



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

April 29, 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
05000413/2015001, 05000414/2015001

Dear Mr. Henderson:

On March 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Catawba Nuclear Station Units 1 and 2. On April 6, 2015, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

The NRC inspectors did not identify any findings or violations of more than minor significance.

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 05000413/2015001, 05000414/2015001
w/Attachment: Supplemental Information

cc: Distribution via Listserv

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K. Henderson

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Letter to K. Henderson from Frank Ehrhardt dated April 29, 2015

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000413/2015001, 05000414/2015001

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-413, 50-414

License Nos.: NPF-35, NPF-52

Report Nos.: 05000413/2015001, 05000414/2015001

Licensee: Duke Energy Carolinas, LLC

Facility: Catawba Nuclear Station, Units 1 and 2

Location: York, SC 29745

Dates: January 1, 2015 through March 31, 2015

Inspectors: A. Hutto, Senior Resident Inspector
L. Pressley, Resident Inspector
W. Loo, Senior Health Physicist (Sections 2RS7, 2RS8, 4OA1)
C. Dykes, Health Physicist (Section 2RS1)
R. Kellner, Health Physicist (Sections 2RS6)
M. Coursey, Reactor Inspector (Section 1R08)
R. Williams, Senior Reactor Inspector (Section 1R08)
S. Sanchez, Sr. Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP4)
C. Fontana, Emergency Preparedness Inspector (Sections 1EP5, 4OA1)

Approved by: Frank Ehrhardt, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000413/2015-001, 05000414/2015-001; 1/1/2015 – 3/31/2015; Catawba Nuclear Station, Units 1 and 2; Integrated Inspection Report

The report covered a three-month period of inspection by the resident inspectors and seven regional reactor inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 5. No NRC or self-revealing findings were identified.

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 February 28, 2015, when the unit was shutdown for a refueling outage. On March 31, 2015, Unit 2 startup to Mode 2 was completed with zero power physics testing in progress at the end of the inspection period.

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 freezing temperatures on January 7, 2015. This included a review of actions required by OP/0/B/6700/015, "Weather Related Activities" and PT/0/B/4700/038, "Cold Weather Protection," to ensure measures were taken to protect 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 and Type II inlet catch basins, cooling tower yard berms, and diesel generator (DG) 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 they were capable 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.

- 2B nuclear service water (RN) train while the A RN pit was de-watered for planned maintenance
- 2A DG with 2B out of service for pre-outage maintenance
- 2B DG with 2A out of service for pre-outage maintenance

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Protection Walkdowns: The inspectors walked down accessible portions of the five 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.

- Unit 1 residual heat removal (ND) pump rooms (Fire Area 1)
- Unit 1 auxiliary feedwater (CA) pump room (Fire Area 3)
- Unit 1 auxiliary building 543 level (Fire Area 4)
- Unit 1 CA turbine driven pump pit (Fire Area 40)
- 2B DG room (Fire Area 28)

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed raw water inspections and associated preventive maintenance activities associated with the Unit 2 refueling outage. Areas reviewed were the 2A and 2B component cooling (KC) system heat exchangers and 2B containment spray (NS) system heat exchanger. 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

From March 09, 2015, through March 18, 2015, the inspectors conducted an onsite review of the implementation of the licensee's inservice inspection (ISI) program for monitoring degradation of the reactor coolant system boundary, risk-significant piping and component boundaries, and containment boundaries in Unit 2.

The inspectors either directly observed or reviewed the following non-destructive examinations (NDEs), mandated by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) (Code of Record: 1998 Edition with 2000 Addenda) to evaluate compliance with the ASME Code, Section XI and Section V requirements, and if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement. The inspectors also reviewed the qualifications of the NDE technicians performing the examinations to determine whether they were current, and in compliance, with the ASME Code requirements.

- radiographic testing (RT), CN-2ND-41-16, pipe to elbow weld, Class 2 (reviewed)
- penetrant testing (PT), 2NC74-16, pipe to pipe weld, Class 2 (observed)
- ultrasonic testing (UT), 2ND40-5, pipe to elbow, Class 2 (observed)
- UT, 2ND40-6, pipe to elbow, Class 2 (observed)

The inspectors reviewed the following welding activities, qualification records, and associated documents in order to evaluate compliance with procedures, and the ASME Code, Section XI and Section IX requirements. Specifically, the inspectors reviewed the work order, repair and replacement plan, weld data sheets, welding procedures,

procedure qualification records, welder performance qualification records, and NDE reports.

- 2CA60 Weld 26, elbow to pipe weld, Class 2
- 2CA60 Weld 29, pipe to elbow weld, Class 2
- 2ND41-16, pipe to elbow weld, Class 2

During non-destructive surface and volumetric examinations performed since the previous refueling outage, the licensee did not identify any relevant indications that were analytically evaluated and accepted for continued service; therefore, no NRC review was completed for this inspection procedure attribute.

Pressurized Water Reactor Vessel Upper Head Penetration Inspection Activities

The inspectors verified that for the Unit 2 vessel head, a bare metal visual (BMV) examination, and a volumetric examination were not required during this outage, in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). The inspectors reviewed the calculation of effective degradation years, the previous examination history, and reviewed the results of the visual testing (VT) examination performed under the vessel head insulation, to verify that the examinations were performed in accordance with the requirements of ASME Code, Section XI, Article IWA-2212 requirements, and the frequency was consistent with the code case.

The licensee did not identify any relevant indications that were accepted for continued service. Additionally, the licensee did not perform any welding repairs to the vessel head penetrations since the beginning of the last Unit 2 refueling outage; therefore, no NRC review was completed for these inspection procedure attributes.

Boric Acid Corrosion Control Inspection Activities

The inspectors reviewed the licensee's boric acid corrosion control program (BACCP) activities to determine if the activities were implemented in accordance with the commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants," and applicable industry guidance documents. Specifically, the inspectors performed an onsite records review of procedures, and the results of the licensee's containment walkdown inspections performed during the current refueling outage. The inspectors also interviewed the BACCP owner, conducted an independent walkdown of containment to evaluate compliance with licensee's BACCP 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 BACCP and corrective action program (CAP).

The inspectors reviewed the following engineering evaluations, completed for evidence of boric acid leakage, to determine if the licensee properly applied applicable corrosion rates to the affected components; and properly assessed the effects of corrosion

induced wastage on structural or pressure boundary integrity, in accordance with the licensee procedures.

- C-14-07036 - 2-NB-VA-503 active boron leak from pipe cap
- C-14-08870 - Leakage rate increase from 2-FW-VA-27A packing
- C-14-11568 - Excessive boron accumulation on 2-NV-FT-5320 fittings

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 and 10 CFR Part 50, Appendix B, Criterion XVI.

- C-15-01764 - Boron deposits on reactor vessel BMI tube 22
- C-15-02187 - Self-identified leaks during boric acid walkdown

Steam Generator Tube Inspection Activities

The inspectors reviewed the eddy current (EC) examination activities performed in Unit 2 steam generators (SGs) A, B, C and D during this current refueling outage, to verify compliance with the licensee's technical specifications (TSs), ASME BPVC Section XI, and Nuclear Energy Institute 97-06, "Steam Generator Program Guidelines."

The inspectors reviewed the scope of the EC examinations and the implementation of scope expansion criteria to verify these were consistent with the Electric Power Research Institute (EPRI) Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7. The inspectors reviewed documentation for a sample of EC data analysts, probes, and testers to verify that personnel and equipment were qualified to detect the applicable degradation mechanisms, in accordance with the EPRI Examination Guidelines. This review included a sample of site-specific examination technique specification sheets (ETSSs) to verify that their qualification and site-specific implementation were consistent with Appendix H and I respectively, of the EPRI Examination Guidelines. The inspectors also reviewed a sample of EC data for SG tubes A-R44C23, B-R29C38, B-R11C58, D-R29C75, D-R20C107, and D-R20C75 with a qualified data analyst, to confirm that data analysis and equipment configuration were performed in accordance with the applicable ETSSs, and site-specific analysis guidelines. The inspectors verified that recordable indications were detected and sized in accordance with vendor procedures.

The inspectors selected a sample of degradation mechanisms from the Unit 2 degradation assessment report (i.e., anti-vibration bar wear and axial inside diameter stress corrosion cracking), and verified that their respective in-situ pressure testing criteria were determined in accordance with the EPRI Steam Generator Integrity Assessment Guidelines, Revision 3. Additionally, the inspectors reviewed EC indication reports to determine whether tubes with relevant indications were appropriately screened for in-situ pressure testing. The inspectors also compared the latest EC examination results with the last condition monitoring and operational assessment report for Unit 2, to assess the licensee's prediction capability for maximum tube degradation

and the number of tubes with indications. The inspectors verified that the licensee's evaluation was conservative, and that current examination results were bound by the operational assessment projections.

