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

October 28, 2011

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

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000413/2011004, 05000414/2011004

Dear Mr. Morris:

On September 30 2011, 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 October 6, 2011, with you and other members of your staff.

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

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

In accordance with 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 05000413/2011004, 05000414/2011004
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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DATE	10/18/2011	10/19/2011	10/18/2011	10/26/2011	10/28/2011	10/21/2011	10/19/2011
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Letter to J. R. Morris from Jonathan H. Bartley dated October 28, 2011

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000413/2011004, 05000414/2011004

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-413, 50-414, 72-45
License Nos.:	NPF-35, NPF-52
Report Nos.:	05000413/2011004, 05000414/2011004
Licensee:	Duke Energy Carolinas, LLC
Facility:	Catawba Nuclear Station, Units 1 and 2
Location:	York, SC 29745
Dates:	July 1, 2011 – September 30, 2011
Inspectors:	A. Hutto, Senior Resident Inspector R. Cureton, Resident Inspector J. Zeiler, McGuire Senior Resident Inspector W. Loo, Senior Health Physicist J. Rivera, Health Physicist R. Hamilton, Senior Health Physicist G. Kuzo, Senior Health Physicist
Approved by:	Jonathan H. Bartley, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000413/2011-004, 05000414/2011-004; 7/1/2011 – 9/30/2011; Catawba Nuclear Station, Units 1 and 2; Followup of Events and Notices of Enforcement Discretion

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

Cornerstone: Initiating Events

- Green. A self-revealing finding was identified for the licensee's failure to adequately implement their administrative tagout procedure resulting in the isolation of main feedwater while Unit 1 was in Mode 4. The licensee's corrective actions included revisions to operations administrative procedures and incorporation of lessons learned from the event into operator training.

  The performance deficiency was more than minor because it was associated with the Initiating Events cornerstone attribute of configuration control and adversely affected the cornerstone objective in that the isolation of main feedwater caused the CA system to autostart. The finding was determined to be of very low safety significance (Green) because no checklist criteria were met that required a phase 2 analysis and there was no loss of the decay heat removal safety function. The cause of this finding was related to the cross-cutting aspect of the need to keep personnel appraised of the operational impact of work activities as described in the Work Control component of the Human Performance cross-cutting area because the scope and plant impact of the tagout was not adequately understood by operations personnel responsible for implementation due to inadequate turnover and review [H.3(b)]. (Section 4OA3.2)

One violation of very low safety significance (Green), which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near 100 percent Rated Thermal Power (RTP) until September 10, 2011, when power was reduced to 88 percent RTP for control valve movement testing. Power was returned to 100 percent RTP on September 11, 2011, where it remained for the rest of the 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

The inspectors reviewed the licensee's preparations for adverse weather associated with hot ambient temperatures including a review of procedures and work orders implemented by the licensee to ensure plant equipment was adequately protected during hot weather conditions that exceeded 95° F on July 30, 2011. The inspectors also performed field walkdowns to assess the material condition and operation of ventilation and cooling equipment as well as other preparations made to protect plant equipment from high seasonal temperatures. 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 diesel generator (DG) while the 2A DG was out of service due to troubleshooting
- 1A residual heat removal train while the 1B train was out of service due to work on 1KC-81B (component cooling water to residual heat removal heat exchanger inlet isolation)
- 1A nuclear service water (RN) train while the 1B RN strainer was out of service for preventive 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 Mechanical Penetration Room 543' Level
- Nuclear Service Water Pump Structure
- Auxiliary Building 560' Level
- Unit 1 & 2 Battery Rooms
- Unit 1 & 2 Control Room

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors entered one conduit manhole (RN Conduit CMH-8B) to verify that the cables were not submerged, that the cables were not 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 1 'B' containment spray heat exchanger heat capacity test and evaluated the test data for acceptable performance. The inspectors reviewed the system configuration associated with the test, heat load requirements, the methodology used in calculating heat exchanger performance, and the method for tracking the status of tube plugging activities via the data logger and computer processing equipment. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

The inspectors observed an annual exam scenario on August 17, 2011, to assess the performance of licensed operators during a license operator requalification simulator session. The scenario consisted of a loss of the 'B' emergency buses due to a lockout, coupled with the 'A' emergency buses being out of service for maintenance which resulted in a loss of normal power. The scenario also included an anticipated transient without scram as well as well as a loss of secondary heat sink. The inspection focused on high-risk operator actions performed during implementation of the abnormal and emergency operating procedures. The classification and declaration of the Emergency Plan by the Shift Technical Advisor and Operations Shift Manager was also observed during the scenario. The post-scenario critique conducted by the training instructor and the crew was observed. 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-11-5602, Instrument air piping wall thinning
- PIP C-10-4173, Apparent seal failure on 1A RN pump strainer

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.

- Risk management actions associated with 1SA-2 and 1SA-5 soleniod ground repair
- Risk management actions associated with 'A' RN loop supply header clean and inspect work
- Risk management actions associated with dual unit standby shutdown facility (SSF) diesel/auxiliary feedwater pump turbine #2 outage
- Emergent Yellow risk associated with the Unit 1 SSF standby makeup pump pulsation damper replacement

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors evaluated the technical adequacy of the five operability evaluations or functionality assessments listed below to determine if Technical Specification (TS)

operability was properly justified and the subject components and systems remained available such that no unrecognized increase in risk occurred. The inspectors reviewed the operability determinations to verify that they were made as specified by NSD 203, Operability. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) to determine that the systems and components remained available to perform their intended function. Documents reviewed are listed in the Attachment.

- PIP C-11-5900, 2A DG control panel needs to be repaired
- PIP C-11-6084, 1A DG lube oil and jacket water leakage
- PIP C-11-5732, Operating experience transportability review from PIPs O-11-8121 and O-11-8094 which document Oconee's SSF being declared inoperable and unavailable because of a condition where during a station blackout, the reactor building cooling units would be lost.
- PIP C-11-7016, 1A RN strainer missing gearbox to motor shaft coupling key
- PIP C-11-6798, The as-built RN strainer mounting configuration does not match conditions used in the vender qualification of the strainer anchorage. Additionally, the modeling of the strainer in the analysis qualification of the piping for all four pumps did not include the weight of the strainer.

