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

April 25, 2013

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 05000413/2013002, 05000414/2013002

Dear Mr. Henderson:

On March 31, 2013, 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, 2013, with Mr. Tom Simrill 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. No findings were identified.

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 document 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/

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

Docket Nos.: 50-413, 50-414, 72-45
License Nos.: NPF-35, NPF-52

Enclosure: Integrated Inspection Report 05000413/2013002, 05000414/2013002
w/Attachment: Supplemental Information

cc w/encl: (See page 2)

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SIGNATURE	/RA/
NAME	JBartley
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cc w/encl:
Scott L. Batson
Plant Manager
Catawba Nuclear Station
Duke Energy Corporation
Electronic Mail Distribution

William M. Suslick
Design Engineering Manager
Catawba Nuclear Station
Duke Energy Corporation
Electronic Mail Distribution

Steven B. Putnam
Organizational Effectiveness Manager
Catawba Nuclear Station
Duke Energy Corporation
Electronic Mail Distribution

Randall D. Hart
Regulatory Compliance Manager
Catawba Nuclear Station
Duke Energy Corporation
Electronic Mail Distribution

Joseph Michael Frisco, Jr.
Vice President, Nuclear Design Engineering
General Office
Duke Energy Corporation
Electronic Mail Distribution

M. Christopher Nolan
Director - Regulatory Affairs
General Office
Duke Energy Corporation
Electronic Mail Distribution

David A. Cummings (acting)
Fleet Regulatory Compliance & Licensing Manager
General Office
Duke Energy Corporation
Electronic Mail Distribution

Alicia Richardson
Licensing Administrative Assistant
General Office
Duke Energy Corporation
Electronic Mail Distribution

Lara S. Nichols
Deputy General Counsel
Duke Energy Corporation
Electronic Mail Distribution

David A. Cummings
Associate General Counsel
General Office
Duke Energy Corporation
Electronic Mail Distribution

Beth J. Horsley
Wholesale Customer Relations
Duke Energy Corporation
Electronic Mail Distribution

Sandra Threatt, Manager
Nuclear Response and Emergency
Environmental Surveillance
Bureau of Land and Waste Management
Department of Health and Environmental Control
Electronic Mail Distribution

Division of Radiological Health
TN Dept. of Environment & Conservation
401 Church Street
Nashville, TN 37243-1532

David A. Repka
Winston Strawn LLP
Electronic Mail Distribution

County Manager of York County
York County Courthouse
P. O. Box 66
York, SC 29745-0066

Piedmont Municipal Power Agency
Electronic Mail Distribution

Vanessa Quinn
Federal Emergency Management Agency
Radiological Emergency Preparedness Program
1800 S. Bell Street
Arlington, VA 20598-3025

Letter to K. Henderson from Jonathan H. Bartley April 25, 2013

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000413/2013002 AND 05000414/2013002

Distribution w/encl:
C. Evans, RII
L. Douglas, RII
OE Mail
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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.:	05000413/2013002, 05000414/2013002
Licensee:	Duke Energy Carolinas, LLC
Facility:	Catawba Nuclear Station, Units 1 and 2
Location:	York, SC 29745
Dates:	January 1, 2013, through March 31, 2013
Inspectors:	A. Hutto, Senior Resident Inspector R. Cureton, Resident Inspector D. Berkshire, Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP5, 4OA1, 4OA6) W. Loo, Senior Health Physicist (Section 1EP2, 1EP3, 1EP5, 2RS6, 4OA1, 4OA6) J. Rivera-Ortiz, Senior Reactor Inspector (Section 1R07) J. Rivera, Health Physicist (Section 2RS7, 4OA1) M. Speck, Sr.; Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP5, 4OA1, 4OA6)
Approved by:	Jonathan H. Bartley, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000413/2013-002, 05000414/2013-002; 1/1/2013 – 3/31/2013; Catawba Nuclear Station, Units 1 and 2; Integrated Inspection report

The report covered a three-month period of inspection by the resident inspectors and five Region-based inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" revision 4.

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 for the entire 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 23, 2013. This included a review of actions required by OP/0/A/6500/115, Operator Rounds, and OP/0/B/6700/015, Weather Related Activities, 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 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 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.

- B train of Control Room Area Ventilation/Chilled Water System while the A train was out of service for planned maintenance
- 2A diesel generator (DG) while the 2B DG was out of service for mid-cycle planned maintenance
- 1A Containment Spray (NS) Pump while the 1A NS Pump was out of service for planned maintenance

Complete System Walkdown: The inspectors conducted a detailed walkdown/review of the Unit 1 Safety Injection system. The inspectors used licensee procedures and licensing and design documents to verify that the system (i.e., pump, valve, and electrical) alignment was correct; valves and pumps did not exhibit leakage that would impact their function; major portions of the system and components were correctly labeled; hangers and supports were correctly installed and functional; and essential support systems were operational. In addition, pending design and equipment issues were reviewed to determine if the identified deficiencies significantly impacted the system's functions. Items included in this review were: the operator workaround list; the temporary modification list; and outstanding maintenance work requests/work orders. A review of open Problem Investigation Program reports (PIPs) was also performed to verify that the licensee had appropriately characterized and prioritized safety-related equipment problems for resolution in the corrective action program. Documents reviewed are listed in the Attachment.