The inspectors assessed the latest EC examination results to verify that new degradation mechanisms, if any, were identified and evaluated before plant startup. The review of EC examination results included the disposition of potential loose part indications on the SG secondary side, to verify that corrective actions for evaluating and retrieving loose parts were consistent with the EPRI Guidelines. The inspectors also reviewed a sample of primary-to-secondary leakage data for Unit 2, to confirm that operational leakage in each SG remained below the detection or action level threshold during the previous operating cycle.

The inspectors' review included the implementation of tube repair criteria and repair methods to verify they were consistent with plant TSs and industry guidelines. The inspectors verified that the licensee had selected the appropriate tubes for plugging based on the required plugging criteria. The inspectors reviewed the tube plugging procedure and directly observed tube plugging activities for tube B-R24C49, to determine if the licensee installed the tube plugs in accordance with the applicable procedures.

Furthermore, the inspectors interviewed licensee staff and reviewed a sample of inspection results for the secondary side internals of SGs A, B, C, and D, to verify that potential areas of degradation based on site-specific operating experience were inspected, and appropriate corrective actions were taken to address degradation indications. This review included the results of foreign object search and retrieval (FOSAR) activities in all SGs.

Identification and Resolution of Problems

The inspectors reviewed a sample of ISI-related issues entered into the CAP to determine if 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 Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification (LOR) Program and Licensed Operator Performance

.1 Quarterly Resident Inspector LOR Activity Review

a. Inspection Scope

The inspectors observed active simulator exam ASE-12 to assess the performance of licensed operators during a license operator requalification simulator training session. The exercise included a loss of a nuclear service water pump, a feedwater pump problem, a reactor coolant pump seal degradation, and a steam line break inside containment. 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.

b. Findings

No findings were identified.

.2 Quarterly Resident Inspector Licensed Operator Performance Review

a. Inspection Scope

The inspectors observed operators in the main control room and assessed their performance during operations to shutdown and cooldown Unit 2 to begin the end of cycle 20 refueling outage. The inspectors assessed the following:

- operator compliance and use of procedures
- control board manipulations
- communication between crew members
- use and interpretation of plant instruments, indications and alarms
- use of human error prevention techniques
- documentation of activities, including initials and sign-offs in procedures
- supervision of activities, including risk and reactivity management

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectivenessa. 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 structures, systems, and components (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.

- Problem Identification Process (PIP) C-15-0305, Unit 1 SSPS train A general warning alarm 1AD-2 E-8
- PIP C-15-0914, Abnormal noise heard from 1B DG panel when “stop” push button was depressed

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Controla. Inspection Scope

The inspectors reviewed the following five 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 Nuclear System Directive (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.

- equipment protection plan for the 2A ND pump while the 2B ND pump was out of service for maintenance (yellow risk condition)
- risk mitigation actions for Orange risk condition associated with unplanned inoperability of 2A DG
- equipment protection plan for the B RN train while the A RN pit was de-watered for maintenance (yellow risk condition)
- equipment protection plan for 2B DG and 2B RN pump out of service for planned maintenance (yellow risk condition)

- Unit 2 refueling outage risk evaluation and mitigation during lowered inventory of the reactor coolant system (defense in depth yellow risk condition)

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors evaluated the technical adequacy of the seven operability evaluations or functionality assessments listed below to determine if 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-15-0176, Safe shutdown facility (SSF) DG coolant leak
- PIP C-15-0695, Evaluate MNS PIP M-15-555 on the CA system for applicability to CNS
- PIP C-15-0304, Follow-up investigations and evaluations from the measurement uncertainty recapture (MUR) uprate project related to open items for aux building dose values
- PIP C-14-10658, Degraded valve stem guide bracket bolts in A train RN pit
- PIP C-15-01142, 2A ND pump degraded pipe support
- PIP C-15-01394, Unit 1 spent fuel pool level decreasing
- PIP C-15-00987, B train RN operated at less than minimum flow requirements

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following two 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.

- EC110307/000, "Install New FLEX Connection on B Train Nuclear Service Water (RN) System Supply Header in Pump House"
- EC114396/000, "Add Hydraulic Accumulator to 1CF-42"

b. Findings

No findings were identified.

1R19 Post Maintenance Testinga. Inspection Scope

The inspectors reviewed the seven 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 and maintenance activities to determine if the procedures adequately tested the safety function(s) and function(s) important to safety 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 or appropriate standards, 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) and provides reasonable assurance of system operability considering the maintenance activity. Documents reviewed are listed in the Attachment.

- 1A containment air return and hydrogen skimmer fan performance test following A train preventive maintenance (PM)
- 2A auxiliary feedwater pump functional test following PMs
- 2B diesel generator operability test following PMs
- 1B centrifugal charging pump functional test following PMs
- 1B diesel generator operability test following replacement of the power driven potentiometer
- standby shutdown facility DG performance test following PMs
- Unit 2 zero power physics testing following refueling

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 February 27, 2015, and March 31, 2015, the following activities related to the refueling outage were reviewed for conformance to applicable procedures and selected activities associated with each evaluation were witnessed:

- outage risk management plan/assessment
- clearance activities
- reactor coolant system instrumentation
- plant cool down
- mode changes from Mode 1 (power operation) to No Mode (defueled)
- shutdown decay heat removal and inventory control
- containment closure
- refueling activities
- plant heatup/mode changes from No Mode to Mode 1
- core physics testing
- fatigue management

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the seven 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 TSs, 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/2/A/4350/002 A, "Diesel Generator 2A Operability Test", 5 hour run
- PT/2/A/4200/009, "Engineered Safety Features Actuation Periodic Test"
- PT/2/A/4350/002 A, "Diesel Generator 2A Operability Test", 1 hour run
- PT/0/A/4400/008 B, "Nuclear Service Water (RN) B Train Flow Balance"

Ice Condenser Tests:

- "PT/0/A/4200/086, "Ice Bed Analysis Periodic Test" (Unit 2)

Containment Isolation Valve Tests:

- PT/2/A/4200/001 C, "As Left Containment Isolation Valve Leak Rate Test for Containment Air Release (VQ) Penetration M386"

In-Service Tests:

- PT/0/A/4400/022 A, "Nuclear Service Water Pump 1A Performance Test"

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, "Alert and Notification System Evaluation." The applicable planning standard, 10 CFR Part 50.47(b)(5) and its related 10 CFR Part 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, were also used as a reference.

The inspectors reviewed various documents which are listed in the Attachment, interviewed personnel responsible for siren maintenance and verified placement of several sirens. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's emergency response organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection were reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, "Emergency Response Organization Staffing and Augmentation System." The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, several changes were made to the radiological emergency plan and emergency action levels (EALs). The licensee determined that, in accordance with 10 CFR 50.54(q), the plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors reviewed these changes to evaluate for potential reductions in the effectiveness of the plan. However, this review was not documented in a safety evaluation report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, "Emergency Action Level and Emergency Plan Changes." The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E, were used as reference criteria.

The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the emergency preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's drill and exercise critique reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. The licensee's 10 CFR 50.54(q) change process and selected evaluations of emergency preparedness document revisions were reviewed to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. During tours of the main control rooms, the inspectors observed licensee staff demonstrate the capabilities of selected radiation monitoring

instrumentation used to detect dose rates of selected areas of the plant to adequately support declaration of the effected EALs. In addition, the inspectors reviewed licensee procedures and training for the evaluation of changes to the emergency plans.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, "Maintenance of Emergency Preparedness." The applicable 10 CFR 50.47(b) planning standards and related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed and evaluated an emergency planning drill conducted on January 8, 2015. The inspectors reviewed licensee activities that occurred in the simulator and the technical support center during the simulated event. The inspectors' assessment focused on the timeliness and accuracy of the event classification, notification of offsite agencies, and the overall response of the personnel involved in the drills from an operations and emergency planning perspective. The performance of the emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. The inspectors attended the post-exercise critique for the drills to evaluate the licensee's self-assessment process for identifying potential deficiencies relating to failures in classification and notification. The inspectors reviewed the completed licensee critiques documenting the overall performance of the emergency response organization.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

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, high radiation areas (HRAs), and locked high radiation areas (LHRAs) in the radiologically controlled area

(RCA), Unit 2 (U2) containment, and other storage 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 observed technicians independently survey areas in the plant and compared the results to radiological conditions and postings. The inspectors also reviewed air sample records and evaluated locations of continuous air monitors.

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 U2 end of cycle 21 (EOC20) tasks and reviewed radiation work permits (RWPs) details to assess communication of radiological control requirements and current radiological conditions to workers to include radiography, steam generator, and pressurizer activities. Radiation work permits for work in airborne areas were also reviewed to assess airborne radioactive controls and monitoring to include steam generator (S/G) and core barrel move activities.

