UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

July 24, 2003

NOED 03-2-005

Duke Energy Corporation
ATTN: Mr. D. M. Jamil
Site Vice President
Catawba Nuclear Station
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000413/2003003 AND 05000414/2003003

Dear Mr. Jamil:

On June 28, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Catawba Nuclear Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 10, 2003, with you and 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.

Based on the results of this inspection, there were three NRC-identified findings of very low safety significance (Green) identified in the report. All three were determined to be violations of NRC requirements. However, because of the very low safety significance and because the issues were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC, 20555-0001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC, 20555-0001; and the NRC Resident Inspector at the Catawba Nuclear Station.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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 Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert Haag, Chief
Reactor Projects Branch 1
Division of Reactor Projects

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

Enclosure: Integrated Inspection Report 5000413/2003003, 05000414/2003003
w/Attachment: Supplemental Information

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REGION II

Docket Nos:	50-413, 50-414
License Nos:	NPF-35, NPF-52
Report No:	05000413/2003003, 05000414/2003003
Licensee:	Duke Energy Corporation
Facility:	Catawba Nuclear Station, Units 1 and 2
Location:	4800 Concord Road York, SC 29745
Dates:	March 30, 2003 - June 28, 2003
Inspectors:	E. Guthrie, Senior Resident Inspector M. Giles, Resident Inspector R. Carrion, Project Engineer (Section 2PS3) K. VanDoorn, Senior Reactor Inspector (Sections1R07 and 4OA5) M. Maymi, Reactor Inspector (Sections 1R07 and 4OA5)
Approved by:	R. Haag, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000413/2003-003, IR 05000414/2003-003; 3/30/2003-6/28/2003; Catawba Nuclear Station, Units 1 and 2; Maintenance Effectiveness and Access Control to Radiologically Significant Areas.

The inspection covered a three month period of inspection by resident inspectors and announced inspections by one project engineer and two reactor inspectors. Three non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). 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," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Barrier Integrity

- Green. The inspectors identified a non-cited violation for failure to comply with 10 CFR 50, Appendix B, Section XI, Test Control because a test procedure was inadequate to assure that the 1A containment spray (NS) heat exchanger (HX) would perform satisfactorily in service. The licensee's test procedure acceptance criteria limit was set too low to meet the intent of the stated purpose of the test and was inadequate to obtain test data that could be trended appropriately to adequately assure that the HX would perform satisfactorily in service. This allowed the 1A NS HX to become inoperable.

  The finding was more than minor because the heat exchanger actually became inoperable, which directly affected the cornerstone objective of preserving the containment boundary. The finding was only of very low safety significance because it did not represent an actual reduction of the atmospheric pressure control function of the reactor containment since the other train was available and was designed for one hundred percent capability to meet design requirements. (Section 1R12)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a non-cited violation for failure to post a radiation area as required by 10 CFR 20.1902, Posting Requirement, paragraph (a), Posting of Radiation Areas. Radioactive samples having a dose rate greater than 5 millirem/hour at 30 centimeters were stored in the chemistry lab in such a manner that an individual could receive a whole body dose from the stored material without the proper radiation sign posting.

  The finding was more than minor because it was associated with the Occupational Radiation Safety Cornerstone and affected the process attribute of exposure/contamination control and monitoring. The finding was determined to be of very low safety significance using the Occupational Radiation Safety SDP, because this finding was not an overexposure or substantial potential for an overexposure, and did not compromise the ability to assess dose, nor was it an ALARA issue. (Section 2OS1.1)

- Green. The inspectors identified a non-cited violation for failure to perform adequate radiological surveys as required by 10 CFR 20.1501, General, paragraph (a). Three radiological surveys conducted in the chemistry laboratory over a three month period were insufficient to detect radiation levels from potential radiological hazards that could create radiation areas.

  The finding was more than minor because they were associated with the Occupational Radiation Safety Cornerstone and affected the process attribute of exposure/contamination control and monitoring to protect the worker from exposure to radiation. The finding was determined to be of very low safety significance using the Occupational Radiation Safety SDP, because it was not an overexposure or substantial potential for an overexposure and did not compromise the ability to assess dose, nor was it an ALARA issue. (Section 2OS1.2)

B. Licensee-identified Violations

None

Report Details

Summary of Plant Status:

Unit 1 operated at 100 percent Rated Thermal Power (RTP) for the entire inspection period.

Unit 2 began the period operating at 63 percent RTP following an end-of-cycle refueling outage. The Unit achieved 100 percent RTP on March 31, 2003. The Unit operated at 100 percent RTP until June 4, 2003, when it experienced a main turbine runback to 56 percent RTP. The runback was caused by a spurious trip of the Main Generator 2A circuit breaker. The unit returned to 100 percent RTP on June 5, 2003, and remained at 100 percent RTP for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors performed two inspections that reviewed the licensee's preparation for adverse weather associated with: (1) potential tornadoes and high-winds; and (2) hurricane events. The reviews included an assessment of station procedures RP/0/A/5000/007, Natural Disaster and Earthquake; RP/0/B/5000/030, Severe Weather Preparations; and Updated Final Safety Analysis Report (UFSAR), Section 3.3, Wind and Tornado Loading. Two risk significant systems were selected for these inspections; the nuclear service water (RN) and emergency diesel generator (EDG) systems. The inspectors also conducted interviews with Emergency Preparedness personnel to discuss station administrative and procedural guidance and controls, which provided protective measures for the RN and EDG systems.

In addition, the inspectors reviewed the licensee's response to the failure of tornado damper 2ABTD-1 to close during the performance of PT/0/A/4450/019A, Tornado Isolation Train A Test, on August 2, 2002. This test failure, captured in Problem Investigation Process report (PIP) C-02-4236, was reviewed to ensure the licensee was adequately identifying and entering issues into their corrective action program and that corrective actions were commensurate with the significance of the issue.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment - (partial system walkdowns)

a. Inspection Scope

The inspectors verified the critical portions of equipment alignments for selected trains that remained operable while the redundant train was inoperable. The inspectors reviewed plant documents to determine the correct system and power alignments, and

the required positions of select valves and breakers. The inspectors verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability. The inspectors verified the following partial system alignments and reviewed the associated listed documents:

- Train B Component Cooling Water (KC) while the A Train was inoperable for heat exchanger (HX) cleaning (OP/1/A/6400/005, Component Cooling System, Enclosure 4.9, KC Train 1B Alignment For KC HX 1A Cleaning; Tagout 03-01104, Removal of 1A KC HX)

- Train A KC while the B Train was inoperable for HX cleaning (OP/1/B/6400/005, Component Cooling System, Enclosure 4.8, KC Train 1A Alignment For KC HX 1B Cleaning)