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 Mechanical Penetration Room 543 foot Elevation
- Unit 2 Mechanical Penetration Room 543 foot Elevation
- Unit 2 Turbine Building Basement
- Unit 1 Auxiliary Building Hose Rack compensations during Fire Water system pipe cleaning
- 1A DG Room

Fire Drill Observations: The inspectors observed a fire brigade drill on January 25, 2013, involving a simulated lube oil fire in the 1B DG room. The inspectors verified the fire brigades' use of protective gear and firefighting equipment; that fire fighting pre-plan procedures and appropriate fire fighting techniques were used; that the directions of the fire brigade leader were thorough, clear and effective; and that control room personnel responded appropriately to the simulated fire events. The inspectors also attended the subsequent drill critiques to assess if they were appropriately critical, included discussions of drill observations and identified any areas requiring corrective actions. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Underground Cables: The inspectors entered conduit manhole CMH-18A to verify that the cables were not submerged, damaged, or degraded and that the sump pumps were functioning properly. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Review: The inspectors reviewed the performance of the Unit 2 'B' NS 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.

Triennial Review of Heat Sink Performance: The inspectors interviewed plant personnel and reviewed records for a sample of heat exchangers that were directly cooled by the nuclear service water (RN) system or a closed loop cooling water system to verify that

heat exchanger deficiencies, potential common cause problems, or heat sink performance problems that could result in initiating events or affect multiple heat exchangers in mitigating systems were being identified, evaluated, and resolved. The inspectors selected the following three heat exchangers that were directly cooled by the RN system. For these heat exchangers, the inspectors reviewed the methods and results of heat exchanger performance testing to verify performance was maintained in accordance with the design basis. The inspectors determined whether the testing methods and monitoring of biotic and macro- fouling were adequate to ensure proper heat transfer. This was accomplished by determining whether the test methodology, test conditions, test frequency, acceptance criteria, and results were adequate to confirm the heat transfer capability of the heat exchangers and detect degradation prior to loss of heat removal capabilities below design basis values. The inspectors also reviewed the methods and results of heat exchanger inspections. The inspectors reviewed inspection records to determine if the methods, frequency, and acceptance criteria used to inspect and clean heat exchangers were consistent with licensee procedures and adequate to ensure proper heat transfer performance in accordance with the design basis.

- Control room ventilation ‘B’ train chiller condenser
- RN pump upper bearing oil cooler ‘2B’
- RN pump motor cooler ‘2A’

The inspection sample also included the following three heat exchangers that were directly cooled by a closed loop system. For these heat exchangers, the inspectors determined if the condition and operation of the heat exchangers were consistent with design assumptions in heat transfer calculations described in the updated final safety analysis report. Where applicable, the inspectors reviewed records of heat exchanger tube plugging to verify that the number of plugged tubes was within pre-established limits based on capacity and heat transfer assumptions. The inspectors reviewed calculations and operating procedures to determine if the licensee evaluated the potential for water hammer in susceptible heat exchangers, and established adequate controls and operational limits to prevent heat exchanger degradation due to excessive flow induced vibration during operation. The inspectors’ review also included periodic flow testing records at or near maximum design flow to verify flow through each heat exchanger was consistent with the system design basis. In addition, the inspectors reviewed eddy current test results and visual inspection records to evaluate the structural integrity of the heat exchangers. The inspectors also reviewed system health reports and corrective action program documents to determine whether the licensee’s chemical treatment programs for corrosion control were effective in preventing system degradation.

- residual heat removal (ND) heat exchanger ‘1A’
- component cooling (KC) 1A2 pump motor cooler
- ND pump ‘1A’ mechanical seal heat exchanger

These six heat exchangers were chosen based on their risk significance in the licensee’s probabilistic risk analysis, their safety-related mitigating system support functions, and previous NRC inspection efforts in this area.

The inspectors reviewed inspection records and conducted a walk-down of the standby RN pond dam to verify the licensee had a program in place to identify degradation of the shoreline protection and loss of structural integrity. This included determination if vegetation present along the slopes was trimmed, maintained, and was not adversely impacted the embankment. In addition, the inspectors reviewed design basis information and topographical surveys of the standby RN pond to determine if sufficient reservoir capacity was available to perform its design basis function. The inspectors also reviewed licensee and third party dam inspections to verify the licensee was monitoring the integrity of the heat sink and appropriate corrective actions were implemented.

The inspectors reviewed the licensee's in-service testing of the RN system motor operated valves (MOVs) listed below to verify that the performance of the ultimate heat sink and its subcomponents was appropriately evaluated through testing or equivalent methods. In addition, the inspectors compared the flow balance results to system configuration and flow assumptions during design basis accident conditions. The inspectors also determined if the licensee ensured adequate isolation during design basis events, consistency between testing methodologies and design basis leakage rate assumptions, and proper performance of risk significant non-safety related functions.

