



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

October 30, 2015

Mr. Kelvin Henderson  
Site Vice President  
Duke Energy Corporation  
Catawba Nuclear Station  
4800 Concord Road  
York, SC 29745-9635

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT  
05000413/2015003, 05000414/2015003

Dear Mr. Henderson:

On September 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Catawba Nuclear Station Units 1 and 2. On October 5, 2015, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of the inspection in the enclosed inspection report.

The NRC inspectors documented one finding of very low safety significance (Green) which involved a violation of NRC requirements in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy. If you contest the violation or the significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at Catawba. If you disagree with a cross-cutting aspect assignment in this report, 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 Catawba.

In accordance with Title 10 of the Code of Federal Regulations 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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 Agencywide Documents Access and Management 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/*

Frank Ehrhardt, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Docket Nos.: 50-413, 50-414  
License Nos.: NPF-35, NPF-52

Enclosure: Integrated Inspection Report 05000413/2015003, 05000414/2015003  
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

K. Henderson

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NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

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cc w/encl: (See page 3)

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Letter to K. Henderson from Frank Ehrhardt dated October 30, 2015

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT  
05000413/2015003, 05000414/2015003

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-413, 50-414

License Nos.: NPF-35, NPF-52

Report No.: 05000413/2015003 and 05000414/2015003

Licensee: Duke Energy Carolinas, LLC

Facility: Catawba Nuclear Station, Units 1 and 2

Location: York, SC 29745

Dates: July 1, 2015 through September 30, 2015

Inspectors: A. Hutto, Senior Resident Inspector  
L. Pressley, Resident Inspector  
J. Parent, Acting Resident Inspector  
J. Worosilo, Senior Project Engineer

Approved by: Frank Ehrhardt, Chief  
Reactor Projects Branch 1

Enclosure

## SUMMARY OF FINDINGS

IR 05000413/2015003; and 05000414/2015003, July 1, 2015, through September 30, 2015; Catawba Nuclear Station, Units 1 and 2, Event Followup

The report covered a 3-month period of inspection by resident inspectors. There was one NRC identified violation documented in this report. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- Green: An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the licensee's failure to promptly implement corrective actions to replace a frequently operated sliding link associated with the 2A train auxiliary feedwater (CA) control circuitry. As a result, the sliding link failed prior to replacement which affected the function to automatically swap from the normal source to the assured source (nuclear service water) on low suction pressure to the 2A motor driven CA pump. The licensee replaced the failed sliding link and entered the issue into their corrective action program.

The inspectors determined that the licensee's failure to promptly implement corrective actions for a previously identified vulnerability with frequently operated sliding link E-12 was a performance deficiency (PD). The PD was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failed sliding link resulted in the inoperability of the 2A train of CA. The finding was determined to be of very low safety significance because of the multiple sources of water available to the CA pump before the assured source was needed, and the short duration that the steam generator injection lines valves were closed. This finding had a cross-cutting aspect of resolution (P.3), as described in the problem identification and resolution cross-cutting area as the licensee failed to replace sliding link E-12 in a timely manner commensurate with its safety significance. (Section 4OA3)

Enclosure

## REPORT DETAILS

### Summary of Plant Status

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

Unit 2 began the inspection period at 100 percent RTP. On August 27, 2015, unit power was reduced to approximately 18 percent RTP to allow isolation of a steam generator blowdown sample valve inside containment. On August 29, 2015, unit power was returned to 100 percent RTP and remained there for the rest of the inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope

##### .1 Partial Walkdown

The inspectors verified that critical portions of the selected systems were correctly aligned by performing partial walkdowns. The inspectors selected systems for assessment because they were a redundant or backup system or train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings. Documents reviewed are listed in the attachment. The inspectors selected the following three systems or trains to inspect:

- Unit 2 'A' train of auxiliary feedwater (CA) while the B train was out of service (OOS) for testing
- Unit 2 'B' train of nuclear service water (RN) system while the 'A' train pump was OOS for bearing cooling water valve replacements
- Unit 1 'B' train of containment penetration valve injection (NW) system while the 'A' train was OOS for repair of 1NW-195

To verify the licensee was identifying and resolving equipment alignment discrepancies, the inspectors reviewed corrective action documents, including condition reports and outstanding work orders (WO). The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports. Documents reviewed are listed in the attachment.

##### b. Findings

No findings were identified.

## 1R05 Fire Protection (71111.05AQ)

### a. Inspection Scope

#### .1 Quarterly Inspection

The inspectors evaluated the adequacy of selected fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire plans, the inspectors assessed the following items:

- control of transient combustibles and ignition sources
- fire detection systems
- fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's corrective action program

The inspectors toured the following five fire areas to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the attachment.

