



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

April 26, 2012

Mr. J. R. Morris
Site Vice President
Duke Energy Carolinas, LLC
Catawba Nuclear Station
4800 Concord Road
York, SC 29745-9635

**SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000413/2012002, 05000414/2012002 AND EXERCISE OF ENFORCEMENT
DISCRETION**

Dear Mr. Morris:

On March 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Catawba Nuclear Station Units 1 and 2. The enclosed inspection report documents the inspection results which were discussed on April 10, 2012, with you and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding of very low safety significance (Green) which was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest the NCV, you should provide a written response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Catawba. In addition, if you disagree with the characterization of the finding 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.

The enclosed inspection report also documents one noncompliance for which the NRC is exercising enforcement discretion. The noncompliance involved the inoperability of both trains of control room area chilled water system (CRCWS) while Units 1 and 2 were operating at 100 percent RTP. The NRC is not taking enforcement action for this noncompliance because you requested, and the NRC granted, enforcement discretion for an additional 12 hours to affect repairs to one train of CRCWS. You did return one train of CRCWS to service within the additional 12 hours allowed. Because your actions did not contribute to this violation, it will not be considered in the assessment process or NRC's Action Matrix.

DEC

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In accordance with 10 CFR 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 Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA By C. Rapp For/

Jonathan H. Bartley, 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 05000413/2012002,
05000414/2012002
w/Attachment: Supplemental Information

cc w/encl: (See page 2)

DEC

2

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(cc w/encl cont'd – See next page)

Enclosure

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Enclosure

DEC

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Letter to J. R. Morris from Jonathan H. Bartley dated April 26, 2012

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000413/2012002, 05000414/2012002 AND EXERCISE OF ENFORCEMENT
DISCRETION

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RidsNrrPMCatawba Resource

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-413, 50-414

License Nos.: NPF-35, NPF-52

Report Nos.: 05000413/2012002, 05000414/2012002

Licensee: Duke Energy Carolinas, LLC

Facility: Catawba Nuclear Station, Units 1 and 2

Location: York, SC 29745

Dates: January 1, 2012, through March 31, 2012

Inspectors: A. Hutto, Senior Resident Inspector
R. Cureton, Resident Inspector
C. Fletcher, Senior Reactor Inspector (Section 1R08)
W. Loo, Senior Health Physicist, (Sections 2RS1, 4OA1)
A. Nielson, Senior Health Physicist (Sections 2RS1, 4OA1)
R. Williams, Reactor Inspector (Section 1R08)

Approved by: Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000413/2012-002, 05000414/2012-002; 1/1/2012 – 3/31/2012; Catawba Nuclear Station, Units 1 and 2; Flood Protection Measures

The report covered a three month period of inspection by two resident inspectors and four region based inspectors. One Green finding, which was determined to involve a violation of NRC requirements, was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects are determined using IMC 0310, "Components Within The Cross-Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Mitigating Systems

- Green. A NRC-identified non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, Design Control, was identified for the licensee's failure to implement the requirements of their modification program. Surface grading work for the nuclear service water (RN) piping replacement modification was not reviewed to ensure it did not impact the CMH-2 sump pump function to eliminate accumulated water. Licensee's corrective actions included unclogging the sump pump discharge outlet, replacing the sump pump, and extending the height of the discharge outlet.

The performance deficiency was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Factors - Flood Hazard and adversely affected the cornerstone objective in that the design modification activities affected the CMH-2 sump pump function to prevent water accumulation in the safety-related manhole structure. The inspectors determined that the finding was of very low safety significance because the accumulated water in CMH-2 did not result in the loss of operability or functionality of safety-related structures, systems, and components (SSCs). The finding was associated with the aspect of appropriate and timely corrective actions of the Corrective Action Program component in the Problem Identification and Resolution cross-cutting area in that the licensee identified in August 2011 (PIP C-11-6342) that the sump pump discharge outlet needed to be raised; however, corrective actions were not implemented that would have prevented the blockage during the grading activities. [P.1(d)] (Section 1R06)

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 operated at or near 100 percent RTP until March 10, 2012, when the unit was shut down for a refueling outage.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Adverse Weather Conditions: The inspectors reviewed the licensee's severe weather actions following a tornado watch issued on February 24, 2012. This included a review of actions required by RP/0/A/5000/007, Natural Disaster and Earthquake, Enclosure 4.1, to verify that the design features and implementation of the licensee's procedures protected mitigating systems from adverse weather effects. Documents reviewed are listed in the Attachment.

Flood Protection Measures - External: The inspectors reviewed the licensee's external flood protection features. The inspectors performed a walkdown of external site areas including designated Type I inlet catch basins on-site, cooling tower yard berms, and diesel generator room access curbs and seals which are designed to protect safety-related facilities from flooding during a local probable maximum precipitation event. The walkdown included observing that the steel gratings on four sides and top of the basins were intact. To the extent possible, the inspectors visually observed the basins and pipe cavities to determine that the areas were free of debris accumulation and that no significant blockage of the drains was apparent. The inspectors also observed the condition of berms and seals to verify that their physical condition had not degraded and that they were able to fulfill their designed functions. The inspectors reviewed the corrective action program documents to ascertain that the licensee was identifying issues and resolving them. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdowns: The inspectors performed three partial system walkdowns during the activities listed below to assess the operability of redundant or diverse trains and components when safety-related equipment was inoperable. The inspectors performed walkdowns to identify any discrepancies that could impact the function of the system and, therefore, potentially increased risk. The inspectors reviewed applicable operating procedures and walked down system components, selected breakers, valves, and support equipment to determine if they were in the correct position 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. Documents reviewed are listed in the Attachment.

- Unit 2 turbine driven auxiliary feed water pump and 'B' train motor driven auxiliary feed water pump (MDCAP) while the 'A' train MDCAP was out of service
- 2A diesel generator (DG) while the 2B DG was out of service
- 2B DG while the 2A DG was out of service

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Protection Walkdowns: 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 whether 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.

- 1B Diesel Generator Room
- Unit 1 Turbine Building, 619' Level
- Unit 1 Transformer Yard
- Unit 2 Cable Room

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors entered conduit manhole (RN conduit) CMH-2 to verify that the cables were not submerged, that the cables were not damaged or degraded, and that the sump pumps were functioning properly.

b. Findings

Introduction: A Green NRC-identified NCV of 10 CFR Part 50, Appendix B, Criterion III, Design Control, was identified for the licensee's failure to implement the requirements of their modification program. Surface grading work for the RN piping replacement modification was not reviewed to ensure it did not adversely impact the CMH-2 sump pump function to eliminate accumulated water.