- MOV 2RN-11A – RN Pump Motor Cooler 2A Isolation Valve
- MOV 2RN-28A – RN Pump 2A Discharge Isolation Valve
- MOV 1RN-232A – DG Engine Jacket Water Cooler 1A RN Supply Isolation Valve
- MOV 1RN-50B – Unit 1 Non-Essential Header Supply Isolation
- MOV 1RN-51A – Unit 1 Non-Essential Header Return Isolation
- MOV 1RN310B – RN Train 1B Supply to Auxiliary Feedwater Pumps Isolation Valve

For a sample of buried and inaccessible piping, the inspectors reviewed the licensee's pipe testing, inspection, or monitoring program to determine whether structural integrity was ensured and that any leakage or degradation was appropriately identified and dispositioned. Specifically, the inspectors reviewed inspection records and corrective action documents for the intake structure and the 'A' train buried suction piping connecting the intake structure in the standby nuclear service water pond to the service water pump house. The inspectors also reviewed historical data of thru wall pipe leakage in the service water system to identify any adverse trends and verify that adequate corrective actions were implemented.

The inspector performed a system walkdown of the service water pump house to assess the material condition and functionality of accessible structures and components such as strainers, pumps, instrumentation, and component supports. In addition, the inspectors determined whether service water pump bay silt accumulation was monitored, trended, and maintained at an acceptable level, and that water level instruments were functional and routinely monitored. The inspectors reviewed the licensee's operation of the service water system and ultimate heat sink, including monitoring, trending, and control of macro-fouling to prevent clogging. The inspectors also reviewed system health reports and corrective action program documents to determine whether the licensee's biocide

treatments were effective in controlling biotic fouling and the results were adequately monitored, trended, and evaluated.

Additionally, the inspectors reviewed corrective action documents related to the service water system and heat sink performance issues to determine whether the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the corrective actions. Documents reviewed are listed in the Attachment. These inspection activities constituted six heat exchanger samples and one ultimate heat sink sample.

b. Findings

No findings were identified.

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

a. Inspection Scope

Resident Inspector LOR Activity Review: The inspectors observed Simulator Exercise S-58 to assess the performance of licensed operators during a license operator requalification simulator training session. The exercise included a loss of low pressure service water, loss of the 1A turbine driven feed water pump with a failure of the turbine generator to automatically runback. The scenario also included a main steam line break inside containment with the main steam isolation valves failing to close automatically or manually. 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.

Resident Inspector Licensed Operator Performance Review: The inspectors observed operators in the main control room and assessed their performance during routine plant evolutions including reactivity and average temperature adjustments and various component manipulations. 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 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.

- PIP C-12-11489, Unit 1 turbine load reduced more than intended due to turbine control panel pushbutton becoming stuck
- PIP C-12-9046, 1B containment penetration valve injection surge chamber maintenance preventable functional failure

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the following four 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 Standby Shutdown Facility DG during emergent maintenance
- Potential Yellow risk due to B service air compressor tagged out for equipment protection with the F instrument air dryer secured due to trouble alarms
- Equipment Protection Plan for the Unit 2 turbine driven auxiliary feedwater pump out of service for maintenance (Yellow risk)
- Critical Activity Plan for the 2A DG mid-cycle maintenance

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors evaluated the technical adequacy of the six 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-13-0164, Fuel oil leak on 1A EDG 5R fuel injection pump inlet elbow
- PIPs C-13-0686/0688, Lube oil and fuel oil leaks on the 1B diesel generator during surveillance test
- PIP C-13-0876, RVLIS RTD cables for temperature compensation are not currently qualified to revised reactor building dose rates
- PIP C-13-1606/1734, Solid State Protection System (SSPS) undervoltage driver boards low output voltage
- PIP C-13-01854, OEDB 63329 – Flowserve Part 21 – Subject: Wedge Pin Failure of an Anchor/Darling Double-Disc Gate Valve at Browns Ferry Nuclear Plant Unit 1
- PIP C-13-2500, Material discrepancy for 1B containment spray pump suction flanges

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed temporary modification EC 108055, Install Gag on 2NV-39A, 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.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following six post-maintenance tests 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.

- 1A DG operability test following a fuel line leak repair
- ND valve inservice test following 1ND-61 preventive maintenance
- Unit 2 SSPS Logic Board A417 functional testing following replacement
- Nuclear service water train A RN pump discharge check valve backflow/forward flow test following 1RN-9 maintenance/inspections
- 1B Auxiliary Feedwater Pump following yearly preventative maintenance
- 2A1 KC Pump following preventative maintenance

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. 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 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/4400/003 I, KC System Essential Header Flow Balance
- PT/1/A/4350/002 A, Diesel Generator 1A Operability Test
- PT/2/A/4450/005 B, Containment Air Return Fan 2B and Hydrogen Skimmer Fan 2B Performance Test
- OP/2/A/6200/011, Primary Sampling System, Enclosure 4.3, Reactor Coolant Loops A & C

In-Service Tests

- PT/0/A/4400/002, Nuclear Service Water Pump Train A Performance Test
- PT/2/A/4250/003 C. Turbine Driven Auxiliary Feedwater Pump #2 Performance Test (Comprehensive)

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 and maintaining 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 interviewed cognizant personnel, made a site visit to one of the sirens, and observed conduct of a bi-weekly silent siren test. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample.