Hazard Control and Work Practices The inspectors evaluated access barrier effectiveness including key control for selected Unit 1 (U1) and U2 LHRA, and very HRAs (VHRA) locations. Procedural guidance for LHRA and VHRA controls were discussed with radiation protection (RP) supervisors. The inspectors observed and evaluated controls for the storage of irradiated material within the spent fuel pool. Controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations were also discussed. The inspectors observed activities in potential airborne areas associated with U2 S/G work activities for removal of manways and diaphragms and installation of nozzle dams; radiography of condensate feed line; and reactor head set.

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 U2 EOC20 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, and the auxiliary and turbine buildings. Electronic dosimeter 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 U2 lower and upper containment single point of accesses (SPAs) were reviewed and discussed in detail.

Control of Radioactive Material The inspectors observed surveys of potentially contaminated materials and personnel being released from the RCA and SPAs using 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 (DAW) radioactive 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 CAP reports associated with radiological hazard assessment and control. The reviewed items included selected CAP reports, self-assessments, and quality assurance audit documents. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with licensee procedures.

Radiation Protection 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.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope

Radioactive Effluent Treatment Systems The inspectors walked down selected components of the gaseous and liquid radwaste processing and effluent discharge systems. To the extent practical, the inspectors observed and evaluated the material condition of in-place waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. Inspected components included liquid holding tanks, air cleaning systems for normal and emergency conditions, effluent monitoring equipment, and associated piping and valves. The inspectors interviewed licensee staff regarding radwaste equipment configuration and effluent monitor operation. The inspectors also reviewed and discussed recent engineered safety feature (ESF) ventilation surveillance test results for the U1 and U2 auxiliary building (1VA and 2VA), U1 and U2 fuel handling building (FHB) (VF 1A1 and 1A2; and VF 1B1 and 1B2), and U1 and U2 containment purge (VP 1A, 1B, 2A and 2B) systems. During tours of selected U1 and U2 ESF ventilation systems, the inspectors discussed testing protocols and evaluated equipment material condition.

Effluent Sampling and Release The inspectors observed: pre-release sampling and analysis of U2 containment atmosphere particulate, iodine, and noble gas, and U1 and U2 condensate steam air ejector offgas noble gas; set-up and conduct of release activities; and post release permit closeout. The inspectors reviewed recent liquid and gaseous release permits including pre-release sampling results, effluent monitor alarm setpoints, and public dose calculations. The inspectors reviewed the 2012 and 2013 annual radioactive effluent reports (ARERR) to evaluate reported doses to the public, to review any anomalous events, to evaluate groundwater sampling results, and to review offsite dose calculation manual (ODCM) changes. The inspectors also reviewed

compensatory sampling data for time periods when selected radiation monitors were out of service. The inspectors reviewed select results of the inter-laboratory comparison program. The inspectors also reviewed effluent source term evaluation and changes to effluent release points. In addition, the inspector's evaluated recent land use census results and meteorological data used to calculate doses to the public.

Ground Water Protection The inspectors reviewed the licensee's continued implementation of the industry's ground water protection initiative [Nuclear Energy Institute (NEI) 07-07] and reviewed recent monitoring well results. The inspectors reviewed and discussed actions being taken for the recently identified low level soil contamination adjacent to the steam generator drain tank and the tritium levels associated with monitoring well C-213. The inspectors discussed program guidance for dealing with spills, leaks, and unexpected discharges with licensee staff and reviewed recent entries into the 10 CFR 50.75(g) decommissioning file. The inspectors reviewed and discussed the licensee's program for monitoring of structures, systems, and components with the potential to release radioactive material to the environment. Potential effluent release points due to onsite surface water bodies were also evaluated.

Problem Identification and Resolution The inspectors reviewed selected CAP documents in the areas of gaseous and liquid effluent processing and release activities. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure AD-PI-ALL-0100, "Corrective Action Program," Revision 2. The inspectors also reviewed recent self-assessment results.

Radwaste system operation, effluent processing activities, and groundwater protection efforts were evaluated against requirements and guidance documented in the following: 10 CFR Part 20; 10 CFR Part 50 Appendix I; ODCM; FSAR Sections 11 and 12; approved licensee procedures; TS Section 5.0, Administrative Controls; Regulatory Guide (RG) 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," RG 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I," NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants: A Guidance Manual for Users of Standard Technical Specifications," and NEI 07-07, "Industry Groundwater Protection Initiative – Final Guidance Document." Procedures and records reviewed during the inspection are listed in the report Attachment.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Status and Results The inspectors reviewed and discussed recent and proposed changes applicable to radiological environmental and meteorological monitoring program activities detailed in the UFSAR and ODCM, as well as environmental monitoring sample results presented in the annual radiological environmental operating report (AREOR) for calendar years 2012 and 2013. REMP vendor laboratory cross-check program results, and select procedural guidance for collection, processing and analysis of airborne particulate and iodine, and dairy sampling were reviewed and discussed with knowledgeable personnel. Detection level sensitivities for environmental media analyzed by the offsite environmental laboratory were reviewed. The AREOR environmental measurement results were reviewed for consistency with the licensee's ARERR data and evaluated for radionuclide concentration trends. Licensee actions for missed samples, including compensatory measures and availability of replacement equipment were reviewed and discussed.

The inspectors observed and discussed implementation of selected REMP monitoring and sample collection activities for atmospheric particulates and iodine, and milk, as specified in the current ODCM and applicable procedures. The inspectors also observed selected locations of direct radiation measurements (environmental thermoluminescent dosimeters), as well as their material condition and placement. The inspectors observed selected air sampling equipment material condition and verified operability, including verification of flow rates for the weekly airborne particulate filter and iodine cartridge change-outs at five atmospheric sampling stations. The inspectors discussed and observed broadleaf vegetation and water sampling for selected ODCM locations. Monitoring and impact of licensee routine releases on offsite doses based on meteorological dispersion parameters and garden locations identified in the most current land use census were reviewed. A sample of pump calibration and maintenance records for the installed environmental air monitoring equipment were reviewed. In addition, the current status and completeness of the licensee's 10 CFR 50.75(g) decommissioning files were reviewed and discussed, as well as structures, systems, and components that could potentially leak material into the groundwater.

Meteorological Monitoring Program The inspectors toured the primary meteorological tower and compared local data readouts with control room data. The inspectors observed the physical condition of the tower and associated instruments and discussed equipment operability, maintenance history, and backup power supplies with responsible licensee staff. For the meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed applicable meteorological tower instrumentation semi-annual calibration records and evaluated meteorological measurement data recovery for CYs 2012 and 2013.

Problem Identification and Resolution The inspectors reviewed and discussed selected CAP documents associated with REMP. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with licensee procedures. The inspectors also reviewed recent self-assessment results.

Procedural guidance, program implementation, quantitative analysis sensitivities, and environmental monitoring results were reviewed against 10 CFR Part 20; 10 CFR Part 50, and Appendix I to 10 CFR Part 50; TS Sections 5.4.1 Procedures, 5.5 Programs and Manuals, and 5.6 Reporting Requirements; ODCM; RG 4.15, "Quality Assurance for Radiological Monitoring Programs," (Normal Operation) - Effluent Streams and the Environment; and the Branch Technical Position, "An Acceptable Radiological Environmental Monitoring Program - 1979." Licensee procedures and activities related to meteorological monitoring were evaluated against the ODCM and RG 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants." Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

a. Inspection Scope

Waste Processing and Characterization During inspector walk-downs, accessible sections of the liquid and solid radwaste processing systems were assessed for material condition and conformance with system design diagrams. Inspected equipment included radwaste storage tanks, resin transfer piping, resin and filter packaging components, and abandoned reactor coolant sampling equipment. The inspectors discussed component function, processing system changes, and radwaste program implementation with cognizant licensee staff.

The 2012 and 2013 ARERs and radionuclide characterizations from 2010 - 2014 for each major waste stream were reviewed and discussed with cognizant radwaste staff. For primary resin and DAW the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined quality assurance comparison results between licensee waste stream characterizations and outside laboratory data. Waste stream mixing and concentration averaging methodology for resin and filter waste streams were evaluated and discussed with radwaste staff. The inspectors also reviewed the licensee's procedural guidance for monitoring changes in waste stream isotopic mixtures.

Radioactive Material Storage During walk-downs of indoor and outdoor radioactive material storage areas, the inspectors observed the physical condition and labeling of storage containers and the posting of Radioactive Material Areas. The inspectors also reviewed licensee procedural guidance for storage and monitoring of radioactive material.

Transportation Selected shipping records were reviewed for consistency with licensee procedures and compliance with NRC and Department of Transportation (DOT) regulations. The inspectors reviewed emergency response information, DOT shipping package classification, waste classification, radiation survey results, and evaluated

whether receiving licensees were authorized to accept the packages. Licensee procedures for opening and closing Type A shipping casks were compared to manufacturer requirements. In addition, training records for selected individuals currently qualified to ship radioactive material were reviewed. The inspectors observed the preparation of chemistry samples and shipment of DAW.