- Unit 1, 'B' train essential switchgear room, fire area 8
- Unit 2, 'A' diesel generator room, fire area 27
- Unit 2, switchgear room, fire area 19
- 522' level auxiliary building, fire area 1
- control room, fire area 21

#### .2 Annual Inspection

The inspectors evaluated the licensee's fire brigade performance during a drill on August 21, 2015, and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance:

- capability of fire brigade members
- leadership ability of the brigade leader
- use of turnout gear and fire-fighting equipment
- team effectiveness
- compliance with site procedures

The inspectors also assessed the ability of control room operators to combat potential fires, including identifying the location of the fire, dispatching the fire brigade, and sounding alarms. The inspectors evaluated the licensee's ability to declare the appropriate emergency action level and make required notifications in accordance with

Enclosure

NUREG 0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (FEMA-REP-1)" and Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

Underground Cables

The inspectors reviewed related flood analysis documents and inspected the areas listed below containing cables whose failure could disable risk-significant equipment. The inspector directly observed the condition of cables and cable support structures and, as applicable, verified that dewatering devices and drainage systems were functioning properly. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program. Documents reviewed are listed in the attachment.

- Unit 1, RN manhole CMH-2

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11)

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification

On July 22, 2015 the inspectors observed an evaluated simulator scenario administered to an operating crew as part of the annual regualification operating test required by 10 CFR 55.59, "Regualification". ASE-46, LOR Active Simulator Exam, was the scenario observed. The scenario included a steam leak inside containment, steam line break and anticipated transient without scram (ATWS).

The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique

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- simulator performance

Documents reviewed are listed in the attachment.

.2 Resident Inspector Quarterly Review of Licensed Operator Performance in the Actual Plant/Main Control Room

The inspectors observed licensed operator performance in the main control room during Unit 1 power maneuvering on July 11 and July 12, 2015 in order to perform main turbine control valve movement testing and power operated relief valve (PORV) testing.

The inspectors assessed 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

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the two issues listed below to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"). The inspectors reviewed procedures and records to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. The inspectors also interviewed system engineers and the maintenance rule coordinator to assess the accuracy of performance deficiencies and extent of condition. Documents reviewed are listed in the attachment.

- Unit 2, condition report (CR) 1930791, 2RN-351 indicates closed with valve full open and flow is 7700 gallons per minute
- Unit 2, CR 1943547, Investigate 2A hydrogen skimmer fan failure to start during auxiliary safeguards testing

Enclosure

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the four maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities. Documents reviewed are listed in the attachment.

- equipment protection plan for the Unit 2 'A' train of component cooling water (KC) while the 2B1 KC pump was out of service (OOS) for maintenance (yellow risk condition)
- equipment protection plan for the Unit 1 'B' train of containment spray (NS) while the 1A NS pump was OOS for maintenance
- equipment protection plan for Unit 1 and 2 safe shutdown equipment while the standby shutdown facility was OOS for preventive maintenance
- equipment protection plan for the Unit 2 'A' diesel generator while inspection of connection rod bearing #1

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

.1 Operability and Functionality Review

The inspectors selected the four operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures

Enclosure

were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the attachment.

- 1B emergency diesel generator (EDG) dresser coupling shelf life, Condition Report (CR) 1939053
- 1A2 KC pump inboard seal leak, CR 1941239
- 1B EDG fuel oil leak on engine driven fuel oil pump, CR 01935303
- 1A EDG fuel oil leak on the 6R fuel injection pump base elbow fitting, CR 1956393

## .2 Operator Work-Around Review

The inspectors performed a detailed review of the licensee's operator work-around, operator burden, and control room deficiency lists for the station in effect on June 25, 2015 to verify that the licensee identified operator workarounds at an appropriate threshold and entered them in the corrective action program. The inspectors verified that the licensee identified the full extent of issues, performed appropriate evaluations, and planned appropriate corrective actions. The inspectors also reviewed compensatory actions and their cumulative effects on plant operation. Documents reviewed are listed in the attachment.

### b. Findings

No findings were identified.

## 1R19 Post-Maintenance Testing (71111.19)

### a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the five maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- NS pump performance test following 1A NS pump motor preventive maintenance (PM), WOs 2197353, 2122266
- containment air return fan 2A and hydrogen skimmer fan (HSF) 2A performance test following repairs to the 2A HSF breaker, WO 20010971
- standby shutdown facility diesel test following diesel PMs, WOs 2171791, 2180172, 2196528
- 2B safety injection pump performance test following breaker PMs
- Unit 1 standby makeup pump performance test following discharge relief valve replacement

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The inspectors evaluated these activities for the following:

- acceptance criteria were clear and demonstrated operational readiness
- effects of testing on the plant were adequately addressed
- test instrumentation was appropriate
- tests were performed in accordance with approved procedures
- equipment was returned to its operational status following testing
- test documentation was properly evaluated

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the five surveillance tests listed below and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met technical specification and current licensing basis. The inspectors evaluated the test activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. Additionally, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with surveillance testing. Documents reviewed are listed in the attachment.