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 was 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. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample.

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 post-event after action 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. Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected evaluations of Emergency Preparedness document revisions to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors observed cognizant licensee staff demonstrate the capabilities of selected radiation monitoring instrumentation to adequately support Emergency Action Level declarations.

The inspection was conducted in accordance with NRC Inspection Procedure 71114.05, Maintenance of Emergency Preparedness. The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample.

b. Findings

No findings were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed and evaluated the licensee's emergency planning performance during a drill conducted on February 21, 2013. The inspectors reviewed licensee activities that occurred in the simulator and the Technical Support Center during the simulated events. The drill scenario involved a failed reactor automatic trip, followed by a steam generator tube rupture and main steam line break. The inspectors 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 ERO 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 critique documenting the overall performance of the ERO.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope

Event and Effluent Program Reviews: The inspectors reviewed the 2010 and 2011 Annual Radiological Effluent Release Report (ARERR) documents for consistency with requirements in the Offsite Dose Calculation Manual (ODCM) and Technical Specifications (TS). Effluent release results and reports were reviewed and discussed with the licensee. Status of the radioactive gaseous and liquid effluent processing and monitoring equipment, as described in the UFSAR and current ODCM, were discussed with the licensee.

Instrumentation and Equipment: The inspectors reviewed and discussed recent Engineered Safety Feature (ESF) ventilation surveillance test results for the Unit 1and Unit 2 Auxiliary Building (AB), Unit 1 and Unit 2 Fuel Handling Building (FHB), and Unit 1 and Unit 2 Containment Purge systems. The inspectors discussed testing protocols and evaluated equipment material condition during tours of selected Unit 1 and Unit 2 ESF ventilation systems.

The inspectors walked-down and discussed components of the EMF-36, EMF-42, EMF-49, and EMF-50 gaseous processing systems and the Auxiliary Monitor Tank liquid processing and discharge systems (EMF-58) to ascertain material condition, configuration, and alignment. To the extent practical, the inspectors observed and evaluated the material condition of in-place liquid waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. The walk-downs were accompanied by the licensee and included discussion of associated piping and valves.

Effluent Processing: The inspectors observed the pre-release sampling and analysis, and the set-up and conduct of release activities associated with Unit 2 Containment Atmosphere P&C/Noble Gas Grab and Condensate Steam Air Ejector Offgas. The inspectors reviewed discharge permits and associated documentation for selected liquid and gaseous releases. The reviews included selected dose calculation summaries and dose impacts. The inspectors reviewed the calculated public dose results for any indications of higher than anticipated or abnormal releases. The inspectors also reviewed select results of the inter-laboratory comparison program for the count room. Part 61 analyses and the determination of applicable radionuclides to the source term were reviewed by the inspectors and discussed with the licensee.

Ground Water Protection: The inspectors reviewed the current groundwater sample results and discussed with the licensee. The inspectors reviewed and discussed the tritium levels associated with monitoring well C-213 and the actions being taken to reduce the water volume in the well. The inspectors also discussed the design of the settling ponds and the flow of wastewater from the plant to the ponds.

Identification and Resolution of Problems: The inspectors reviewed selected Corrective Action Program (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 NSD-208, Problem Investigation Program, Revision (Rev.) 37.

Effluent process and monitoring activities were evaluated against details and requirements documented in UFSAR Sections 11 and 12; ODCM; 10 CFR Part 20; Appendix I to 10 CFR Part 50; and approved licensee procedures. Ventilation program guidance and performance test activities were evaluated against the requirements TS Sections 3.7, Plant Systems, 5.4, Procedures, and 5.5.11 Ventilation Filter Testing Program; and approved licensee procedures. In addition, changes to the ODCM since the last onsite inspection were reviewed against the guidance in NUREG-0133, Regulatory Guide (RG) 1.109 and RG 1.21. Changes to the Land Use Census were also reviewed in Section 2RS7. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

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 (CYs) 2010 and 2011. 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 locations of direct radiation measurements (environmental thermoluminescent dosimeters), as well as their material condition and placement. The inspectors observed 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 broadleaf vegetation and drinking 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 2010 and 2011.

Identification and Resolution of Problems The inspectors reviewed and discussed selected CAP documents associated with REMP. The reviewed items included PIPs, self-assessments, and quality assurance audit documents. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with licensee NSD-208, Rev. 37.

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. The inspectors completed one sample.