Problem Identification and Resolution The inspectors reviewed CAP documents in the areas of shipping and radwaste processing. The inspectors evaluated the licensee's ability to identify and resolve the identified issues in accordance with licensee procedures. The inspectors also reviewed recent self-assessment results.

Radwaste processing, radioactive material handling, and transportation activities were reviewed against the requirements contained in the licensee's Process Control Program, UFSAR Chapter 11, 10 CFR Part 20, 10 CFR Part 61, 10 CFR Part 71, and 49 CFR Parts 172-178. Licensee activities were also evaluated against guidance provided in the Branch Technical Position on Waste Classification (1983) and NUREG-1608. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported PI data for the eleven 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. 6. Documents reviewed are listed in the Attachment.

Cornerstone: Initiating Events

- Unplanned Scrams with Complications, Unit 1 and 2

Cornerstone: Mitigating Systems

- Cooling Water Systems, Unit 1 and 2

Cornerstone: Barrier Integrity

- Reactor Coolant System Activity, Unit 1 and 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, 2014, through December 31, 2014. 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 2014. The inspectors also reviewed the past history of PIPs for systems affecting the mitigating systems PIs listed above for any that might have affected the reported values.

Emergency Preparedness Cornerstone

- Drill/Exercise Performance (DEP)
- Emergency Response Organization Drill Participation (ERO)
- Alert and Notification System Reliability (ANS)

For the review period January 1, 2014 through December 31, 2014, the inspectors examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment. This inspection satisfied three inspection samples for PI verification on an annual basis.

Occupational Radiation Safety Cornerstone

The inspectors reviewed and evaluated PI data collected from June through December, 2014, for the Occupational Exposure Control Effectiveness PI. For the reviewed period, the inspectors assessed PIP records to determine whether HRA, VHRA or unplanned exposures, resulting in TS or 10 CFR 20 non-conformances, had occurred during the review period. The review included evaluation electronic dosimeter alarms for cumulative doses and/or dose rates exceeding established set-points.

Public Radiation Safety Cornerstone

The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the public radiation safety cornerstone from June through December, 2014. For the assessment period, the inspectors reviewed cumulative and projected doses to the public and PIP documents related to radiological effluent TS/ODCM issues. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

40A2 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 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors performed an in-depth review of the following issue within the mitigating systems cornerstone entered into the licensee's CAP.

- PIP C-14-11776, 2EMXH, Incoming Breaker from Load Center 1ELXB would not close in during power swap

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

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

40A5 Other Activities

World Association of Nuclear Operators (WANO) Peer Review Report Review

The inspectors reviewed the final report for the WANO Peer Review of Catawba Nuclear Station conducted in August 2014. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and to verify if any significant safety issues were identified that required further NRC follow-up. The inspectors determined that no additional NRC follow-up was required.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 6, 2015, the resident inspectors presented the inspection results to Mr. Kelvin Henderson and other members of licensee management. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Arlow, Emergency Planning Manager
D. Barker, Operations Manager
E. Benfield, General Supervisor, Radiation Protection
B. Callaway, RPV Head Exams
D. Cantrell, Chemistry Manager
C. Cauthen, SGISI Program Contact
C. Fletcher, Regulatory Affairs Manager
K. Henderson, Site Vice-President
T. Jenkins, Maintenance Manager
C. Kamilaris, Organizational Effectiveness Director
A. Keller, ISI and BACCP Owner
L. Keller, Nuclear Engineer Manager
B. Leonard, Training Manager
K. Phillips, Work Management Manager
P. Simbrat, Regulatory Affairs Specialist
T. Simril, Plant Manager
J. Smith, Radiation Protection Manager
W. Suslick, Director, Nuclear Engineering
D. Tollison, Site Welding Supervisor
S. West, Director, Nuclear Plant Security

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

OP/0/B/6700/015, "Weather Related Activities"

PT/0/B/4700/038, "Cold Weather Protection"

IP/0/B/3560/009, "Operational Check for Winter Months and Extreme Cold Weather Surveillance"

NSD 317, "Freeze Protection"

Operations Cold Weather Update Status and associated outstanding items

CN-1022-17, "Powerhouse Yard Area Drainage Layout"

CN-1024-01, "Yard Drainage Section Details and Schedules"

CN-1024-02, "Yard Drainage Section Details and Schedules"

Catawba USFSAR, 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"

Section 1R04: Equipment Alignment

2A D/G OOS per Tagout 15-102

OP/2/A/6350/002, "Diesel Generator Operation"; Enclosure 4.6, "D/G 2A Checklist for ES Actuation"

OP/2/A/6350/002, "Diesel Generator Operation"; Enclosure 4.8, "D/G 2B Checklist for ES Actuation"

OP/0/A/6400/006 C, "Nuclear Service Water System"

CN-2574-02.05, "Flow Diagram of Nuclear Service Water System"

Section 1R05: Fire Protection

Station Fire Impairment Log

NSD-313, "Control of Combustible and Flammable Material"

CNS Fire Brigade Response Strategies for Safety Related Areas, Rev. 39

Fire Strategy Fire Area 1, Unit 1 522' level auxiliary building ND pump rooms

Fire Strategy Fire Area 4, Unit 1 543' level auxiliary building

Fire Strategy Fire Area 3, Unit 1 auxiliary feedwater pump room

Fire Strategy Fire Area 40, Unit 1 turbine driven auxiliary feedwater pump pit

Fire Strategy Fire Area 28, 2B diesel generator room

Section 1R07: Heat Sink Performance

WO 02155702, 2KC HX A: Test/Clean Tubes

WO 02155306, 2KC HX B: Test/Clean Tubes

WO 02156548, 2NC HX B, Plug Tubes Close Manway Covers

MP/0/A/7650/154, "Configuration/Position Control of Miscellaneous Plant Equipment"

MP/0/A/7650/056 C, "KC Heat Exchanger Corrective Maintenance"

MP/0/A/7650/056, "Heat Exchanger Corrective Maintenance"

MP/0/A/7650/177, "Heat Exchanger Mechanical Tube Plugging and Stabilization"

PT/1/A/4400/009, "Cooling Water Flow Monitoring for Asiatic Clams and Mussels Test"

PIP C-15-02608, "HX Tech Support of 2KC HX 2B Gasket Surfaces"

Section 1R08: Inservice Inspection Activities**Procedures:**

AD-EG-PWR-1811, Steam Generator Dispositioning Guidelines, Rev. 0
 SGP-PLG-RIB-FP-GEN, Mechanical Ribbed Plugging of Steam Generator Tubes, Rev. 1
 NDE Procedures Manual – Vol. 4 – NDE-998 Ultrasonic Examination of Mid and Large Diameter Piping Butt Welds and Base Material for Thermal Fatigue Damage, Rev. 4

Calculations:

CNC-1201.01-00-0022, Determination of Periodic Inspection Requirements for the Reactor Vessel Head and Reactor Vessel Head Documentation, Rev. 21

Corrective Action Reports:

M-14-06745, Pressurized Water Reactor Materials Review
 C-15-02297, Further evaluation of previous recorded indication 2SGD Steam Nozzle to Upper Head
 C-15-01764, Evaluation of Rejected indication for BMI 22 penetration

NDE Examiner Quals:

Record of Welder Performance Qualification Test – Groove Weld: Blanton, M., Hardy, M., Oliver, W., Williams, K., and Wilson, W.
 Visual Acuity Exam Record: Bull, W., Langenfeld, D., Mack, R., Shepard, J., and Walkowiak, T.
 Certificate of Qualification for Examiner: Bull, W., Devoe, J., Padgett, L., Mardell, D., Tomarello, D., Popovich, R., Conner, M., Shepard, J., and Mack, R.