Description: During a walkdown of CMH-2, the inspectors noted that the sump pump discharge pipe appeared to be buried as a result of grading work in the area following an RN piping replacement modification. The licensee removed dirt and gravel from the area where the sump pump discharge pipe exited from the manhole structure and found the discharge outlet was blocked. Further investigation revealed that the sump pump had failed due to the blocked discharge outlet and approximately three feet of water had accumulated in the bottom of the manhole up to the lowest cable penetrations and partially submerged one of the safety-related RN cables. Procedure EDM 601, Engineering Change Manual, Appendix K, Engineering Review Screen for Design Changes, required a review to determine if the modification had the potential to impact previously installed features that mitigate the effects of external flooding. The licensee recognized that grading elevations would be changed by the RN piping replacement modification, but did not identify the potential impact on the CMH-2 sump pump discharge outlet. As a result, the discharge outlet was blocked during RN pipe replacement backfill and grading activities causing failure of the sump pump which allowed water to accumulate in the manhole. Corrective actions included unclogging the sump pump discharge outlet, replacing the sump pump, and extending the height of the discharge outlet.

Analysis: The failure to implement the requirements of the modification program to verify that the RN piping replacement activities did not affect external flood mitigation features was a PD. The PD was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Factors - Flood Hazard and adversely affected the cornerstone objective in that the design modification activities affected the CMH-2 sump pump function to prevent water accumulation in the safety-related manhole structure. The inspectors used IMC 0609, Attachment 4, and determined that the finding was of very low safety significance because the accumulated

water in CMH-2 did not result in the loss of operability or functionality of safety-related SSCs. The finding was associated with the aspect of appropriate and timely corrective actions of the Corrective Action Program component in the Problem Identification and Resolution cross-cutting area in that the licensee identified in August 2011 (PIP C-11-6342) that the sump pump discharge outlet needed to be raised; however, corrective actions were not implemented. [P.1(d)]

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, Design Control, required, in part, that design control measures shall provide for verifying the adequacy of design such as design reviews. Procedure EDM 601 required a design review to determine if the modification had the potential to impact previously installed features that mitigate the effects of external flooding. Contrary to the above, from late 2011 to March 2012 design control measures for verifying the adequacy of design were not implemented. The licensee's design review failed to verify that the safety-related cable manhole CMH-2 sump pump water removal function would not be impacted by RN piping replacement grading activities. Because this violation was of very low safety significance and has been entered into the licensee's corrective action program as PIP C-12-1838, it is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000413/2012002-01, Safety-Related Manhole Sump Pump Discharge Outlet Blockage.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Review: The inspectors reviewed the performance of the Unit 1 'A' Diesel Generator Jacket Water Cooling (KD) Heat Exchanger heat capacity test and evaluated the test data for acceptable performance. The inspectors reviewed the system configuration associated with the test, heat load requirements, the methodology used in calculating heat exchanger performance, and the method for tracking the status of tube plugging activities via the data logger and computer processing equipment. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities

a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities: The inspectors reviewed the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, steam generator tubes, risk-significant piping and components and containment systems. The inspectors reviewed non-destructive examinations (NDEs) to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC),

Section XI (Code of record: 1998 Edition through 2000 Addenda), and to verify that indications and defects (if present) were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI, acceptance standards.

The inspectors observed the following non-destructive examinations to evaluate compliance with the ASME Code Section XI and Section V requirements and to evaluate if any indications or defects were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement.

- Ultrasonic Examination (UT) on weld 2CF100-60, Valve to elbow, Class 2
- UT on weld 2CF100-61, Elbow to pipe, Class 2
- UT on weld 2CF100-62, Pipe to elbow, Class 2
- UT on weld 2CF100-63, Elbow to pipe, Class 2

The inspectors also reviewed records of the following non-destructive examinations to evaluate compliance with the ASME Code Section XI and Section V requirements and to evaluate if any indications or defects were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement.

- Visual Examination (VE) of the Unit 2 Reactor Pressure Vessel Bottom Mounted Instrumentation Nozzles (2RPV-BMI-Nozzles), Class 1
- Liquid Penetrant Examination (PT) on weld 2NV31-14, Pipe to half coupling, Class 2
- PT on weld 2NV31-15, Half coupling to pipe, Class 2
- PT on weld 2NV31-16, Pipe to valve, Class 2

The licensee did not identify any recordable indications that were accepted for continued service during non-destructive surface and volumetric examinations performed since the previous refueling outage.

The inspectors reviewed the following pressure boundary weld completed for risk-significant systems during the Unit 2 refuelling outage to evaluate if the licensee applied the pre-service non-destructive examinations and acceptance criteria required by the Construction Code. In addition, the inspectors reviewed the welding procedure specification, welder qualifications, welding material certification and supporting weld procedure qualification records, to evaluate if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- EC101337 - Add vent valve 2NVA093 upstream of 2B NV pump (Welds 2NV31-14, 2NV31-15 and 2NV31-16), Class 2

PWR Vessel Upper Head Penetration (VUHP) Inspection Activities: A bare metal visual (BMV) examination of the Unit 2 vessel head was required this outage pursuant to 10 CFR 50.55a(g)(6)(ii)(D). The inspectors reviewed records of the BMV examination to evaluate if the activities were conducted in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). The inspectors evaluated if the

required visual examination scope/coverage was achieved and any limitations were recorded in accordance with the licensee procedures. Additionally, the inspectors evaluated if the licensee's criteria for visual examination quality and instructions for resolving interference and masking issues were consistent with 10 CFR 50.55a. The licensee did not identify any relevant indications that were accepted for continued service during the bare metal visual exam. The licensee did not perform any welded repairs to vessel head penetrations since the beginning of the preceding Unit 2 refueling outage.

Boric Acid Corrosion Control (BACC) Inspection Activities: The inspectors reviewed the licensee's BACC program activities to ensure implementation with commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary," and applicable industry guidance documents. Specifically, the inspectors performed an on-site record review of procedures and the results of the licensee's containment walk-down inspections performed during the current spring refueling outage. The inspectors also interviewed the BACC program owner, conducted an independent walk-down of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions, such as boric acid leaks, were properly identified and corrected in accordance with the licensee's BACC and corrective action programs. The inspectors reviewed the following condition reports and associated corrective actions related to evidence of boric acid leakage to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR 50, Appendix B, Criterion XVI.