- Unit 1 Nuclear Service Water (RN) Train B while Train A was out of service for preventive maintenance (OP/0/A/6400/006 C, Nuclear Service Water System)

- 1B Containment Spray (NS) HX while 1A NS HX was inoperable (OP/1/A/6200/007, Containment Spray System)

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors walked down accessible portions of the plant 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 (PRA) based on sensitivity studies for fire related core damage accident sequences, and summary statements related to the licensee's 1992 Initial Plant Examination for External Events submittal to the NRC. The inspectors toured the following areas important to reactor safety:

- Unit 1 and Unit 2 Auxiliary Building, (Residual Heat Removal) ND and NS pump rooms
- Unit 1 and Unit 2 Auxiliary Building, 522', 543' and 577' General Elevations
- Standby Shutdown Facility
- Unit 1 and 2 Auxiliary Building, A & B Train Auxiliary Shutdown Panel Rooms and Auxiliary Feedwater (CA) Pump Room (two areas)
- Unit 1 and Unit 2 Cable Spreading and Relay Rooms
- Unit 1 and Unit 2 6900/4160 Volt Switchgear Areas
- RN Pumphouse
- Unit 1 and Unit 2 125 Volt DC Vital Battery Rooms and AC Distribution Areas

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed inspection records, work documents, preventive maintenance procedures, and other documentation to ensure that HX deficiencies that could mask or degrade performance were identified. Inspection records for risk significant HXs were reviewed, which included two year inspections for the NS and EDG jacket water HXs and recent inspections for the KC HXs and ongoing corrective actions for the KC HXs. (Note: The KC system was reviewed in depth during an NRC inspection completed in January 2003. See NRC Inspection Report 50-413,414/02-08.) The inspector also reviewed general health of the RN system via review of inspection/test results, review of chemistry activities, review of proposed modifications and their proposed schedule, review of RN corrective maintenance history, review of RN health reports, and discussions with the RN system engineer and raw water project owners. The inspectors also reviewed results of the topographic survey of the Standby Nuclear Service Water Pond. Selected PIPs were reviewed for potential common cause problems, as well as problems which could affect system performance, in order to confirm the licensee was entering problems into the corrective action program and initiating appropriate corrective actions. These PIPs included actions regarding KC HX performance, problems identified during the previous KC and License Renewal inspections, and actions regarding RN piping degradation. In addition, the inspectors conducted a walk down of most of the RN system and the major components for both units. Documents reviewed during this inspection are listed on the Attachment to this Inspection Report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed a simulator training scenario conducted on June 18, 2003, to assess the performance of licensed operators. The scenario involved a cold leg accumulator leak, a reactor coolant leak with a manual reactor trip, a stuck control rod, and containment degradation. The inspection focused on high-risk operator actions performed during implementation of the emergency operating procedures, emergency plan implementation and classification, and the incorporation of lessons learned from previous plant events. Through observations of the critique conducted by training

instructors following the training session, the inspectors assessed whether appropriate feedback was provided to the licensed operators regarding identified weaknesses.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing routine maintenance activities. This review included an assessment of the licensee's practices pertaining to the identification, scope, and handling of degraded equipment conditions, as well as common cause failure evaluations and the resolution of historical equipment problems. For those systems, structures, and components (SSC) scoped in the maintenance rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored, and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified in light of the reviewed degraded equipment condition. The inspectors conducted this inspection for the degraded equipment conditions associated with the 1B1 KC pump start failure and the 1A NS HX inspection and cleaning activity. Documents reviewed during this inspection are listed on the Attachment to this Inspection Report.

b. Findings

Introduction: A Green non-cited violation (NCV) was identified for failure to have an adequate test procedure in accordance with 10 CFR 50, Appendix B, Section XI, Test Control, which resulted in the 1A NS HX becoming inoperable from blockage located on the RN shell side of the HX.

Description: On May 8, 2003, the 1A NS HX was declared inoperable following a testing evolution that did not meet acceptance criteria of procedure PT/1/A/4400/009, Cooling Water Flow Monitoring For Asiatic Clams and Mussels Test. The purpose of the test was to verify that there was no flow blockage in essential service water system piping. The test was performed by measuring the pressure drop across the NS HX and the flow rate of the RN while the HX was in operation. The test measurement parameters were used to determine a flow resistance factor (flow/pressure drop). The test procedure acceptance criteria for the NS HX flow resistance factor was greater than or equal to 650. The licensee chose a test acceptance criteria limit of 650 based on the typical results that were being obtained minus an additional amount of margin. The inspectors determined that the test acceptance criteria established a limit that provided little margin to a loss of HX design function if the limit was exceeded.

The test on May 8 found the HX flow resistance factor to be 506. The inspectors reviewed the test procedure and test results for the past six years. The inspectors found that the test results were erratic and ranged from about 680 to 980. Following discussions with the licensee concerning the test results, the inspectors determined that several factors contributed to the erratic test results. These factors included inconsistent plant conditions such as flow and system pressure, as well as measurement errors associated with obtaining the differential pressures across the heat

exchanger. The inspectors found that the test procedure did not control system flow or system pressure prior to obtaining test parameters and it did not address errors induced while obtaining test measurement parameters. The inspectors determined that the erratic test results made evaluation of the HX performance, as to whether the HX would be able to perform satisfactorily while in service, difficult. The inspectors found that following performed tests in January 2001 with a resultant flow resistance factor near 650, the licensee performed a soap solution cleaning of the HX. The licensee subsequently determined that the soap cleaning had little or no effect.

Analysis: The deficiency associated with this finding was an inadequate test procedure. A declining trend in HX performance was recognized by the licensee after the May 8 test by the use of a best fit trending analysis of historical test data. However, a quality evaluation and assessment of HX performance prior to May 8, 2003, was not a reasonable expectation because of the erratic test results. The main factors that contributed to the inadequate test procedure were the test acceptance criteria parameter that was chosen to be near the loss of design function and a lack of controls which resulted in erratic test results that made it difficult to evaluate performance. The finding was greater than minor because the HX actually became inoperable, which directly affected the cornerstone objective of functionality of the containment. The finding, which is under the Barriers cornerstone, was of very low safety significance because it did not represent an actual reduction of the atmospheric pressure control function of the reactor containment since the other train was available and was designed for one hundred percent capability to meet design requirements.