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 PIs 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.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

The inspectors reviewed and evaluated PI data collected from March through December, 2012. The inspectors assessed PIP records to determine if High Radiation Area (HRA), Very HRA 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

- Radiological Control Effluent Release Occurrences

The inspectors reviewed the PI results for the Public Radiation Safety Cornerstone from March through December 2012. The inspectors reviewed cumulative and projected doses to the public and CR documents related to Radiological Effluent Technical Specifications/ODCM issues.

Emergency Preparedness Cornerstone

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

The inspector examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences for the period October 1, 2012, through December 31, 2012. 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.

Cornerstone: Initiating Events
- Unplanned Scrams with Complications, Unit 1 and 2

Cornerstone: Mitigating Systems
- Cooling Water Systems, Unit 1 and 2

Cornerstone: Barrier Integrity
- RCS 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, 2012, through December 31, 2012. 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 2012. The inspectors also reviewed the past history of PIPs for systems affecting the Mitigating Systems PI listed above for any that might have affected the reported values.

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 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 corrective action program.

- PIP C-12-3898, Inaccurate blend ratio observed during auto makeup

The inspectors reviewed the actions taken to determine if the licensee had adequately addressed the following attributes. Documents reviewed are listed in the Attachment.

- 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.

4OA3 Followup of Events and Notices of Enforcement Discretion (NOED)

.1 (Closed) Licensee Event Report (LER) 05000414/2012-001-00: Diesel Generator (DG) 2B was Unknowingly Inoperable from 9/28/12 to 10/23/12 Due to Failed Tachometer Relay Power Supply

During the monthly test, conducted on September 28, 2012, it was noted the engine tachometer had malfunctioned and a work order was written to investigate. On December 23, 2012, the cause of the malfunction was identified as a failed power supply. The licensee determined that the failed power supply would have prevented the DG's output breaker from automatically closing in response to a loss of power on its respective safety bus. The inspectors reviewed the LER and supporting documents which included completed and planned corrective actions to verify the accuracy of the LER and that the corrective actions address the root cause. The enforcement aspects of this issue are discussed in Section 4OA7 of Iinspection Report 05000413/2012005, 05000414/2012005. The licensee entered this issue into their corrective action program as PIP C-12-8991.

.2 (Closed) Licensee Event Report (LER) 05000413/2012-02-00: Discovery of Inadequacy in Surveillance Testing of Solid State Protection System

On September 6, 2012, the licensee discovered that their SSPS logic test and channel operational test surveillance procedures did not test all logic circuit paths for both trains of the low pressurizer pressure safety injection function for both units. Because the circuits were never tested from original operation, the licensee reported the inadequate surveillances as a condition prohibited by TS. The LER, licensee's cause evaluation, and supporting documents reviewed by the inspectors to verify the accuracy of the LER and completion of corrective actions which included implementing the applicable test procedure changes to fully comply with TS surveillance requirements. This noncompliance with TS was determined to be a licensee-identified minor violation because subsequent comprehensive testing of the logic circuits demonstrated that the SSPS remained capable of performing its safety function as designed and is not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee entered this issue into their corrective action program as PIP C-12-8166.

4OA5 Other Activities

.1 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. 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.

.2 (Closed) NRC Temporary Instruction (TI) 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

Inspection Scope

The Inspectors verified that licensee's walkdown packages contained the elements as specified in NEI 12-07 Walkdown Guidance document. The inspectors accompanied the licensee on their walkdown of the Unit 1 and 2 Auxiliary Building external doors and verified that the licensee confirmed the following flood protection features:

- Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspection for indications of degradation that would prevent its credited function from being performed was performed.
- Critical SSC dimensions were measured
- Available physical margin, where applicable, was determined.
- Flood protection feature functionality was determined using either visual observation or by review of other documents

The inspectors independently performed their walkdown of the Unit 1 and 2 DG room access door barriers, roof hatch seals and diesel system vents, and verified the following flood protection features:

- Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspection for indications of degradation that would prevent its credited function from being performed was performed.
- Critical SSC dimensions were measured
- Available physical margin, where applicable, was determined.
- Flood protection feature functionality was determined using either visual observation or by review of other documents.

The inspectors verified that noncompliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into the licensee's CAP. In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and the licensee's ability to mitigate the consequences will be subject to additional NRC evaluation.

Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 10, 2013, the resident inspectors presented the inspection results to Mr. Tom Simrill, Catawba Station Manager, 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
B. Beckham, Corporate Radiological Assessment
E. Benfield, General Supervisor, Radiation Protection
D. Cantrell, Chemistry Manager
T. Hamilton, Engineering Manager
R. Hart, Regulatory Compliance Manager
K. Henderson, Site Vice-President
T. Jenkins, Superintendent of Maintenance
C. Kamilaris, Organizational Effectiveness Manager
A. Orton, Nuclear Training Manager
J. Overly, Manager – Fleet Emergency Preparedness Programs
K. Phillips, Work Control Manager
S. Shillinglaw, Security Systems
P. Simbrat, Regulatory Compliance Engineer
S Putnam, Operations Superintendent
T. Simril, Station Manager
J. Smith, Radiation Protection Manager
W. Suslick, Design Support Services
S. West, Security Manager