- C-11-03283, Active boron leakage
- C-11-08112, 2NV205 leaking from plug on body of valve
- C-11-08940, Active boron leak, excessive boron buildup

The inspectors reviewed the following licensee evaluations of reactor coolant system components with boric acid deposits to evaluate if degraded components were documented in the corrective action program. The inspectors also evaluated the corrective actions for any degraded reactor coolant system components against the component ASME Code Section XI and other licensee committed documents:

- C-10-07414, 2FW-99 has an active boron leak
- C-11-02203, 2NS-22 has an active boron leak
- C-11-03282, Active boron leak on 2-NV-FT-5633 fitting

Steam Generator (SG) Tube Inspection Activities: The inspectors observed the following activities and/or reviewed the following documentation and evaluated them against the licensee's technical specifications, commitments made to the NRC, ASME Section XI, and Nuclear Energy Institute (NEI) 97-06 (Steam Generator Program Guidelines):

- Assessed if assumed NDE flaw sizing accuracy was consistent with data from the EPRI examination technique specification sheets or other applicable performance demonstrations
- Compared the numbers and sizes of SG tube flaws/degradation identified against the licensee's previous outage Operational Assessment
- Reviewed the SG tube eddy current testing (ET) examination scope and expansion criteria
- Evaluated if the licensee's SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in applicable NRC generic industry operating experience
- Reviewed the licensee's implementation of their extent of condition inspection scope and repairs for new SG tube degradation mechanisms
- Reviewed the licensee's repair criteria and processes
- Evaluated if primary-to-secondary leakage (e.g., SG tube leakage) was below three gallons per day, or the detection threshold, during the previous operating cycle
- Evaluated if the ET equipment and techniques used by the licensee to acquire data from the SG tubes were qualified or validated to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7
- Reviewed the licensee's secondary side SG Foreign Object Search and Removal activities
- Reviewed ET personnel qualifications

Problem Identification and Resolution: The inspectors performed a review of ISI-related problems which were identified by the licensee and entered into the CAP to confirm the licensee had appropriately described the scope of the problem and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, requirements. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance

a. Inspection Scope

Quarterly Resident Inspector Review: The inspectors observed Simulator Exercise S-62 to assess the performance of licensed operators during a licensed operator requalification simulator training session. The exercise included two scenarios. The first scenario was a shutdown loss of coolant accident (LOCA) from the 'A' cold leg loop. The second scenario was also a shutdown LOCA which was initiated with a stuck open power operated relief valve and block valve. The inspectors assessed overall crew

performance, clarity and formality of communications, use of procedures, alarm response, control board manipulations, group dynamics and supervisory oversight. The inspectors observed the post-exercise critique to determine whether the licensee identified deficiencies and discrepancies that occurred during the simulator training. Documents reviewed are listed in the Attachment.

Quarterly Resident Inspector Licensed Operator Performance Review: The inspectors observed operators in the main control room and assessed their performance during plant shutdown and cooldown activities. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the two activities listed below for items such as: (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) scoping in accordance with 10 CFR 50.65(b) of the Maintenance Rule; (4) characterizing reliability issues for performance; (5) trending key parameters for condition monitoring; (6) charging unavailability for performance; (7) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and (8) appropriateness of performance criteria for SSCs/functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). For each item 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. Documents reviewed are listed in the Attachment.

- 2A DG keep warm jacket water and load instability issues
- Multiple digital rod position indication system issues across both units

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the following seven activities to determine if the appropriate risk assessments were performed prior to removing equipment for work. When emergent work was performed, the inspectors reviewed the risk assessment to determine that the plant risk was promptly reassessed and managed. The inspectors reviewed the use of

the licensee's risk assessment tool and risk categories in accordance with NSD 415, Operational Risk Management (Modes 1-3), to verify there was appropriate guidance to comply with 10 CFR 50.65(a)(4). Documents reviewed are listed in the Attachment.

- Critical activity plan for Yellow risk 2B DG pre-outage maintenance
- Emergent Yellow risk condition due to broken standby shutdown facility diesel fuel filter housing bolt
- Critical activity plan for reactor vessel head removal and installation
- Emergent Yellow risk condition due to 2A DG high jacket water temperatures and unexpected load increase
- Risk management plan for Yellow risk 1A auxiliary feedwater train flushes
- Unit 2 Outage risk management plan and independent review team assessment
- Critical activity plan for draining below the Unit 2 reactor vessel flange for head removal

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors evaluated the technical adequacy of the five operability evaluations or functionality assessments listed below to determine if Technical Specification (TS) operability was properly justified and the subject components and systems remained available such that no unrecognized increase in risk occurred. The inspectors reviewed the operability determinations to verify that they were made as specified by NSD 203, Operability. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) to determine that the systems and components remained available to perform their intended function. Documents reviewed are listed in the Attachment.

- PIP C-11-9733, 2RN-47A suspected seat leakage
- PIP C-12-0386, control room area ventilation pump A impeller clearance questioned
- PIP C-12-0766, 2A DG load increase during operation with no control input
- PIP C-12-1241, Identified an additional commonality between normal letdown isolation and NC32B control circuit during low temperature over pressure detection
- PIP C-12-1596, Voltage fluctuations noted during initial loading of 2A diesel generator

b. Findings

No findings were identified.

1R18 Plant Modificationsa. Inspection Scope

The inspectors reviewed the following two temporary plant modifications to verify the adequacy of the modification package, and to evaluate the modification for adverse affects on system availability, reliability and functional capability. Documents reviewed are listed in the Attachment.

- EC 107340, Temporary EC to Remove Seat from 1KD5
- EC 106260, 2B DG Provide Temporary Cooling Supply

b. Findings

No findings were identified.

1R19 Post Maintenance Testinga. Inspection Scope

The inspectors reviewed the five post-maintenance tests listed below to determine if procedures and test activities ensured system operability and functional capability. The inspectors reviewed the licensee's test procedures to determine if the procedures adequately tested the safety function(s) that may have been affected by the maintenance activities, that the acceptance criteria in the procedures were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedures had been properly reviewed and approved. The inspectors also witnessed the tests and/or reviewed the test data to determine if test results adequately demonstrated restoration of the affected safety function(s). Documents reviewed are listed in the Attachment.