Enforcement: 10 CFR 50, Appendix B, Section XI, Test Control, states, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service. Test results shall be documented and evaluated to assure that test requirements have been satisfied. Contrary to the above, it was identified on May 8, 2003, that the licensee's test program, implemented via PT /1/A/4400/009, had not adequately assured that the 1A NS HX would perform satisfactorily in service. The licensee's test procedure acceptance criteria limit was set too low to provide adequate margin to an inoperable condition and was inadequate to obtain test data that could be trended to adequately assure that the HX would perform satisfactorily in service. Because this finding is of very low safety significance and has been entered in the licensee's corrective action program as PIP C-03-2910, this violation is being treated as an NCV, consistent with the Section VI.A.1 of the NRC Enforcement Policy. Accordingly, it will be identified as NCV 05000413/2003003-001: Inadequate Cooling Water Flow Test Procedure.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's assessments concerning the risk impact of removing from service those components associated with the six emergent and planned work items listed below. This review primarily focused on activities determined to be risk significant within the maintenance rule. The inspectors also assessed the adequacy of the licensee's identification and resolution of problems associated with maintenance risk assessments and emergent work activities. The inspectors reviewed Nuclear System Directive 415, Operational Risk Management (Modes 1-3) per 10 CFR 50.65 (a)(4).

- Unit 1 A Train KC HX cleaning
- Switchyard Battery 0EBH SYB1 Performance Test and Preventive Maintenance (PM)
- Auxiliary Feedwater Pump #1 for PMs
- Unit 2 B Train KC HX cleaning
- Unit 2 Containment Air Return and Containment Pressure Control System maintenance
- 1A NS HX inspection and cleaning

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed operability determinations (or justifications for continued operation) to verify that the operability of systems important to safety were properly established, that the affected components or systems remained capable of performing their intended safety function, and that no unrecognized increase in plant or public risk occurred. Operability evaluations were reviewed for the issues listed below:

- Unit 2 Narrow Range and Wide Range RTDs
  Documents Reviewed:
  - PIPs C-03-02055, C-03-02133
  - TSAIL C2-03-00822
  - Work Order 98589706, Rescaling/Calibration of RTDs
  - IP/2/A/3222/095B, Procedure For RTD and Thermocouple Cross Calibration by AMS with Reactor Trip Breakers Closed or Open

- 1B1 KC Pump
  Documents Reviewed:
  - PIPs C-03-01365, C-03-02273, C-03-02356
  - TSAIL item numbers: C1-03-00680, C1-03-00939

- Unit 2 Containment Air Return (VX) Damper
  Documents Reviewed:
  - PIPs C-03-02972, C-03-02969
  - Specification: CNS-1557.VX-00-0001, System (VX)

- Feedwater Isolation Valve Limit Switch Sealing
  Document Reviewed:
  - PIP C-03-03366

- Feedwater Isolation Valve Limit Switch Safety Classification and Environmental Qualification
  Documents Reviewed:
  - PIP C-03-03355
  - Engineering Data Base: CNED-EDB, S/G 1A CF Containment Isolation

- Environmental Qualification Maintenance Manual, EQMM-1393.01-N03-1, Limit Switch

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the list of operator workarounds for potential affects on the functionality of mitigating systems. The workarounds were reviewed to determine: (1) if the functional capability of the system or human reliability in responding to an initiating event was affected; (2) the affect on the operator's ability to implement abnormal or emergency procedures; and (3) if operator workaround problems were captured in the licensee's corrective action program. The inspectors performed an in-depth review of an operator workaround associated with dose equivalent iodine compensatory actions, as well as reviewed the cumulative effects of all identified operator workarounds and their: (1) impact on the reliability, availability, and potential for mis-operation of the identified system(s); (2) potential for increasing an initiating event frequency; and (3) impact on the ability of operators to respond in a correct and timely manner to a plant transient and accident. Aggregate impacts of the identified workarounds on each individual operator watch station were also reviewed.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the following permanent plant modification to verify the adequacy of the modification package, and to verify that the design change and subsequent post-modification testing ensured continued reliability and satisfactory performance of the affected Reactor Protection System channel.

CNCE-72385, Adjustment in 7300 NRA card associated with 2NCRD5541 (Loop D)
Documents Reviewed:
- Work Order 98589338, Recalibrate NRA card C4-851
- IP/2/A/3222/076D, Calibration Procedure for Delta T/T-Avg. Protection Channel IV

b. Findings

No findings of significance were identified

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors observed and/or reviewed post-maintenance tests associated with the following work activities to verify that equipment was properly returned to service and that proper testing was specified and conducted to ensure that the equipment could perform its intended safety function following maintenance. The documents reviewed are listed after each work activity.

- Unit 2 Card NCRD5541 Tracking Out Of Line With Other RTDs For Loop D
  - IP/2/A/3222/095B, Procedure For RTD And Thermocouple Cross Calibration By AMS With Reactor Trip Breakers Closed Or Open
  - Work Order 98589338, Recalibrate NRA Card C4-851
  - PIP C-03-02133, NCRD5541 Tracking Out Of Line with Other RTDs For Loop D

- Failure Of Unit 2 Refueling Water Storage Tank (FWST) Level Channel 3
  - IP/2/A/3222/001C, Refueling Water Storage Tank Level Channel 3
  - IP/2/A/3222/076D, Calibration Procedure For Delta T/T-Avg. Protection Channel IV

- Train B Control Room Ventilation Chilled Water (YC) System Chiller Tube Cleaning Activity
  - PT/0/A/4450/008E, Control Room Area Chillers Performance Test
  - Work Order 98590561, Tube Cleaning Activity For B YC Chiller

- 1A NS HX Inspection and Cleaning
  - PT/1/A/4400/006A, NS Heat Exchanger 1A Heat Capacity Test

- Unit 2 Reactor Coolant (NC) Loop Low Average Temperature (Tavg) Channel 3 Failure
  - IP/2/A/3222/076C, Calibration Procedure for Delta T/Tavg Protection Channel III
  - Work Order 98278488, I/R Supply To C NC Loop Lo Tavg

- Unit 1, 1A Containment Spray HX Service Water Supply Flush Connection Installation
  - Work Order 98598049-06, Provide Flush Connection For NS HX 1A

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed and/or reviewed the surveillance tests listed below to verify that TS Surveillance Requirements and/or Selected Licensee Commitment (SLC)

requirements were properly complied with, and that test acceptance criteria were properly specified. The inspectors also verified that proper test conditions were established as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria had been met.

