



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

July 17, 2002

Duke Energy Corporation
ATTN: Mr. G. R. Peterson
Site Vice President
Catawba Nuclear Station
4800 Concord Road
York, SC 29745

**SUBJECT: CATAWBA NUCLEAR STATION - NRC INSPECTION REPORT 50-413/02-02,
50-414/02-02**

Dear Mr. Peterson:

On June 22, 2002, the NRC completed an inspection at your Catawba Units 1 and 2. The enclosed report documents the inspection findings which were discussed on June 25, and July 9, 2002, 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.

Based on the results of this inspection, the inspectors identified three issues of very low safety significance (Green). These issues were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these issues as non-cited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these non-cited violations, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the United States 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 facility.

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/

Binoy B. Desai, Acting Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket No.: 50-413, 50-414
License No.: NPF-35, NPF-52

Enclosure: Inspection Report 50-413/02-02, 50-414/02-02
w/Attachment - Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-413, 50-414

License No: NPF-35, NPF-52

Report No: 50-413/02-02, 50-414/02-02

Licensee: Duke Energy Corporation

Facility: Catawba Nuclear Station, Units 1 and 2

Location: 4800 Concord Road
York, SC 29745

Dates: March 23, 2002 - June 22, 2002

Inspectors: D. Roberts, Senior Resident Inspector
M. Giles, Resident Inspector
R. Carroll, Senior Project Engineer, (Sections 1R15, 1R20, 1R22, 1R23, and 4OA5)
R. Chou, Reactor Inspector, (Section 1R08 and 1R17)
K. Davis, Physical Security Inspector, (Sections 3PP1, 3PP2, and 4OA1.4)
D. Forbes, Health Physicist, (Sections 2OS1, 2OS2, 2PS2, and 4OA1.3)
J. Kreh, Health Physicist, (Sections EP1, EP4, and 4OA1.2)
K. Green-Bates, Project Engineer, (Sections 1R04, 1R05, 1R07, 1R15, and 4OA3)
D. Jones, Senior Health Physicist, (Sections 2OS1, 2OS2, 2PS2, and 4OA1.3)
A. Nielsen, Health Physicist, (Sections 2OS1, 2OS2, 2PS2, and 4OA1.3)
W. Sartor, Senior Emergency Preparedness Inspector, (Sections EP1, EP4, and 4OA1.2)

Approved by: B. Desai, Acting Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000413-02-02, IR 05000414-02-02, on 03/24–6/22/2002, Duke Energy Corporation, Catawba Nuclear Station, Units 1 and 2, Heat Sink Performance, Inservice Inspection, and Surveillance Testing.

The inspection was conducted by three resident inspectors and eight inspectors from the regional office. The inspection identified three Green findings, which were non-cited violations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using the Significance Determination Process (SDP) found in Inspection Manual Chapter 0609. Findings to which the SDP does not apply are indicated by “No Color” or by the severity level of the applicable violation. The NRC’s program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website.

A. Inspector Identified Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a non-cited violation for failure to assure that a Penetrant Examination (PT) was performed on the correct weld or component in accordance with requirements of Technical Specification 5.4.1, which requires the use of written procedures; specifically in this case, Procedure NDE-35 and Drawing No. ISI CN-1NV-4488, Chemical & Volume Control System to Reactor Coolant Pump “1A.”

This finding was of very low safety significance because, although the inspectors identified that the licensee examiners performed the PT on the wrong weld, the PT was subsequently performed on the correct weld and found to be acceptable. (Section 1R08)

Cornerstone: Barrier Integrity

- Green. The inspectors identified a Non-Cited Violation against 10 CFR 50, Appendix B, Criterion XVI for the licensee’s failure to enter ice condenser lower door test failures into its corrective action program. Specifically, Unit 1 door test failures from the last three refueling outages were not documented in Program Investigation Process reports and thus not evaluated for past-operability impact, causal analyses, performance trending, or possible maintenance rule functional failures.

The finding was of very low safety significance because the doors were tested satisfactorily before Unit 1 was returned to an operating mode in which the ice condenser was required to be operable, and because of the likelihood that the failures were caused by maintenance that occurred just prior to the testing while Unit 1 was shutdown. (Section 1R22)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a failure to perform testing activities with written test procedures. Specifically, testing activities associated with the 1A Component Cooling Water heat exchanger were conducted on June 5, 2002, without the approval of licensed senior reactor operators, or in accordance with written test procedures. This was dispositioned as a non-cited violation.

The failure was of very low safety significance because the heat exchanger was returned to service in a short period of time and redundant components were available. (Section 1R07)

B. Licensee Identified Violations

Two violations of very low significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee appear reasonable. These violations are listed in section 40A7 of this report.

Report Details

Summary of Plant Status: Unit 1 operated at 100 percent power until April 9, 2002, when the end-of-cycle power coastdown began. On April 23, 2002, Unit 1 reactor power was reduced to 85 percent to facilitate main steam safety valve testing. On April 25, the reactor was returned to 95 percent power and the coastdown was resumed. On April 27, the unit was shutdown for the end-of-cycle 13 (1EOC13) refueling outage. The reactor was restarted on May 17, and reached 100 percent power on May 20.

Unit 2 operated at 100 percent power throughout the inspection period, except for a brief period from June 21 to June 22, when reactor power was reduced to 85 percent to facilitate main turbine control valve movement testing.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

The inspectors performed partial walkdowns of the following equipment: Unit 1 B-train component cooling water (KC) system while the 1B essential nuclear service water (RN) header was out of service for maintenance; A-train RN (both units) during a B-train RN pump suction pit inspection; B-train control room ventilation system chilled water (YC) chiller while A-train complex maintenance was ongoing; and the Unit 2 4160-volt bus ETB while bus 2ETA was inoperable for an emergent condition. These partial walkdowns were conducted to verify the availability of redundant or diverse systems and components during periods when safety equipment was inoperable. The walkdowns were performed to ensure that proper levels of defense-in-depth were maintained. In addition, the inspectors performed a full system walkdown of the Unit 1 residual heat removal system to verify that components were aligned in their correct standby or operating positions and that the material condition of equipment was satisfactory to support proper system operation, particularly during the 1EOC13 refueling outage.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors toured nine areas important to reactor safety to verify that combustible material and fire ignition sources were properly controlled, and that fire detection and suppression capabilities were intact. For areas where fire detection equipment was out of service, the inspectors verified that compensatory measures (i.e., fire watch tours) were properly implemented. For dry pipe suppression systems, the inspectors verified that pre-fire plans specified proper steps for fire brigade personnel to activate the systems when needed. The inspectors selected the areas based on a review of the licensee's safe shutdown analysis, probabilistic risk assessment (PRA) based 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. Areas toured this quarter included the Unit 2 A & B auxiliary shutdown panels; Unit 2 chemical and volume control (NV) and safety injection (NI) pump rooms; Unit 2 125-volt-direct current (Vdc) vital battery and distribution panel rooms; common service building in area of instrument air compressors; Unit 2 auxiliary feedwater (CA) pump room; Unit 1 ETB switchgear room; Unit 1 reactor trip breaker switchgear area; Unit 2 ETB switchgear room; and Unit 2 reactor trip breaker switchgear area. In addition, the inspectors observed the performance of a fire drill on May 22, 2002. The drill involved a simulated fire in the Unit 2A emergency diesel generator (EDG) room. The inspectors observed this drill to verify that the fire brigade responded to the scene within an acceptable time period, that fire suppression equipment was readily available, properly assembled, and that fire-fighting technicians could operate it. The inspectors also observed that technicians properly donned self-contained breathing equipment as the fire was simulated to be in an area that would contain thick smoke and carbon dioxide. Finally, the inspectors ascertained that communications equipment was available and functional.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors assessed the as-found condition of the YC chillers and reviewed whether any conditions existed that could mask degraded performance or indicate a potential for common cause problems. During the course of the inspection, the inspectors reviewed historical performance documentation of the YC chillers, including a sample of associated Problem Investigation Process reports (PIPs). The documents reviewed are listed in the Attachment to this report. The inspectors also reviewed the licensee's resolution of an inspector-identified problem concerning the improper dispositioning of a failed differential pressure (clam) test on the 1A KC heat exchanger. This item was documented in PIP C-02-03338.

b. Findings

On June 6, 2002, while reviewing daily plant status, the inspectors observed a log entry made by a licensed operator at 1:26 a.m. on June 6, which stated the 1A Component Cooling Water (KC) heat exchanger failed PT/0/4400/009, Rev. 49, Cooling Water Flow Monitoring For Asiatic Clams and Mussels Quarterly Test. The inspectors noted that the 1A KC heat exchanger had not been declared inoperable despite the failed test, and questioned licensed operators concerning the basis for the operability determination. No reasonable explanation was provided, however, the inspectors learned that Process Investigation Report (PIP) C-02-03264 had been generated at 10:53 p.m. on June 5 to document the failed test.