LIST OF REPORT ITEMS

Closed

05000414/2012-001-00	LER	Diesel Generator (DG) 2B was Unknowingly Inoperable from 9/28/12 to 10/23/12 Due to Failed Tachometer Relay Power Supply (Section 4OA3)
05000413/2012-002-00	LER	Discovery of Inadequacy in Surveillance Testing of Solid State Protection System (Section 4OA3)
TI 2515/187	TI	NRC Temporary Instruction, “Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns” (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PIP C-13-00583, MSR 2A, 2B & 2C multiple indication failure due to below freezing temps at the transducer room
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
Calculation CNC-1114.00-00-0040, Yard Drainage Results of PMP

Section 1R04: Equipment Alignment

OP/2/A/6350/002, Diesel Generator Operation; Enclosure 4.6, D/G 2A Checklist for ES Actuation
OP/1/A/6200/007, Containment Spray System
OP/0/A/6450/011, Control Room Area Ventilation/Chilled Water System
OP/1/A/6200/006, Safety Injection System
CNS-1562.NI-00-0001, Design Basis Specification for the Safety Injection System

Section 1R05: Fire Protection

Station Fire Impairment Log
NSD-313, Control of Combustible and Flammable Material, Rev. 7
Complex Activity Plan for Auxiliary Building RF System Pipe Cleaning Work Activities
Ops Guide # 12-33, RF/RY Impairment Aggregate Impact

Section 1R06: Flood Protection Measures

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

Section 1R07: Heat Sink Performance

PT/2/A/4400/006 B, NS Heat Exchanger 2B Heat Capacity Test
CNC-1150.04-00-0009, Area and Volume of the Standby Nuclear Service Water Pond, Rev 14.
CNC-1211.00-00-0064, Condenser Tube Plugging Limits for the Control Room Area Water Chillers, Rev. 2
CNS AT Action Request 00380080, Engineering Perform Fish Survey of SNSWP, 11/14/11
CNS Service Water Pipe Inspection Program, Rev. 10
CNS-1150.04-00-0001, Design Basis Specification for the Nuclear Service Water Structures, Rev. 7
CNS-1574.RN-00-0001, Design Basis Specification for the Nuclear Service Water System (RN), Rev. 59
Dam Safety Inspection Report for the USNRC by FERC at the Catawba Standby NSW Pond, 04/5/11
Drawing No. CN-1347-02, SNSW Intake Structures – Concrete, Reinforcing Plan, Sections and Details, Rev 5
Drawing No. CN-1347-03, NSW & SNSW Intake Structures – Concrete, Reinforcing and Miscellaneous Steel Plan, Sections and Details, Rev 12

Drawing No. CN-1574-01.00, Flow Diagram of Nuclear Service Water System, Rev. 53
Drawing No. CN-1574-01.01, Flow Diagram of Nuclear Service Water System, Rev. 58
Drawing No. CN-1574-01.02, Flow Diagram of Nuclear Service Water System, Rev. 51
Drawing No. CN-1574-01.05, Flow Diagram of Nuclear Service Water System, Rev. 31
Drawing No. CN-1574-02.00, Flow Diagram of Nuclear Service Water System, Rev. 57
Drawing No. CN-1680-160, YC Chiller No. 1 and No. 2 Condenser Tube Bundle – Tube Plugging Map, Rev. 3
Drawing No. CNSF-1574-RN.01, Summary Flow Diagram of Nuclear Service Water System, Rev. 6
Drawing No. CNTC-1574-RN.S002, Test Acceptance Criteria for RN System Flow Balance, Rev. 9
Duke Energy Company – Service Water System Program Manual, Rev. 9
ECR 0000001976, Redesign/Replace SNSW Intake Structure Trashracks, 09/13/2011
In-service Testing Program Submittal – Valves, Revision 27
Letter MBCE-86-063, Catawba Nuclear Station – Heat Exchanger Tub Plugging Design Study, 12/19/1986
MP/0/A/7150/098, Nuclear Service Water Pump, Motor Upper Bearing Oil and Motor Coolers Chemical Cleaning, Rev. 9, 10
MP/0/A/7450/021, Cleaning Condenser or Cooler Tubes for YC Chillers, Rev. 17, 19, and 20
NSD-203, Operability/Functionality, Rev. 26
OP/0/A/6400/006 F, Nuclear Service Water System Flush Procedure, Rev. 66 (Completed on 06/10/12)
PIPs C-05-02772, C-06-08440, C-09-04943, C-11-01327, C-11-04733, C-11-07226, C-11-09696, C-12-00004, C-12-00319, C-12-00331, C-13-00342, C-13-00430, C-13-00454
PMRQ 00020165, RN – Clean Intake Pit-A Screen and Inspect Valves
PT/0/A/4400/004, Standby Nuclear Service Water Pond Dam Periodic Inspection, Rev. 26 (Inspection Completed on 01/9/2013)
PT/0/A/4400/004, Standby Nuclear Service Water Pond Dam Periodic Inspection, Rev. 25 (Inspection Completed on 01/10/2012)
PT/0/A/4400/004, Standby Nuclear Service Water Pond Dam Periodic Inspection, Rev. 25 (Inspection Completed on 01/28/2011)
PT/0/A/4400/008 A, RN Flow Balance Train A, Rev. 58 (Test completed on 7/30/12)
PT/0/A/4400/008 B, RN Flow Balance Train B, Rev. 53 (Test completed on 8/21/12)
PT/0/A/4450/008 E, Control Room Area Chillers Performance Test, Rev. 82 (Test completed on 10/4/12)
PT/1/A/4200013 C, RN Valve Inservice Test (QU), Rev. 71 (Testing of 1RN310B on 10/6/12)
PT/1/A/4200013 C, RN Valve Inservice Test (QU), Rev. 71 (Testing of 1RN51A on 10/9/12)
PT/1/A/4200013 C, RN Valve Inservice Test (QU), Rev. 72 (Testing of 1RN232A on 10/16/12)
PT/1/A/4200013 C, RN Valve Inservice Test (QU), Rev. 72 (Testing of 1RN50B on 11/23/12)
PT/1/A/4400/003 I, KC System Essential Header Flow Balance, Rev. 7 (Test completed on 06/03/12 per WO 02001419-01)
PT/1/A/4400/003 I, KC System Essential Header Flow Balance, Rev. 7 (Test completed on 5/10/12)
PT/2/A/4200013 C, RN Valve Inservice Test (QU), Rev. 55 (Testing of 2RN310B on 10/6/12)
PT/2/A/4200013 C, RN Valve Inservice Test (QU), Rev. 56 (Testing of 2RN11A and 2RN28A on 11/9/12)