Operability Tests

- PT/1/A/4200/007C, Standby Makeup Pump #1 Performance Test
- PT/1/A/4250/003C, Turbine Driven Auxiliary Feedwater Pump #1 Performance Test
- PT/0/A/4450/001C, Auxiliary Building Filtered Exhaust Filter Train Performance Test (Trains 2A and 2B)
- IP/2/A/3222/000G, Monthly Channel Operational Test for FWST Level, Protection Ch. 2, Loop 2FWLT5010
- IP/2/A/3145/001A, Containment Pressure Control System Train A Channel Operational Test
- CP/0/B/8200/002, Determination of Gross Radioactivity and XE-133 Equivalent Activity In Reactor Coolant

In-Service Tests

- PT/2/A/4200/004B, Containment Spray Pump 2A Performance Test
- PT/1/A/4200/013C, RN Valve Inservice Test, Valve 1RN-351 (KC HX 1B Outlet Throttle Valve)

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed and evaluated the licensee's performance in an exercise conducted on April 23, 2003. The inspectors reviewed the drill scenario to determine if elements of the licensee's Radiological Emergency Plan would be sufficiently challenged. Licensee activities inspected during the exercise included those occurring in the Control Room Simulator, and in the Technical Support Center. The NRC's assessment focused on the timeliness and location of classification, the notification and protective action recommendations (PAR) developmental activities, and the licensee's expectations of response. The performance of the emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. The inspectors attended the post-drill critique to evaluate the licensee's self-assessment process for identifying deficiencies relating to failures in classification and notification, as well as PAR development activities.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety (OS) and Public Radiation Safety (PS)

2OS1 Access Control to Radiologically Significant Areas

a. Inspection Scope

The inspectors toured the licensee's Radiological Chemistry Laboratory, interviewed radiation protection staff, reviewed licensee routine and special radiological survey records, reviewed Problem Investigation Process Reports, and licensee procedures listed in the Attachment to this report.

b. Findings

.1 Failure to Post a Radiation Area

Introduction: A Green NCV was identified for failing to post a radiological area, as prescribed in 10 CFR 20.1902(a).

Description: On May 21, 2003, while observing a reactor coolant sample analysis in the chemistry laboratory, the inspectors observed an area posted as a contaminated area. The inspectors asked the chemistry laboratory technician what was being stored in the area. Utilizing proper contamination controls the laboratory technician walked to the area and picked up a sample bottle. Showing it to the inspectors, he explained its purpose for being there. The inspectors noted that the area was not posted as a radiation area and requested a survey be done of the area to verify whether the area should be posted.

Following the survey, the licensee posted the area as a radiation area. The licensee found that the sample bottle was reading 100 millirem/hour on contact and 10 millirem/hour at 30 centimeters. The sample bottle had been placed in the area on March 2, 2003, and was clearly labeled as radioactive material, with reading of 160 millirem/hour on contact and 35 millirem/hour at 30 centimeters.

Analysis: The inspectors found that the licensee had initially failed to post a radiation area, even though the radioactive material tags attached to the sample bottle clearly indicated the sample was emitting radiation sufficient to post the storage area as a radiation area. The inspectors determined that the finding was more that minor because it was associated with the Radiation Safety Cornerstone and affected the process attribute of exposure/contamination control and monitoring. The finding was determined to be of very low safety significance (Green) using the Occupational Radiation Safety SDP, because this finding was not an overexposure or substantial potential for an overexposure, and did not compromise the ability to assess dose, nor was it an ALARA issue.

Enforcement: 10 CFR Part 20.1003 defines a radiation area, as accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

10 CFR Part 20.1902, Posting Requirement, paragraph (a) Posting of Radiation Areas, requires, in part, that the licensee shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."

Contrary to the above, during the period of March 2, 2003, through May 21, 2003, radioactive samples having a dose rate greater than 5 millirem/hour at 30 centimeters were stored in the licensee's chemistry lab in such a manner that an individual could receive a whole body dose from the stored material without proper posting. Because the failure to post this radiation area is of very low safety significance and has been entered into the licensee's corrective action program as PIP C-03-03143, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. Accordingly, it will be identified as NCV 05000413,414/2003003-002: Failure to Post a Radiation Area.

.2 Failure To Perform Adequate Surveys

Introduction: A Green NCV was identified for failing to perform adequate routine radiation surveys, as prescribed in 10 CFR 20.1501(a).

Description: As indicated in Section 2OS1.1 above, the inspectors observed an area posted as a contaminated area; however, the posting had not been updated since October 31, 2002. The inspectors questioned whether the routine radiation surveys were being conducted and why they had not identified the radiation source in the room. The inspectors reviewed all of the routine radiation surveys from October 31, 2002 to April 2003. The inspectors noted that some of the licensee's surveys were significantly less detailed than others; however, none of the surveys identified the bottles in the partially shielded storage area.

Analysis: The inspectors determined that three inadequate routine radiation surveys in the chemistry laboratory over a period of three months failed to identify sufficient quantities of radioactive material to cause the local area to have become a radiation area. The inspectors determined that the finding was more than minor because it was associated with the Radiation Safety Cornerstone and affected the process attribute of exposure/contamination control and monitoring to protect the worker from exposure to radiation. The finding was determined to be of very low safety significance (Green) using the Occupational Radiation Safety SDP, because this finding was not an overexposure or substantial potential for an overexposure, and did not compromise the ability to assess dose, nor was it an ALARA issue.

Enforcement: Title 10 CFR Part 20.1501(a), requires that each licensee shall make or cause to be made surveys that: (1) may be necessary for the licensee to comply with the regulations in this part; and (2) are reasonable under the circumstances to evaluate (i) The magnitude and extent of radiation levels; (ii) Concentrations or quantities of radioactive material; and (iii) The potential radiological hazards.

Contrary to the above, during the period of March 2, 2003, through May 21, 2003, the licensee's radiological surveys conducted in the chemistry laboratory were insufficient to detect radiation levels from potential radiological hazards that could create radiation areas. Because the failure to perform adequate routine surveys is of very low safety significance and has been entered into the licensee's corrective action program, as PIP C-03-03143, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. Accordingly, it will be identified as NCV 0500413,414/2003003-003: Failure to Perform Adequate Routine Surveys.

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

.1 REMP Implementation

a. Inspection Scope

The inspectors reviewed and discussed with licensee personnel the results published in the Catawba Annual Radiological Environmental Operating reports for Calendar Year (CY) 2001 and CY2002, including the land use census report for CY2002.

The inspectors assessed implementation of the REMP requirements at five weekly air sampling stations (Numbers 200, 201, 205, 212, and 217) and four monthly surface and drinking water sample stations (Numbers 208, 211, 214, and 215). During field observations, staff proficiency in collecting and preparing weekly airborne particulate and charcoal sample matrices was assessed. Equipment material condition and adequacy of calibrations for selected air and water sampling equipment were reviewed. Selected REMP sample station locations were assessed against required sector locations.

The REMP guidance and implementation documentation, and effluent report results were reviewed against TS Sections 5.5, Program and Manuals, and 5.6, Reporting Requirements; 10 CFR Part 20; and Appendix I to 10 CFR 50, Design Criteria Requirements; Updated Final Safety Analysis Report (UFSAR) Section 11, Radioactive Waste Management; and Catawba SLC Manual, Sections 16.11, Radioactive Waste Management, and 16.12, Radiation Protection; the Off Site Dose Calculation Manual (ODCM), Rev. 45; and applicable procedures listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Meteorological Monitoring Program

a. Inspection Scope

Licensee program activities to assure accuracy and availability of meteorological data were evaluated. Calibration procedures and records for the meteorological monitoring instrumentation were reviewed and discussed with the system engineer. The inspectors assessed material condition and operability during tours and observation of

meteorological monitoring equipment. Routine maintenance and surveillance activities, and resultant equipment reliability and meteorological data accuracy were assessed.