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following temporary (or permanent) 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.

- Temporary Modification: EC 105653, Operator Aid Computer Average Volume Control Tank Level Calc
- Permanent Modification: EC 76152, CN11436/01, Replace Unit 1 Excore Detectors

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the six post-maintenance tests listed below to determine if procedures and test activities ensured system operability and functional capability. The inspectors reviewed the licensee's test procedures to determine if the procedures

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

- 2A DG operability test following preventive maintenance and control circuit troubleshooting activities
- 2B containment spray pump following preventative motor maintenance
- 2B auxiliary feedwater pump following preventative maintenance
- SSF DG following fuel pump and injector replacement
- Unit 1 standby makeup pump following packing and piston replacement
- 2NW-237B performance test following solenoid replacement

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 TS, the UFSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

Surveillance Tests

- PT/1/A/4450/005 A, Containment Air Return Fan 1A and Hydrogen Skimmer Fan 1A Performance Test, Rev. 048
- PT/1/A/4350/002 A, Diesel Generator 1A Operability Test (24 hour loaded run), Rev. 122
- IP/2/A/3200/001 A, Solid State Protection System Train A Periodic Testing, Rev. 015
- PT/2/A/4350/002 A, Diesel Generator 2A Operability Test (24 hour loaded run), Rev. 093
- IP/2/A/3145/001 B, Containment Pressure Control System Train B Channel Operational Test (Containment Spray Portion), Rev. 023

In-Service Tests

- PT/1/A/4200/005 B, Safety Injection Pump 1B Performance Test, Rev. 060

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed and evaluated the licensee's emergency planning performance during a drill conducted on July 28, 2011. The drill scenario commenced with a tornado striking structures within the vital area resulting in an Alert, and progressed to a station blackout that subsequently led to a Site Area Emergency followed by the declaration of a General Emergency. The inspectors reviewed licensee activities that occurred in the Simulator and the Technical Support Center during a 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 drill 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 drill to evaluate the licensee's self-assessment process for identifying potential deficiencies relating to failures in classification and notification. The inspectors reviewed the completed critique developed by the licensee 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

2RS4 Occupational Dose Assessment

a. Inspection Scope

The inspectors evaluated current Radiation Protection (RP) program guidance and its implementation for monitoring and assessing occupational workers' internal and external radiation exposure. The review included recent changes to program guidance and equipment, as applicable; quality assurance activities, results, and responses to identified issues; and individual dose results for selected occupational workers.

External Dosimetry: The inspectors reviewed and discussed RP program guidance for monitoring external and internal radiation exposures of occupational workers. The inspectors verified National Voluntary Laboratory Accreditation Program certification data and discussed program guidance for storage, processing and results for active and passive personnel dosimeters currently in use. Comparisons between electronic dosimeter (ED) and thermoluminescent dosimeter (TLD) data were reviewed and discussed.

Internal Dosimetry: Program guidance, instrument detection capabilities, and select results for the internally deposited radionuclides were reviewed in detail. The inspectors reviewed declared pregnant worker and event follow-up in vivo (Whole Body Count) analyses for calendar year (CY) 2010 and year-to-date for CY 2011. Detection capabilities for passive monitoring equipment were reviewed and discussed. Guidance for initiating tritium monitoring and bioassay for work activities conducted within the spent fuel pool were reviewed and discussed.

Special Dosimetric Situations: The inspectors reviewed monitoring conducted and results for special dosimetric situations. The methodology and results of monitoring occupational workers within non-uniform external dose fields and assignment of effective dose equivalent results for Unit 1 pressurizer surge nozzle, coolant pump maintenance, and reactor head shroud lift activities were discussed in detail. In addition, the adequacy of dosimetry program guidance and its implementation for shallow dose assessments and supporting calculations for personnel involved in selected contamination events were evaluated. Neutron monitoring guidance and implementation for 'at power' containment entries and Independent Spent Fuel Storage Installation activities was reviewed and discussed. The inspectors reviewed monitoring and results for three declared pregnant workers documented in licensee records since January 1, 2010. RP staff proficiency involved in conducting skin dose assessments, neutron monitoring, and whole body counting equipment operations were evaluated through direct interviews, onsite observations, and review and discussions of completed records and supporting data.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with occupational dose assessment. 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 NSD 208, Problem Investigation Program, Revision (Rev.) 32.

RP program occupational dose assessment guidance and activities were evaluated against the requirements of the Updated Final Safety Analysis Report (UFSAR) Section 12; TS Sections 5.4, Procedures, and 5.7, High Radiation Area; 10 Code of Federal Regulations (CFR) Parts 19 and 20; and approved licensee procedures.

Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope

Event and Effluent Program Reviews: The inspectors reviewed the 2009 and 2010 Annual Radiological Effluent Release Report (ARERR) documents for consistency with requirements in the Offsite Dose Calculation Manual (ODCM) and TS. Effluent release results and reports were reviewed and discussed with responsible licensee representatives. Status of the radioactive gaseous and liquid effluent processing and monitoring equipment, as described in the UFSAR and current ODCM, were discussed with responsible staff.

Instrumentation and Equipment: The inspectors reviewed and discussed recent Engineered Safety Feature (ESF) ventilation surveillance test results for the Unit 2 (U2) Auxiliary Building (2VA) and the U1 and U2 Fuel Handling Building (FHB) (VF 1A1 and VF 2B2) systems. During tours of selected U1 and U2 ESF ventilation systems, the inspectors discussed testing protocols and evaluated equipment material condition. In addition, the status of FHB ESF systems operations during recent refueling activities was discussed in detail.

The inspectors walked-down and discussed components of the EMF-35, EMF-36, and EMF-42 gaseous processing systems and Auxiliary Monitor Tank (AMT) liquid processing and discharge systems 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 licensee RP personnel and included discussion of associated piping and valves.