The inspectors were informed that a second test using portable test equipment would be performed later that morning. The purpose of that test would be to demonstrate that the failed test was invalid. (The failed test would be considered invalid if the portable test

instrumentation yielded results which were inconsistent with the results obtained from the permanently installed process instrumentation)

Later that same day at approximately 12:30 p.m., the inspectors were informed by licensed operators that the 1A KC heat exchanger was determined to be inoperable as of 11:24 p.m. on June 5. This determination was based on new information just received by the licensed operators which revealed additional testing had already been performed on June 5 by the Operations Test Group (OTG), using portable test equipment. This redundant test data was consistent with the first failed test, yet had not been communicated to licensed operators on the night of June 5 by OTG personnel. The inspectors requested a copy of the second test, and were given a partially completed test enclosure. The inspectors informed licensee management of this testing deficiency. As a result, PIP C-02-3338 was generated to document the licensee's failure to properly document testing activities.

The licensee's root cause investigation, conducted subsequent to this event concluded that the following inappropriate actions occurred: OTG personnel conducted additional testing activities (including the unauthorized installation and use of test equipment) on June 5 without coordinating or communicating these actions and their results to licensed senior reactor operators; procedural documentation associated with the second test activity was not retained because the test failed to meet its acceptance criteria and was determined to be invalid; and the second test was performed approximately six hours after the first test to increase the probability of the second test to meet its acceptance criteria (i.e. high system flow was established for this test coincident with another pump inservice test). In addition, and of more significance, the first two inappropriate actions were considered to be an acceptable and common practice within OTG for the conduct of certain specific tests.

The human performance deficiencies associated with this event resulted in the 1A KC heat exchanger not being declared inoperable for approximately 15 hours while in an inoperable condition. This had a credible impact on safety because licensed operators did not adequately account for the inoperable component, and the risk impact associated with the inoperable KC heat exchanger was not properly evaluated and assessed. The finding was, however, of very low safety significance (Green) because the heat exchanger was returned to service in a short period of time following cleaning and redundant components were available.

10 CFR 50, Appendix B, Criterion XI, Test Control, requires that a test program be established to assure that all testing required to demonstrate that SSCs will perform satisfactorily in service is identified and performed in accordance with written test procedures. These requirements are implemented through the licensee's Quality Assurance Program Topical Report, Section 17.3.2.14, Document Control. The licensee's actions on June 5 involving the inappropriate performance of a second heat exchanger test following the failure of the first, was contrary to the requirements of 10 CFR 50, Appendix B, Criterion XI. This violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy and is identified as NCV 50-413/02-02-01: Failure to Perform Testing With Written Procedures. This violation has been captured in the licensee's corrective action program.

1R08 Inservice Inspection (ISI)a. Inspection Scope

The inspectors observed in-process ISI work activities and reviewed selected ISI records. The observations and records were compared to the Technical Specifications (TS) and the applicable Code (ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no addenda) to verify compliance. Portions of the following Unit 1 ISI examinations were observed:

Ultrasonic (UT)	Main Steam line weld CN-1SM-0037-04
Magnetic Particle (MT)	Main Steam line welds CN-1SM-0037-04 and -05
Liquid Penetrant (PT)	Welds CN-1NV-488-1, -7, -10, and -15 Welds CN-1NV-487-3, -10, and -11 Weld on Unit 1 Pressurizer Manway Diaphragm Replacement
Radiographic (RT)	Weld 1RF85-11

Qualification and certification records for examiners and nondestructive examination (NDE) procedures for the above ISI examination activities were reviewed. Work Orders and examination documents were reviewed. Radiography preparation and films were observed and reviewed.

b. Findings

The inspectors identified a Green finding that was determined to be a Non-Cited Violation (NCV) for failure to assure that a PT was performed on the correct weld or component in accordance with requirements of TS 5.4.1, which requires the use of written procedures; specifically in this case, Procedure NDE-35 and Drawing No. ISI CN-1NV-488, Chemical & Volume Control (NV) System to Reactor Coolant Pump (NCP) 1A.

During observation of an intended PT for weld CN-1NV-488-15 on the NV system piping to the 1A NC pump, the inspectors identified that the licensee's examiners applied cleaner and penetrant to piping weld CN-1NV-489-3, which is at a lower elevation on the same line. When the error was pointed out to the licensee's examiners, they immediately cleaned the penetrant from the wrong weld and re-performed the PT on the intended one. The subsequent PT on intended weld CN-1NV-488-15 was found to be acceptable. PIP C-02-02591 was issued for corrective actions.

This finding had credible impact on safety because had the error not been detected, inspection of the intended weld (which could have been cracked) under the 10 year ISI program would not have been performed. Failure to test the correct component can affect the equipment performance attribute of the Initiating Events Cornerstone, in that availability and reliability problems would not be identified. This affects the objective of the cornerstone, which is to limit the likelihood of initiating events, such as loss of coolant. The examiners applied penetrant to the wrong component, which was a

violation of TS 5.4.1, which requires the use of written procedures, in this case Procedure NDE-35, Liquid Penetrant Examination and Drawing No. ISI CN-1NV-488, Chemical & Volume Control System to Reactor Coolant Pump 1A. Section 13.1 of Procedure NDE-35 states that the examiners shall verify that the component and/or the weld to be examined is correct. The issue was evaluated using the significance determination process. This finding was of very low safety significance because, although the examiners performed the PT on the wrong weld, the PT was later performed on the correct weld and found to be acceptable. This is being treated as a NCV, consistent with Section VI.A.1 of the enforcement policy and is identified as NCV 50-413/02-02-02: Failure to Follow Procedures Resulting in Conducting Penetrant Examination on the Wrong Weld.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed a control room simulator training scenario on April 29 to assess licensed operators and crew performance. The training scenario involved challenges to the operators beginning with a D steam generator (SG) tube leak, which started at 155 gallons per minute (GPM) and escalated to 300 GPM, requiring operators to manually initiate a reactor trip and safety injection. Remaining challenges included a subsequent failure of the reactor to trip automatically or manually from the control room; failure of the A-train sequencer to automatically start A-train components; and the failure of the steam dump system to be controlled while in manual mode. Following the simulator scenario, the inspectors observed the critique conducted by training instructors to assess their efforts in identifying operator or simulator performance deficiencies.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the maintenance rule (10 CFR 50.65) to determine whether responsible personnel were properly evaluating the effectiveness of maintenance on equipment important to safety. The inspectors performed this inspection to verify that the licensee was properly evaluating equipment problems against reasonable performance criteria and that maintenance preventable functional failures were properly classified. For those systems, structures, and components (SSCs) that were categorized as 10 CFR 50.65 (a)(1) due to previous performance problems, the inspectors reviewed corrective action documents to verify that the licensee had identified causal factors, recommended appropriate corrective actions, and established reasonable performance goals to facilitate returning the SSC to (a)(2) status. Some SSCs were also reviewed for proper scoping and risk categorization within the licensee's tracking system. The inspectors conducted this inspection for the following seven Problem Investigation Process reports (PIPs):

<u>PIP or program document</u>	<u>Equipment Problem</u>
PIP C-01-06152	Electrical bus 2ATD feeder breaker trip; resulting in 2B EDG actuation
PIP C-01-06368	Power shield relay failures resulting in (a)(1) status
PIP C-02-00263	2A CA pump control circuit sliding link E-3 failure
PIP C-02-01042	Loose wiring on relay which rendered the A YC chiller inoperable
PIP C-02-01646	1B EDG control power battery charger failure
PIP C-02-02403	Unit 2 vital inverter EID failure
PIP C-02-02816	Inability to manipulate valve 1CA-4 from control board

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's assessments of the risk impact of removing from service those components associated with the five emergent and planned work items listed below, focusing primarily on activities determined to be risk significant within the maintenance rule. The inspectors also verified that the licensee adequately identified and resolved problems associated with maintenance risk assessment and emergent work.

<u>Component or System</u>	<u>Reason for Removal from Service</u>
1B RN essential header	Planned YC chiller work
Fire suppression system headers	Planned removal of both headers to facilitate valve 1RY-23 seat leakage measurement
2A EDG lube oil system	Pressure instrument tubing leak repair
Unit 1 & 2 B-train RN suction pits	Planned inspections
1A KC heat exchanger	Failed clam (differential pressure) test

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutionsa. Inspection Scope

The inspectors observed and reviewed licensee performance during non-routine plant evolutions. In late-March and early-April 2002 as the 1EOC13 refueling outage approached, the licensee implemented for the first time a Unit 1 reactor coolant system (NC) average temperature (T-avg) coastdown, which involved maintaining reactor power steady while reducing T-avg. This evolution required periodic adjustments of reference temperature output from process instrumentation, and monitoring and adjustment of power range nuclear instrumentation whose operability could be affected by the T-avg reduction. This inspection was conducted to determine if appropriate contingency measures were in place and operator actions were performed in accordance with plant procedures and training. The inspectors also reviewed the governing procedure, OP/1/A/6100/003, Revision 088, Controlling Procedure for Unit Operation, for adequacy.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluationsa. Inspection Scope

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

<u>PIP Number</u>	<u>Issue</u>
C-02-01678	1B EDG fuel oil day tank level controller deficiency
C-02-01684	Unit 2 turbine-driven CA pump steam supply valve seat leakage
C-02-02453	1A EDG left bank turbo-charger exhaust hood weld crack
C-02-02726	1B CA pump operation for seven minutes with suction valve closed
C-02-03407	Unit 2 4160-volt bus ETA affected by possible spray-down from non-QA fire suppression piping nearby
Not Applicable	Jumpered-out cells #23 and 24 on 125-volt DC battery for 1A EDG