The meteorological program implementation and activities were reviewed against TS and applicable procedures documented in the Attachment to this report.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Materials from the Radiologically Controlled Area (RCA)

a. Inspection Scope

The inspectors reviewed and evaluated radiation protection program activities associated with the unconditional release of materials from RCA locations. The adequacy of selected equipment used by the licensee to prevent the unrestricted release of materials from the RCA was evaluated through exposure of the monitoring instrumentation to radioactive sources having a source strength of approximately 5000 disintegrations per minute. The evaluated equipment included small article monitor equipment (Serial Number [S/N] 3238 & S/N 3240), a personnel contamination monitor PCM-2 system (SN 4262), and an NNC SYS20 Gamma-60 Portal Monitor (S/N 3273).

The licensee's guidance and implementation of RCA exit monitoring activities were evaluated against 10 CFR Part 20 requirements, and applicable procedures documented in the report Attachment.

b. Findings

No findings of significance were identified.

.4 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed selected Corrective Action Program documents, including Audits and PIPs associated with REMP activities, meteorological tower operations, and the unrestricted release of materials from RCA locations. The inspectors assessed the licensee's ability to resolve the issues identified within this Radiation Protection program area. Specific documents reviewed and evaluated are identified in the Attachment to this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Mitigating Systems Cornerstone

a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicators (PIs) listed below for the period from April, 2002 through April, 2003. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 2, were used to verify the basis in reporting for each data element.

- Safety System Unavailability - Emergency AC Power, Unit 1 and Unit 2
- Safety System Functional Failures, Unit 1 and Unit 2

The inspectors reviewed a selection of Licensee Event Reports (LERs), portions of Unit 1 and Unit 2 operator log entries, PIP descriptions, monthly operating reports, and PI data sheets to verify that the licensee had adequately identified the number of unavailability hours and safety system functional failures. These numbers were compared to the numbers reported for the PIs.

b. Findings

No findings of significance were identified.

.2 Barrier Integrity Cornerstone

a. Inspection Scope

The inspectors sampled licensee submittals for the PI listed below for the period from April, 2002 through April, 2003. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 2, were used to verify the basis in reporting for each data element.

- Reactor Coolant System Specific Activity, Unit 1 and Unit 2

The inspectors reviewed the licensee's chemistry sample record to verify that the correct numbers were reported for the PI. Additionally, the inspectors observed a chemistry technician obtain and analyze a reactor coolant sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed in-depth reviews of selected PIPs involving the cold weather protection program and failed nickel cadmium battery cells in the diesel generator battery banks to determine whether all of the issues were identified, an appropriate evaluation was performed, and the appropriate corrective actions were specified and prioritized based on the significance of the issue. The inspectors evaluated the reports against the requirements of the licensee's corrective action program, Nuclear System Directive (NSD) 208, Problem Investigation Process and 10 CFR 50 Appendix B. The following PIPs were reviewed:

- PIP C-03-00371, Programmatic assessment of cold weather protection preparations following a snow storm which occurred on January 23, 2003
  Documents Reviewed:
  - PIP C-03-00324, Refueling Water Storage Tank Channel 1 Froze
  - Work Request 98268136, U-2 FWST Level Impulse Line Froze
  - Nuclear Station Directive 317: Freeze Protection Program
  - IP/0/B/3560/008, Preventative Maintenance and Operational Check of Freeze Protection Heat trace and Instrument Box Heaters (EHT/EIB) Systems
  - RP/0/B/5000/030, Severe Weather Preparation

- PIP C-03-01273, Battery Cell Failures on Unit 2 Diesel Generator Battery A
  The specific documents reviewed are listed in the Attachment to this report.

b. Findings and Observations

No findings were identified for the two reviewed samples. However, the inspectors identified that the licensee had not performed a root cause evaluation on the nickel cadmium battery cell failures identified in the PIP documents. The issue was identified in the PIP program as an equipment reliability issue with multiple individual battery cell failures. From a review of PIPs dating back to 1995, the inspectors found that multiple nickel cadmium battery cell failures have occurred and the cause was expressed as unknown. The problem was identified as an equipment reliability issue associated with the emergency diesel generators, and there were no corrective actions identified in the PIPs. The inspectors determined through extensive review that this condition was a long-standing equipment reliability issue dating back to before 1995. The inspectors determined that the licensee did not understand the cause of the failures and no actions were identified to determine the cause or correct the problem. During the same timeframe as the inspectors' review of this issue, the licensee elevated the significance of PIP C-03-1273 and conducted an assessment of the battery cell failures with an independent, multi-discipline team. The inspectors verified that the assessment identified areas for improvement and that corresponding corrective actions were appropriate; therefore, no violation of NRC requirements or findings were identified.

4OA3 Event Followup

.1 Main Turbine Runback

a. Inspection Scope

On June 4 the inspectors reviewed a main turbine runback to 56 percent RTP as a result of the 2A generator circuit breaker opening. The licensee determined that vibrations caused a contact in a relay associated with the 2A generator circuit breaker circuitry to open, which in turn opened the 2A circuit breaker. The vibrations were caused by work in an adjacent cabinet unrelated to the 2A generator circuit breaker circuitry. The inspectors assessed operator response and plant response to the runback. Plant process computer traces, operator statements, and the licensee's investigation report were reviewed.

b. Findings

No findings of significance were identified.

.2 Notice of Enforcement Discretion (NOED) to Inspect and Clean 1A NS HX

On May 10, 2003, the NRC granted a Unit 1 NOED related to enforcing compliance with the requirements of TS 3.6.6, Containment Spray System. The details of the failure and the request is documented in a Letter dated May 10, 2003, from the licensee to the NRC. The 1A containment spray heat exchanger was inoperable following a cooling water flow monitoring test during which the heat exchanger did not meet acceptance criteria. Additional Limiting Conditions for Operations (LCO) time was needed to inspect and clean the heat exchanger. The inspectors reviewed the applicable TS requirements, assessed the impact of the inoperable containment spray heat exchanger, and monitored for compliance with the compensatory measures established as conditions for granting of the NOED. A NCV concerning the licensee's performance testing and trending was identified, and is addressed in Section 1R12.

4OA5 Other Activities

(Closed) URI 50-413,414/02-07-01: Nuclear Service Water Minimum Wall Evaluation

Introduction: A URI was identified during the August 2002 biennial Problem Identification and Resolution inspection to assure the licensee had adequately addressed and corrected visual indications in buried RN piping.