Effluent Processing: The inspectors observed the discharge of liquid wastewater from AMT A. This included the observation of pre-release sampling and analysis, and the set-up and conduct of release activities in the radwaste control room. The inspectors reviewed the discharge permit and associated documentation for this release, as well as the permits for one prior liquid and one prior gaseous release. The reviews included review of 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 discussed Carbon-14 (C-14) monitoring implementation and reviewed dose calculations associated with C-14 release activities. The inspectors also reviewed select results of the inter-laboratory comparison program for the count room.

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

Problem Identification and Resolution: The inspectors reviewed selected CAP PIP 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 NPM, NSD 208, Problem Investigation Program, Rev. 32. The inspectors also reviewed the most recent self-assessment report.

Effluent process and monitoring activities were evaluated against details and requirements documented in UFSAR Sections 11 and 12; ODCM; 10 CFR 20; Appendix I to 10 CFR 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 reviewed as part of Section 2RS7. Part 61 analyses and the determination of applicable radionuclides to the source term were reviewed as part of Section 2RS8.

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. Environmental monitoring sample results presented in the Annual Radiological Environmental Operating Report (AREOR) documents issued for CYs 2009 and 2010 were reviewed and discussed. REMP vendor laboratory cross-check program results, and select procedural guidance for collection, processing and analysis of airborne particulate and iodine, garden, broadleaf vegetation, and dairy sampling were reviewed and discussed with knowledgeable personnel. Detection level sensitivities as documented within the AREOR for selected environmental media analyzed by the offsite environmental laboratory were reviewed. The AREOR environmental measurement results were reviewed for consistency with licensee ARERR data and evaluated for radionuclide concentration trends. Licensee actions for missed airborne monitoring and TLD samples were reviewed and discussed in detail.

The inspectors observed and discussed implementation of selected REMP monitoring and sample collection activities for atmospheric particulates and iodine, and observed locations of direct radiation measurements, and broadleaf vegetation samples sites as specified in the current ODCM and applicable procedures. The inspectors observed

equipment material condition and verified operability, including verification of flow rates and total sample volume results for the weekly airborne particulate filter and iodine cartridge change-outs at five atmospheric sampling stations. In addition, the inspectors discussed broadleaf vegetation, surface water, and dairy sampling for selected ODCM locations. Monitoring and impact of licensee routine releases on offsite doses based on meteorological dispersion parameters and gardens locations identified in the most current land use census were reviewed in detail. Material condition and placement of selected environmental TLDs were observed. Actions for missed samples including compensatory measures and/or availability of replacement equipment were discussed with vendor technicians and knowledgeable licensee staff. In addition, sample 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.

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 2009 and 2010.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with occupational dose assessment. 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 NPM, NSD 208, Problem Investigation Program, Rev. 32.

Procedural guidance, program implementation, quantitative analysis sensitivities, and environmental monitoring results were reviewed against 10 CFR 20; 10 CFR 50, and Appendix I to 10 CFR 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 (BTP), An Acceptable Radiological Environmental Monitoring Program - 1979. Licensee procedures and activities related to meteorological monitoring were evaluated against: ODCM; RG 1.23, Meteorological Monitoring Programs for Nuclear Power Plants, and ANSI/ANS-2.5-1984, Standard for Determining Meteorological Information at Nuclear Power Sites.

Documents reviewed are listed in the Attachment. The inspectors completed one sample.

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 radioactive waste (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 processing equipment. The inspectors discussed component function, processing system changes, and radwaste program implementation with licensee staff. The inspectors observed portions of a resin sluice evolution.

The 2010 ARERR and radionuclide characterizations from CYs 2009 - 2011 for each major waste stream were reviewed and discussed with radwaste staff. For primary resin and Dry Active Waste 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 waste streams was 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. The shipping documentation for five (5) shipments included boxes of scrap metal, resin, and a reactor coolant pump impeller. 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 were able to observe the preparation of an instruments and articles shipment to the utilities calibration facility.

Problem Identification and Resolution: The inspectors reviewed PIPs in the area of radwaste/shipping. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NPM, NSD 208, Problem Investigation Program, Rev. 32. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent 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 20, 10 CFR 61, 10 CFR 71, and 49 CFR Parts 172-178. Licensee activities were also evaluated against guidance provided in the BTP on Waste Classification (1983) and NUREG-1608.

Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

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

Cornerstone: Initiating Events
- Unplanned Transients, Unit 1 & 2

Cornerstone: Mitigating Systems
- Residual Heat Removal, Unit 1 & 2

The inspectors reviewed the licensee's procedures and methods for compiling and reporting the PIs including the Reactor Oversight Program Mitigating Systems Performance Indicator Basis Document for Catawba. The inspectors reviewed the raw data for the PIs listed above for the period of July 1, 2010, through June 30, 2011. The inspectors also independently screened TS Action Item Logs, selected control room logs, work orders and surveillance procedures, and maintenance rule failure determinations to determine if unavailability/unreliability hours were properly reported. The inspectors compared the licensee's raw data against the graphical representations and specific values contained on the NRC's public web page for 2008-2009. The inspectors also reviewed the past history of PIPs for systems affecting the Mitigating Systems Performance Indicators listed above for any that might have affected the reported values. The inspectors reviewed Nuclear Energy Institute 99-02, Regulatory Assessment Performance Indicator Guideline, to verify that industry reporting guidelines were applied.

Cornerstone: Occupational Radiation Safety

- Occupational Exposure Control Effectiveness

The inspectors reviewed, evaluated, and discussed PI data collected from October 1, 2010, through June 30, 2011. The inspectors assessed PIP records to determine whether 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 of selected personnel contamination event data, internal dose assessment results, and ED alarms for cumulative doses and/or dose rates exceeding established set-points.

Cornerstone: Public Radiation Safety

- Radiological Control Effluent Release Occurrences

The inspectors reviewed the PI results for the period January 1, 2010, through July 31, 2011. The inspectors reviewed cumulative and projected doses to the public and PIP documents related to Radiological Effluent Technical Specifications/ODCM issues.