Miscellaneous Documents:

Radiographic Technique Record/Inspection Report for CN-2ND-41-16 dated 3/19/15
 UT Calibration/Examination for 2CA-0060-26, dated 10/8/13
 UT Calibration/Examination for 2ND40-5, dated 3/16/15
 UT Calibration/Examination for 2ND40-6, dated 3/16/15
 Visual Examination for Boric Acid Detection, RPV BMI Nozzles, dated 3/2/15
 Weld Document No. 130502 for weld 2CA60-26, dated 11/20/13
 Weld Document No. 130502 for weld 2CA60-29, dated 11/20/13
 Weld Document No. 150448 for weld 2ND41-16 dated 3/18/15
 CNC 2201.01-00-0005, Catawba Unit 2EOC19 Steam Generator Condition Monitoring and Operational Assessment, Rev. 8
 Catawba Unit 2EOC20 Steam Generator Degradation Assessment, Rev. 1
 CNS-SG-ANL-GL, Catawba 2 D5 Steam Generator Analysis Guidelines, Rev. 0
 D5 Steam Generator Site Technique Validation for Catawba Nuclear Station Unit 2, Rev. 9
 Catawba Unit 2 Westinghouse Model D-5 Steam Generators Secondary Side Integrity Plan, Rev. 1
 PD-EG-PWR-1801, Steam Generator Management Program, Rev. 1
 Certificate of Calibration: Distance Block 218282, Distance Block 219259, Omni-200 SN220453, Omni-200 SN221033, Omni-200 SN221065, Pressure Gauge 206133, UT Transducer SN SD0306, Infrared Thermometer SN 24621020, Ultragel II Lot-12125

Section 1R11: Licensed Operator Requalification

ASE-12, Active Simulator Exam
 OP/2/A/6100/003, "Controlling Procedure for Unit Operation"

OP/2/A/6100/002, "Controlling Procedure for Unit Shutdown"

Section 1R12: Maintenance Effectiveness

EDM 210, "Engineering Responsibilities for the Maintenance Rule"

PIP C-15-0305, Unit 1 SSPS train A general warning alarm 1AD-2 E-8

PIP C-15-0346, 1A SSPS power supply 2 tripped due to due to screwdriver contact

PIP C-15-0914, Abnormal noise heard from 1B diesel generator panel when "stop" push button was depressed

PIP C-15-1068, 1B D/G PDP unit threat critique

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

NSD 213, "Risk Management Process"

NSD 403, "Shutdown Risk Management"

NSD 415, "Operational Risk Management"

SOMP 02-02 "Operations Roles in Risk Management"

Tagout ID: 15-00174, D/G 2B and 2B RN Pump OOS

Enclosure Summary Report for D/G 2B and 2B RN Pump OOS

Defense in Depth Assessment Sheet Report dated 3/4/15

Section 1R15: Operability Evaluations

NSD 203, "Operability/Functionality"

PIP C-15-00176, SSF diesel generator coolant leak

PIP C-13-12368, Active coolant leak on SSF diesel generator radiator coupling

PIP C-15-0695, Evaluate MNS PIP M-15-555 on the CA system for applicability to CNS

CNC-1223.42-00-0082, "Pressure Locking of 4" Pipe per PIP C-15-00695"

PIP C-15-0304, Follow-up investigations and evaluations from the MUR Uprate Project related to open items for aux building dose values

PIP C-15-01142, RHR Support pulled from Ceiling

PIP C-15-01394, Unit 1 Spent Fuel Pool level decreasing

PIP C-15-00987, B Train Nuclear Service Water (RN) operated at less than minimum flow requirements

DWG CN-1574-02.05, "Flow Diagram of Nuclear Service Water (RN) System"

Section 1R18: Plant Modifications

EC 110307/000, "Install New FLEX Connection on B Train RN Supply Header in Pump House"
50.59 Screening A/R 00444208

DWG CN-1492-RN.00-464, "S/R No. 1-R-RN-3327"

DWG CN-1492-RN.00-465, "S/R No. 1-R-RN-3328"

DWG CN-1492-RN.00-465, "S/R No. 1-R-RN-3329"

DWG CN-1574-01.02, "Flow Diagram of RN System"

DWG CN-1492-RN.00-465, "Auxiliary Building Pump House RN System"

DWG CN-1492-RN.00-047, "Auxiliary Building Pump House RN System"

DWG CN-1492-RN.00-463, "Auxiliary Building Pump House RN System"

DWG CN-1492-RN.00-464, "Auxiliary Building Pump House RN System"

EC 114396/000, "Add Hydraulic Accumulator to 1CF-42"

CNC.12-00-0008, "Effects of a Pneumatic-Hydraulic Piston Accumulator on Feedwater Isolation Valve Actuators (1(2)CF-33, 42, 51, 60)"

10CFR 50.59 Screening A/R 00448882

Modification Test Plan for EC 114396

Section 1R19: Post-Maintenance Testing

PT/1/A/4450/005 A, "Containment Air Return Fan 1A and Hydrogen Skimmer Fan 1A Performance Test"

OP/2/A/6250/002, "Auxiliary Feedwater System"

PT/2/A/4350/002 A, "Diesel Generator 2A Operability Test"

PT/2/A/4350/002 B, "Diesel Generator 2B Operability Test"

PT/1/A/4200/007 B, "Centrifugal Charging Pump 1B Test"

OP/1/A/6200/001, "Chemical and Volume Control System"

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

Section 1R20: Refueling

AD-SY-ALL-0460, "Managing Fatigue and Work Hour Limits"

OP/2/A/6100/003, "Controlling Procedure for Unit Operation"

OP/2/A/6100/002, "Controlling Procedure for Unit Shutdown"

C2C21 Final Core Load Map

Section 1R22: Surveillance Testing

PT/0/A/4400/022 A, "Nuclear Service Water Pump Train A Performance Test"

WO 02181874, PT/0/A/4400/022 A

PT/0/A/4400/008 B, "Nuclear Service Water (RN) B Train Flow Balance Test"

AD-HU-ALL-0004, "Procedure and Work Instruction Use and Adherence"

PIP C-15-00982, During PT performance valves taken to close versus open

PIP C-15-00987, B Train Nuclear Service Water (RN) operated at less than minimum flow requirements

PT/2/A/4200/001 C, As Left Containment Isolation Valve Leak Rate Test

DWG CN-2585-1.0, "Flow Diagram of Containment Air Release and Addition (VQ)"

DWG CN-1574-02.05, "Flow Diagram of Nuclear Service Water (RN) System"

Section 1EP2: Alert and Notification System Evaluation

Procedures and Reports

Catawba Nuclear Station Emergency Plan, Rev. 14-5

EPFAM 3.3, Alert and Notification System (Siren Program), Rev. 12

Federal Signal Corp. 2001 Siren Installation and Operating Instructions

2015 Emergency Planning Calendar

Records and Data

Records of Silent, Full Cycle, and Growl ANS testing – January 1, 2013, to December 31, 2014

Full-cycle siren test results – 1/9/2014

Annual siren reports to FEMA for 2013 and 2014

Selected documentation of ANS repair and annual preventative maintenance – January 1, 2013 to December 31, 2014

FEMA Siren Upgrade Approval Letter, dated June 17, 2010

Silent Test and Report for Catawba Toddville COMM, dated 3/24/2015

Site Services Operational Acceptance Checklist Form, Nuclear Policy Manual, Vol. 2, NSD 130 for siren #27, dated 3/10/2015

Corrective Action documents

C-14-07224, Siren #9 in York County experienced a failure during quarterly full cycle test.
 C-15-00026, Siren #49 had power failure during silent test on 1/1/15
 C-15-02238, Siren #47 in York County failed rotation during test, testing equipment issue caused incorrect failed test message. Not counted as failure, since siren operational.
 C-15-01611, Sirens 30 and 31 experienced power failure, no site damage reported.
 C-14-09985, Rotational sensing cable damaged due to animal chewing—replaced, tested successful.
 C-14-08454, Tree fell on siren # 76 power line causing loss of power, repaired and restored service.
 C-14-03733, Siren #51 experienced loss of AC power during test—restored to service.
 C-14-02900, and C-14-0291, Sirens #71 and #50 lost power; power restored and retest successful.

Section 1EP3: Emergency Response Organization Staffing and Augmentation SystemProcedures

RP/0/A/5000/001, Emergency Action Levels Procedure, Rev. 33
 RP/0/A/5000/003, Alert, Rev. 50
 RP/0/A/5000/020, Technical Support Center (TSC) Activation Procedure, Rev. 36
 RP/0/A/5000/024, OSC Activation Procedure, Rev. 32
 EPFAM, Section 3.9, Emergency Planning Qualified Reviewer Requirements, Rev. 6
 EPFAM, Section 3.19, Drills and Exercises, Rev. 5
 EPFAM, Section 3.20, Emergency Planner Training & Qualification Plan, Rev. 2
 Catawba Nuclear Station (CNS) Emergency Plan Section B – Site Emergency Organization, EPA B, Rev. 14-3
 CNS Emergency Response (ER) Training Program Description Addendum 7111.0, Rev. 18

Records and Data

Emergency Response Organization current list
 2015 Emergency Response Organization Team Duty Roster, Rev. 2
 ERO Personnel Estimated Response Times
 Training Status Reports for selected ERO individuals
 AR 3010, Organization Chart and Access Report for OSC and TSC, dated 3/23/15
 ST2035, Compare Employees to Job Report, dated 3/25/15
 ST 2122, Multiple Jobs Status Report, dated 3/25/15
 Documentation of weekly pager tests, March 2013 – March 2015
 Documentation of ERO Augmentation Drills conducted on: 11/11/13 and 11/1/14
 EP Baseline Program Inspection Readiness Self-Assessment 2015
 TR 16.13-14-1 Minimum Staffing Levels verification as required by SLC testing

Corrective Action documents

C-14-10467, During augmentation drill on 11/1/14, multiple personnel did not respond within required time frame
 C-13-11653, During the 11/11/13 augmentation drill, activation time was 74 minutes (too close to the 75 approved minutes)
 C-13-11044, TSC activation in 74 minutes in 11/11/13 augmentation drill—too little margin
 C-13-02196, Verify minimum staffing levels every 12 hours as requested by SLC testing
 C-14-02657, QCE investigated PIP-14-02323 and discovered B-1 Table positions identified in RP documents and on-shift roster on CNS Radiation Protection log did not align