Description: The licensee had previously identified significant fouling of the service water systems at Catawba and initiated a raw water project for corrective action management. Video inspection subsequent to cleaning performed in 2002 lead to discovery of areas of corrosion and wall loss of RN piping. The licensee noted the worse case to be a section of buried 42-inch piping and proposed to cut out the piping for further evaluation. The licensee had previously judged the pipe to be above minimum wall thickness (in this case, based on hoop stress calculations, to be 0.19-inch). The licensee judged that sufficient time existed to process a Technical Specification change to allow removal and replacement of the piping section during

operations and the replacement was scheduled for early, 2003. The inspectors held discussions with licensee personnel, observed portions of the removed piping, and reviewed associated documentation which included: RN A Train Supply Header Metallurgical Analysis Report 3066; Calculation CNC-1232.00-00-0020, Buried Nuclear Service Water Piping-Calculation of Required Pipe Wall Thickness for Internal and External Pressure, Rev. 4; Calculation CNC-1206.02-84-0001, Nuclear Service Water Pipe Seismic Analysis, Buried Portion, Attachment A, Rev. 14; and PIP C-01-00884, Documentation of Inspections of Large Diameter Buried RN Piping, Updated April 30, 2003.

Analysis: The metallurgical report identified that two short areas (approximating one to three inches) were actually below minimum wall at the bottom of the corrosion groove associated with the edge of the seam weld of the pipe. One area was .18-inches and one area was .12-inches. Since these areas were below expected and calculated minimum wall thickness, the licensee hydrostatically tested the pipe section at 150% of design maximum pressure. The site NRC Resident Inspector previously witnessed this test which was satisfactory. The hydrostatic test (a test which essentially duplicated hoop stress) ultimately showed the piping was functional. In addition, the licensee had previously taken corrective actions to reduce the corrosion rate such as addition of dispersant and biocide to the system, and increasing flow rate. The licensee determined that the most probable initial failure of this pipe would have been localized leakage and not a catastrophic failure of the pipe. The licensee plans to continue inspections including inspection of most likely problem areas in B Train during the Fall outage and continue the raw water project. The inspector considered the licensee evaluation adequate and the actions to date to be prudent and reasonable.

Enforcement: Since the licensee has demonstrated that the RN piping remained functional and has taken reasonable and prudent actions to address RN piping problems, no violations of regulatory requirements were identified.

4OA6 Meetings

Exit Meeting Summary

On July 10, 2003, the resident inspectors presented the inspection results to Mr. D. Jamil, Site Vice President, and other members of licensee management, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

E. Beadle, Emergency Planning Manager
S. Brown, Operations Superintendent
W. Byers, Security Manager
J. Foster, Radiation Protection Manager
G. Gilbert, Regulatory Compliance Manager
W. Green, Work Control Superintendent
P. Grobusky, Human Resources Manager
M. Glover, Station Manager
P. Herran, Engineering Manager
L. Keller, Safety Review Group Manager
R. Parker, Maintenance Superintendent
G. Peterson, Catawba Site Vice President
F. Smith, Chemistry Manager
G. Strickland, Regulatory Compliance Specialist
R. Sweigart, Safety Assurance Manager

LIST OF ITEMS OPENED AND CLOSED

Opened/Closed	Item Type	Description
05000413/2003003-01	NCV	Inadequate Cooling Water Flow Test Procedure (Section 1R12)
05000413,414/2003003-02	NCV	Failure to Post a Radiation Area (Section 2OS1.1)
05000413,414/2003003-03	NCV	Failure to Perform Adequate Routine Surveys (Section 2OS1.2)
Closed		
05000413,414/2002-007-01	URI	Nuclear Service Water Minimum Wall Evaluation (Section 4OA5)

DOCUMENTS REVIEWED

(Section 1RO7)

Completed Procedures

PT/1/A/4400/006A, NS Heat Exchanger 1A Heat Capacity Test, completed 02/20/03, 12/21/00
PT/1/A/4400/006B, NS Heat Exchanger 1B Heat Capacity Test, completed 02/06/03, 12/13/01
PT/2/A/4400/006A, NS Heat Exchanger 2A Heat Capacity Test, completed 01/23/03, 11/29/01
PT/2/A/4400/006B, NS Heat Exchanger 2B Heat Capacity Test, completed 03/20/03, 02/03/03
PT/1/A/4400/006E, KD Heat Exchanger 1A Heat Capacity Test, completed 01/20/03, 06/11/02
PT/1/A/4400/006F, KD Heat Exchanger 1B Heat Capacity Test, completed 11/13/02, 06/25/02
PT/2/A/4400/006E, KD Heat Exchanger 2A Heat Capacity Test, completed 06/04/02, 11/20/02
PT/2/A/4400/006F, KD Heat Exchanger 2B Heat Capacity Test, completed 10/08/02, 04/23/02
PT/0/A/4400/008A, RN Flow Balance Train A, completed 09/24/2002
PT/0/A/4400/008B, RN Flow Balance Train B, completed 04/14/2003
PT/2/A/4200/059, RN to CA Suction Piping Flush, completed 01/03/2003, 01/25/2003, 03/29/2003, & 04/12/2003
PT/1/A/4400/009, Cooling Water Flow Monitoring For Asiatic Clams and Mussels Quarterly Test, completed 05/30/2002, 06/10/2002, 06/18/2002, 06/25/2002, 11/19/2002, 11/22/2002, 01/07/2003, 01/23/2003, 03/02/2003, 03/09/2003, & 04/14/2003

PT/2/A/4400/009, Cooling Water Flow Monitoring For Asiatic Clams And Mussels Quarterly Test, completed 04/27/2002, 05/17/2002, 05/23/2002, 06/18/2002, 10/09/2002, 11/08/2002, 11/22/2002, 02/09/2003, 04/03/2003, 04/11/2003, & 04/14/2003

PIPs

C-01-03162, RN Supply Piping to DGs Degraded
C-01-04395, High DP at YC Chiller
C-02-00375, GL 89-13 Commitment Change
C-02-03213, Pulled Tube Sample from YC Chiller Revealed Pitting
C-02-03802, Modification to Route RN Pump Leakoff Never Installed
C-02-03616, Through Wall Leak found in RN Piping
C-02-04043, Excessive RN Piping Corrosion at Pump House
C-02-04353, Operations Issues for RN Flow Modification
C-02-05258, RN Welds have MIC Indications
C-02-05573, KC HX Clam Test Method Flawed
C-02-05663, Excessive Number of RN Pit Level Instruments Out of Tolerance
C-02-06603, Unable to Isolate VG Aftercooler
C-03-00160, Post Cleaning Video Inspection of KC HX 1A Showed Deposits
C-03-00384, NRC Findings Regarding Calculation Revisions
C-03-00432, NRC KC Calculation Yearly Updating Findings
C-03-01163, Long Term Management Plan for RN Piping
C-03-02262, Post Cleaning Video of KC HX 1B Showed Deposits
C-02-02568, Non-Typical, Discrete, Tube Support Damage (>50% Wall Loss) Recorded by ECT on NS Heat Exchanger 1B Tubes
C-02-02669, Tube OD Circumferential Cracks Identified During Scheduled ECT of U1 KD Heat Exchangers