Routine Surveillance Tests

- PT/1/A/4200/009 A, Auxiliary Safeguards Test Cabinet Periodic Test
- PT/2/A/4350/002 A, Diesel Generator 2A Performance Test (5 hour loaded run)
- IP/1/A/3200/001 A, Solid State Protection System Train A Periodic Test
- PT/1/A/4350/002 B, Diesel Generator 1B Operability Test (1 hour loaded run)

In-Service Tests (IST)

- PT/2/A/4200/004 B, Containment Spray Pump 2A Performance Test

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on August 20, 2015. The inspectors observed licensee activities in the simulator and/or technical support center to evaluate implementation of the emergency plan, including event classification, notification, and protective action recommendations. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying emergency preparedness weaknesses and verified the identified weaknesses were entered in the corrective action program. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 1 and Unit 2 PIs listed below. The inspectors reviewed plant records compiled between July 2014 and June 2015 to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data. Documents reviewed are listed in the attachment.

Cornerstone: Initiating Events

- unplanned power changes per 7000 critical hours

Cornerstone: Mitigating Systems

- residual heat removal system

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

The inspectors screened items entered into the licensee's corrective action program to identify repetitive equipment failures or specific human performance issues for follow-up. The inspectors reviewed problem identification program reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Annual Followup of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of CR 1930791; "2RN-351 indicates closed on operator aid computer with the valve full open."

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA3 Followup of Events and Notices of Enforcement Discretion

(Closed) Licensee Event Report (LER) 05000414/2015-001-0, Auxiliary Feedwater (CA) System Train 2A and its Automatic Transfer Function to the Nuclear Service Water (RN) System Were Determined to Have Been Inoperable in Violation of Technical Specifications (TS).

a. Inspection Scope

On April 20, 2015, the licensee determined that the 2A train of CA had been unknowingly inoperable from November 20, 2014 to February 28, 2015 when Unit 2 entered Mode 4 for a refueling outage. The cause of the inoperability was the inability of the 2A train of CA to automatically transfer to the assured source of water supply. The cause of the event was determined to be a failed sliding link (E-12 in cabinet 2EATC16). The failure was due to degradation caused by frequent manipulation during the quarterly auxiliary safeguards cabinet periodic test. The sliding link failure also prevented the CA flow isolation valves 2CA-56 and 2CA-60 to steam generators 2A and 2B respectively from automatically opening. However, these valves were in their normally open position during the period of inoperability except for 3.5 hours for 2CA-56 and 2.3 hours for 2CA-60. The licensee entered this issue into their corrective action program as PIP C-15-1817. The inspectors reviewed this LER, the licensee's apparent cause evaluation, and corrective action documents to verify the accuracy of the LER and that corrective actions were identified and implemented to address the issue.

b. Findings

Introduction: A Green NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the licensee's failure to promptly implement corrective actions to replace a frequently operated sliding link associated with the 2A train CA control circuitry. As a result, the sliding link failed prior to replacement which affected the function to automatically swap from the normal source to the assured source (RN) on low suction pressure to the 2A motor driven CA pump.

Description: On April 20, 2015, the licensee determined that the 2A train of CA had been unknowingly inoperable from November 20, 2014 to February 28, 2015 when Unit 2 entered Mode 4 for a refueling outage. The cause of the inoperability was the inability of the 2A train of CA to automatically transfer to the assured source of water supply. The cause of the event was determined to be a failed sliding link (E-12 in cabinet 2EATC16). The failure was due to degradation caused by frequent manipulation during the quarterly auxiliary safeguards cabinet periodic test. The sliding link failure also prevented CA flow isolation valves 2CA-56 and 2CA-60 to steam generators 2A and 2B respectively from automatically opening. However, these valves were in their normally open position during the period of inoperability except for 3.5 hours for 2CA-56 and 2.3 hours for 2CA-60.

In November 2011, the licensee determined that a corrective action was needed to replace all frequently operated sliding links, which included link E-12 in EATC16, following the failure of a frequently operated sliding link documented in PIP C-11-8658.