PT/2/A/4400/003 I, KC System Essential Header Flow Balance, Rev. 6 (Test completed on 5/25/12)
PT/2/A/4400/003 I, KC System Essential Header Flow Balance, Rev. 6 (Test completed on 12/5/11)
System Health Report – Component Cooling System 2012-Q1, 2012-Q2, and 2012-Q3
System Health Report – Containment Spray System 2012-Q1, 2012-Q2, and 2012-Q3
System Health Report – Control Room Ventilation System 2012-Q1, 2012-Q2, and 2012-Q3
System Health Report – Emergency Diesel Generators 2012-Q1, 2012-Q2, and 2012-Q3
System Health Report – Nuclear Service Water System 2012-Q1, 2012-Q2, and 2012-Q3
WO 01102114-01, 1ND HX A – Support ECT Inspection of HX Tubes, 11/22/2006
WO 01826833-01, 2RN PU A-Clean Motor Coolers, 8/3/09
WO 01832361-01, 2RN PU B-Clean Motor Coolers, 6/7/09
WO 01882448-01, 2RN PU A-Clean Motor Coolers, 4/27/10
WO 01884105-01, 0YC CH 0002 – Clean Inspect Condenser, 3/25/2010
WO 01930700-01, 0YC CH 0002 – Clean Inspect Condenser, 12/29/2010
WO 01974955-01, 0YC CH 0002 – Clean Inspect Condenser, 9/8/2011
WO 02013233-01, 0YC CH 0002 – Clean Inspect Condenser, 5/16/2012
WO 98649851-01, 2RN PU B-Clean Motor Coolers, 3/31/04

Section 1R11: Licensed Operator Requalification
Simulator Exercise Guide 5-58
AP/1/A/5500/038, Loss of Conventional Low Pressure Service Water

Section 1R12: Maintenance Effectiveness
EDM 210, Engineering Responsibilities for the Maintenance Rule, Rev. 24
Turbines, Generators, and Support Systems Health Report 2012 Q4
Containment Isolation Valve Seal Water System Health Report 2012 Q4
AR2834, Action Item Report – NW Action Register
PIPs C-12-11489 and C-12-9046

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 Evaluations
NSD 203, Operability/Functionality, Rev. 19
NSD 122, Temporary Configuration Changes, Rev. 00
Drawing CN-1NS-0006, Containment Spray System Containment Spray Pump 18" Suction

Section 1R19: Post-Maintenance Testing
PT/1/A/4350/002 A, Diesel Generator 1A Operability Test
PT/1/A/4200/013 D, ND Valve Inservice Test
IP/2/A/3200/009, Solid State Protection System (SSPS) for Troubleshooting, Corrective Maintenance and Replacement Card Testing
PT/0/A/4400/022 A, Enclosure 13.3, Nuclear Service Water Train A RN Pump Discharge Check Valve Backflow/Forward Flow Test

OP/1/A/6250/002, Enclosure 4.4, Manual Operation of the Motor Driven Auxiliary Feedwater Pumps When Aligned for Standby Readiness
PIP C-13-02297