C-02-00317, Failed Tubes Upon Hydro Test of Suspect ECT Indications in Diesel Generator Engine Jacket Water Coolers 2A/B
C-03-01608, KD Heat Exchanger 2B - ECT Identified Crack-like Signals on 8 Tubes. One out of Eight Tubes Failed Hydro Structural Worth Test
C-00-06140, KD Heat Exchanger Waterbox Corrosion
NS Heat Exchanger 2B Tube Pitting Failure Root Cause Failure Analysis Report for PIP C-01-04871, Rev. 1

Calculations

CNC-1201.06-00-0011, Balance of Plant Heat Exchanger Tube Plugging Limits, Rev. 4

Miscellaneous

Heat Exchanger Health Reports (KD, KC, and NS) for 2002Q3 and Q4
Nuclear Service Water Health Reports 2002, Q3 and Q4
2003 Catawba Site Initiative #6, Raw Water Systems Improvement Project, dated 4/10/2003
2003 Catawba Engineering Initiative for Calculation Improvement # ENG-2003-02, dated 4/10/2003
KC Heat Exchanger Differential Pressure Data and Fouling Trends for 2002 and 2003
Commitment Change Evaluation Annual Report for 2002, dated March 31, 2003

Maintenance Work Order Documents

98518157, KC HX Heat Capacity Test, completed 03/14/2003
98231715, Topographic Survey Standby NSW Pond, completed 06/19/2000
98522437, Radiograph Pipe Beside Valve 1RN250A, completed 09/03/2002
98522436, Radiograph Pipe Beside Valve 2RN250A, completed 09/10/2002
98524139, Radiograph Pipe Beside Valve 1RN310B, completed 09/16/2002
98524138, Radiograph Pipe Beside Valve 2RN310B, completed 09/16/2002

(Section 1R12)

- 1B1 KC Pump Start Failure
  - PIP C-03-1365, Failure of the 1B1 KC pump to start on March 8, 2003
  - PIP C-03-2273, Failure of the 1B1 KC pump to start on April 4, 2003
  - PIP C-03-2356, 1B1 KC pump breaker not returned to ABB as a complete unit following failure for failure analysis
  - Technical Specification Action Item List (TSAIL) C1-03-00680, Failure of 1B1 KC pump to start
  - Root Cause Failure Analysis Report dated September 22, 2000, “Diesel Generator 2B Breaker 2ETB-18 Failure”
  - Work Order 98566386, I/R KC Pump 1B1 Control Switch

- 1A NS HX Inspection and Cleaning
  - Heat Exchangers Health Report, 2002Q4
  - Maintenance Rule SSC Summary Sheets, Containment Spray (Rev date 8/27/2002)
  - Notice of Enforcement Discretion (NOED) Request Technical Specification (TS) 3.6.6 NS System, Unit 1

- PT/1/A/4400/009, Cooling Water Flow Monitoring For Asiatic Clams and Mussels Test
- NS HX 1A Resistance Factor Trend Analysis (January 94- January 04)

(Section 2OS1)

PIP C-03-3143 Posting of RCZ did not reflect actual radiological conditions in the area.
SH/0/B/2000/005 Posting of Radiation Control Zones
HP/0/B/1000/045 Radiation Protection Routines
Catawba Nuclear Station Radiation Protection Management Procedure 2.3
Survey Data Sheet, Primary Chemistry Lab, dated May 27, 2003
Monthly Routine Survey, Rooms 610-613, Chemistry Areas, dated October 31, 2002
Monthly Routine Survey, Rooms 610-613, Chemistry Areas, dated December 12, 2002
Monthly Routine Survey, Rooms 610-613, Chemistry Areas, dated January 22, 2003
Monthly Routine Survey, Rooms 610-613, Chemistry Areas, dated February 19, 2003
Monthly Routine Survey, Rooms 610-613, Chemistry Areas, dated March 21, 2003

(Section 2PS3)

Procedures, Guidance Documents

Health Physics Procedure (HP)/0/B/1003/022, Revision (Rev.) 023, In-service Radiation Protection Instrument Source Check
HP/0/B/1003/062, Rev. 002, Calibration of the NE America SAM-9 Small Articles Monitor (SAM)
HP/0/B/1003/068, Rev. 002, Set-up and Calibration of Eberline PCM-1C Personnel Monitor
HP/0/B/1003/071, Rev.001, Calibration of NNC SYS20 Gamma-60 Portal Monitor
HP/0/B/1003/075, Revision 001, Set-up, Calibration and Response Check of PCM-2
Standard Health Physics Procedure (SH)/0/B/2000/006, Revision 001, Removal of Items From RCA/RCZs and Use of Release/Radioactive Tags
Duke Energy EnRad Laboratories Procedure 721, Rev. 1, Airborne Radioiodine and Airborne Particulate Sampling at Catawba Nuclear Station
Duke Energy EnRad Laboratories Procedure 722, Rev. 0, Water Sampling at Catawba Nuclear Station

Records

HP/0/B/1003/062, Rev. 002, Calibration of the NE America SAM-9 Small Articles Monitor (SAM), for Monitor Serial Number (S/N) 3240, dated 9/12/02, and S/N 3238, dated 9/11/02
HP/0/B/1003/071, Rev. 001, Calibration of NNC SYS20 Gamma-60 Portal Monitor, for Monitor S/N 3273, dated 11/12/02
HP/0/B/1003/075, Rev. 001, Set-up, Calibration and Response Check of PCM-2, for Monitor S/N 4262
IP/0/B/3343/013, Meteorological Monitoring System Calibration and Maintenance Procedure, Rev. 029, completed February 25, 2002
IP/0/B/3343/013, Meteorological Monitoring System Calibration and Maintenance Procedure, Rev. 029, completed August 24, 2002
IP/0/B/3343/013, Meteorological Monitoring System Calibration and Maintenance Procedure, Rev. 033, completed February 6, 2003