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 Sample Review

a. Inspection Scope (Operator Workaround)

The inspectors reviewed the cumulative effects of deficiencies that constituted operator workarounds to determine whether or not they could: affect the reliability, availability, and potential for misoperation of a mitigating system; affect multiple mitigating systems; or affect the ability of operators to respond in a correct and timely manner to plant transients and accidents. The inspectors also assessed whether operator workarounds were being identified and entered into the licensee's corrective action program at an appropriate threshold. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion

.1 (Closed) Unresolved Item (URI) 0500413/2011002-02, Notice of Enforcement Discretion (NOED) 11-02-02 Follow-up

(Closed) Licensee Event Report (LER) 05000413/2011-001-00, Technical Specification Violation Involving Notice of Enforcement Discretion Due to Failure of Diesel Generator Mechanical Governor (NOED 11-2-002)

a. Inspection Scope

In NRC Integrated Inspection Report 05000413, 414/2011002, the inspectors identified a URI for the issuance of NOED 11-02-02. The inspectors reviewed the associated LER, root cause evaluation, and corrective actions to determine if any performance deficiencies contributed to the need for the NOED. Documents reviewed are listed in the Attachment.

b. Findings

On February 23, the 1B DG was declared inoperable when load swings were observed during the 24-hour loaded surveillance test. TS 3.8.1, AC Sources, Action B.4 was entered which required the DG to be restored to operable in 72 hours or place the unit in Mode 3 within 6 hours and in Mode 5 within 36 hours. On February 25, the licensee requested enforcement discretion from the requirements of TS 3.8.1 for an additional 48 hours which allowed governor replacement and post-maintenance testing. The NRC verbally granted the NOED at 4:55 p.m., on February 25. The licensee returned the 1B DG and support systems to an operable status on February 27, at 2:54 p.m., which was within the completion time approved in the NOED.

The inspectors found the licensee's root cause analysis was sufficiently detailed and used a number of evaluation techniques including barrier analysis, fault tree analysis, MORT analysis and event and causal factor charting. The licensee was able to identify relevant root and contributing causes for the erratic diesel operation and identified corrective actions that addressed the causes. Since the issue was initially identified during a TS surveillance and the thoroughness of the licensee's root cause analysis, this issue is being treated as licensee identified.

The licensee determined that the DG load swings were due to vibration-induced drift of the mechanical governor setting to where it competed with the electronic governor during parallel operation. The load swings would not have occurred during response to a loss of power on the emergency bus; therefore, there was no past operability concern associated with this issue. The total time the 1B DG was unavailable was 61 hours.

The licensee's root cause investigation also revealed that the diesel owner's group (Cooper-Enterprise) preventive maintenance (PM) plan recommended that mechanical governor speed setting checks be performed on a regular basis. A PM was initially implemented by the licensee to check the mechanical governor speed settings monthly, but was deleted in 1996 during a PM optimization project. The licensee concluded that

had the speed settings been routinely checked as recommended, the speed setting drift would have been detected early enough to allow a planned correction of the issue without challenging the TS action statement. The licensee has completed corrective actions to add the mechanical governor speed setting checks to their quarterly DG operability surveillance test procedures.

The enforcement aspects of this finding are documented in Section 4OA7.

.2 (Closed) Licensee Event Report (LER) 05000413/2011-002-00, Safety System Actuation of Auxiliary Feedwater due to Feedwater Isolation during Unit Shutdown

a. Inspection Scope

The inspectors reviewed the LER, the licensee's root cause evaluation, and corrective action documents to verify the accuracy of the LER and that corrective actions were identified and implemented to address the issue.

b. Findings

Introduction: A Green self-revealing finding was identified for the licensee's failure to adequately implement their administrative tagout procedure resulting in the isolation of main feedwater while in Mode 4. The licensee implemented a tagout that isolated the 1B main feedwater pump resulting in a loss of feedwater transient and autostart of the CA system.

Description: On April 23, 2011, the 1A main feedwater pump was providing feedwater to the 1B SG for decay heat removal when a tagout was released to isolate the 1B main feedwater pump for maintenance. The senior reactor operator that authorized the tagout did not adequately review the tagout boundary which included isolating the high pressure feedwater heaters. The high pressure feedwater heaters were required as part of the flow path for main feedwater supply to the SGs. Subsequently, when non-licensed operators implemented the tagout, main feedwater supply was isolated. The control room operators quickly observed 1B SG water level was decreasing and determined that main feedwater flow had been isolated. The operators closed the steam dumps to reduce the 1B SG level decrease rate; however, the pressure increase in the 1B SG shrank SG water level to the low-low level set point causing the 1A motor driven CA pump to automatically start.

The licensee's administrative procedure for implementing tagouts, NSD-500, Red Tags/Configuration Control Tags, section 4.3.4 states that "if the plant can not be configured to allow work, based on plant condition, then work must be deferred until the plant is placed in the required position." Contrary to this licensee standard, the tagout to isolate the 1B main feedwater pump was not deferred until plant conditions could support the activity, resulting in a loss of feedwater transient. The licensee's corrective actions included revisions to operations administrative procedures that provided additional detail to ensure that tagouts that cannot be implemented due to plant conditions are either placed in review status or discarded, and incorporation of lessons learned from the event into operator training.

Analysis: The inspectors determined that the licensee's failure to implement the requirements of NSD 500 was a performance deficiency (PD). The PD was more than minor because it was associated with the Initiating Events cornerstone attribute of configuration control and adversely affected the cornerstone objective in that the isolation of main feedwater caused the CA system to autostart. The finding was determined to be of very low safety significance (Green) based on the Phase 1 screening criteria found in MC 609, Appendix G, Shutdown Operations Significance Determination Process, Attachment 1, Phase 1 Operational Checklists because no checklist criteria were met that required a phase 2 analysis and there was no loss of the decay heat removal safety function. The cause of this finding was related to the cross-cutting aspect of the need to keep personnel appraised of the operational impact of work activities as described in the Work Control component of the Human Performance cross-cutting area because the scope and plant impact of the tagout was not adequately understood by operations personnel responsible for implementation due to inadequate turnover and review [H.3(b)].