As part of the inspectors' periodic review of the licensee's own identification and/or resolution of problems in this area, the inspectors reviewed PIP C-02-01859, which described an inspector-identified problem in which operators improperly declared the 2A CA pump operable when it was affected by a degraded sliding link in associated control circuitry; and PIP C-02-01386, which described the licensee's delay in declaring a

degraded Unit 1 refueling water storage tank level instrument channel inoperable after it experienced erratic behavior.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the list of operator workarounds to determine whether the licensee was properly considering abnormal plant conditions that potentially impacted the functionality of mitigating systems or required operators to perform additional duties that might affect their ability to effectively respond to an event. This quarter, the inspectors reviewed a situation that had not been previously included in the licensee's workaround tracking system. It involved the need to repeatedly cycle EDG room emergency ventilation fans in order to avoid receiving jacket water temperature alarms. The inspectors reviewed this item to ensure that it did not impact the operability of the EDGs or potentially distract operators from performing actions to safely operate the plant during an event. This NRC-identified item was documented in PIP C-02-03200.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the work order, the modification package (Minor Modification CE 71639, Standby Makeup Pump Containment Header Check Valve Replacement) including the 10 CFR 50.59 screening, and weld process control reports for welds CN-1NV-541-9, -12, and -13, to ensure that procedures were being followed and acceptance criteria were met. The inspectors observed the root pass (or first pass) welding for weld CN-1NV-542-12 on the connection between the coupling of check valve CN-1NV-874 and associated piping to ensure that modification implementation and workmanship were in accordance with industry standards.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors observed or reviewed post-maintenance tests associated with the following seven 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.

<u>Test Procedure/WO Number</u>	<u>Maintenance/Test Activity</u>
WO 98466692	2A EDG test following lube-oil tubing repair
WO 98494373	2B and 2C SG power-operated relief valves flexible cable repair
WO 98497851	Unit 1 solid state protection system diode replacement
WO 98380685	Valve 1RN-250 repair
WO 98380687	Valve 1RN-310 repair
WO 98503625	Unit 1 power range nuclear instrument N-44 power supply replacement
WO 98323668	Unit 1 containment pressure transmitter 1NSPT5180 power supply replacement

As part of the inspectors' periodic review of the licensee's own identification and resolution of problems in this area, the inspectors reviewed PIP C-02-01707, which identified that post-maintenance testing had been improperly performed on the 1B containment spray heat exchanger following a tube-pulling evolution. The inspectors reviewed this item to verify that corrective actions were properly identified and implemented.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspectors observed or reviewed several activities during the Unit 1 EOC13 refueling outage, which occurred from April 27 to May 17. The inspectors reviewed the licensee's outage risk assessment (Assessment Number CN-02-17) and the associated PIP C-02-01550, to verify that the licensee had adequately reviewed the outage schedule to determine that high-risk evolutions were minimized and safety system availability was maximized throughout the outage. Specific activities reviewed by the inspectors during the outage included verification that NC system cooldown rates were within TS limits; verification of containment closure and the availability of other defense-in-depth mechanisms during high-risk plant configurations; observation of NC system reduced inventory and midloop operations; and observation of the NC system vacuum refill process. The inspectors also observed the licensee's core reload and core mapping activities to verify that fuel reload was in accordance with core design for the upcoming operating cycle. Outage-related surveillance test activities were reviewed in

accordance with Inspection Procedure 71111.22, Surveillance Testing. Additionally, the inspectors performed an ice condenser inspection; conducted a lower containment building walkdown (to verify that debris was not present that could affect operability of the containment sump for the emergency core cooling system); and observed reactor startup activities. Procedures observed and/or reviewed to support the above activities included the following:

<u>Procedure Number</u>	<u>Title</u>
Site Directive 3.1.30, Rev. 27	Catawba Nuclear Station Unit Shutdown Configuration Control (Mode 5, 6, or No Mode)
PT/0/A/4150/022, Rev. 28	Total Core Reloading
OP/1/A/6100/003, Rev. 88	Controlling Procedure for Unit Operation
OP/1/A/6150/006, Rev. 60	Draining the Reactor Coolant System
OP/1/A/6150/001, Rev. 87	Filling and Venting the Reactor Coolant System

As part of the inspectors' review of the licensee's identification and/or resolution of problems identified in this area, the inspectors reviewed PIP C-02-02545, which documented the inspectors' observation that the reactor engineer in the control room and the senior reactor operator located in upper containment were using two different revisions of the fuel-handling procedure. Other PIPs reviewed included PIP C-02-02277, which documented a discrepancy between procedure SD 3.1.30 and TS Specification 3.9.5 for ND system requirements, and PIP C-02-02243, which described the failure to take proper actions for an inoperable train of the boron dilution mitigation system. This last item is further discussed in Section 4OA3 of this report. The inspectors reviewed these items to verify that corrective actions were properly identified and implemented.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the eight surveillance test procedures listed below to verify that TS surveillance requirements and/or Selected Licensee Commitment requirements were properly incorporated and that test acceptance criteria were properly specified. The inspectors observed actual performance of some of the tests and reviewed completed procedures to verify that acceptance criteria had been met. The inspectors also verified that proper test conditions were established in the procedures and that no equipment preconditioning activities were occurring.

<u>Procedure Number</u>	<u>Title</u>
MP/O/A/7150/006, Rev. 18	Ice Condenser Lower Inlet Doors Testing and Corrective Maintenance
MP/O/A/7150/072, Rev. 11	Main Steam Safety Valve Setpoint Test Unit 1
PT/1/A/4200/09, Rev. 168	Engineered Safety Features Actuation Periodic Test
PT/1/A/4250/003A, Rev. 52	Auxiliary Feedwater Motor Driven Pump 1A Performance Test
PT/1/A/4250/003B, Rev. 42, Change A	Auxiliary Feedwater Motor Driven Pump 1B Performance Test
PT/1/A/4600/002F, Rev. 69	Mode 6 Periodic Surveillance Items [verification of ND system alignments per TS 3.9.4.1]
PT/1/A/4600/017, Rev. 27	Surveillance Requirements for Unit 1 Shutdown [verification of NC system cooldown rates]
PT/2/A/4200/031, Rev. 5	SV Valve Inservice Test (QU)

As part of the inspectors' review of the licensee's identification and resolution of problems in this area, the inspectors reviewed PIP C-02-02071 for deficiencies associated with testing of Anticipated-Transient-Without-Scram Mitigation System Actuation Circuitry. The inspectors performed this activity to verify that the licensee properly identified and implemented corrective actions.

b. Findings

A Green finding was identified and dispositioned as an NCV for the licensee's failure to enter conditions adverse to quality (CAQ) into its corrective action program following the initial test failures of several Unit 1 ice condenser lower inlet doors on May 11, 2002.

During the licensee's performance of door test procedure MP/O/A/7150/006, the inspectors observed that four lower inlet doors (out of a total 48) failed the initial door opening torque measurement test required by TS Surveillance Requirement (SR) 3.6.13.5. The test procedure allowed technicians to correct the problem on the spot, which they did by lubricating the door hinges, exercising the doors, and retesting them after a 30-minute hold period. All four doors passed the second test attempts. A few weeks later, the inspector reviewed a completed copy of the test procedure, which described the initial failures, and requested corrective action documentation addressing what the inspectors considered to be a previously existing CAQ. The licensee indicated that PIPs had not been generated for these or other initial door pull test failures because they were identified during what was considered an "as-left" test; i.e., testing that was conducted only after maintenance was completed on the doors during the refueling outage (in a shutdown mode where the ice condenser was not required to be operable), and which the licensee merely intended to use to setup the doors for future performance, not evaluate their past ability to meet TS requirements. The inspector

noted that this was the only testing the licensee performed to implement the 18-month test requirement contained in SR 3.6.13.5.

The inspector reviewed the results of door tests for each unit's previous two refueling outages and found that failures were recorded for Unit 1 in each of the last two completed procedures (28 doors failed in Fall 2000, five in Spring 1999) for which no PIPs were written. (The inspectors noted that no test problems were identified during the last two Unit 2 outages.) In the previous Unit 1 cases, specific corrective actions included removing ice from between the doors and hammering into place a piece of metal flashing that had become dismantled. The licensee's decision not to enter the Unit 1 test failures into its corrective action program prevented plant personnel from performing past-operability evaluations, causal analyses, performance trending, or even Maintenance Rule functional failure determinations (particularly following the 28 door failures in 2000).

The licensee's failure to initiate PIPs for the door test failures had credible impact on safety because it could potentially allow adverse conditions to exist, develop, or recur, which might be masked by the licensee's failure to thoroughly track and evaluate the test failures. This issue was determined to be of very low safety significance (Green), however, because of the likelihood that the door failures were caused by maintenance activities that had just transpired before the testing and because the doors were tested satisfactorily before Unit 1 returned to an operating mode in which the ice condenser would be required. Additionally, the number of doors (four) that initially failed the most recent tests represented a small percentage of the total population, and would have had minimal impact on the ice condenser's ability to perform its design function during an accident.