CAP Documents

Radiation Protection Functional Area Evaluation, GO-02-15(NPA)(RP)(ALL), dated March 28, 2002
PIP C-01-00356, Small Bag with "Caution Radioactive Material" Printed on Side Was Found Outside the RCA, 1/22/01
PIP C-01-00606, Low Ambient Air Temperature Indication, 2/7/01
PIP C-01-03127, Magenta Rag Found Outside RCA, 7/18/01
PIP C-01-03567, Hot Tool Room Folding Rule Discovered Outside of the RCA Boundary, 8/13/01
PIP C-02-00339, Radiological Environmental Monitoring Program Data Evaluation Was Not Performed per Procedure Requirement, 1/21/02
PIP C-02-00902, Bad Card in Met System Found During PM, 2/21/02
PIP C-02-01381, RP Staff Failed to Review Radiological Environmental Monitoring Data During 2001, 3/19/02
PIP C-02-01080, Red-Painted Needle Nose Pliers Found Outside RCA, 3/4/02
PIP C-02-01441, Worker Took Tape Measure from Auxiliary Building Tool Room out of RCA, 3/21/02
PIP C-02-01591, In First Quarter of 2002, Three Events Involving Tools Being Removed from the RCA Have Occurred, Indicating an Emerging Trend, 4/1/02
PIP C-02-02319, Rubber Glove Containing Radioactive Material Was Found Outside the RCA, 5/1/02
PIP C-02-03284, Generated to Document a Trend Associated with Radiation Worker Practices, 6/6/02
PIP C-02-03311, Generated to Initiate Planned Common Cause Assessment of All RP-Related Events During the 1EOC13 Refueling Outage, 6/10/02
PIP C-02-05846, Cordless Drill Designated for Use in the RCA was Found Outside the RCA, 10/30/02
PIP C-02-06322, Met Tower Lower Wind Speed Failed Low, 12/4/02
PIP C-02-06576, Air Temperature Indication Displayed Unexpected Dip, 12/21/02
PIP C-02-06583, Wood Scaffold Material Designated for Use Inside the RCA Was Found Outside the Posted RMA, 12/23/02
PIP C-02-06591, Unit 1 Received a Temporary OAC Alarm for Wet Bulb Temperature at 36 Degrees, 12/23/02
PIP C-02-06619, Recurring Problem with Met Tower Air Temperature Indication, 12/29/02

Annual Reports

Annual Radiological Environmental Operating Report 2001
Annual Radiological Environmental Operating Report 2002
2002 Annual Land Use Census
2001 Annual Radioactive Effluent Release Report
2002 Annual Radioactive Effluent Release Report

(Section 4OA2)

PIP C-96-03368 Cell #36 in 2DGBA was scheduled to be replaced. The expected repair time was extended leading to an increased unavailability of 2A D/G.
PIP C-96-00252 While performing weekly surveillance for 2DGBB, SPOC discovered that the voltage for cell #103 was below the TS voltage limit.

PIP C-95-00144 Cell #6 was below TS values, making 1DGBA and the D/G inoperable per TS 4.8.1.1.4.
PIP C-00-05962 Cell 30 voltage on 1A D/G Battery Bank reading below admin. limit.
PIP C-00-03694 Voltage across cell #74 in battery 1DGBA was found to be below the administrative limit.
PIP C-00-02283 While performing quarterly inspection on 1A diesel batteries found battery cell #74 to be below administrative limit.
PIP C-00-00998 Batteries replaced on WO 98251249-01 not meeting management expectations for equipment reliability.
PIP C-02-03551 Unexpected TSAIL entry for 1B D/G due to voltage on 1B D/G battery cell 69 below TS limits.
PIP C-02-02599 The voltage across cells #23 and #24 in 125 Vdc aux. power battery 1DGBA failed to recover to the proper range after the modified performance test and equalize charge were performed.
PIP C-02-01418 Quarterly inspection performed after the charger (1DGCA capacity test revealed that cell #23 in 125 Vdc diesel battery was below TS limit.
PIP C-01-03680 During scheduled surveillance SPOC found cell #37 below TS minimum.
PIP C-98-03614 Existing calculation for sizing the D/G batteries does not contain up to date information concerning actual loads on the battery.
PIP C-02-04054 Battery cells #69 and #70 did not meet acceptance criteria during performance of the quarterly inspection. Inspection was being done as functional following scheduled work on battery and charger.
PIP C-02-04239 2DGBA cell #84 found below TS limits for cell voltage.
PIP C-02-04259 An emergent trend of D/G battery cell failures appears to have developed since March, 2002.
PIP C-03-01284 The modified performance test on the replacement cell numbers 75 and 76 will expire before the modified performance test of 2DGBA battery expires.
PIP C-03-01273 2DGBA was not in service. Battery cells 75 and 76 on 2DGBA reading below TS limit.
Catawba Nickel-Cadmium Battery Assessment, May 12-22, 2003: Responses to areas for Improvement.
Catawba Nickel-Cadmium Battery Assessment, May 12-22, 2003: Recommended actions not covered in the assessment.
CNS Nickel-Cadmium Battery Assessment: Assessment No.: GO-03-51 (SNPA) (NI-CAD BATTERY) (CNS).
IEEE Std 450-1972: IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Stationary Type Power Plant and Substation Lead Storage Batteries.
Safety Review Group Monthly Report: March 2003.
Duke Energy - Catawba Station Battery Resizing Project.
CNM-1356.08-0027 001 SAFT NIFE Nickel-Cadmium Block Battery Technical Manual.

LIST OF ACRONYMS USED

ALARA		As Low as Reasonably Achievable
CA	-	Auxiliary Feedwater
CFR	-	Code of Federal Regulations
CNS	-	Catawba Nuclear Station
EDG	-	Emergency Diesel Generator
FWST	-	Refueling Water Storage Tank

HX	-	Heat Exchanger
KC	-	Component Cooling Water
LCO	-	Limiting Condition for Operations
LER	-	Licensee Event Report
NC	-	Reactor Coolant System
NCV	-	Non-Cited Violation
ND	-	Residual Heat Removal
NOED	-	Notice of Enforcement Discretion
NRC	-	Nuclear Regulatory Commission
NRR	-	Nuclear Reactor Regulation
NS	-	Containment Spray System
NSD	-	Nuclear System Directive
ODCM	-	Offsite Dose Calculations Manual
OS	-	Occupational Radiation Safety
PI	-	Performance Indicator
PIP	-	Problem Investigation Process (report)
PM	-	Preventive Maintenance
PS	-	Public Radiation Safety
PT		Periodic Test
RCA	-	Radiologically Controlled Area
REMP	-	Radiological Environmental Monitoring Program
RN	-	Nuclear Service Water
RP	-	Radiation Protection
RTP		Rated Thermal Power
SDP	-	Significance Determination Process
SLC	-	Selected Licensee Commitment
SSC	-	Systems, Structures, and Components
TS	-	Technical Specification
UFSAR	-	Updated Final Safety Evaluation Report
URI	-	Unresolved Item
VX	-	Containment Air Return
YC	-	Control Room Ventilation Chilled Water System