety Tag Removal Form, 2GWD-56, January 21, 2014

System Health Report, High Pressure Injection System, 4th quarter 2014

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Complex Activity Plans:

NSD-213-1, 91-01, Complex Critical Activity Plan, KHU-2 Rotor - Critical Activity Plan – EC101837- Keowee Unit 2 Field Pole Replacement, Rev. 0

NSD-213-1, 91-01, Complex Critical Activity Plan, Diving Operations Keowee 4 Year Inspection, Rev. 013

NSD-213-1, 91-01, Complex Critical Activity Plan, 3A LPI DHR Cooler E/C Testing, Rev. 13

NSD-213-1, 91-01, Complex Critical Activity Plan, SSF Monthly Outage 14 WEEK12, Rev. 1

Drawings:

K-704, One Line Diagram 125 Volt DC Station Auxiliary Circuits, Rev 41

Problem Identification Program Reports (PIPs):

O-11-08602; O-12-00052; O-13-09151; O-13-09215; O-13-09228

Procedures:

EP/2/A/1800/001 B, Blackout, Rev. 40

OMP 4-06, Attachment A, Compensatory Measures when SSF is Unavailable During SSF Outage, Rev. 3

NSD-415, Operational Risk Management (Modes 1-3) per 10 CFR 50.65 (a)(4), Rev 8

Work Orders:

02057464; 02061113; 02114321; 02119548; 02135366; 02135468, 02142692

Section 1R15: Operability Evaluations

Calculations:

OSC-3120, Oconee Nuclear Station Units 1, 2, & 3 Electrical Protective Relay Settings & Breaker Coordination, Rev 6

Drawings:
OFD-101-3.1, Flow Diagram of High Pressure Injection (Letdown Section), Rev 039; OFD-101-3.1A, Flow Diagram of High Pressure Injection (Charging Section), Rev. 030; OFD-101-3.4, Flow Diagram of High Pressure Injection (Charging Section), Rev. 030
K-711-D, Connection Diagram Control Board No. CB3 and CB4, Rev 39
K-724, Interconnection Diagram 13.8 KV Switchgear UNIT No. 6 & 6A, Rev 18
K-707, Elementary Diagram A.C. Circuits Generators No. 1 and No. 2 Transformer No. 1, Rev 29

Problem Identification Program Reports (PIPs):
O-13-13443; O-13-13685; O-13-13942; O-14-00447; O-14-00470; O-14-00681; O-14-00746; O-14-03093

Procedures:
AP/2/A/1700/016, Abnormal Reactor Coolant Pump Operation, Rev. 24
OP/2/A/1104/008, Component Cooling System, Rev. 008
IP/0/A/2001/002, Inspection and Maintenance of Keowee Hydro Station Air Circuit Breakers, Rev 038

Work Order:
02146069

Other:
Oconee Units 1, 2 and 3 Design Bases, B3.4.13-3, Rev 5/16/12
Tagout ID: 13-03222, Safety Tag Removal Form, 2GWD-56, January 21, 2014

Section 1R17: Evaluation of Changes, Tests, or Experiments and Permanent Plant Modifications

Basis Documents
Technical Specifications, Current
Updated Final Safety Analysis, Current

Calculations
OSC-9236, PSW Facility Battery Room, Ventilation Calculation, Rev. 3
OSC-9700, Protected Service Water (PSW) Building Fire Detection, Rev. 0
OSC-9938, Pipe Stress Calculation for PSW Building Fire Protection, No. L14A-14, Rev. 3
OSC-10005, PSW Building Fire Hose Flow Calculation, Rev. 1
OSC-10038, PSW Fire Hose Reel Mounting Qualification, Rev. 3

Design Basis Documents
OS-0243.00-00-0001, Piping Installation Specification, Rev. 27
OSS-0254.00-00-1002, Design Basis Specification for High Pressure Service Water, Rev. 31
OSS 0254.00-00-4008, Design Basis Specification for Fire Protection, Rev. 27
OSS-72A.00-00-0004, Fire Protection Acceptance Specification, Rev. 20

Drawings
K-700, One Line Diagram Relays and Meters 13.8 – 230kv, Rev. 38
O-310-K-23, PSW Building Fire Protection Plan & Fire, Flood & Pressure Boundaries Plan at El 790' + 9" & 797' + 0" & El 807' + 0", Rev. 0
O-423-J, Piping Layout Service Water Piping Outside Powerhouse, Rev. 11
O-6892-L-001, PSW Building Fire and Smoke Detection Equipment Plan El. 797'-0" & 807'-0", Rev. 0
OFD-124C-1.4, Flow Diagram of High Pressure Service Water System (West Yard), Rev. 36
O-6757-A, PSW Building Fire and Smoke Detection Connection Diagram, Rev. 0

Procedures
TN/0/B/E/C91856/002, Controlling Procedure for PSW Building Fire Detection Testing, Rev. 0
OSR-0280.00-00-0002, Fire Alarm Test Procedure Service Water Building Fire Detection System Field Installation and Testing Services, Rev. 2
PT/0/A/0250/051, Fire Hose Station Flow Test, dated 7/09/2013