Section 1EP2: Alert and Notification System Evaluation

Procedures and Reports

Catawba Nuclear Station Emergency Plan, Rev. 12-3
EPFAM 3.3, Alert and Notification System (Siren Program), Rev. 11
Federal Signal Corp. 2001 Siren Installation and Operating Instructions
2012 Emergency Planning Calendar

Records and Data

Records of Silent, Full Cycle, and Growl ANS testing – January 1, 2011 to December 31, 2012
Full-cycle siren test results – 1/9/2013
Annual siren reports to FEMA for 2011 and 2012
Selected documentation of ANS repair and annual preventative maintenance – January 1, 2011 to December 31, 2012
FEMA Siren Upgrade Approval Letter, June 17, 2010
PIPs C-11-03921; C-11-02610; C-12-00242; C-12-04966; C-13-00787

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures

RP/0/A/5000/003, Alert, Rev 46
RP/0/A/5000/020, Technical Support Center (TSC) Activation Procedure, Rev 32
RP/0/A/5000/024, OSC Activation Procedure, Rev 27
Emergency Planning Functional Area Manual (EPFAM), Section 3.7, NRC Regulatory Assessment Performance Indicator Guideline – Emergency Preparedness Cornerstone, Rev 19
EPFAM, Section 3.9, Emergency Planning Qualified Reviewer Requirements, Rev 6
EPFAM, Section 3.19, Drills and Exercises, Rev 2
EPFAM, Section 3.20, Emergency Planner Training & Qualification Plan, Rev 2
EP Group Manual Guideline 5.1.3, Emergency Organization, Rev 8
EP Group Manual Guideline 5.4.1, Emergency Response Organization Training Program, Rev 21
Addendum 7111.0, Catawba Nuclear Site Emergency Response (ER) Training Program Description, Rev 16
Nuclear System Directive 117, Emergency Response Organization Staffing, Training, and Responsibilities, Rev 13

Records and Data

Emergency Response Organization current list
2013 Emergency Response Organization Team Duty Roster, Rev 2
ERO Personnel Estimated Response Times
Training Status Reports for selected ERO individuals
Documentation of weekly pager tests, January 2012 – February 2013
Documentation of ERO Augmentation Drill conducted 12/10/2011
Documentation of 4/4/2012 LOOP Event (ERO staff augmentation)
EP Self Assessment C-SAG-SA-12-13, EP Exercise Readiness Self-Assessment 3/21/2012

TTC471-N, Annual Emergency Response Organization Refresher CBT, Rev 0.1

PIPs
C-12-2791; C-12-6494; C-12-1849; C-12-4863

Section 1EP5: Maintenance of Emergency Preparedness
Procedures
Catawba Nuclear Station (CNS) Emergency Plan, Rev. 12-3
Emergency Planning Functional Area Manual (EP FAM), Section 3.1, Administration of the Emergency Plan and Emergency Plan Implementing Procedures, Rev. 9
EP FAM, Section 3.2, Emergency Planning Business Measures, Rev. 12
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. No. 2
EPA D, CNS Emergency Plan Section D – Emergency Classification System, Rev.12-2
HP/0/B/1000/006, Emergency Equipment Functional Check and Inventory, Rev. 060
NSD-208, Problem Investigation Program (PIP), Rev. 38
NSD-607, Self Assessments and Benchmarking, Rev. 17
RP/0/A/5000/001, Classification of Emergency, Rev.029
RP/0/A/5000/002, Notification of Unusual Event, Rev. 041
RP/0/A/5000/006A, Notification to States and Counties from the Control Room, Rev. 026
RP/0/A/5000/006B, Notification to States and Counties from the Technical Support Center, Rev. 29
RP/0/A/5000/002, Notification of Unusual Event, Rev. 41
RP/0/A/5000/020, Technical Support Center (TSC) Activation Procedure, Rev. 32
RP/0/A/5000/024, OSC Activation Procedure, Rev. 27
SR/0/B/2000/003, Activation of the Emergency Operations Facility, Rev. 25

Records and Data
2010 through 2013 Agreement Letters for various offsite agencies
Actual NOUE, 04/04/12, Critique Report, dated 06/04/12
10 CFR 50.54(q) Evaluation; Siren Controller System Upgrade dated 10/11/12
ERO Drill 12-6 Critique Report, dated 12/10/12
NRC Graded Exercise Critique Report, dated 03/13/13
CNS, Development to Evacuation Time Estimates, Rev. 1
ERO Drill 11-3, Off Year Exercise, July 28, 2011, Critique Report
CNS EP Business Measures, 4th Quarter 2011 – 3rd Quarter 2012
Critique Report, 11-2 ERO Practice Drill, 04/07/11
Critique Report, 11-4 ERO Practice Drill, 09/22/11
Critique Report, 11-5 ERO Training Drill, 11/10/11
Critique Report, 12-1 ERO Training Drill, 02/09/12
Critique Report, 12-1b MU Practice Exercise, 02/29/12
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PT/0/A/4450/001C, Auxiliary Building Filtered Exhaust Filter Train Performance Test, Rev. 30
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