- 2A MDCAP functional test following planned maintenance
- Standby shutdown facility diesel operability test following preventative maintenance on the frequency and voltage motor operated potentiometers
- DG 2B operability test following pre-outage maintenance activities
- DG 2A operability test following jacket water keep warm cooling and load instability troubleshooting and repairs
- Unit 2 Zone G relay replacement functional test following a relay replacement modification

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activitiesa. Inspection Scope

The inspectors conducted reviews and observations for selected outage activities to ensure that: (1) the licensee considered risk in developing the outage plan; (2) the licensee adhered to the outage plan to control plant configuration based on risk; (3) mitigation strategies were in place for losses of key safety functions; and (4) the licensee adhered to operating license and TS requirements. Between March 10, 2012, and the end of the quarter, the following activities related to the Unit 2 refueling outage were reviewed for conformance to applicable procedures and selected activities associated with each evaluation were witnessed.

- Clearance activities
- Reactor coolant system instrumentation
- Shutdown decay heat removal and inventory control
- Containment closure
- Refueling activities

b. Findings

No findings were identified.

1R22 Surveillance Testinga. Inspection Scope

For the six tests listed below, the inspectors witnessed testing and/or reviewed the test data to determine if the SSCs involved in these tests satisfied the requirements described in the TS, the UFSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

Surveillance Tests

- PT/1/A/4350/002 A, Diesel Generator 1A Operability Test, Rev. 123
- CP/0/B/8200/002, Determination of Gross Specific Activity and Xe-133 Equivalent Activity in Reactor Coolant, Rev. 19
- IP/1/A/3145/001 A, Containment Pressure Control System Train A Channel Operational Test (VX), Rev. 024

Containment Isolation Valve

- PT/2/A/4200/001 C, As Left Containment Isolation Valve Leak Rate Test, Rev. 134; Enclosure 13.44, Penetration No. CNIP-2MI2, 2MI4 As Left Type C Leak Rate Test

In-Service Tests

- PT/2/A/4200/004 B, Containment Spray Pump 2A Performance Test, Rev. 38
- PT/1/A/4200/010 B, Residual Heat Removal Pump 1B Performance Test, Rev. 091

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope

Hazard Assessment and Instructions to Workers: During facility tours, the inspectors observed labeled radioactive material, postings for radiation areas and high radiation areas (HRAs), in the radiologically controlled area (RCA), radioactive materials control tent, Independent Spent Fuel Storage Installation, Unit 2 Containment, and other storage locations. Inspectors also observed and evaluated labels on selected containers in those selected locations. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, hot particles, airborne radioactivity, gamma surveys within areas of high dose rate gradients, and pre-job surveys for upcoming tasks. Inspectors independently surveyed areas in the plant and compared results to radiological conditions and postings in the plant. Inspectors also reviewed air sample records and observed work in potential airborne areas to assess the location of air monitors. This included the activities associated with Unit 2 'D' nuclear coolant pump (NCP) Seal Work, bullet nose repair, and SG work platforms.

The inspectors discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. Inspectors attended pre-job briefings for selected outage tasks and reviewed radiation work permits (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers to include radiography, steam generator eddy current testing, 2D NCP Seal Work, and bullet nose repair activities. RWPs for work in airborne areas were also reviewed to assess airborne radioactive controls and monitoring to include 2D NCP Seal Work, Conoseal Assembly and Removal, bullet nose repair, and S/G work platforms.

Hazard Control and Work Practices: The inspectors evaluated access barrier effectiveness including key control for selected Unit 1 and Unit 2 locked HRA (LHRA), and very HRA (VHRA) locations. Changes to procedural guidance for LHRA and VHRA controls were discussed with Radiation Protection (RP) supervisors and Control Room Operators. Controls and their implementation for storage of irradiated material within the spent fuel pool (SFP) were reviewed and discussed the SFP Reactor Engineer. Areas where dose rates could change significantly as a result of plant shutdown and refueling operations were also discussed.

Occupational workers' adherence to selected RWPs and RP technician (RPT) proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff of selected activities. Electronic dosimeter (ED) alarm set

points and worker stay times were evaluated against area radiation survey results for jobs in upper and lower containment, lower annulus, and the Auxiliary Building. ED alarm logs were reviewed and worker response to dose and dose rate alarms for selected work activities was evaluated. RPT coverage and actions at the Unit 2 lower and upper containment single point of accesses (SPAs) were reviewed and discussed in detail.

Control of Radioactive Material: The inspectors observed the release of potentially contaminated materials and personnel from the RCA and SPAs with the use of small article monitors, personnel contamination monitors, and portal monitor instruments. The inspectors discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. In addition, the inspectors reviewed controls for hand surveying large tools and equipment for release from the RCA and SPAs. The inspectors compared recent 10 CFR Part 61 results for the Dry Active Waste radwaste stream with radionuclides used in calibration sources to evaluate the appropriateness and accuracy of release survey instrumentation. The inspectors also reviewed source inventory and discussed leak tests for selected sealed sources and discussed nationally tracked source transactions with RP staff.

Problem Identification and Resolution: The inspectors reviewed selected PIPs associated with radiological hazard assessment and control. The reviewed items included selected PIPs, self-assessments, and quality assurance audit documents. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NSD 208, Problem Investigation Program, Revision (Rev.) 33.

RP activities were evaluated against the requirements of UFSAR Chapter 12; TS Section 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA and SPA were evaluated against 10 CFR Part 20, and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in the Attachment. The inspectors completed all specified line-items detailed in Inspection Procedure (IP) 71124.01 (sample size of 1).

b. Findings

No findings were identified.

2RS2 Occupational ALARA (As Low As Reasonably Achievable) Planning and Controls

a. Inspection Scope

Work Planning and Exposure Tracking: The inspectors reviewed exposure estimate planning for selected work activities. ALARA planning packages were reviewed for the following high collective exposure tasks: SG primary side work; reactor head disassembly and re-assembly; and shielding installation and removal. For the selected tasks, the inspectors reviewed established dose goals and discussed assumptions regarding the bases for the current estimates with responsible ALARA planners. The inspectors evaluated the incorporation of exposure reduction initiatives and operating experience, including historical post-job reviews, into RWP requirements. Day-to-day collective dose data for the selected tasks were compared with established dose estimates and evaluated against procedural criteria (trigger points) for additional ALARA review. Where applicable, changes to established estimates were discussed with ALARA planners and evaluated against work scope changes or unanticipated elevated dose rates. The inspectors also reviewed and discussed the minutes from ALARA Committee meetings held in 2011.