Enforcement: Enforcement action does not apply because the finding did not involve the violation of regulatory requirements. This finding has been entered into the licensee's CAP as PIP C-11-3106 and is identified as FIN 05000413/2011004-01, Failure to Adequately Implement Tagout Procedures.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On October 6, 2011, the resident inspectors presented the inspection results to Mr. Jim Morris, Catawba Site Vice President, and other members of licensee management, who acknowledged the findings. The inspectors confirmed that any proprietary information provided or examined during the inspection period had been returned.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which met the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

- TS 3.8.1 condition G.1 required that Unit 1 shall have restored operability to the 1B DG within 72 hours or be in Mode 3 within six additional hours. Contrary to the above, from 10:32 a.m., on February 26, 2011, until 2:54 p.m., on February 27, 2011, the licensee failed to comply with the required action of TS 3.8.1 condition G.1 to be in Mode 3. The inspectors determined that the violation was not greater than very low safety significance (Green) because the unavailability time incurred to perform the governor replacement did not exceed the TS allowed outage time of 72 hours. The issue is documented in the licensee's corrective action program as PIP C-11-1407.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

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

LIST OF REPORT ITEMS

Opened and Closed		
05000413/2011004-01	FIN	Failure to Adequately Implement Tagout Procedures (Section 4OA3.2)
Closed		
05000413/2011002-02	URI	Notice of Enforcement Discretion (NOED) 11-02-02 Followup (Section 4OA3.1)
05000413/2011-001-00	LER	Technical Specification Violation Involving Notice of Enforcement Discretion Due to Failure of Diesel Generator Mechanical Governor (NOED 11-2-002) (Section 4OA3.1)
05000413/2011-002-00	LER	Safety System Actuation of Auxiliary Feedwater due to Feedwater Isolation during Unit Shutdown (Section 4OA3.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection
PT/0/B/4700/039, Hot Weather Protection, Rev. 18
OP/0/B/6700/015, Weather Related Activities, Rev. 0

Section 1R04: Equipment Alignment
CN-1574-1.0, Unit 1 & 2 Flow Diagram of Nuclear Service Water System, Rev. 52
CN-1574-2.0.01, Unit 1 Flow Diagram of Nuclear Service Water System, Rev. 54
CN-1561-01.00, Unit 1 Flow Diagram of Residual Heat Removal System, Rev. 31
UFSAR Section 8.3.1.4.1, Diesel Generators
TS 3.5.2, ECCS - Operating
TS 3.8.1, AC Sources - Operating
UFSAR Section 6.3, Emergency Core Cooling Systems

Section 1R05: Fire Protection
Station Fire Impairment Log
NSD-313, Control of Combustible and Flammable Material, Rev. 7
Fire Strategy Areas 29 & 30, RN Pump Structure
Fire Strategy Area 11, Auxiliary Building 560' Level
Fire Strategy Areas 9 & 10, Unit 1 & 2 Battery Rooms

Section 1R06: Flood Protection Measures
Drawing CN-1938-06, Electrical Equipment Layout Outdoor Area, Rev. 13
Drawing CN-1938-06.01, Computer Cable Routing Outdoor Area, Rev. 9

Section 1R07: Heat Sink Performance - Annual Review
PT/1/A/4400/006 B, Containment Spray Heat Exchanger 1B Heat Capacity Test, Rev. 046

Section 1R11: Licensed Operator Requalification
Annual Simulator Exam, ASE- 3
RP/0/A/5000/001, Classification of Emergency, Rev. 024
AP/1/A/5500/007, Loss of Normal Power, Rev. 063
EP/1/A/5000/E-0, Reactor Trip or Safety Injection, Rev. 039
EP/1/A/5000/ES-0.1, Reactor Trip Response, Rev. 036
EP/1/A/5000/FR-H.1, Loss of Secondary Heat Sink, Rev. 039

Section 1R12: Maintenance Effectiveness
RN System Health Report 3Q 2010
Maintenance Rule SSC Summary Report, RN System
VI System Health Report 1Q 2011
Maintenance Rule SSC Summary Report, VI System
PIP C-11-5602, VI system pipe degraded
PIP C-11-5733, Material ordered to support corrective work on VI does not agree with spec
PIP C-11-5793, VI D piping leak inspection
PIP C-10-4173, Apparent seal failure on 1A RN pump strainer
PIP C-11-7-62, Maintenance recommends PM to inspect /adjust RN strainer backwash packing on a monthly basis

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
Critical Plan for 'A' RN loop supply header clean and inspect work activities
Hazard Barrier Control Form, RN supply headers A and B Clean and Inspect Project
Critical Plan for Unit 2 Fuel Transfer System PMs
Critical Plan for Dual Unit SSF/CAPT #2 Outage

Section 1R15: Operability Evaluations

NSD 203, Operability/Functionality, Rev. 19
NSD 122, Temporary Configuration Changes, Rev. 00
CNC-1206.02-84-2025, Stress Problem RNA, Rev. 37
CNC-1218.04-00-0003, Anchor Qualification for RN Strainer 1A, 1B, 2A, 2B, Rev. 00
CNC-1223.24-00-0029, Nuclear Service Water Pumps Seismic Stress Analysis, Rev.02

Section 1R18: Plant Modifications

EC 105653, Operator Aid Computer Average Volume Control Tank Level Calc
EC 76152, CN11436/01, Replace Unit 1 Excore Detectors
Catawba License Amendment Request dated July 1, 2009, Plant Modifications to Nuclear Instrumentation System
Catawba License Amendment No. 258 Safety Evaluation Report dated August 2, 2010