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The licensee did not complete the corrective action to initiate work orders to replace the sliding link until March 2013. The work order was designated an outage work order and was scheduled for the spring 2015 outage even though a Unit 2 outage was scheduled for the fall of 2013. The fall of 2013 outage was the first opportunity to perform the work following creation of the work order. The licensee did not place adequate priority on replacing the sliding link commensurate with the safety significance, as allowing over three years to complete the identified corrective action resulted in the failure of the link prior to replacement. The apparent cause evaluation performed by the licensee to investigate the issue did not identify the corrective action deficiency as a failed barrier to preventing the event.

Analysis: The inspectors determined that the licensee's failure to promptly implement corrective actions for a previously identified vulnerability with frequently operated sliding link E-12 was a PD. The PD was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failed sliding link resulted in the inoperability of the 2A train of CA. The finding required a detailed risk assessment based on the Phase 1 screening criteria found in IMC 609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," issued June 19, 2012, as the finding represented an actual loss of function of at least a single train for greater than its TS allowed outage time. A senior risk analyst performed a Phase 3 analysis for this issue. The analysis was performed in two parts. The first part was for the long exposure time that the 2A train of CA would have failed to automatically transfer. The risk for this part was of very low significance because of the multiple sources of water available to the CA pump before the assured source was needed. The second part was for the short duration that the steam generator injection lines valves were closed and would have required manual action to reposition. The short duration of the second part drove its lack of significance. Calculations for both parts involved sequences with the failure of CA, and the failure of the human action to initiate feed and bleed. The screening results were several orders of magnitude below the 1E-6 change in risk threshold, and the finding was determined to be Green. This finding had a cross-cutting aspect of resolution (P.3), as described in the problem identification and resolution cross-cutting area as the licensee failed to replace sliding link E-12 in a timely manner commensurate with its safety significance.

Enforcement: 10 CFR 50 Appendix B, Section XVI, "Corrective Action," required that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, the licensee failed to correct a sliding link in the CA system circuitry that was identified in November 2011 as needing replacement due to frequent operation. The sliding link subsequently failed and resulted in the inoperability of the 2A CA train from November 20, 2014 until February 28, 2015. The licensee replaced the failed sliding link as an immediate corrective action. Because the inadequate corrective action measures were of very low safety significance and have been entered into the licensee's corrective action program (PIP C-15-1817), this violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. (NCV 05000414/2015003-01: Failure to Promptly Replace a Frequently Operated Sliding Link.)

Enclosure

4OA6 Meetings, Including Exit

On October 5, 2015, the resident inspectors presented the inspection results to Mr. Kelvin Henderson and other members of the licensee's staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

S. Andrews, Regulatory Affairs Specialist  
T. Arlow, Emergency Planning Manager  
D. Cantrell, Chemistry Manager  
W. Carwile, Acting Organizational Effectiveness Director  
C. Fletcher, Regulatory Affairs Manager  
B. Foster, Operations Manager  
K. Henderson, Site Vice-President  
T. Jenkins, Maintenance Manager  
L. Keller, General Manager Nuclear Engineering  
B. Leonard, Training Manager  
K. Phillips, Work Management Manager  
T. Simril, Plant Manager  
J. Smith, Radiation Protection Manager  
S. West, Director, Nuclear Plant Security

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Closed

05000414/2015-001-0 LER Auxiliary Feedwater (CA) System Train 2A and its Automatic Transfer Function to the Nuclear Service Water (RN) System Were Determined to Have Been Inoperable in Violation of TS (Section 4OA3).

### Open and Closed

05000414/2015003-01 NCV Failure to Promptly Replace a Frequently Operated Sliding Link (Section 4OA3)

## LIST OF DOCUMENTS REVIEWED

### **Section 1R04: Equipment Alignment**

CN-2592-01.00, Flow Diagram of Unit 2 Auxiliary Feedwater System  
CN-2574-01.00, Flow Diagram of Unit 2 Nuclear Service Water System  
CN-1569-01.00, Flow Diagram of Unit 1 Containment Valve Injection Water System  
CR 1956237, 1NW195A failed to stroke in the open position

### **Section 1R05Q: Fire Protection**

AD-EG-ALL-1520, Transient Combustible Control  
Fire Strategy Fire Area 8, B train essential switchgear room  
Fire Strategy Fire Area 1, 522' level auxiliary building  
Fire Strategy Fire Area 19, auxiliary building 594' level  
Fire Strategy Fire Area 21, control room  
Fire Strategy Fire Area 27, diesel generator room 2A  
RP/0/B/5000/029, Fire Brigade Response  
Station Fire Impairment Log