10 CFR 50, Appendix B, Criterion XVI, requires that measures will be established to ensure that conditions adverse to quality are promptly identified and corrected. These requirements are implemented through the licensee's Quality Assurance Program by Nuclear System Directive (NSD) 208, Problem Investigation Process, Rev. 24. NSD 208 requires that the Problem Investigation Process will be used to report all CAQs involving known failures, malfunctions, deficiencies, and non-conformances related to safety-related equipment. The inspectors considered the failure to initiate PIPs for known ice condenser door test failures to be a violation of 10 CFR 50, Appendix B, Criterion XVI. This violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy and is identified as NCV 50-413/02-02-03: Failure to Enter Ice Condenser Door Test Failures into the Corrective Action Program for Proper Dispositioning. This violation has been captured in the licensee's corrective action program as PIP C-02-03527.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed two temporary modifications this quarter to verify that the functions of important safety systems were not compromised. In each case, the modifications were developed to correct equipment problems that had been identified by the licensee. The following modifications were reviewed:

<u>Temporary Modification</u>	<u>Title or Description</u>
CNTM-0095	Jumpered out battery cells #23 and 24 on 1A EDG battery
CNTM-0097	1D NC pump motor lower bearing temperature detection

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation

a. Inspection Scope

The inspectors observed and evaluated the licensee's performance in the exercise, conducted on March 26 from 7:45 a.m. to 12:30 p.m. The inspectors reviewed the objectives and scenario to determine whether they were designed to test major elements of the licensee's Radiological Emergency Plan (REP). Licensee activities inspected during the exercise included those occurring in the Control Room Simulator, Technical Support Center, Operational Support Center, and Emergency Operations Facility. The NRC's assessment focused on the risk-significant activities of event classification, notification of governmental authorities, onsite protective actions, offsite protective action recommendations, and accident mitigation. The inspectors also evaluated command and control, the transfer of emergency responsibilities between facilities, communications, and adherence to emergency plan implementing procedures. The performance of the emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. The inspectors attended the post-exercise critique to evaluate the licensee's self-assessment process, as well as the presentation of critique results to plant management.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

a. Inspection Scope

The inspectors reviewed changes to the Emergency Plan, as contained in Revision 01-1, against the requirements of 10 CFR 50.54(q) to determine whether any of the changes decreased Plan effectiveness. Revision 01-1 included several minor changes to the EALs (mostly within the "Basis" sections) and numerous other minor modifications. The inspectors determined whether the EAL modifications were reviewed with, and agreed upon by, State and local officials prior to implementation, as required by Section IV.B of Appendix E to 10 CFR Part 50.

b. Findings

No findings of significance were identified.

1EP6 Drill EvaluationQuarterly Drill Observationa. Inspection Scope

The inspectors observed a control room simulator training scenario on April 29, 2002, to assess licensed operators' performance in the area of emergency preparedness. The inspectors verified that the operators made the correct drill event declaration and that associated follow-up actions were performed in accordance with regulatory requirements and the licensee's procedures. The observed scenario (a steam generator tube leak coupled with reactor protection and engineered safety feature system failures) was performed in conjunction with the licensed operator requalification program.

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.1 Access Controlsa. Inspection Scope

During the weeks of April 29 and May 13 licensee activities for controlling and monitoring worker access to radiologically significant areas and tasks associated with the U1 EOC13 refueling outage were evaluated. The inspectors evaluated procedural guidance; directly observed implementation of administrative and established physical controls; appraised radiation worker and technician knowledge of, and proficiency in implementing, radiation protection (RP) activities; and assessed worker exposures to radiation and radioactive material.

The inspectors evaluated work tasks in airborne radioactivity areas, radiation areas, high radiation areas (HRAs), extra high radiation areas (EHRAs), and very high radiation areas (VHRAs). Observed tasks included shielding and scaffolding installation, fuel movement, reactor head inspection, cavity drain filter handling and transport, and movement of a reactor coolant system filter.

The inspectors attended pre-job briefings, and reviewed associated radiation work permits (RWPs) to assess communication of radiological control requirements to workers. Occupational workers' adherence to selected RWPs and Health Physics (HP)

technician proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff.

For HRA tasks involving significant dose gradients, the inspectors evaluated the use and placement of dosimetry to monitor worker exposure. Electronic dosimeter (ED) alarm set points and worker stay-times were evaluated against area radiation survey results for areas where dose rates could change significantly as a result of plant shutdown and refueling operations. Worker exposure as measured by ED and by licensee evaluations of skin doses resulting from discrete radioactive particle or dispersed skin contamination events during the current U1 EOC13 outage were reviewed and assessed independently.

Postings for access to radiological control areas (RCAs) and physical controls for Reactor Building and Auxiliary Building locations designated as LHRAs and VHRAs were evaluated during facility tours. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys and results for three high radiation areas. Survey results were compared to current surveys and assessed against established postings and controls.

Licensee controls for airborne radioactivity areas with the potential for individual worker internal exposures of greater than 30 millirem (mrem) Committed Effective Dose Equivalent were evaluated. For selected RWPs identifying potential airborne areas associated with refueling activities, e.g., flood-up following reactor head lift, the inspectors evaluated the effectiveness of administrative and physical controls including barrier integrity, engineering controls, and postings. Licensee identification and assessment of potential radionuclide intakes by workers between January 1 and May 10 were reviewed and evaluated.

Radiation protection activities were evaluated against UFSAR, TS, and 10 Code of Federal Regulations (CFR) Parts 19 and 20 requirements. Specific assessment criteria included UFSAR Section 12, Radiation Protection; 10 CFR 19.12; 10 CFR 20, Subparts B, C, F, G, H, and J; TS 5.4.1, Procedures, and 5.7, High Radiation Area Controls; and those procedures listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Licensee PIPs associated with access controls were reviewed. Licensee PIPs and an audit reviewed and evaluated in detail during inspection of this program area are identified in the Attachment to this report. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve identified issues.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

.1 As Low As Reasonably Achievable (ALARA)

a. Inspection Scope

The plant collective exposure history for the years 1992 through 2000, based on the data reported pursuant to 10 CFR 20.2206 (c), was reviewed and discussed with the licensee. Implementation of the licensee's ALARA program during the U1 EOC13 outage was observed and evaluated by the inspectors during the weeks of April 29, 2002, and May 13, 2002. The inspectors reviewed ALARA planning, dose estimates, and prescribed ALARA controls for the five outage work activities expected to incur the maximum collective exposures. Those activities were: installation and removal of temporary lead shielding, reactor head boron inspection, mechanical valve repair, reactor head removal and replacement, and air actuator valve work. Incorporation of the planning, established work controls, and expected dose and dose rates into ALARA pre-job briefings and Radiation Work Permits (RWPs) for those activities was also reviewed. Those elements of the ALARA program were evaluated for consistency with the methods, practices, and philosophy delineated in the licensee's ALARA System Manual. The inspectors also independently verified that the job site dose rates were consistent with the dose rates recorded on the pre-job survey maps for the selected work areas in Unit 1 containment.

Records of year-to-date individual radiation exposures sorted by work groups were examined by the inspectors for significant variations of exposures among workers. Exposure tracking during the Unit 1 outage and records of exposures to declared pregnant workers incurred during July through December, 2001 were also reviewed. Incurred exposures were evaluated for consistency with 10 CFR Part 20 dose limits and the guidance provided in Regulatory Guide 8.29.

Selected elements of the licensee's source term reduction and control program were examined to determine whether the program was effective in reducing exposure and implemented as described in the ALARA System Manual. Reviewed areas included hot spot identification and reduction, primary chemistry shutdown controls, radiation field monitoring and trending, and temporary shielding.

Through the above reviews and observations, the licensee's ALARA program implementation and practices were evaluated by the inspectors for consistency with TS 5.4.1, Procedures, and 5.7, High Radiation Area Controls; 10 CFR Part 20 requirements, and procedural guidance documented in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Licensee PIP reports and self-assessments associated with dose reduction initiatives and ALARA activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues. Specific PIP reports reviewed and evaluated are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation

.1 Waste Processing and Characterization

a. Inspection Scope

During the weeks of April 29 and May 13 the configuration status and operability of selected radioactive waste (radwaste) processing systems and equipment were evaluated. Inspection activities included document review, direct inspection of processing equipment, and interviews with plant personnel.

The document review of radwaste systems included evaluation of program guidance for waste classification and procedures for clearing clean trash and processing spent resin. The inspectors reviewed the licensee's 10 CFR Part 61 manual and evaluated licensee versus contract laboratory sample gamma analysis results for the 1995 database. The 1995 data were evaluated for consistency with the most current 10 CFR Part 61 sample data collected in 1999. The licensee's use of scaling factors for hard-to-detect nuclides was assessed for the primary resin waste stream. The licensee's procedure for concentration averaging was reviewed and compared to a shipment of resin that consisted of two sluices mixed and averaged together. The inspectors reviewed the licensee's procedure for clearing clean trash from the RCA for burial in a landfill. The inspectors reviewed two procedures for transferring and de-watering spent resin to ensure compliance with the process descriptions in the Process Control Program (PCP) and the system diagrams in Section 11 of the UFSAR. Reviewed documents are listed in the Attachment to this report.