Source Term Reduction and Control: The inspectors reviewed the collective exposure three-year rolling average from 2008 – 2010. The inspectors reviewed historical dose rate trends for reactor coolant system piping and compared them to current outage data. Source term reduction initiatives such as crudburst/cleanup, zinc injection, fuel cleaning, and the use of temporary shielding were reviewed and discussed with Chemistry and RP staff.

Radiation Worker Performance: The inspectors observed radiation worker performance via remote monitoring during primary side SG activities including manway removal and nozzle dam installation. Radiation worker and RPT performance was also observed and evaluated in Section 2RS1.

Problem Identification and Resolution: The inspectors reviewed and discussed selected Corrective Action Program documents associated with ALARA program implementation. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with NSD 208, Problem Investigation Program, Rev. 33. The inspectors also evaluated the scope and frequency of the licensee's self-assessment program and reviewed recent assessment results.

ALARA program activities were evaluated against the requirements of UFSAR Section 12, TS Section 5.4, 10 CFR Parts 19 and 20, and approved licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed all specified line-items in IP 71124.02 (sample size of 1).

b. Findings

No findings were identified.

Enclosure

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported performance indicator (PI) data for the eight indicators during periods listed below. To determine the accuracy of the reported PI elements, the reviewed data was assessed against PI definitions and guidance contained in Nuclear Energy Institute 99-02, Regulatory Assessment Indicator Guideline, Rev. 5. Documents reviewed are listed in the Attachment.

Cornerstone: Initiating Events

- Unplanned Scrams with Complications, Unit 1 & 2

Cornerstone: Mitigating Systems

- Reactor Coolant System Activity, Unit 1 & 2
- Cooling Water Systems, Unit 1 & 2

The inspectors reviewed the licensee's procedures and methods for compiling and reporting the PIs including the Reactor Oversight Program Mitigating Systems Performance Indicator Basis Document for Catawba. The inspectors reviewed the raw data for the PIs listed above for the period of January 1, 2011, through December 31, 2011. The inspectors also independently screened TS Action Item Logs, selected control room logs, work orders and surveillance procedures, and maintenance rule failure determinations to determine if unavailability/unreliability hours were properly reported. The inspectors compared the licensee's raw data against the graphical representations and specific values contained on the NRC's public web page for 2011. The inspectors also reviewed the past history of PIPs for systems affecting the Mitigating Systems Performance Indicators listed above for any that might have affected the reported values. Documents reviewed are listed in the Attachment.

Cornerstone: Occupational Radiation Safety

- Occupational Exposure Control Effectiveness

The inspectors reviewed the PI results from July 2011 through December 2011. The inspectors reviewed ED alarm logs and selected PIPs related to controls for exposure significant areas. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data.

Cornerstone: Public Radiation Safety

- Radiological Control Effluent Release Occurrences

The inspectors reviewed the PI results from July 2011 through December 2011. The inspectors reviewed cumulative and projected doses to the public contained in liquid and

gaseous release permits and PIPs related to Radiological Effluent Technical Specifications/ODCM issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

.1 Daily Review

As required by Inspection Procedure 71152, Problem Identification and Resolution, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed screening of items entered into the licensee's corrective action program. This was accomplished by reviewing copies of PIPs, attending selected daily Site Direction and PIP screening meetings, and accessing the licensee's computerized database.

.2 Focused Review

a. Inspection Scope

The inspectors performed an in-depth review of the following issue within the Mitigating Systems cornerstone entered into the licensee's corrective action program. Documents reviewed are listed in the Attachment.

- PIP C-11-5914, During the 2A D/G operability PT following D/G down day activities, 2A D/G exhibited erratic control. Voltage, power factor, and load were noted to be swinging outside of the normal control band.

The inspectors reviewed the actions taken to determine if the licensee had adequately addressed the following attributes:

- Complete, accurate and timely identification of the problem
- Evaluation and disposition of operability and reportability issues
- Consideration of previous failures, extent of condition, generic or common cause implications
- Prioritization and resolution of the issue commensurate with safety significance
- Identification of the root cause and contributing causes of the problem
- Identification and implementation of corrective actions commensurate with the safety significance of the issue

b. Findings

No findings were identified.

40A3 Follow-up of Events and Notices of Enforcement Discretion (NOED)

.1 (Closed) Unresolved Item (URI) 0500413,414/2011005-01, Notice of Enforcement Discretion (NOED) 11-2-004 Follow-up

(Closed) Licensee Event Report (LER) 05000413/2011-003-00, Technical Specification Required Shutdown of Unit 1 and 2 and Associated Technical Specification Violation Involving Notice of Enforcement Discretion Due to Two Inoperable Trains of the Control Room Area Chilled Water System (CRACWS) (NOED 11-2-004)

a. Inspection Scope

In NRC Integrated Inspection Report 05000413, 414/2011005, a URI was opened for the issuance of NOED 11-2-004. The inspectors reviewed the associated LER, root cause evaluation, and corrective actions to determine if any performance deficiencies contributed to the need for the NOED. Documents reviewed are listed in the Attachment.

b. Findings

Description: On December 15, 2011, CRACWS train B unexpectedly tripped while CRACWS train A was out of service for scheduled maintenance. TS LCO 3.7.11, Condition "E" required immediate entry into TS LCO 3.0.3. The licensee was granted a NOED from compliance with TS LCO 3.0.3 to allow the units to remain in MODE 3 for an additional 12 hours to return the train A of CRACWS to service. The inspectors concluded that the loss of CRACWS train B was due to a random shutdown of a digital controller which was not a result of licensee performance. This condition was determined to be of very low safety significance because the licensee had alternate means of providing cooling to maintain control room habitability during the NOED period.

Enforcement: TS 3.0.3 required in part that the units be placed in Mode 3 within 7 hours, Mode 4 within 13 hours, and Mode 5 within 37 hours. Contrary to the above, the times specified by TS 3.0.3 were not met. However, because no performance deficiency was identified, no enforcement action is warranted for this violation of NRC requirements in accordance with the NRC's Enforcement Policy. Further, because licensee actions did not contribute to this violation, it will not be considered in the assessment process or the NRC's Action Matrix.