Miscellaneous
AR 00440768, 10CFR50.59 Screening of EC 91856, PSW Support Equipment and Testing, Rev. 5
Duke Energy Carolinas Topical Report Quality Assurance Program, Amendment No. 40
Evaluation No. SL-012095, Protected Service Water (PSW) Building Fire Detection System Commissioning Report, Rev. 1
Nuclear Energy Institute (NEI) 96-07, Guidelines for 10 CFR 50.59 Implementation, Rev. 1
OM 396-0031.002, PSW Building Fire Alarm and Emergency Communication System Inspection and Testing Form, Rev. 0
OM 396-0031.003, PSW Building Fire Alarm and Emergency Communication System Record of Completion, Rev. 0
Regulatory Guide 1.187, Guidelines for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments, dated November 2000

Modifications
EC 91856, PSW Support Equipment Installation and Testing, Rev. 051

Work Orders
02089510 01, Controlling Procedure for PSW Building Fire Detection Testing, dated 10/23/13

Section 1R18: Plant Modifications
Drawings:
O-1790-F, Connection Diagram Cabinet 2G2 Right Side Wall, Rev. 035
O-1791-B, Connection Diagram Cabinet 2I2 Left Side Wall, Rev. 002
O-1791-B-001, Connection Diagram Cabinet 2I2 Left Side Wall, Rev. 005

Engineering Change:
102446

Procedures:
IP/0/A/0101/002, Controlling Procedure for Installation and Removal of Temporary Engineering Changes, Rev. 005

Work Orders:
02093366

Section 1R19: Post-Maintenance Testing

Procedures:
IP/0/A/0203/001 E, Low Pressure Injection System RB Emergency Sump Pump Instrumentation Calibration, Rev. 044
IP/3/A/4980/050 A, Brown Bovari GR-5 Ground Shield Relay Test, Rev 50, March 31, 2014 performance
IP/0/A/4980/051 C, ABB/ITE Type 51 Relay Test, Rev 51, March 31, 2014 performance
MP/0/A/2005/001, Keowee Generator Routine Inspection and Maintenance, Rev 24, February 27, 2014 performance
PT/3/A/0204/007, Reactor Building Spray Pump Test, Rev 096
PT/0/A/0620/019, Keowee Over Frequency Protection Functional Test, Rev 10, February 28, 2014 performance
PT/3/A/0600/013 B, Motor Driven Emergency Feedwater Pump Test, Rev 63, March 31, 2014 performance

Work Orders:
02098945; 02116854; 02138819

Other:
Modification Test Plan for EC 101837, Keowee Generator #2 Field Pole Replacement, Rev 3

Section 1R22: Surveillance Testing

Procedures
MP/0/A/5050/017, Diesels – SSF – Operational Inspection and Checks, Rev 28
MP/0/A/5050/029, Diesel – SSF – Changing Engine Lube Oil and Filters, Rev 25
OP/0/A/1600/010, Operation of the SSF Diesel-Generator, Rev 81
PT/0/A/0600/021, Standby Shutdown Facility Diesel-Generator Operation, Rev 15
PT/1/A/0203/006 A, Low Pressure Injection Pump Test – Recirculation, Rev 89
PT/2/A/0203/006 A, Low Pressure Injection Pump Test - Recirculation, Rev 84
PT/3/A/0251/003, CBAST Pump Test, Rev 66

Work Orders:
02134351; 02135406; 02136032; 02137785; 02137790; 02137791; 0213771; 02137798

Section 1EP6: Drill Evaluation

Procedures:
RP/0/A/1000/001, Emergency Classification, Rev. 0
RP/0/A/1000/024, Protective Action Recommendations, Rev 1
RP/0/A/1000/009, Procedure for Site Assembly, Rev 2
RP/0/A/100/019, Technical Support Center Emergency Coordinator Procedure, Rev 3

Other:
Emergency Planning Drill/Exercise Notebook, Drill 2014-01, Oconee Nuclear Station Quarterly Drill, dated January 14, 2014

Section 4OA1: Performance Indicator Verification

Documents:

MSPI Basis Document, Rev. 14
Oconee Unit 1 MSPI Derivation Report
Oconee Unit 2 MSPI Derivation Report
Oconee Unit 3 MSPI Derivation Report

Section 4OA5: Other

Commercial Grade Dedication:

CGD-2001.03-04-0004, Commercial Grade Item Technical Evaluation Q-Level 1, "Kop-Flex Couplings and Replacement Parts," Rev. 10, 12/11/13
CGPA-2000.00-00-0101, Commercial Grade Program Procurement and Acceptance Manual, "Commercial Grade Test and Inspection for Kop-Flex Couplings and Replacement Parts," Rev. 15, 8/29/13
CGD-2012.02-02-0007, Item Technical Evaluation QA Condition 1, "Exxon Mobil Bulk Oil," Rev. 0, 11/10/10
CGD-2001.08-00-0008, Commercial Grade Item Technical Evaluation QA Condition 1, "Brown and Sharpe Turbine Bearing Oil Pump Parts," Rev. 2, 6/30/11
Duke Energy Supplier Verification Supplier Evaluation Report, "BSM Pump Corporation," 8/12/10
CGPA-2000.00-00-0009, "Brown and Sharpe Pump Model 112LF Replacement Parts," Rev. 0, 12/9/97
CGD-1026.00-00-0002, "OSECO Rupture Disks and Parts," Rev. 5, 1/16/14
EGS-DP-927701-289, "Dedication Plan for Duke Oconee Protected Service Water Building Safety-Related (QA-1) Dampers, Ruskin Model DFD60-3," Rev. C, 11/25/13
EGS-DP-927701-289, "Dedication Plan for Duke Oconee Protected Service Water Building Safety-Related (QA-1) Dampers, Ruskin Model DFD60-3," Rev. B, 8/1/11
EGS-TR-927701-302, "Final Dedication Report for Duke Oconee Protected Service Water Building Safety-Related (QA-1) Dampers, Ruskin Model DFD60-3," Rev. B, 2/15/12
SCD285, "Procurement Processes," Rev. 10, 1/13/14
Duke Energy Nuclear Policy Manual, Nuclear System Directive. 303, "Environmental Qualification Program," Rev. 5, 3/7/11
Duke Power Engineering Directives Manual EDM-120," Seismic and Environmental Qualification of QA Condition 1 and Oconee SQUG Electrical Enclosures," Rev. 2, 8/7/08
Supply Chain Directive SCD290, "Sampling for Special Tests and Inspections," Rev. 2, 2/24/06
SCD255, "Non-Conforming Materials, Parts or Components," Rev. 3, 8/13/13
SCD311, "QA Inspection & Testing," Rev. 12, 10/15/13
SCD230, "Commercial Grade Items," Rev. 7, 6/7/13
Duke Energy Supplier Audit of CRDF Dedication Lab, and the Electronics Service Center (ESC) (at Harris Nuclear Plant in New Hill, NC), performed Feb 12-14, 2013.
SCD910, "Fraud Detection," Rev. 0, 4/2/01
CGD-2025.01-00-006, "Applied Flow Technology- Fathom 6.0 Software," Rev. 2, 8/24/11
Commercial Grade Item Technical Evaluation Q-Level1 CGD-1026.00-00-0002, "OSECO Rupture Disks and Parts," Rev. 4, 2/7/13
CAP-NGGC-0202-1-21, AR# 573980, "IER L4 12-86, Counterfeit Parts and Equipment Vulnerability,"
Material Evaluation ME 06850R00, GEDAC Digital Input Module Commercial Grade Item Evaluation for Brunswick Nuclear Station, 3/21/05

Duke Energy Document Number 1092557, “Receiving Inspection Report for OSECO Rupture Disks,” 7/17/06
Receiving Inspection Report for Purchase Order 172382, General Purpose Control Relay, 8/27/13.
Receiving Inspection Report for Purchase Order 156035, General Purpose Control Relay, 7/18/12.
CGD-3009.01-01-0001, Potter and Brumfield KRP and KRPA General Purpose Relays.
CGPA-3000.00-00-0130Commercial Grade Program Procurement and Acceptance Manual for Potter and Brumfield KRP and KRPA Series Relays and Accessories, Rev. 17, 7/18/12.
CGD-3011.09.002, Commercial Grade Technical Evaluation for Acopian Power Supplies, Rev.3, 10/24/12.
NLI Dedication Report Switchgear Breakers, Instrumentation and Control, Document Number VR-29411642-9, Rev. 7, 1/6/11.
NLI Verification Plan for Molded Case Breakers, Document Number VP-29411642-17, Rev. 3, 5/27/2010.
IEEE Std C37.20.2-1999, “IEEE Standard for Metal-Clad Switchgear,” 3/20/05.
American National Standard for Switchgear- Metal Clad Switchgear Assemblies-Conformance Test Procedures, ANSI C37-55-1989, 11/17/88.
Duke Energy Commercial Grade Survey of Newark/Element 14, Survey Number VA11147, 10/31/11.
NLI Approval of ANSI Design Test Certification For Duke Oconee Nuclear Station PSW System Medium Voltage Switchgear, NLI Project Number 294-11642, 1/26/10.

PIPs:
G-13-00948, G-13-00947, O-13-14596, G-13-00949, O-13-13752, O-13-13588, O-13-13756, O-13-14596, C-13-10428, O-14-01024

Audits:
Nuclear Oversight Audit, 2012 Oconee Procurement and Materials Audit
Quick Hitter Self-Assessment G-ENG-SA-13-05, Commercial Grade Assessment: Legacy Duke West and Legacy Progress – Duke East
Purchase Orders:
Duke Energy Carolinas, LLC: Purchase Order NM 25792 to Oklahoma Safety Equipment Co for OSECO Rupture Disks, Rev. 0 and Rev 1.
Duke Purchase Order No. 00156034 to Newark/Element 14 for purchase of 5 General Purpose Control Relays, 2/23/12.
Duke Purchase Order No. A3PB-6-0010-00-Q1”5kV Motor Operated Transfer Switches Protected Service Water (PSW) System,” 5/12/09