Section 1R19: Post-Maintenance Testing

PT/2/A/4350/002 A, Diesel Generator 2A Operability Test, Rev. 93
PIP C-11-6492, Low oil level on 2B CA pump
PT/0/A/4200/017 A, Standby Shutdown Facility Diesel Test, Rev. 005
OP/0/B/6350/012, Standby Shutdown Facility Diesel Operations, Rev. 041
PIP C-11-06961, SSF Diesel Generator frequency oscillations
PT/1/A/4200/007 C, Standby Makeup Pump #1 Performance Test, Rev. 038
PT/2/A/4200/027, NW Valve Inservice Test; Enclosure 13.20, 2NW-237B Inservice Test, Rev. 037

Section 2RS4: Occupational Dose Assessment

Procedures and Guidance Documents
Standard Health Physics Procedure (SH)/0/B/2000/009, Neutron Dose Tracking, Revision (Rev.) 04
SH/0/B/2001/001, Internal Dose Assessment, Rev. 04 and 05
SH/0/B/2001/003, Investigation of Skin and Clothing Contaminations, Rev. 10 and 11
SH/0/B/2001/007, Placement of Personnel Dosimetry for Non-Uniform Radiation Fields, Rev. 01
SH/0/B/2002/001, Multiple Dosimetry, Rev. 11
SH/0/B/2002/003, Declared Pregnant Worker, Rev. 04
Radiation Protection Policy (RPP) II-09, Internal Dose Assessment, Rev. 05
RPP III-06, External Exposure to Airborne Radioactivity, Rev. 0
RPP III-07, Radiological Respiratory Protection Program, Rev. 03
RPP III-19, Tritium Program, Rev. 01

Records and Data Reviewed
Calendar Year 2010, Internal/External Dose Investigation Data
File No. GS-756.05, Tritium Acton Level, Dated 08/04/03
File No. GS 754.10, Passive Whole-Body Counting, Dated 08/27/09
January 1, 2011, through July 31, 2011, Internal/External Dose Investigations/Data
Memorandum: G. T. Johnson, CHP to L. Haynes et al., Passive Monitoring Sensitivity, Dated 03/10/09
NVLAP Certificate of Accreditation to ISO/IEC 17025:2005, Duke Energy Dosimetry Laboratory, NVLAP Lab Code: 100505-0, Effective 04/01/11 through 03/31/12
SH/0/B/2000/009, Enclosure 5.1, Temporary Neutron Exposure Log for Stay Time Method, 06/13/10 and 11/20/10
Temporary Neutron Exposure Log Data, 06/13/10 and 11/20/10

Corrective Action Program (CAP) Documents
Assessment Number (No.) G-RPS-SA10-13, TLD Lab On-Site NVLAP Assessment, 07/19 – 07/21/11
Assessment No. G-RPS-SA10-14, 2010 TLD Lab Peer Assessment, 05/18 – 05/19/11
PIP C-11-0096, Work Stopped Due to Electronic Dosimeter Malfunction
PIP C-11-03155, Lost TLD and Self-reading Dosimeter
PIP C-10-01892, 2009 Unusual Dosimetry Occurrence Common Cause Assessment
PIP C-11-04115, PCE No. 11-019, Skin Contamination (Face Breathing Area and Neck)
PIP C-10-06270, PCE No. 10-019, Clothing Contamination (Right Calf)
PIP C-10-06298, PCE No. 10-020, Skin Contamination (Face)
PIP C-10-06909, PCE No. 10-033, Clothing Contamination (Right Shoe)

Section 2RS6: Radioactive Gases and Liquid Effluent Treatment

Procedures, Guidance Documents, and Manuals
2010 Carbon-14 Dose Estimate for Oconee, McGuire, and Catawba Nuclear Stations – 80% Organic
HP/0/B/1000/010, Determination of Radiation Monitor Setpoints, Rev. 059
HP/0/B/1004/004, Radioactive Liquid Waste Release, Rev. 038
HP/0/B/1004/015, Thirty-One (31) Day Offsite Dose Projection, Rev. 008
HP/0/B/1004/034, Radioactive Waste Gas (WG) System Release, Rev. 009
NSD-208, Problem Investigation Program (PIP), Rev. 32
OP/0/A/6500/018, Release of Waste Gas Decay Tank C, Rev. 040
OP/0/B/6500/060, Discharge of an AMT to the Environment, Rev. 042
PT/0/A/4450/001C, Auxiliary Building Filtered Exhaust Filter Train Performance Test, Rev. 029

Records and Data Reviewed
ABFU 1B Aux Bldg Exhaust Filter Train Performance Test, Dated 10/27/08
ABFU-1B Radioiodine Penetration/Efficiency Test Reports, Dated 06/30/11 and 05/26/11
Catawba Units 1 and 2 Offsite Dose Calculation Manual (ODCM), Jan 2011, Rev. 53
Catawba 2009 Annual Radioactive Effluent Release Report, Dated 04/29/10
Catawba 2010 Annual Radioactive Effluent Release Report, Dated 04/28/11
CNS Radioactive Material Storage Areas Spreadsheet and Site Map, NSD-0192.03, Dated 05/30/07
Effluents Dose Summary for June 2011, Dated 07/18/11
Fuel Pool Area Filtered Exhaust Filter Train Performance Test, 1A1, Dated 02/08/07
Fuel Pool Area Filtered Exhaust Filter Train Performance Test, 2B2, Dated 06/27/06 and 12/06/07