40A5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security.

Enclosure

These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 10, 2012, the resident inspectors presented the inspection results to Mr. Jim Morris, Catawba Site Vice President, and other members of licensee management, who acknowledged the findings. The inspectors confirmed that any proprietary information provided or examined during the inspection period had been returned.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Arlow, Emergency Planning Manager
W. Byers, Security Manager
J. Caldwell, Work Control Manager
D. Cantrell, Chemistry Manager
A. Driver, Regulatory Compliance Engineer
J. Ferguson, Mechanical, Civil Engineering Manager
T. Hamilton, Engineering Manager
G. Hamrick, Station Manager
R. Hart, Regulatory Compliance Manager
T. Jenkins, Superintendent of Maintenance
J. Morris, Catawba Site Vice President
K. Phillips, Training Manager
S. Putnam, Safety Assurance Manager
R. Simril, Operations Superintendent
J. Smith, Radiation Protection Manager
W. Suslick, Modifications Engineering Manager
T. Wright, Supervising Scientist

LIST OF REPORT ITEMS

Opened and Closed

0500413/2012002-01	NCV	Safety-Related Manhole Sump Pump Discharge Outlet Blockage (Section 1R06)
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Closed

0500413,414/2011005-01	URI	Notice of Enforcement Discretion (NOED) 11-2-004 Follow-up (Section 4OA3)
05000413/2011-003-00	LER	Technical Specification Required Shutdown of Unit 1 and 2 and Associated Technical Specification Violation Involving Notice of Enforcement Discretion Due to Two Inoperable Trains of the Control Room Area Chilled Water System (NOED 11-2-004) (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Operating Experience Smart Sample (OpESS) 2012/01
RP/0/A/5000/007, Natural Disaster and Earthquake, Rev. 34
CN-1022-17, Powerhouse Yard Area Drainage Layout, Rev. 12
CN-1024-01, Yard Drainage Section Details and Schedules, Rev. 34

CN-1024-02, Yard Drainage Section Details and Schedules, Rev. 46
 Catawba UFSAR, Section 2.4, Hydrologic Engineering
 Catawba UFSAR, Section 3.4, Water Level (Flood) Design
 CNS-1465.00-00-0011, Design Basis Specification for Flooding from External Sources, Rev. 3
 Calculation CNC-1114.00-00-0040, Yard Drainage Results of PMP, Rev. 28

Section 1R04: Equipment Alignment

Drawing CN-2592-1.0, Flow Diagram of Auxiliary Feedwater System – Unit 2, Rev. 29
 UFSAR Section 8.3.1.4.1, Diesel Generators
 OP/1/A/6350/002, Diesel Generator Operation; Enclosure 4.6, D/G 1A Checklist for ES Actuation, Rev. 152
 OP/2/A/6350/002, Diesel Generator Operation; Enclosure 4.8, D/G 2B Checklist for ES Actuation, Rev. 130

Section 1R05: Fire Protection

Station Fire Impairment Log
 NSD 313, Control of Combustible and Flammable Material, Rev. 7
 Fire Strategy AY, Transformer Yard Unit 1
 Fire Strategy Fire Area 16, Unit 2 Cable Room

Section 1R07: Heat Sink Performance - Annual Review

PT/1/A/4400/006 E, KD Heat Exchanger 1A Heat Capacity Test, Rev. 027

Section 1R08: Inservice Inspection Activities

Calculations

CNC-1201.01-00-0022, Determination of Interim Inspection Requirements for the Reactor Vessel Head and RV Head Inspection Documentation, Rev. 17

PIPs

C-08-05892, C-10-07414, C-11-02203, C-11-03282, C-11-03283, C-11-08112, C-11-08940

Drawings

CN-2CF-0100, Feedwater System to Auxiliary Feedwater, Rev. 7
 CN-2NV-31, Chemical and Volume Control System to Centrifugal Charging Pump 2B, Rev. 4A
 CN-2SM-0012, Main Steam System Steam Generator “2B” Discharge, Rev. 17

Procedures

MP-0-A-7150-042-D, Reactor Vessel Head Penetration Visual Inspection, Rev. 004
 MP-0-A-7150-042-E, Reactor Vessel Bottom Head Visual Penetration Inspection, Rev. 005
 MP-0-A-7650-040, Inspection, Evaluation and Cleanup of Boric Acid on Plant Materials, Rev. 020
 NDEMAN-NDE-35, Liquid Penetrant Examination, Rev. 24
 NDEMAN-NDE-600, Ultrasonic Examination of Similar Metal Welds in Ferritic and Austenitic Piping, Rev. 18
 PDI-UT-2, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds, Rev. E
 PT-2-A-4150-002, Visual Inspection of Radioactive Systems Outside Containment, Rev. 023

Other Documents

ACTS# DDP-001-112, Westinghouse Steam Generator Eddy Current Inspection Multi-Frequency Eddy Current Parameters, X-Probe Array/Bobbin

ACTS# DDP-002-112, Westinghouse Steam Generator Eddy Current Inspection Multi-Frequency Eddy Current Parameters, X-Probe Array
 ACTS# DDP-003-112, Westinghouse Steam Generator Eddy Current Inspection Multi-Frequency Eddy Current Parameters, Bobbin 48 IPS
 C2.B15.80.0001, Visual Examination for Boric Acid Detection, Report No. VT-12-686
 C2.B4.10.0001, Visual Examination for Boric Acid Detection, Report No. VT-12-700
 C2.G8.5.0001, Visual Examination for Boric Acid Detection, Report No. VT-12-699
 Catawba Nuclear Station Unit 2 EOC18 RFO, March 2012 Analyst Training
 Catawba Nuclear Station, Units 1 and 2, Issuance of Amendments Regarding Technical Specifications Amendments for Permanent Alternate Repair Criteria for Steam Generator Tubes (TAC NOS. ME6670 and ME6671), March 12, 2012
 Catawba Unit 2, Westinghouse Model D-5 Steam Generators Secondary Side Integrity Plan, 3/19/2012
 Certificate of Qualification for the following NDE personnel: John Kessler, Arthur Spires, William Gault, Timothy Parris, and William Spence
 Certification Record for: K. Jenkins, T. Walkowiak, L. Stauffer, D. Griebel
 Certified Materials Test Report for Lot Nos.: CT8816, DT8816, AH8677, 2D705C01, 4G713A04
 Certified Materials Test Report for Ultragal II-09325
 CoreStar Certificate of Conformance, Purchase Order # 4500361075
 Eddy Current Analysis Guidelines for Duke Energy's D5 Steam Generators, Revision 8
 Instrument Certification for Infrared Thermometer MCNDE40133, MCNDE40128
 Krautkramer Transducer Certificate of Calibration for probe 00L2XT
 NSD-322, Boric Acid Corrosion Control Program, Rev. 3
 Procedure Qualification Record Nos.: L-109 Rev. 1 and L-128A Rev. 1
 Record of Welder Performance Qualification Test for welders: L5390, S7681, W8394
 SGMEP 105, Catawba Unit 2 EOC18 Steam Generator Degradation Assessment, Revision 9, 03/02/2012
 Ultrasonic Instrument Linearity Report No. L-12-137
 UT Calibration Examination Report Nos.: UT-12-609, UT-12-610, UT-12-611 and UT-12-612
 Weld Doc. No. 112875
 Welding Procedure Specification No. GTSM0808-01 Rev. 11
 Work Order 01955235-05, EC101337 WU02 Add Vent Viv 2NVA093 Upstream of 2B NV Pump
 ZETEC Certificate of Conformance, Shipment ID 9650