The direct inspection of radwaste equipment included walk-downs of resin lines, examination of abandoned equipment, observation of clean trash monitoring, and inspection of the monitor tank building. Where visible, spent resin processing components between resin storage tank "A" and the shipping container fill-head were walked down and inspected for material condition and configuration compliance against UFSAR details. Spent resin storage tank "A" and an abandoned liquid radwaste evaporator were examined to verify material condition and ensure no unknown release paths existed. The radwaste processing equipment located in the monitor tank building was inspected for general condition and to identify any unaccounted-for release paths. The inspectors observed technicians "clear" trash bags from the RCA via a bag monitoring system and compared their actions with the licensee's procedure.

Licensee personnel were interviewed regarding waste classification analyses and radwaste processing equipment. The inspectors assessed the individuals' knowledge of regulations, understanding of licensee procedures, and familiarity with radwaste systems. Waste stream sampling frequency, response to changing plant conditions, and laboratory counting techniques were discussed with a staff scientist. Resin processing equipment, sluicing procedures, and abandoned radwaste equipment were discussed with a chemistry supervisor.

The licensee's program for classifying and processing solid radwaste was evaluated against 10 CFR Part 61, the Branch Technical Position on Waste Classification and Waste Form, the PCP, Section 11 of the UFSAR, and licensee procedures.

b. Findings

No findings of significance were identified.

.2 Transportation

a. Inspection Scope

The inspectors evaluated the licensee's activities related to transportation of radioactive material. The evaluation included document review and direct observation of shipping activities.

The document review consisted of evaluation of licensee procedures, review of shipping records, and assessment of shipper training. The inspectors evaluated three shipping procedures for compliance with regulatory requirements. The licensee's procedure for opening and closing its Type B shipping cask was evaluated for consistency with the vendor handling procedure. Records for five shipments, listed in the Attachment, were reviewed for compliance with regulations and consistency with licensee procedures. Training records for four technicians qualified to ship radioactive material were checked for completeness. In addition, training curricula provided to these workers were assessed. The inspectors discussed Department of Transportation (DOT) shipping paper requirements and shipper training requirements with the Radioactive Material Control supervisor.

On May 1, 2002, the inspectors directly observed the preparation of pressurizer safety relief valves being transported as a Limited Quantity shipment. The inspectors assessed the technician's performance in completing the required paperwork via the RADMAN computer code and in conducting appropriate surveys of the loaded package.

Transportation program guidance and implementation were reviewed against regulations detailed in 10 CFR Part 71, 49 CFR Parts 170-189, licensee procedures, and the Certificate of Compliance for the 8-120B shipping cask. In addition, training activities were assessed against Subpart H of 49 CFR Part 172 and the guidance documented in NRC Bulletin 79-19.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

Licensee PIPs and self-assessments associated with radwaste processing and transportation were reviewed. One PIP and two self-assessments reviewed and evaluated in detail are listed in the Attachment to this report. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues.

b. Findings

No findings of significance were identified.

3. **SAFEGUARDS**

Cornerstone: Physical Protection

3PP1 Access Authorization (Behavior Observation Program)

a. Inspection Scope

During the period of June 3 through June 7, 2002, the inspectors evaluated the licensee's Behavioral Observation Program to evaluate the effectiveness and proper implementation of the behavioral observation portion of the personnel screening and fitness for duty (FFD) programs. Five representatives of licensee management and five representatives assigned escort duties were interviewed to determine their understanding of the behavior observation program. The inspectors evaluated the effectiveness of each individual's training, including their ability to recognize aberrant behavioral traits, indications of narcotic and alcohol use, and knowledge of work call-out reporting procedures.

The inspectors reviewed the licensee's Semi-Annual FFD report dated December 31, 2001, a sample of the licensee's Problem Identification Program Reports (PIPs) and Security Event Logs for the period March 2001 through January 2002, and an injury that occurred during the time of the onsite inspection, to evaluate the licensee's threshold for recommending for cause testing for events related to human performance.

The licensee's activities were evaluated against requirements in the Catawba Nuclear Plant Physical Security Plan, associated plant procedures, and 10 CFR Part 26, Fitness For Duty Program. Specific licensee documents evaluated are described in the attachment.

b. Findings

No findings of significance were identified.

3PP2 Access Control

a. Inspection Scope

During the period of June 3 through June 7, 2002, the effectiveness of the licensee's access control procedures and associated equipment designed to detect and prevent the introduction of contraband into the protected area were evaluated. On June 6, 2002, the inspectors evaluated via direct observation the adequacy of licensee's equipment testing procedures performed by a licensee representative on in-use access control equipment and on in-service standby equipment at the site's Personnel Access Portal (PAP). The inspectors evaluated the equipment testing procedure to determine if testing was performance based and challenged the presently installed and configured site equipment. Through observation of licensee performance testing, the inspectors assessed the adequacy of the PAP card readers and biometric hand readers to prevent unauthorized entry into the protected area and to preclude multiple entries without logging out of the protected area. The inspectors also observed and assessed in-processing searches of personnel and packages at the PAP and vehicle searches conducted at the protected area vehicle access portal.

The licensee's Key and Lock Program and associated procedures for limiting and controlling vital area keys were examined, including key inventories. The inspectors verified the location and availability of the licensee's Emergency Operations Key Procedure (SP-417), and its attachment, and examined the accountability and control of this procedure which is used to gain access to vital equipment during an emergency. The inspectors discussed with members of the plant access and site security staffs the safeguards and procedures in place to protect against unauthorized access to the site security computers from outside the protected area.

The inspectors assessed the licensee's procedures and process for granting unescorted access to vital area equipment to determine if access was granted to only those personnel identified as having a need for such access. Specifically, the frequency of vital area access for a sample of employees was examined. The inspectors also interviewed five sponsors/supervisors and evaluated their training and their bases for determining, every 31 days, continued employee unescorted access to vital equipment. The inspectors evaluated the licensee's actions associated with observations identified in the licensee's annual Nuclear Assessment Program to determine if security related observations were being appropriately dispositioned.

The licensee's activity was evaluated against requirements contained in the Catawba Nuclear Plant Physical Security Plan, associated procedures, 10 CFR 73.55, Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage, and 10 CFR 73.56, Personnel Access Authorization Requirements for Nuclear Power Plants. Specific licensee documents evaluated are described in the Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Mitigating Systems and Barrier Integrity

a. Inspection Scope

The inspectors conducted annual reviews of the following two Reactor Safety PIs, as submitted to the NRC by the licensee, for accuracy:

<u>Cornerstone</u>	<u>PI</u>
Mitigating Systems	Safety System Unavailability - Emergency AC Power
Barrier Integrity	Reactor Coolant System - Specific Activity

This review was conducted for first quarter 2002 PI data submitted to the NRC on or about April 22, 2002. To verify the PI data, the inspectors reviewed control room logs, operating procedure OP/1(2)/A/6350/002 enclosures for removing the EDGs from service, and related licensee calculations provided on PI Validation/Approval Forms. The inspectors also reviewed several PIPs related to EDG issues, including PIPs C-01-03678, 01-05042, C-01-06148, C-02-00718, and C-02-01423. The inspectors reviewed the results of primary system samples and observed the performance of sampling and counting activities during the week of June 17, 2002, to support the NC system specific activity PI verification. The inspectors verified samples of data for the entire period covered by the PI under review (i.e., for PIs covering four quarters, the inspectors reviewed samples of data for the three quarters immediately prior to first quarter 2002 in addition to that quarter's data). The inspector reviewed the latest revision of Nuclear Energy Institute document NEI 99-02, Regulatory Assessment Performance Indicator Guideline, to compare the licensee's PI submittal to recent changes in NRC-approved guidance.

As part of their continuing evaluation of the licensee's identification and/or resolution of problems in this area, the inspectors reviewed PIP C-02-03193, which documented minor NRC-identified discrepancies associated with the Emergency AC Power Safety System Unavailability PI.

b. Findings

No findings of significance were identified.

.2 Emergency Preparedness

On March 25-27, 2002, licensee records were reviewed to determine whether the submitted PI statistics (through the fourth quarter of 2001) were calculated in accordance with the guidance contained in Section 2.4 (Emergency Preparedness Cornerstone) of NEI 99-02. The assessment of associated PIs is addressed below:

Emergency Response Organization (ERO) Drill/Exercise Performance PIa. Inspection Scope

The inspector assessed the accuracy of the PI for ERO drill and exercise performance (DEP) through review of a sample of drill records. Documentation was reviewed to verify the licensee's reported data regarding successes in emergency classifications, notifications, and protective action recommendations. In addition, through direct observation, the inspectors assessed the accuracy of the licensee's determinations with respect to the eight DEP PI opportunities during the exercise on March 26, 2002 (see Section 1EP1).

b. Findings

No findings of significance were identified.

ERO Drill Participation PIa. Inspection Scope

The inspector assessed the accuracy of the PI for ERO drill participation during the previous eight quarters through review of the training records for select individuals from the 198 key personnel being tracked for ERO drill participation as of the end of the fourth quarter of 2001.

b. Findings

No findings of significance were identified.