### **Section 1R06: Flood Protection Measures**

Drawing CN-1938-06, Electrical Equipment Layout Outdoor Area

### **Section 1R11: Licensed Operator Requalification**

ASE-46, LOR Active Simulator Exam  
EP/1/A/5000/E-2, Faulted Steam Generator Isolation  
EP/1/A/5000/FR-S.1, Response to Nuclear Power Generation/ATWS  
EP/1/A/5000/ES-1.1, Safety Injection Termination  
Reactivity Manipulation Plan, Unit 1 Power Maneuver for Control Valve Movement Test  
S3P Report for Catawba Nuclear Station Unit 1, dated 7/11/2015 at 0800 hours

### **Section 1R12: Maintenance Effectiveness**

AD-EG-ALL-1210, Maintenance Rule Program  
EDM-210, Engineering Responsibilities for Maintenance Rule  
CR 1930791, 2RN-351 indicates closed with valve full open and flow is 7700 gallons per minute  
CR 1943547, Investigate 2A hydrogen skimmer fan failure to start during auxiliary safeguards testing  
Drawing CNM 1205.06-0167 001, 1/RN/351, 2/RN/351

### **Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Protection scheme for 2B KC OOS  
Protection scheme for 1A containment spray OOS  
Protection scheme for 2A KC OOS  
Clearance: PRT-0-15-SSFOOS-0044  
Clearance: PRT-1-15-1ANS-0040  
Clearance: PRT-2-15-2B1 KC OOS-0028  
NSD 415, Operational Risk Management  
NSD 417, Generation Risk Management Process  
AD-OP-ALL-0204, Plant Status Control

**Section 1R15: Operability Evaluations**

AD-OP-ALL-0105, Operability Determinations and Functionality Assessments

UFSAR, Chapter 8.3 Onsite Power Systems

AD-OP-ALL-0202, Aggregate Operator Impact Assessment

CNS Operator Challenges Database, dated June 25, 2015

CR 1939053, 1B emergency diesel generator Dresser coupling shelf life

CR 1941239, 1A2 KC pump inboard seal leak

CR 1935303, 1B emergency diesel generator (EDG) fuel oil leak on engine driven fuel oil pump

CR 1956393, 1A EDG fuel oil leak on the 6R fuel injection pump base elbow fitting

**Section 1R19: Post-Maintenance Testing**

PT/2/A/4450/005 A, "Containment Air Return Fan 2A and Hydrogen Skimmer Fan 2A Performance Test"

PT/1/A/4200/004 B, "Containment Spray Pump 1A Performance Test"

PT/0/A/4200/017 A, "Standby Shutdown Facility Diesel Test"

PT/2/A/4200/005 B, "Safety Injection Pump 2B Performance Test"

PT/1/A/4200/007 C, "Standby Makeup Pump #1 Performance Test"

**Section 1R22: Surveillance Testing**

IP/1/A/3200/001 A, Solid State Protection System Train A Periodic Test

PT/2/A/4350/002 A, Diesel generator 2A Operability Test

PT/1/A/4350/002 B, Diesel Generator 1B Operability Test

PT/1A/4200/009 A, Auxiliary Safeguards Test Cabinet Periodic Test

PT/2/A/4200/004 B, Containment Spray Pump 2A Performance Test

**Section 1EP6: Drill Evaluation**

ERO Drill Scenario: Drill 15-3

EP Drill 15-3 Notification messages 1-3

RP/0/A/5000/001, Classification of Emergency

**Section 4OA1: Performance Indicator Verification**

NSD 225, NRC Performance Indicators

NEI 99-02, Regulatory Assessment Performance Indicator Guideline

Catawba Master File CN: 854.02-4, MSPI Residual Heat Removal

**Section 4OA2: Problem Identification and Resolution**

AD-PI-ALL-0100, Corrective Action Program

AD-PI-ALL-0201, Corrective Action Program Trending

Drawing CNM 1205.06-0167 001, 1/RN/351, 2/RN/351

CR 1930791; 2RN-351 indicates closed on operator aid computer with the valve full open

Apparent Cause Evaluation Report, 2RN351 Valve Lever and Positioner Connection Failure  
(CR 1930791)

CR C-09-0546, 1RN-291 is indicating full open with no flow through the 1A KC heat exchanger

**Section 40A3: Followup of Events and Notices of Enforcement Discretion**

CR C-15-1817, During the Blackout/LOCA section of 2A ESF testing, valves 2CA-56 and 2CA-60 did not reposition to their open position

CR C-11-8658, Sliding link failure during performance of PT/2/A/4200/009 A

LER 414/2015-001-0, dated June 19, 2015

Apparent Cause Evaluation Report, Failure of 2CA-56 and 2CA-60 During ESF Testing (CR C-15-1817)