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

AP/1/A/5500/010, Reactor Coolant Leak, Rev. 055
 AP/1/A/5500/011, Pressurizer Pressure Anomalies, Rev. 22
 AP/1/A/5500/027, Shutdown LOCA, Rev. 027
 OP/2/A/6100/002, Controlling Procedure for Unit Shutdown, Rev. 159
 OP/2/A/6200/004, Residual Heat Removal System, Re. 105

Section 1R12: Maintenance Effectiveness

System Health Report, Digital Rod Position Indication 3Q 2011
 PIPs C-12-0753, C-12-0766, C-12-0775, C-12-00382, C-11-6482, C-11-4651, C-11-9670

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

NSD 213, Risk Management Process, Rev. 8

SOMP 02-02, Operations Roles in Risk Management, Rev 007

Section 1R15: Operability Determinations and Functionality Assessments

Operating Experience Smart Sample (OpESS) 2012/02

NSD 203, Operability/Functionality, Rev. 19

NSD 122, Temporary Configuration Changes, Rev. 00

Section 1R18: Plant Modifications

NSD 209, 10 CFR 50.59 Process, Rev. 19

EC 107340, Temporary EC to Remove Seat from 1KD5

EC 106260, 2B DG Provide Temporary Cooling Supply

Section 1R19: Post-Maintenance Testing

OP/2/A/6250/002, Auxiliary Feedwater System, Rev. 130

CNS-1592.CA-00-0001, Design Basis Specification for the Auxiliary Feedwater System, Rev. 40

PT/0/A/4200/017 A, Standby Shutdown Facility Diesel Test, Rev. 005

PT/2/A/4350/002 B, Diesel Generator 2B Operability Test, Rev. 95

PT/2/A/4350/002 A, Diesel Generator 2A Operability Test, Rev. 94

Section 2RS1: Radiological Hazard Assessment and Exposure Controls**Procedures and Guidance Documents**

HP/0/B/1004/036, Radioactive Sources, Revision (Rev.) 2

NSD 208, Problem Investigation Program, Rev. 33

NSD 501, Temporary Storage of Radioactive Material in the Spent Fuel Pool, Rev. 7

PT/0/A/4550/015A, Inventory of Fuel Special Nuclear Material (Completed Procedure Stored in SNM Satellite File), Rev. 10

RA/0/1100/022, Remote Monitoring Requirements for LHRA/VHRA Access, Rev. 1

RA/0/1700/003, Issuance and Return of Radioactive Sources, Rev. 0

RA/1/1100/001, Unit 1 Outage Upper Containment Controls and Surveillance, Rev. 14

RA/1/1100/002, Unit 1 Outage Lower Containment Controls and Surveillance, Rev. 21

RA/1/1100/006, Unit 1 Controls and Surveillance for Loading Spent Fuel Assemblies into NAC-UMS Casks, Rev. 9

RD/0/B/4000/15, Duke Energy, Radiation Dosimetry and Records, Site Area Monitoring, Rev. 27

RP Policy III-08, Personnel Contamination Monitoring, Rev. 3

SH/0/B/2000/003, Preparation of a Radiation Work Permit, Rev. 9

SH/0/B/2000/004, Taking, Counting and Recording Surveys, Rev. 11

SH/0/B/2000/005, Posting of Radiation Control Zones, Rev. 9

SH/0/B/2000/006, Control of Radioactive Material and Use of Radioactive Material Tags, Rev. 6

SH/0/B/2000/007, Placement of Personnel Dosimetry for Non-Uniform Radiation Fields, Rev. 1

SH/0/B/2000/008, Operational Alpha Program, Rev. 7

SH/0/B/2000/011, Alpha Radiation Characterization Program, Rev. 2

SH/0/B/2000/012, Access Controls for High, Locked High, and Very High Radiation Areas, Rev.11

SH/0/B/2000/013, Removal of Items from RCA/RCZs, Rev. 2

SH/0/B/2001/002, Investigation of Unusual Dosimetry Occurrence or Possible Overexposure, Rev. 7

SQ/0/B/2000/009, Control and Notification of Radiography Operations, Rev. 6

Records and Data Reviewed

Duke Energy, Radiography Boundary Guard Training Outline, Rev. 10/17/11

Gamma Spectrum Analysis, Sample IDs: CN12032113534, PRT Platform Routine, Dated 03/20/12; CN12032113546, Unit 2 C gen post HL nozzle dam install grab sample, Dated 03/21/12; CN12032113539, Unit 2 A s/g grab sample HL, Dated 03/21/12; CN12032113548, Unit 2 LC S/G A cold leg grab sample, Dated 03/21/12; CN12032113549, Unit 2 C generator nozzle dam install GA, Dated 03/21/12; CN12032113550, Unit 2 C gen post CL nozzle dam install grab sample, Dated 03/21/12; and CN12032113551, Unit 2 L/C SG/A GA nozzle dam back up, Dated 03/21/12

HP/0/B/1004/036, Radioactive Sources, Rev. 002, Dated 05/02/11 and 11/17/11

PT/0/A/4550/015A, Inventory of Fuel Special Nuclear Material (Completed Procedure Stored in SNM Satellite File), Rev. 10, Dated 02/21/12 (Unit 1) and 02/13/12 (Unit 2)