Alert and Notification System Reliability PIa. Inspection Scope

The inspector assessed the accuracy of the PI for the alert and notification system reliability through review of a sample of the licensee's records of the weekly growl and silent tests, and the quarterly full-cycle tests conducted from January 1 to December 31, 2001.

b. Findings

No findings of significance were identified.

.3 Radiation SafetyOccupational Radiation Safety PI Verificationa. Inspection Scope

The Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone were reviewed for the period January 2001 through April

2002. The inspectors verified that the licensee's current procedure for collecting, evaluating, and reporting PI data was consistent with the PI guidance document NEI 99-02. Monthly files generated pursuant to that procedure were reviewed to determine whether the procedurally specified sources of information for the PI were collected each month and whether potential and actual PI occurrences were accurately assessed for reportability. Selected PIP reports issued during the review period and exposure event data documented for the U1 EOC 13 outage were reviewed and assessed for potential PI reportability.

b. Findings

No findings of significance were identified.

Public Radiation Safety PI Verification

a. Inspection Scope

The Radiological Effluent Occurrence PI results for the Public Radiation Safety Cornerstone were reviewed for the period January 2001 through April 2002. The inspectors verified that the licensee's current procedure for collecting, evaluating, and reporting PI data was consistent with the PI guidance document NEI 99-02. Monthly files regarding offsite doses generated pursuant to that procedure were reviewed to determine whether the procedurally specified sources of information for the PI were collected each month and whether potential and actual PI occurrences were accurately assessed for reportability. Selected PIP reports, issued during the period under review, concerning potential PI occurrences were also assessed for reportability.

b. Findings

No findings of significance were identified.

.4 Security

a. Inspection Scope

The inspectors evaluated the licensee's PI data associated with the Intrusion Detection System (IDS) and Closed Circuit Television (CCTV) to determine if the licensee provided accurate reporting for compensatory time relative to equipment degradation for the protected area equipment PI. The evaluation included a sample review of tracking and trending reports, equipment maintenance logs, and security event reports for the year of 2001 and the first quarter of 2002. The inspectors also reviewed a sample list of licensee's event reports, and security logs for the same period to determine the accuracy of PI data associated with the FFD/Personnel Reliability and Personnel Screening Program.

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 to determine, where applicable, whether conditions adverse to quality were properly identified, evaluated for operability or reportability, considered for extent of condition and generic implications, and corrected in a timely manner commensurate with the safety significance of the issue. The reviewed PIPs included PIP C-02-02726, which described an issue involving the licensee's operation of the 1B CA pump for seven minutes with its suction valve closed; and PIP C-02-02142, which was associated with an inspector-identified issue regarding the licensee's dispositioning of a ground fault in circuitry associated with the standby shutdown system diesel generator output breaker.

b. Findings

A licensee-identified violation was identified for PIP C-02-02726 and is listed in Section 4OA7 of this report. No findings of significance were identified by the inspectors.

4OA3 Event Follow-up

.1 Event Response

a. Inspection Scope

The inspectors responded to or reviewed four reported events this quarter to evaluate the licensee's actions and to confirm that the events were properly classified and reported to NRC and state/county governments, as warranted. The events included one involving an unanalyzed condition that could have resulted in the failure of the Unit 2 4160-volt bus ETA; one involving an improperly secured divider barrier between upper and lower containment in Unit 1; one involving a spent blasting device found in the owner controlled area, which was later determined by plant personnel and local authorities to be between 15 and 20 years old and not indicative of any current security threat; and one involving suspected tampering with local emergency notification sirens. The licensee and local authorities also subsequently determined that the siren event had not involved tampering. For the containment divider barrier and 2ETA issues, the licensee immediately corrected the deficiencies and planned to provide follow-up written reports to the NRC in accordance with 10 CFR 50.73, following completion of its root cause and past operability evaluations. These events were all reported and updated to the NRC in accordance with 10 CFR 50.72 reportability requirements. The divider barrier NRC notification was retracted on June 17, 2002, after the licensee determined that the identified condition did not result in the plant being outside of its design basis; however, the licensee still planned to submit a Licensee Event Report describing any non-compliance with NRC requirements.

b. Findings

No findings of significance were identified.

- .2 (Closed) Licensee Event Report (LER) 50-413/02-001-00; and -01: Both Trains of Control Room Area Chilled Water System Were Inoperable Simultaneously as a Result of Inadequate Troubleshooting Follow-up.

This condition was discovered by the licensee on February 28, 2002, after troubleshooting revealed that the A-train chiller had been inoperable since February 21, 2002. During that period, the B-train chiller had been removed from service for planned maintenance from February 24 to February 27, 2002. The problem with the A-train chiller was related to disconnected (or intermittently connected) wiring on a relay that is required to be energized to ensure that the chiller would restart following a postulated event in which it lost power. Plant personnel received alarm indications of the wiring problem on February 21, but inadequate troubleshooting led them to conclude that the A chiller was operable, which allowed them to remove the B-train chiller from service as planned. This resulted in both CRACWS trains being simultaneously inoperable with both units operating in Mode 1 for more than three days, which was prohibited by TS 3.0.3.

The inspectors reviewed the LER, PIP C-02-01042, and abnormal operating procedure AP/0/A/5500/39, Rev. 2, Control Room High Temperature, to determine the safety significance of this finding. The violation had a credible impact on safety because it resulted in a safety system functional failure of the CRACWS, which is required to provide cooling for the proper functioning of control room equipment. However, the finding is of very low safety significance because compensatory measures were contained in AP/0/A/5500/39 to help mitigate the loss of control room cooling scenario.

Operation of both units in Mode 1 with both trains of CRACWS inoperable for greater than three days constituted a violation of TS 3.7.11 and TS 3.0.3, which required that, within one hour, actions be taken to place the units in Mode 3 in the next six hours, and in Mode 5 within the following 36 hours. The violation is considered to be licensee-identified and is listed in Section 4OA7 of this report.

The inspectors noted that Revision 0 of the LER stated, "according to procedure, temporary cooling fans could have been brought into the control room and control room area if necessary to maintain temperatures in these areas..." The inspectors reviewed the applicable procedure, AP/0/5500/39, Rev. 2, and found no such provisions for installing temporary cooling fans. The inspectors determined that alternate measures were incorporated in the procedure, such as opening the control room ventilation boundary and allowing forced air circulation throughout the room. Steps were in place to ensure compliance with the control room area ventilation system TS requirements. The inspectors concluded that, although the original LER inaccurately depicted the compensatory measures for the loss of control room cooling scenario, the actual measures in place did not change the overall safety significance of this finding. The licensee submitted Revision 01 of the LER on May 30, 2002, to correct this discrepancy.

- .3 (Closed) LER 50-413/02-002-00: Condition Prohibited by Technical Specifications - Failure to Comply with the Required Actions of TS 3.9.2 with One Train of the Boron Dilution Mitigation System Inoperable.

This LER described a condition in which operators failed to perform actions within the time specified by TS 3.9.2 after the B train of BDMS and the Source Range Nuclear

Instrument N-32 High Flux at Shutdown alarm were rendered inoperable on April 30, 2002, while the unit was shutdown in Mode 6 during 1EOC13. The two boron dilution monitoring devices were made inoperable by a scheduled power supply maintenance outage, but operators failed to recognize the impact of this outage until after a failed attempt to start reactor makeup water pumps, which had also been impacted by the disabled power supply. Subsequent troubleshooting determined that both the B BDMS train and the N-32 High Flux at Shutdown alarm had been inoperable for approximately four hours.

Technical Specification 3.9.2 requires that two BDMS trains will be operable in Mode 6 and that with one or both inoperable, the required actions, in part, are to 1) immediately suspend core alterations, suspend positive reactivity additions, and within one hour verify that unborated water source isolation valves are closed and secured; or 2) verify two Source Range Neutron Flux Monitors are operable and verify that the combined flow rates of the reactor makeup water pumps are within limits specified in the Core Operating Limits Report. The licensee's oversight did not allow them to perform the actions within the required times, and thus constituted a non-compliance with TS 3.9.2.

The licensee's failure to perform these actions was of minor significance as there were no core alterations or positive reactivity additions at the time of the occurrence, and the motive force for the source of non-borated water, the reactor makeup water pumps, was also disabled (by design) due to the planned power outage. Therefore, the non-compliance with TS 3.9.2 constituted a violation of minor significance that is not subject to enforcement action, in accordance with Section IV of the Enforcement Policy. This condition was captured in the licensee's corrective action program as PIP C-02-02243.

40A5 Other

a. Inspection Scope

Using Temporary Instruction (TI) 2515/145, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles," the inspectors observed and reviewed the licensee's activities associated with its inspection of the Unit 1 reactor vessel head in response to NRC Bulletin 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity."

The inspectors assessed the condition of the Unit 1 reactor vessel head on May 4, 2002, through direct observation, while the head was placed on its stand during 1EOC13. The licensee concurrently performed a bare metal inspection of the reactor vessel head per MP/0A/7150/042D, Rev. 000, Reactor Vessel Head Penetration Visual Inspection. Prior to these inspection activities, the inspectors determined that lighting and accessibility were adequate to support a 100-percent inspection of all reactor vessel head penetrations (RVHP).