C-13-07357, Approaching minimum staffing for communicator position

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures

EP-AA-100-1007, Evaluation of Changes to the Emergency Plan, Supporting Documents and Equipment [10 CFR 50.54(Q)], Rev. 3

Change Packages

50.54(q) Screening Evaluation Form, dated 6/20/14
 50.54(q) Screening Evaluation Form, dated 9/30/14
 50.54(q) Screening Evaluation Form, dated 11/24/14
 EAL Change Review Form, dated 11/24/14
 50.54(q) Effectiveness Evaluation Form, dated 11/24/14

Corrective Action Documents

C-13-11319, EP needs to reconcile the E-Plan Section D with RP/0/A5000/001 Enclosure 4 with respect to 4.1.F.3 Containment Radiation Monitor
 C-14-01423, EAL wording
 C-14-02384, Operating modes for EAL IC 4.2.U.3-1 not in compliance with SER

Section 1EP5: Maintenance of Emergency Preparedness

Procedures

Catawba Nuclear Station (CNS) Emergency Plan, Rev. 14-5
 Emergency Planning Functional Area Manual (EP FAM), Section 3.1, Administration of the Emergency Plan and Emergency Plan Implementing Procedures, Rev. 10
 EP FAM, Section 3.5, Basis for Protective Action Recommendations, Rev. 5
 EP FAM, Section 3.10, 10 CFR 50.54(q) Evaluations, Rev. 12
 EP FAM, Section 3.19, Drills and Exercises, Rev. 5
 EPA D, CNS Emergency Plan Section D – Emergency Classification System, Rev. 14-5
 HP/0/B/1000/006, Emergency Equipment Functional Check and Inventory, Rev. 60
 RP/0/A/5000/001, Classification of Emergency, Rev. 32
 RP/0/A/5000/002, Notification of Unusual Event, Rev. 45
 RP/0/A/5000/003, Alert, Rev. 50
 RP/0/A/5000/004, Site Area Emergency, Rev. 53
 RP/0/A/5000/005, General Emergency, Rev. 54
 RP/0/A/5000/006A, Notification to States and Counties from the Control Room, Rev. 29
 RP/0/A/5000/006B, Notification to States and Counties from the Technical Support Center, Rev. 33
 RP/0/A/5000/020, Technical Support Center (TSC) Activation Procedure, Rev. 36
 RP/0/A/5000/024, OSC Activation Procedure, Rev. 32
 SR/0/A/2000/003, Activation of the Emergency Operations Facility, Rev. 4
 AD-LS-ALL-0003, NRC Inspection Activities, Rev. 2

Records and Data

2014 through 2015 Agreement Letters for various offsite agencies
 CNS-ETE-11192014, ETE Analysis for PARs, Rev. 0, dated 11/19/14

C-ORE-SA-13-05, 2014 Graded Exercise Readiness Self-Assessment, dated 1/30/14
 C-ORG-13-14-04, Quick Hitter Benchmark Report, dated 3/19/14
 C-ORG-SA-14-15, Performance Improvement Self-Assessment CNS EP INPO Performance Objectives and Criteria, dated 6/11/14
 C-ORG-SA-14-17, Pre-Inspection for the 2015 EP NRC Inspection, dated 1/13/15
 CNS ERO Drill 14-1, Practice Drill Report, dated 2/19/14
 CNS ERO Drill 14-2, NRC Graded HAB Exercise Report, dated 5/3/14
 CNS ERO Drill 14-3, Practice Drill Report, dated 11/25/14
 CNS ERO Drill 14-4, Practice Drill Report, dated 7/24/14
 CNS ERO Drill 14-5, Practice Drill Report, dated 9/4/14
 CNS ERO Drill 14-6, Training Drill Report, dated 12/2/14
 Nuclear Oversight Audit 13-14, EP Limited Scope Audit, dated 7/16/13
 Nuclear Oversight Audit 13-32, EP Limited Scope Audit, dated 12/19/13
 Nuclear Oversight Audit 13-101, 2013 Catawba EP Performance Review, dated 11/20/13
 Nuclear Oversight Audit 2014-CNS-EP-01, 2014 Catawba EP Audit, dated 4/10/14

Corrective Action documents

C-14-02689, Critique items from Drill 14-1
 C-14-02877, Communications with ERO during a HAB event
 C-14-02885, Plant PA messages
 C-14-02886, Personnel in the TSC too early
 C-14-02928, Failure of facility objective G.3
 C-14-03018, Graded Exercise critique process

Section 1EP6: Drill Evaluation

Critique Report 15-1 ERO Practice Drill, 1/8/15 (PIP C-15-01002)

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures, Guidance Documents, and Manuals

AD-PI-ALL-0100, "Corrective Action Program", Rev. 2
 AD-RP-ALL-2001, "Taking, Counting and Recording Surveys", Revision (Rev.) 0
 AD-RP-ALL-2002, "ED Alarms", Rev.1
 AD-RP-ALL-2005, "Posting of Radiological Hazards", Rev. 1
 AD-RP-ALL-2009, "Personnel Contamination Monitoring and Reporting", Rev. 0
 AD-RP-ALL-2017, "Access Controls for High, Locked High, and Very High Radiation Areas", Rev. 0
 AD-RP-ALL-3001, "Control of Radioactive Material and use of Radioactive Material Labels", Rev 1
 AD-RP-ALL-3002, "Unconditional Release of Material", Rev. 0
 RA/0/1100/002, "Tool, Equipment, and Area Decontamination", Rev.0
 RA/2/1100/001, Unit 2 Outage Upper Containment Controls and Surveillance, Rev. 18
 RA/2/1100/002, Unit 2 Outage Lower Containment Controls and Surveillance, Rev.21
 TE-RP-ALL-2000, "Preparation of Radiation Work Permit", Rev. 0

Records and Data

AD-RP-ALL-2011 Attachment 2, High Risk Radiological Briefing Form - ALARA Plan
 #CNEOC20-15-08, 03/18/15

AD-RP-ALL-2011 Attachment 1, Medium Risk Radiological Briefing Form - ALARA Plan
#C-2EOC20-15-04, 03/18/15

Gamma Spectrum Analysis, Sample IDs:

CN15031000031, U2 LC"B" SG Routine RWP 2806 A. Kiehl
 CN15031000033, U2 LC "C" Manway H/L Studs RWP2806 A. Kiehl
 CN15031000034, U2 LC "C" S/G Manway C/L Removal RWP2806 A. Kiehl
 CN15031000036, U2 RX LC S/G "B" Manway H/L Removal RWP2806 HO, P
 CN15031000037, U2 LC S/G Internal Manway H/L Removal RWP2806 HO, P
 CN15031000051, RWP 2806 A Kiel U2 SG A Manway Removal
 CN15031100017, U2 RX S/G A Manway H/L Grab Sample RWP2808
 CN15031100018, U2 RX S/G A Platform Grab during Nozzle Dams Sample RWP2808
 CN15031100033, U2 RX S/G B S/G Cold Leg Grab Sample Nozzl Dam RWP2808
 CN15031100034, U2 RX S/G B H/L Grab Sample NozI Dam RWP2808

NSTS Confirmation Form 2015 Annual Inventory Reconciliation
 RWP 2117, Mechanical Valves (lower containment and annulus)
 RWP 2808, S/G Install/Remove Nozzle Covers/Dams
 RWP 2806, S/G Remove/Install Man Ways and Diaphragms/Bowl Pumping
 Semi-Annual Source Inventories, November 2014
 Spent Fuel Inventory 12/31/14

VSIDS Standard Map Survey Report, Catawba Nuclear Station, Surveys:

CNS-M-20150210-7, Aux Bldg\560 Elevation\Room 308A, 02/10/15
 CNS-M-20150210-7, Aux Bldg\560 Elevation\Room 308A, 03/01/15
 CNS-M-20150210-7, Aux Bldg\560 Elevation\Room 308A, 03/03/15
 CNS-M-20150310-15, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150310-19, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150310-33, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150310-36, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150310-37, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150310-39, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150311-1, U2 Rx Bldg\U-2 Lower Cont., 03/11/15
 CNS-M-20150311-2, U2 Rx Bldg\U-2 Lower Cont., 03/11/15
 CNS-M-20150312-25, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150314-28, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150315-12, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150315-13, U2 Rx Bldg\U-2 Lower Cont., 03/10/15
 CNS-M-20150317-15, U2 Rx Bldg\U-2 Lower Cont., 03/17/15
 CNS-M-20150317-15, U2 Rx Bldg\U-2 Lower Cont., 03/18/15