Radiation Work Permit (RWP) Number (No.) 2113, 2D NCP Seal Work (2EOC18 LC/Annulus/AB), Rev 05

RWP No. 82, U-2 reactor Building Upper Containment Entry During Power Operations, Rev. 02

RWP No. 2405, OP Deck Support RX Head Movement, Rev. 17

RWP No. 2432, Crane Lifts – Operator and Flagman (2EOC18 U/C), Rev. 18

RWP No. 2468, Canal and Cavity Decon (2EOC18 UC), Task No. 5, Initial Repair from Manbasket (Locked High Radiation Area), Rev. 02

RWP No. 5002, Headtool Decon/Refurbishment/WEIR Gate/Inspection, Fuel Pool Lighting PM/Specimen Tool & Basket, Rev. 33

Survey No. M-091111-4, ISFSI\ISFSI Yard, Dated 09/11/11

Survey No. M-091211-1, ISFSI\ISFSI Yard, Dated 09/12/11

Survey No. M-102411-3, ISFSI\ISFSI Yard, Dated 10/24/11

Survey No. M-120511-4, ISFSI\ISFSI Yard, Dated 12/05/11

Survey No. M-021512-4, Contamination survey of lower internals lift rig in Unit 2 U/C, Dated 02/15/12

Survey No. M-030112-5, NDE and UT of Unit 2 lower internals lift rig, Dated 03/01/12

Survey No. M-031312-20, Unit 2 RX Bldg\U-2 Upper Cont. (Conoseal Assembly Removal), Dated 03/13/12

Survey No. M-031612-27, Unit 2RX Bldg\U-2 Lower Cont. (NCP 'D' Seal Removal), Dated 03/16/12

Survey No. M-032012-3, Unit 2 RX Bldg\U-2 Upper Cont. (S&C Survey in Support of Upper Internals Move), Dated 03/20/12

Survey No. M-032012-15, Unit 2 RX Bldg\U-2 Upper Cont. (S&C LHRA job coverage survey for fix to bullet nose in shallow end of cavity), Dated 03/20/12

Survey No. O-031012-4, Contaminated injury response, Dated 03/10/12

Survey No. O-031112-3, Contaminated injury transport to hospital, Dated 03/11/12

Corrective Action Program (CAP) Documents

Assessment No. C-RPS-SA-12-06

PIPs C-11-01372, C-11-03765, C-11-04757, C-12-02734, C-12-02738

Section 2RS2: Occupational ALARA Planning and Controls**Procedures and Guidance Documents**

2EOC18 Radiation Protection Steam Generator Outage Plan

Duke Energy Fleet ALARA Manual, Rev. 15

MP/0/A/7600/060, Stellite Control, Rev. 4

NSD 208, Problem Investigation Program, Rev. 33

Records and Data Reviewed

ALARA Planning Worksheet, 2EOC18 Mass Shielding Installation and Removal, 03/07/12

ALARA Planning Worksheet, Reactor Head Activities, 03/13/12

ALARA Planning Worksheet, 2EOC18 Steam Generator Nozzle Dam Activities, 03/13/12

ALARA Planning Worksheet, 2EOC18 Steam Generator Primary Side Activities, 03/13/12

ALARA Committee Meeting Minutes, 03/17/11, 04/04/11, 04/28/11, 05/09/11, 07/21/11, and 12/05/11

ALARA Exposure Summary Catawba Nuclear Station 1 EOC19

Catawba Nuclear Station 2EOC18 Dose Performance, 03/19/12 – 03/22/12

CNS Unit 2EOC17 Refueling & Maintenance Outage Summary of Personnel Radiation Exposures, File No. CN-750.20

Crudburst/Cleanup ND Dose Rates, 2EOC16 – 2EOC18

RWP No. 2808, S/G Install/Remove Nozzle Covers/Dams, Rev. 24

RWP No. 2806, S/G Remove Man Ways, Install Man Ways and Diaphragms, Rev. 24

Survey No. O-032112-4, Ladder in overhead in room 100

Survey No. M-031212-41, Post Shielding PZR Surge Line

Survey No. M-032112-15, 2A S/G Bowl

Temporary Shielding Request 12-201, PRT Curtain

Temporary Shielding Request 12-209, PZR Surge Line

Unit 1 Reactor Coolant Loop Average Dose Rates, 1EOC16 – 1EOC19

Unit 1 Steam Generator Bowl Average Dose Rates, 1EOC14 – 1EOC19

Unit 2 Reactor Coolant Loop Average Dose Rates, 2EOC14 – 2EOC18

Unit 2 Steam Generator Bowl Average Dose Rates, 2EOC14 – 1EOC17

CAP Documents

PIPs G-11-01829, C-11-03776, C-11-03992, C-12-02344, C-12-02514, C-12-02525, C-12-02667

Self-Assessment G-RPS-SA-11-14

Section 4OA1: Performance Indicator Verification

SRPMP 10-1, "NRC Performance Indicator Data Collection, Validation, Review and Approval", Rev. 4

NSD 225, NRC Performance Indicators, Rev. 4

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 5

Catawba Master File CN: 854.02-4, Cooling Water Systems

Catawba Master File CN: 854.03-1, Reactor Coolant System Activity

2011 Unanticipated Dose Rate Alarms Log

Effluent Dose Calculations for December 2011

Monthly PI Reports, July – December, 2011

Dose Commitment Data Sheet, Dose Estimate for Calendar Year from January through February 2012

PIPs C-11-08023 and C-11-09391

Section 40A2: Problem Identification and Resolution

NSD 208, Problem Investigation Program

PIPs C-12-01187 and C-12-00825

IP/0/A/2004/001, Doble Testing, Rev. 024

IP/0/A/4974/008, Safety Related Bus Inspection and Maintenance, Rev. 019

W/O 1983233, 2EPC FZ ETA19/DG: Test PT Fuses (D/G 2A)

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

RP/0/B/5000/013, Enclosure 4.11, Event Notification Report, dated 12/15/2011

Duke Energy Letter dated 12/19/2011, NOED Request

NRC Letter dated 12/22/2011, NOED for Catawba Nuclear Station (NOED No. 11-2-004)

PIP C-11-9509

Duke Energy Licensee Event Report 413/2011-003