The licensee's inspection was conducted by VT-2 certified quality control (QC) inspectors who identified boric acid accumulation on 11 control rod drive mechanisms with small deposits on the head itself. Samples were taken from each area, and analyzed through isotopic analysis. These results revealed that all boron accumulation predated the operating cycle that had just been completed (i.e., no Cobalt-58 was present). No active leaks were identified. The licensee cleaned the vessel head and

penetration areas to remove all accumulated boron, and to facilitate a 360-degree examination of each RVHP. During this inspection, the licensee recorded RVHP data and created a baseline videotape to establish a reference for future inspections. The licensee reviewed the videotape and all inspection results in accordance with EPRI Report No. 1006296, Rev. 1, Visual Examination for Leakage of PWR Reactor Head Penetrations of Top of RPV Head, which had been approved by NRC as an acceptable guideline. The inspectors also reviewed the videotape and did not identify any discrepancies in the as-left condition.

Based on this review, and the observed accumulation pattern of the boron found, the licensee determined that all leakage had come from above the head, and not from an RVHP weld or leakage through the reactor vessel head. In addition, no degradation or wastage of the carbon steel head surface were noted. The inspectors did not identify any deficiencies associated with the condition of the reactor vessel head, any RVHP, or in the licensee's evaluation pertaining to the as-found boron deposits. The licensee plans to conduct a similar inspection on Unit 2 in March 2003.

b. Findings

No findings of significance were identified.

40A6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Gary Peterson, Site Vice President, and other members of licensee management at the conclusion of the inspection on June 25, and on July 9. The licensee acknowledged the findings presented. No proprietary information was identified.

40A7 Licensee Identified Violations

The following findings of very low safety significance were identified by the licensee and are violations of NRC requirements, which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for being dispositioned as NCVs.

NCV Tracking Number

Requirement Licensee Failed to Meet

50-413/02-02-04

Failure to Follow Operating Procedure OP/1/A/6250/02, Auxiliary Feedwater System, Revision 118, Resulting in a Violation of Technical Specification 5.4.1. This procedure governs operation of the auxiliary feedwater (CA) system, and on May 11, 2002, operators failed to have the system aligned in accordance with Encl. 4.5, Manual Operation of the Motor Driven Auxiliary Feedwater Pumps When Not Aligned for Standby Readiness, and Encl. 4.7, Valve Checklist, while operating the 1B CA pump during a test. As a result the pump was operated for seven minutes with its suction valve 1CA-9B closed. This issue was captured in the licensee's corrective action program as PIP C-02-

02726. This finding was of very low safety significance because the pump's damage appeared to be minimal and the pump passed surveillance tests and other checks afterwards. (Green)

50-413,414/02-02-05

Operation of Both Units in Mode 1 with Both Trains of Control Room Area Chilled Water System Inoperable from February 24 to February 27, 2002, Resulting in Violation of Technical Specification 3.7.11 and TS 3.0.3. The licensee unknowingly operated both units with the A and B trains of CRACWS system inoperable because of inadequate troubleshooting of an existing problem with the A-train chiller, which allowed it to remain inoperable when the licensee removed the B-train chiller from service for planned maintenance. This issue was captured in the licensee's corrective action program as PIP C-02-01042. This finding was of very low safety significance because the chillers' function to maintain control room temperatures could have been compensated by operator actions contained in the licensee's procedures. (Green)

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

E. Beadle, Emergency Preparedness 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
R. Sweigart, Safety Assurance Manager

NRC

K. Barr, Region II
A. Boland, Region II
S. Irish, OIG
R. Sullivan, NRR
R. Kahler, NRR
R. Moore, Region II

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

50-413/02-02-01	NCV	Failure to Perform Testing with Written Procedures (Section 1R07)
50-413/02-02-02	NCV	Failure to Follow Procedures Resulting in Conducting Penetrant Examination on the Wrong Weld (Section 1R08)
50-413/02-02-03	NCV	Failure to Enter Ice Condenser Door Test Failures into the Corrective Action Program for Proper Dispositioning (Section 1R22)
50-413/02-02-04	NCV	Failure to Follow Procedures Resulting in Operation of the 1B Auxiliary Feedwater Pump with its Suction Valve Closed for Seven Minutes (Section 4OA7)

Attachment

50-413,414/02-02-05	NCV	Failure to Maintain Both Trains of Control Room Area Chilled Water System Operable per Technical Specification 3.7.11 and TS 3.0.3 (Section 4OA7)
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Previous Items Closed

50-413/02-001-00, -01	LER	Both Trains of Control Room Area Chilled Water System Were Inoperable Simultaneously as a Result of Inadequate Troubleshooting Follow-up (Section 4OA3.2)
50-413/02-002-00	LER	Condition Prohibited by Technical Specifications - Failure to Comply with the Required Actions of TS 3.9.2 with One Train of the Boron Dilution Mitigation System Inoperable (Section 4OA3.3)
TI 2515/145 (Unit 1)	TI	Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles - NRC Bulletin 2001-01 (Section 4OA5)

LIST OF ACRONYMS USED

AC	-	Alternating Current
ALARA	-	As Low As Reasonably Achievable
BDMS	-	Boron Dilution Mitigation System
CA	-	Auxiliary Feedwater
CFR	-	Code of Federal Regulations
CRACWS	-	Control Room Area Chilled Water System
DOT	-	Department of Transportation
FFD	-	Fitness for Duty
ED	-	Electronic Dosimeter
EDG	-	Emergency Diesel Generator
EHRA	-	Extra High Radiation Area
EOC	-	End of Cycle
GPM	-	Gallons Per Minute
HRA	-	High Radiation Area
HP	-	Health Physics
KC	-	Component Cooling Water
LER	-	Licensee Event Report
MT	-	Magnetic Particle Testing
NC	-	Reactor Coolant
NCV	-	Non-Cited Violation
ND	-	Residual Heat Removal System
NEI	-	Nuclear Energy Institute
NI	-	Safety Injection
NRC	-	Nuclear Regulatory Commission
NRR	-	Nuclear Reactor Regulation
NV	-	Chemical and Volume Control
OIG	-	Office of the Inspector General

OS	-	Occupational Radiation Safety
PAP	-	Primary Access Portal
PCP	-	Process Control Program
PI	-	Performance Indicator
PIP	-	Problem Investigation Process (report)
PORV	-	Power-Operated Relief Valve
PRA	-	Probabilistic Risk Assessment
PS	-	Public Radiation Safety
PT	-	Liquid Penetrant Testing
QC	-	Quality Control
RCA	-	Radiological Control Area
REV	-	Revision
RN	-	Nuclear Service Water
RT	-	Radiograph Testing
RVHP	-	Reactor Vessel Head Penetration
RWP	-	Radiation Work Permit
RWP	-	Radiation Work Permit
SDP	-	Significance Determination Process
SG	-	Steam Generator
SSC	-	Systems, Structures, and Components
SSPS	-	Solid State Protection System
T-AVG	-	Reactor Coolant System Average Temperature
TS	-	Technical Specification
UFSAR	-	Updated Facility Safety Analysis Report
UT	-	Ultrasonic Testing
Vdc	-	Volts-direct current
VHRA	-	Very High Radiation Area
WO	-	Work Order
YC	-	Control Room Ventilation System Chilled Water System

LIST OF DOCUMENTS REVIEWED

(Section 1R07)

PIPs

PIP C-00-01010
 PIP C-00-02400
 PIP C-00-02424
 PIP C-00-5349
 PIP C-01-01933
 PIP C-01-05897
 PIP C-01-03097
 PIP C-02-03213

Miscellaneous

Catawba Control Room Ventilation/Chilled Water Health Report, Report Time Period 2002Q1
 Catawba Dwg CN-1551-2.0, Heat Balance (100% MWT), Rev 1

Catawba Dwg No. CN-1578-2.2, Flow Diagram of Control Area Chilled Water System, Rev 8
 Catawba Dwg No. CN-1578-2.3, Flow Diagram of Control Area Chilled Water System, Rev 6
 Catawba Dwg No. CN-1578-2.4, Flow Diagram of Control Area Chilled Water System, Rev 9
 Catawba Dwg No. CN-1578-2.5, Flow Diagram of Control Area Chilled Water System, Rev 8

(Section 1R08)

Procedures

Duke Nondestructive Examination Procedure NDE-25, Magnetic Particle Examination
 Duke Nondestructive Examination Procedure NDE-35, Liquid Penetrant Examination
 Duke Nondestructive Examination Procedure NDE-600, Ultrasonic Examination of Similar Metal
 Welds in Ferritic and Austenitic Piping
 Duke Nondestructive Examination Procedure NDE-10, General Radiography Procedure

Examination Reports and Other Documents

Ultrasonic Calibration/Examination Record, Indication Record, and Indication Resolution for
 Component/Weld ID Nos. CN-1SM-0037-04 and -05
 Magnetic Particle Examination Report for Weld/ID Nos. CN-1SM-0037-04 and -05
 Liquid Penetrant Examination Report for Weld/ID Nos. CN-1NV-487-3, -10, and -11 and
 CN-1NV-488-1,-7, 10, and -15
 Radiographic Examination Report/Technique for Weld/Component ID No. 1RF85-11
 Drawing Nos. CN-1NV-487 and -488, Chemical & Volume Control System to Reactor Coolant
 Pump "1A"
 Drawing No. CN-1SM-0037, Main Steam System from Steam Generator "1D"
 PIP C-02-02352, Boron Detected on Pressurizer Manway While Performing ISI Inspection
 PIP C-02-02591, Liquid Penetrant (PT) Inspection on Incorrect Weld