Corrective Action Program (CAP) Documents

PIP No. C-14-08120
 PIP No. C-14-08836
 PIP No. C-14 08876
 PIP No. C-14-09165
 PIP No. C-14-09645
 PIP No. C-14-09950

PIP No. C-14-10029
 PIP No. C-14-10620
 PIP No. C-14-11495
 PIP No. C-15-00339
 PIP No. C-15-00623

Section 2RS6: Radioactive Gases and Liquid Effluent Treatment

Procedures, Guidance Documents, and Manuals

AD-CP-ALL-0017, Radiological Groundwater Protection, Rev. 0
 AD-PI-ALL-0100, Corrective Action Program, Rev. 2
 AD-RP-ALL-2003, Investigation of Unusual Radiological Occurrences, Rev. 0
 HP/0/B/1001/014, Collection and Preparation of Composite Samples, Rev. 26
 HP/0/B/1000/010, Determination of Radiation Monitor Setpoints, Rev. 62
 HP/0/B/1001/018, RP Compliance Sampling, Rev. 37
 OP/0/A/6500/112, Sampling Waste Gas System, Rev. 0
 OP/0/B/6500/015, Discharging a Monitor Tank to the Environment, Rev. 110
 OP/0/B/6500/060, Discharge of an AMT to the Environment, Rev. 48
 OP/0/B/6500/077, Discharging Conventional Wastewater to the Environment, Rev. 23
 HP/0/B/1004/004, Radioactive Liquid Waste Release, Rev. 44
 HP/0/B/1004/005, Radioactive Gaseous Waste Release – VQ and VP System, Rev. 55
 HP/0/B/1004/016, Monthly Unit Vent and Auxiliary Monitor Tank Building Vent Release Activity Calculations, Rev. 15
 HP/0/B/1004/034, Radioactive Waste Gas (WG) System Release, Rev. 12
 IP/1/B/3163/002, Calibration Procedure For Auxiliary Building Ventilation System (VA) Unit Vent Flow Rate Monitoring, Rev. 20
 IP/1A/4450/017, Unit Vent Flow Manual Calculation, Rev. 13
 AD-PI-ALL-0100, Corrective Action Program, Rev. 2
 PT/0/A/4450/001C, Auxiliary Building Filtered Exhaust Filter Train Performance Test, Rev. 32
 PT/2/A/4450/001D, Containment Purge Filter Train Performance Test, Rev. 32
 PT/0/A/4450/020, Ventilation Filter Testing Program, Rev. 9
 PT/0/A/4450/017A, Safety Related Filter System Carbon Sample Analysis Verification, Rev. 4
 SH/0/B/2007/003, Determination of Cumulative and Projected Offsite Dose from Effluents, Rev. 0

Records and Data Reviewed

CNS Dose Commitment Data Sheet, Dose Estimate for November 2014, 12/16/14
 CNS Dose Commitment Data Sheet, Dose Estimate for December 2014, 01/19/15
 CNS Monthly Unit Vent (MUV) and Auxiliary Monitor Tank Building (AMTB) Vent Activity Calculations for AMTB Vent November 2014, 12/15/14
 CNS MUV and AMTB Vent Activity Calculations for AMTB Vent December 2014, 01/08/15
 CNS MUV and AMTB Vent Activity Calculations for U1 Vent November 2014, 12/15/14
 CNS MUV and AMTB Vent Activity Calculations for U2 Vent November 2014, 12/15/14
 CNS MUV and AMTB Vent Activity Calculations for U1 Vent December 2014, 01/08/15
 CNS MUV and AMTB Vent Activity Calculations for U2 Vent December 2014, 01/08/15

Gaseous Waste Release (GWR) Permit Report, GWR Nos.: 2013070, U2 Cont Purge (VP); 2014032, U1 Cont Purge (VP); 2014055, Waste Gas Decay Tank - "C"; 2014071, U1 Vent; 2014073, Monitor Tank Building B; 2014074, U2 Cont Air Release & Addition (VQ); 2014084, U1 Cont Air Release & Addition(VQ)

CNS 2012 Land Use Census, 10/29/12

CNS 2013 Land Use Census, 10/23/13

OP/0/A/6500/045, WL System Valve Checklist

Summary of Leaks and Spills (Groundwater Protection Initiative) for the period April, 2013 to March, 2014

CNS, U1 and U2, 2012 Annual Radioactive Effluent Release Report (ARERR), Dated 04/30/13

CNS, U1 and U2, 2013 ARERR, Dated 04/30/14

CNS, U1 and U2, Offsite Dose Calculation Manual, Rev. 57

Ground Water Protection Initiative (GWPI) Tritium Summary Report, Catawba Ground Water, 11/05/14

GWPI Report: CATAWBA, 11/05/14

"Hard to Detect" Report for Catawba, Sample Dates: 02/11/13 to 08/07/14, 11/05/14

Inter-laboratory Cross Check Program Sample Analysis Forms, select records for count room, 03/5/12 - 03/17/14

TSAIL Report for the Period 2/1/13 to 12/10/14 (Effluent Radiation Monitors Out of Service), 12/10/14

Liquid Waste Release (LWR) Permit Report, LWR Nos.: 2013055, Recycle Monitor Tank "B"; 2013070, Conventional Waste Water Treatment; 2013075 Waste Monitor Tank "B"; 2014094, Recycle Monitor Tank "A"; 2014097, Auxiliary Monitor Tank "B"; 2014098, Auxiliary Monitor Tank "A"

PT/0/A/4450/001C, Auxiliary Building Filtered Exhaust Filter Train Performance Tests, Rev. 31 Dated 04/18/13

PT/0/A/4450/001C, Auxiliary Building Filtered Exhaust Filter Train Performance Tests, Rev. 34 Dated 10/01/14

PT/2/A/4450/001D, Containment Purge Filter Train Performance Tests, Rev. 32, Dated 09/02/13, and 07/03/12

Radioiodine Penetration/Efficiency Test Reports: ABFU-1A, Dated 07/03/14; ABFU-1B, Dated 09/15/14; ABFU-2A, Dated 01/15/14; ABFU-2B, Dated 07/17/14; CPFU-1A, Dated 10/09/14; CPFU-1B, Dated 10/09/14; CPFU-2A, Dated 07/30/13; CPFU-2B, Dated 01/22/14; FPFU-1A1, Dated 09/24/14; FPFU-1A2, Dated 09/24/14; FPFU-1B1, Dated 10/15/14; FPFU-1B2, Dated 10/15/14; AVFU-1A, Dated 04/12/14; AVFU-1B, Dated 03/26/14; AVFU-2A, Dated 09/23/14; AVFU-2B, Dated 04/26/13

CAP Documents

Problem Investigation Program (PIP) Number C-96-02514

PIP C-13-00282

PIP C-13-00818

PIP C-13-01849

PIP C-13-04069

PIP C-13-06733
 PIP C-13-10282
 PIP C-13-10674
 PIP C-14-01131
 PIP C-14-03710
 PIP C-14-07903
 PIP C-14-08606
 PIP C-14-09115
 PIP C-14-10719
 PIP C-14-10720
 PIP C-14-11103
 PIP C-14-11373
 PIP C-14-11791
 PIP C-15-00133
 PIP C-15-00623

Action Item Report, AR2834

Quick Hitter Self-Assessment Report Form, Assessment No. C-RPS-SA-14-11, Annual Groundwater Protection Self-Assessment, Dated 11/25/14

Section 2RS07: Radiological Environmental Monitoring Program (REMP)

Procedures and Guidance Documents

AD-CP-ALL-0017, Radiological Groundwater Protection, Rev. 0
 AD-PI-ALL-0100, Corrective Action Program, Rev. 2
 AD-RP-ALL-2003, Investigation of Unusual Radiological Occurrences, Rev. 0
 Cross-Check Management in the EnRad Laboratory Job Aid, Undated
 Duke Energy, Catawba Nuclear Station, Units 1 and 2, Offsite Dose Calculation Manual, Rev. 57
 EnRad-Proc-106, Calculation and Determination of Lower Limit of Detection for Radiological Laboratory Instrumentation, Rev. 006
 EnRad-Proc-718, Annual Land Use Census for Catawba Nuclear Station, Rev. 003
 EnRad-Proc-720, Milk Sampling at Catawba Nuclear Station, Rev. 004
 EnRad-Proc-721, Airborne Radioiodine and Airborne Particulate Sampling at Catawba Nuclear Station, Revs. 009 and 010
 EnRad-Proc-722, Water Sampling at Catawba Nuclear Station, Rev. 003
 EnRad-Proc-727, Direct Radiation Measurements (TLD's) at Catawba Nuclear Station, Rev. 007
 EnRad-Proc-850, Calibration of REMP Air Sampling Equipment, Rev. 000
 IP/0/B/3343/001, Meteorological Monitoring System Check, Rev. 062
 IP/0/B/3343/013, Meteorological Monitoring System (EEB) Calibration and Maintenance Procedure, Rev. 043