Gaseous Discharge Permit and Data, GWR No. 2010006, Sample ID 100106030, Dated 01/07/10
Inter-laboratory Cross Check Program Sample Analysis Forms, select records for count room, 01/30/09 – 02/04/10
Liquid Discharge Permit and Data, LWR No. 2011070, Gamma Spec Analysis Report No. 2077001_10, Dated 08/08/11
Liquid Discharge Permit and Data, LWR No. 2011071, Gamma Spec Analysis Report No. 2077766_10, Dated 08/10/11
LLD Count Time / Minimum Volume for MCA Detector #3, Dated 04/14/11
Procedure Discrepancy Process Record, VF Filter 1A1 Flow Found Low at 13826 CFM – Acceptance Criteria 14909 to 18221 CFM, Dated 03/03/10
Procedure Discrepancy Process Record, VF Filter 1A2 Flow Found Low at 14909 CFM – Acceptance Criteria 14826 to 16684 CFM, Dated 12/09/08
Radioiodine Penetration/Efficiency Test Report, '1A1' Fuel Handling Building Data, Dated 11/09/09, 06/26/10, and 06/20/11
Radioiodine Penetration/Efficiency Test Report, '2A' Auxiliary Building Data, Dated 06/26/10 and 06/11/11
Radioiodine Penetration/Efficiency Test Report, '2B2' Fuel Handling Building Data, Dated 09/10/08, 04/06/10, and 06/26/10
RETDAS Effluent Dose Calculations for June 2011, Dated 07/18/11
RETDAS Effluent Dose Calculations for December 2010, Dated 01/19/11
Thirty-One (31) Day Offsite Dose Projection, Dated 07/19/11
Work Order (WO) 01819875-01, '2A' Auxiliary Building Exhaust Filter Train Performance Test, Dated 09/24/08
WO 01851495-01, '1B' Auxiliary Building Exhaust Filter Train Performance Test, Dated 01/28/10
WO 01851495-01, ABFU 1B Aux Bldg Exhaust Filter Train Performance Test, Dated 01/27/10
WO 01886686-01, Auxiliary Building Exhaust Filter Train Performance Test, Dated 10/16/09

CAP Documents

PIP C-06-04865, Elevated tritium levels at monitoring well C-213
PIP C-08-01394, Numerous Pieces of Tech Spec Equipment (VF Train 1A, VF Train 1B, Unit 1 & 2 Core Exit Thermocouples) have been inoperable for a considerable amount of time
PIP C-10-00092, High-rad trips on EMF-50 (Waste Gas Discharge Monitor)
PIP C-10-02258, Inoperable monitors not included in past ARERRs
PIP C-10-04923, VF Train 1A Was Entered in T/S on 06/26/05 (CI-05-01506). VF Train 1B Was Entered in T/S 07/10/05 (T/S CI-05-01641).
PIP C-11-02066, Trip 2 alarm on EMF-57 (Liquid Discharge Monitor)
PIP C-11-02461, Contaminated non-radioactive system – Aux Building Chilled Water (YN) System
PIP C-RPS-SA-11-05, NRC Prep Audit 71124.06 Radioactive Gaseous and Liquid Effluent Treatment (Biennial)(08/08/11-08/12/11 Inspections), Dated 05/28/11

Section 2RS7: Radiological Environmental Monitoring Program (REMP)

Procedures and Guidance Documents

Duke Energy, Catawba Nuclear Station, Units 1 and 2, Offsite Dose Calculation Manuals, 2010 and 2011

EnRad Laboratories Procedure (ERLP) 106, Calculation & Determination of Lower Limits of Detection For Radiological Laboratory Instrumentation, Rev. 3
ERLP 113, Routine Quality Control of the Packard 2550 Liquid Scintillation System, Rev. 2
ERLP 207, Configuration and Set Up of the ISCO 3710 Water Sampler, Rev. 2
ERLP 508, Cross-Check Management in the EnRad Laboratory, Rev. 1
ERLP 718, Annual Land Use Census for Catawba Nuclear Station, Rev. 0
ERLP 720, Milk Sampling at Catawba Nuclear Station, Rev. 2
ERLP 721, Airborne Radioiodine and Airborne Particulate Sampling at Catawba Nuclear Station, Rev. 8
ERLP 722, Water Sampling at Catawba Nuclear Station, Rev. 3
ERLP 724, Broadleaf Vegetation Sampling at Catawba Nuclear Station, Rev. 5
ERLP 725, Shoreline Sediment Sampling at Catawba Nuclear Station, Rev. 2
ERLP 726, Fish Sampling at Catawba Nuclear Station, Rev. 1
ERLP 727, Direct Radiation Measurements (TLD's) at Catawba Nuclear Station, Rev. 4
ERLP 728, Food Products Sampling at Catawba Nuclear Station, Rev. 2
IP/0/B/3343/001, Meteorological Monitoring System Check, Rev. 056
IP/0/B/3343/013, Meteorological Monitoring System (EEB) Calibration and Maintenance Procedure, Rev. 056
NSD 208, Problem Investigation Program, Rev. 32
SRPMP 8-2, Investigation of Unusual Radiological Occurrence, Rev. 005

Records and Data Reviewed

Air Sampler Calibration Worksheet, Air Sampler Model # LV-1D, Air Sampler EnRad #s 00348, Dated 08/16/10; 03387, Dated 02/24/11; 003398, Dated 05/18/11; 03400, Dated 02/21/11; 03096, Dated 02/01/11
Annual Calibration of ISCO Composite Sampler, EnRad ID No. 00305, Dated 09/22/09 and 09/21/10
Duke Energy, Annual Radiological Environmental Operating Report, Duke Energy Corporation, Catawba Nuclear Station, Units 1 and 2, 2009 and 2010
Duke Energy, Catawba Nuclear Station, Units 1 and 2, 2009 and 2010 Annual Radioactive Effluent Release Reports
EnRad Laboratories, Central Calibration Facility, Certificates of Calibration, REMP Air Sampler F and J Model LV-1D, S/Ns 003387, Dated 02/24/11; 003398, Dated 05/18/11; 003400, Dated 02/21/11; 003723, Dated 02/21/11; 003733, Dated 05/18/11; 03096, Dated 02/01/11
ERLP 721, Airborne Radioiodine and Airborne Particulate Sampling at Catawba Nuclear Station, Rev. 8, Dated 08/09/11
Low Volume Air Sampler Maintenance Checklist, Air Sampler #s 00348, Dated 08/16/10; 03096, Dated 02/01/11; 03387, Dated 02/24/11; 03398, Dated 05/18/11; 03400, Dated 02/21/11
Low Volume Flow Calibration Worksheet, REMP A/S EnRad ID # 00348, Dated 03/15/10
Lower Limit of Detection Verification for Detector No. 2, S/N 244-P21945A, Dated 09/2010; Detector No. 5, S/N 33-P10957A, Dated 09/21/10; and Perkin Elmer No. 2, Liquid Scintillation Counter, S/N 432736, Dated 09/20/10
Perkin Elmer No. 2, Tritium Calibration Verification, Liquid Scintillation Counter, S/N 432736, Dated 03/22/11
Summary of 10 CFR 50.75(g) files

Tables 5.0-A, Duke Energy, Interlaboratory Comparison Program, 2009 and 2010 Cross-Check Results for EnRad Laboratory
Tennelec, Unit 5, EnRad No. 03263, (74313), Calibration Verifications, Dated 01/12/11
WO Task No. 01994119 02, OEEB – Perform 1W Cal of Met System, Dated 07/21/11
WO Task No. 01997508 01, OEEB – Perform 1W Cal of Met System, Dated 08/10/11

Corrective Action Program (CAP) Documents
PIP C-11-05932, Back-up power supply batteries need replacing
PIP C-11-06458, LED 3 did not illuminate
Self Assessment Report Form, Assessment No. C-RPS-A-11-06, NRC Prep Audit 71124.07 Radiological Environmental Monitoring Program

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

Procedures, Manuals, and Guides
Duke Energy Radioactive Waste Process Control Program Manual (Sections 9-11 and Appendix G), Rev.15
HP/0/B1006/003, Receipt and Opening of Radioactive Material Package, Rev. 14
MP/0/A/7550/008, EnergySolutions Cask CNS 8-120A Handling, Loading and Unloading, Rev. 22
OP/0/B/6500/111, Nuclear Solid Waste (WS) Disposal System, Rev. 7
RP POLICY IV-08, 10CFR Part 61 Waste Classification Implementation Program, Rev.0
SH/0/B/2004/001, Preparation and Shipment of Radioactive Material (Section 5), Rev. 7
SH/0/B/2004/002, Preparation and Shipment of Radioactive Waste (Section 4), Rev. 8
SH/0/B/2004/003, Determination and Documentation of 10CFR61 Radioactive Waste Classification and Waste Form Implementation Program Data (Section 4), Rev. 0
SH/0/B/2004/004, Preparation and Shipment of Radioactive Waste (Section 4), Rev. 0

Records
2009 and 2010 Annual Radioactive Effluent Release Reports
Assessment: Response Test of Catawba Nuclear Station's Contracted Radioactive Material Shipment Emergency Responder (INFOTRAC), Dated 08/10/09
Current and Approved Dry Active Waste (DAW) Stream (10 CFR 61 analysis results for DAW composite samples for 2009)
Current and Approved Radioactive Waste Streams (10 CFR 61 analysis results for resin and filters for 2009)
DAW Radioactive Waste Steams Currently under Evaluation through Procedure SH/0/B/2004/003 (10CFR61 Analysis Results for DAW Composite Filters for 2010 and 2011)
Radioactive Shipment Record Log 05/16/10 through 05/20/11
Radioactive Waste Steams Currently under Evaluation through Procedure SH/0/B/2004/003 (10CFR61 Analysis results for resins and filters for 2010 and 2011)
Self-Assessment: C-RPS-SA-10-10, Radioactive Material Processing and Transportation – Nuclear Regulatory Commission (NRC) Inspection Procedure (IP) 71124.08, 12/27/2010
Self-Assessment: G-RPS-SA-10-07, Catawba RP 10CFR20 Annual Program Assessment (even year topics), Dated 08/30/10
Shipping records packages for the following shipments: 11-14, 11-15, 11-36, 11-37 and 11-84

CAP Documents
PIP C-10-01178, Benchmark Report on Specialty Resin Use at V.C. Summer and D.C. Cook
PIP C -10-02061, On 6/9/09 RP RMC received 2 large wooden crates containing excore detectors
PIP C-10-02357, During the preparations for completing a radioactive resin shipment a delay was encountered with the weighing and survey of the resin liner.
PIP C-10-07533, Shipping Cask Lifting Lugs did not meet Maintenance Standards.
PIP C-10-08453, Radiation Protection Self Assessment C-RPS-AS-10-10
PIP C-10-08479, 2010 Catawba Tritium Management Self Assessment
PIP C-11-04442, This PIP is to document a Post Job Review of the radioactive shipment associated with shipping the 1A NCP (nuclear coolant pump) to AREVA

Section 4OA1: Performance Indicator Verification
NSD 225, NRC Performance Indicators, Rev. 4
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 5
Catawba Master File CN: 854.02-4, MSPI Residual Heat Removal

Procedures, Guidance Documents and Manuals
NSD-225, NRC Performance Indicators, Rev. 4
SRPMP 10-1, NRC PI Data Collection, Validation, Review and Approval, Rev. 4

Records and Data Reviewed
C-RPS-SA-10-18, Performance Indicator Verification Inspection Procedure 71151, Dated 11/23/10
C-RPS-SA-11-07, 2010 Unexpected ED Rate Alarms- Annual Review, 03/29/11

Corrective Action Program
PIP C-11-00096, Work Stopped Due to Electronic Transmitter Malfunction
PIP C-11-02939, UDO No. 11-009
PIP C-11-03155, UDO No. Lost TLD and Self Reading Dosimeter
PIP C-11-03241, Worker Received an ED Alarm While Installing Shielding in Room 419, 577' Unit 1 Mechanical Penetration Room

Section 4OA2: Problem Identification and Resolution
NSD 208, Problem Investigation Program
CNS workaround list, 9/9/11

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion
Catawba NOED Request dated, March 1, 2011
LER 413/2011-001, Technical Specification Violation Involving NOED due to Failure of Diesel Generator Mechanical Governor, Rev. 0
LER 413/2011-002, Safety System Actuation of Auxiliary Feedwater due to Feedwater Isolation during Unit Shutdown, Rev. 0
Catawba Event Notification Report dated April 23, 2011
PIP C-11-1407, 1B D/G exhibited erratic control at full load during 24 hour run
PIP C-11-3106, 1A CA pump auto start due to operations tagout
NSD 500, Red Tags/Configuration Control Tags, Rev. 25