Records and Data Reviewed

10CFR61 General Station Data Review Record, January 2014 to January 2015
 50.75(g) Decommissioning Recordkeeping Log
 Air Sample Collection Form for CATAWBA, Job Name: CNS-26-Jan-2015-REMP, 01/27/15

Catawba Meteorological Data Recovery for 2013 and 2014 (spreadsheets)
 Catawba Systems Containing Radioactivity, 12/12/14
 CNS, U1 and U2, 2012 ARERR, Dated 04/30/13
 CNS, U1 and U2, 2013 ARERR, Dated 04/30/14
 Duke Energy, Annual Radiological Environmental Operating Report, Duke Energy Corporation, Catawba Nuclear Station, Units 1 and 2, 2012 and 2013
 Duke Energy, Interlaboratory Cross Check Program, Sample Analysis Forms, 2012 and 2013
 EnRad Laboratories, Central Calibration Facility, Certificates of Calibration: ISCO Model 3710 Portable Sampler, EnRad ID: 00305, 12/10/13 and 12/09/14; REMP Air Sampler F and J Model LV-1D, EnRad IDs: 03395, 01/05/13 and 11/13/14; 03399, 08/05/13 and 12/02/14; 03422, 01/21/13 and 11/13/14; 09078, 06/05/14; and 09096, 13/31/13 and 11/04/14
 Tower Inspection Report for Duke Energy at Catawba-York, SC, September 2014
 Transmittal of Environmental Samples, Catawba Nuclear Station, Job Name: CNS-26-JAN-2015-REMP, 01/27/15
 Work Order (WO) 02096390 01, 0EEB – Calibrate Meteorological Instrumentation, 01/22/14
 WO 02136876 01, 0EEB – Calibrate Meteorological Instrumentation, 04/30/14
 WO 02151300 01, 0EEB – Calibrate Meteorological Instrumentation, 11/05/14
 WO 02190382-01, 0EEB – Perform 1W Cal of MET System, 01/28/15

CAP Documents

AD-PI-ALL-300, Quick Hitter Self-Assessment Report, Rev. 0, 11/18/14
 PIP No. G-14-00146
 PIP No. G-14-01973
 PIP No. G-14-02456
 PIP No. G-14-02585
 PIP No. G-15-00168
 Self-Assessment Report Form, Radiological Environmental Monitoring Program (REMP) at Catawba Nuclear Station: Air Particulate and Air Radioiodine/Drinking Water/Surface Water, 01/21/14

Section 2RS8: Radioactive Material Processing and Transportation

Procedures, Manuals, and Guides

AD-PI-ALL-0100, Corrective Action Program, Rev. 2
 AD-PI-ALL-3001, Control of Radioactive Material and Use of Radioactive Material Labels, Rev. 1
 AD-PI-ALL-3003, Outside Radioactive Material Container Inventory and Control, Rev. 0
 Radioactive Waste Process Control Program Manual, Appendix C, Catawba Nuclear Station, Process Control Program, Rev. No. 13
 Radioactive Waste Process Control Program Manual, Corporate Process Control Program, Rev. No. 15
 SH/0/B/2004/001, Preparation and Shipment of Radioactive Material, Rev. No. 008
 SH/0/B/2004/002, Preparation and Shipment of Radioactive Waste, Rev. 11
 SH/0/B/2004/003, Determination and Documentation of 10CFR61 Radioactive Waste Classification and Waste Form Implementation Program Data, Rev. 0

Shipping Records and Radwaste Data

10CFR61 General Station Data Review Record, January 2014 to January 2015
 2010 DAW Site Composite Smear Sample for 10CFR61, 8/15/11

2010 and 2012 U-1 BB Resins for 10CFR61, 8/15/11 and 04/17/13
 2011 and 2012 PST Resin Samples for 10CFR61, 08/15/11 and 04/10/13
 2011 and 2012 U-2 BB Resins for 10CFR61, 8/05/11 and 04/17/13
 2012 Site Composite, U-1, and U-2 KF Crud Filters for 10CFR61, 04/17/13
 2012 Site Composite, U-1, and U-2 NC Crud Filters for 10CFR61, 04/17/13
 2103 DAW Site Composite Smear Sample for 10CFR61, 09/05/13
 2013 RBT Resin 10CFR61, 09/05/13
 2014 Radwaste Filter Surrogate Crud for 10CFR61, 04/14/14
 2014 Site Composite, U-1, and U-2 KF Crud Filters for 10CFR61, 04/14/14
 2014 Site Composite, U-1, and U-2 NC Crud Filters for 10CFR61, 04/14/14
 2014 U-2 Fuel Cleaning Filter Sample for 10CFR61, 04/14/14
 CNS, U1 and U2, 2012 ARERR, Dated 04/30/13
 CNS, U1 and U2, 2013 ARERR, Dated 04/30/14
 Radioactive Shipment Record (RSR) No. 13-0025, SCO-II, Type A, One metal box containing AREVA equipment
 RSR No. 13-0035, Type B, One metal shipping cask of dewatered ion exchange media
 RSR No. 14-0041, Type B, One metal cask of dewatered ion exchange media
 RSR No. 14-0042, Type A, One metal box of equipment
 RSR No. 15-0006, LSA-II, One metal box (Sealand) of dry active waste
 Training Records – 49CFR172 Hazardous Material Training Documentation for selected Radioactive Material Control shipping staff

CAP Documents

C-RPS-SA-13-06, NRC Prep Audit 71124.08 – Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation
 Energy Solutions Condition Report (CR) No. BW-CR-14-025, Letter Dated 12/09/14
 PIP No. C-13-09363
 PIP No. C-14-10716
 PIP No. C-14-11168
 PIP No. C-15-02759
 PIP No. C-15-02762
 PIP No. C-15-02763
 South Carolina Radioactive Waste Transportation Permit 0204-39-14-X, Letter Dated 12/11/14

Section 40A1: Performance Indicator Verification

NSD 225, “NRC Performance Indicators”
 NEI 99-02, “Regulatory Assessment Performance Indicator Guideline”
 SRPMP 10-1, “NRC Performance Indicator Data Collection, Validation, Review and Approval”
 Catawba Master File, CN: 854.02-04

Procedures

AD-EP-ALL-0001, Emergency Preparedness Key Performance Indicators, Rev. 1
 AD-EP-ALL-0002, NRC Regulatory Assessment PI Guideline EP Cornerstone, Rev. 1
 AD-PI-ALL-0100, Corrective Action Program, Rev. 2
 RP/0/A/5000/001, Classification of Emergency, Rev. 32
 RP/0/A/5000/006A, Notifications to States and Counties from the Control Room, Rev. 29

Records and Data

Documentation of Performance Indicator data from January 1, 2014, through December 31, 2014 for DEP, ANS, and ERO

Corrective Action documents

C-13-04002, DEP error due to inaccurate notification

C-13-04003, DEP error due to an improper event classification

C-13-05463, An active OSM misclassified an event two times during annual operating exams

C-13-06102, Missed EAL classification during NRC exam ASEs

Procedures, Guidance Documents and Manuals

NSD-225, NRC Performance Indicators, Rev. 5

SRPMP 10-1, NRC Performance Indicator Data Collection, Validation, Review and Approval,
Rev. 6

Records and Data Reviewed

Dose Rate Alarm Log, 06/01 through 12/31/14

Electronic Dosimeter Dose Rate Alarm Report, 06/01 through 12/31/14

Electronic Dosimeter Dose Alarm Report, 06/01 through 12/31/14

SRPMP 10-1, NRC Performance Indicator Data Collection, Validation, Review and Approval,
Rev. 6, for June – December 2014

SH/0/B/2007/003, Determination of Cumulative and Projected Offsite Dose from Effluents,
Enclosure 5.3, Catawba Nuclear Station Dose Commitment Data Sheet(s), [includes
monthly, quarterly, and annual effluent dose calculations] dated 04/22/13, 08/04/13,
10/24/13, 01/16/14, 04/24/14, 07/25/14, and 10/20/14

CAP Documents

PIP No. C-11-07963

PIP No. C-12-02282

PIP No. C-12-02684

PIP No. C-12-02832

PIP No. C-12-03068

PIP No. C-12-03427

PIP No. C-12-03801

PIP No. C-12-03862

PIP No. C-12-04082

PIP No. C-12-04213

PIP No. C-12-05231

PIP No. C-12-06008

PIP No. C-12-09384

PIP No. C-12-09397

PIP No. C-12-10065

PIP No. C-12-10229

PIP No. C-12-10502

PIP No. C-12-10824

PIP No. C-12-11288

Section 4OA2: Problem Identification and Resolution

NSD 208, "Problem Investigation Program"

NSD 500, "Red Tags/Configuration Control Tags"

SOMP 02-01, "Safety Tagging and Configuration Control"

PIP C-14-11776, 2EMXH, Incoming Breaker from Load Center 1ELXB would not close in during power swap