(Section 2OS1)

Procedures, Instructions, Lesson Plans, and Manuals

Health Physics Procedure (HP)/O/B/1000/009, Initial Entry Survey, Rev. 010, 05/02/01
 HP/O/B/1000/045, Radiation Protection Routines, Rev. 006, 02/07/02
 HP/O/B/1000/054, Dosimetry and Records Control Activities, Rev. 000, 02/08/01
 HP/O/B/1000/058, Diving Operations, Rev 1, 08/24/98
 HP/O/B/1000/059, Use of Portable Ventilation Systems, Rev. 2, 03/26/01
 HP/O/B/1000/061, Containment Work, Rev. 004, 05/30/01
 HP/O/B/1005/014, Airborne radioactivity Control and Accountability, Rev. 003, 06/13/01
 Shared Procedure (SH)/O/B/2001/001, Internal Dose Assessment, Rev. 001, 07/06/00
 SH/O/B/2002/001, Multiple Dosimetry, Rev. 3, 02/27/02
 SH/O/B/2000/004, Taking, Counting, and Recording Surveys, Rev. 005, 03/20/01
 SH/O/B/2000/005, Posting of Radiation Control Zones, Rev. 001, 06/01/98
 SH/O/B/2000/007, Placement of Personnel Dosimetry for Non-Uniform Radiation Fields,
 Rev. 001, 09/22/99
 SH/O/B/2000/008, Operational Alpha Program, Rev. 002, 04/06/01
 SH/O/B/2000/012, Access Controls for High, Extra High, and Very High Radiation Areas,
 Rev. 001, 03/25/99

Nuclear System Directive 501, Temporary Storage of Radioactive Material in Spent Fuel Pool, Rev. 4, 03/14/01

Radiation Work Permits (RWPs)

RWP-1112, NC PUMP Seal Work, Rev. 5, 05/07/02
 RWP-1123, MOVATS/Testing and Operator Testing in L/C and Annulus, Rev. 10, 05/07/02
 RWP-1126, Misc. Instrumentation/ Calibration in L/C and Annulus, Rev.9, 05/07/02
 RWP-1170, FW-9 Sock Filter replacement, Rev. 12, 05/07/02
 RWP-1416, CRDM Latching and Unlatching, Rev. 9, 05/07/02
 RWP-1601, Instrumentation and Calibration in the Aux Building, Rev. 10, 04/27/02
 RWP-1606, Mechanical Valve Work in Aux Building, Rev. 11, 04/29/02
 RWP-1612, Entry into Room 476, Rev. 7, 05/14/02
 RWP-1617, Snubber Inspections in the Aux Building, Rev. 12, 05/04/02
 RWP-1606, Mechanical Valve Work in Aux Building, Rev. 11, 09/29/02
 RWP-1623, Shielding in Aux Building, Rev. 8, 04/27/02
 RWP-1635, Unit1 NC Filter Change, Rev.9, 05/12/02

Records and Data

Contamination Occurrence Logs and Selected Skin Dose Assessments, January 01, 2002, through May 10, 2002.

PIPs

C-01-03145, Unit 1 Upper Containment Posting Controls, 07/18/2001
 C-01-05215, Unit 2 Cavity Ladder Locking Device, 10/17/2001
 C-01-06195, Assessment of RP extra high radiation key control program, 12/11/01
 C-01-06206, Evaluate need to change procedure for access controls to high, extra high, and very high radiation areas, 12/11/01
 C-02-00219, Accuracy of internal exposure report, 01/15/02
 C-02-00996, Poor radiation worker practices, 02/26/02
 C-02-00522, Document areas for improvement in RP, 01/31/02
 C-02-02762, Personnel Contamination, 05/13/2002
 C-02-02727, ED Alarm, 05/11/2002
 C-02-02546, Unusual Dosimetry Occurrence, 05/07/2002

Audits

General Office Audit (GO)-02-15(NPA)(RP)(ALL), Radiation Protection Functional Area Evaluation, 03/28/02

(Section 20S2)

Procedures and Manuals

Duke Power Corporation, ALARA Manual, Rev. 14, 1/1/02
 System Chemistry Manual, Optimized Crud Burst Program, Rev. 3, 9/4/01
 SH/0/B/2000/003, Preparation of a Radiation Work Permit, Rev. 3, 1/22/02

SH/0/B/2002/003, Declared Pregnant Worker, Rev. 1, 6/25/2000

Records and Worksheets

ALARA Planning Work Sheets for 1EOC 13 Mass Shielding Installation and Removal
 ALARA Planning Work Sheets for Reactor Vessel Head Penetration Visual Inspection
 ALARA Planning Work Sheets for 1EOC13 Mechanical Valve Maintenance
 ALARA Planning Work Sheets for Removal and Replacement of Reactor Vessel Head
 ALARA Planning Work Sheets for 1EOC13 Air Actuated Valve Work
 Pregnancy Exposure Agreement forms dated 7/26/01, 7/30/01, 10/29/01 and related exposure records
 Daily Outage Exposure Reports, 4/29/02-5/3/02 and 5/13-17/02

RWPs

RWP-1623, Misc. Shielding in the Aux. Bldg. During 1EOC13, 4/27/02
 RWP-1125, Installing/Removing Lead Shielding in Lower Containment, 4/19/02
 RWP-1166, Shielding Letdown Line in P/C during 1EOC13, 4/19/02
 RWP-1452, Leak Inspection on Reactor Head for 1EOC13, 5/4/02
 RWP-1421, Mechanical Valve Work for 1EOC13, 4/26/02
 RWP-1606, Mechanical Valve Work in the Aux. Bldg. during 1EOC13, 3/4/02
 RWP-1413, Reactor Vessel Flange Cleaning and Inspection for 1EOC13, 4/15/02
 RWP-1433, Cavity Work in Support of Reactor Head Movement for 1EOC13, 5/4/02
 RWP-1610, Air Operated Valve work in the Aux. Bldg. during 1EOC13, 3/4/02
 RWP-1607, ND 60 & ND61 Valve Repair in the Aux. Bldg. during 1EOC13, 3/4/02
 RWP-1107, Air Operated Valve Repair in Lower Containment/Annulus during 1EOC13, 3/15/02

PIPs

C-02-01409, No Consistent Process within Radiation Protection for Evaluating and Documenting Departures from Vendor Technical Manuals, 3/20/02
 C-02-00383, Review of Calculation of Potential Dose for Replacing Equipment Hatch Following a Fuel Handling Accident, 1/24/02
 C-02-01412, Most Conservative Inhalation Class not used in calculated DAC values, 3/20/02
 C-02-01414, High and Very High Radiation Area Postings and Barriers not Verified on a Weekly Basis, 3/20/02
 C-02-01419, Areas for Improvement Identified by the 2002 Radiation Protection Functional Area Evaluation, 3/20/02
 C-02-02258, Filling Refueling Canal Prior to Achieving 0.05 uCi/cc Activity During 1EOC13, 4/30/02

Audits and Assessments

GO-02-15(NPA)(RP)(ALL), Radiation Protection Functional Area Evaluation, 03/28/02
 RPS-08-02, ALARA Quarterly Hotspot Review, 2/28/02

(Section 2PS2)Procedures, Instructions, Lesson Plans, and Manuals

Operations Procedure (OP)/0/B/6500/046, Transferring and Dewatering Bead Resin in WSF, Rev. 027, 11/15/01
 OP/0/B/6500/013, Nuclear Solid Waste Disposal System, Rev. 041, 11/13/01
 SH/0/B/2004/002, Preparation and Shipment of Radioactive Waste, Rev. 001, 08/17/00
 SH/0/B/2004/001, Preparation and Shipment of Radioactive Material, Rev. 001, 11/06/00
 Environmental Work Practice 9.1, Shipping Hazardous Materials, Rev. 005, 05/01/02
 HP/0/B/1003/046, Operation & Calibration: Hydro Nuclear Services Bag Monitor System, Rev. 003, 10/20/92
 Maintenance Procedure (MP)/0/A/7550/011, Duratek Cask 8-120B Handling, Loading, & Unloading, Rev. 015, 03/11/02
 Catawba Nuclear Station Process Control Program, Rev. 009, 03/22/00
 10 CFR Part 61 Waste Classification and Waste Form Implementation Program Manual, Rev. 4, 12/05/96

Records

Radioactive Shipping Record (RSR) 02-0006, Low Specific Activity (LSA) II, Dry Active Waste (DAW), class A, 02/27/02
 RSR 01-0026, type B, dewatered mechanical filters, class C, 12/06/01
 RSR 01-0011, type B, dewatered ion-exchange media, class B, 10/12/01
 RSR 01-0009, type B, Shepherd calibrator w/sources, 09/25/01
 RSR 01-0003, LSA II, DAW, Class A, 02/21/01

Training and Qualification Guides

Radiation Protection (RP)-2303, ETQS Training and Qualification Guide, Radioactive Material Shipment, Rev. 001.
 RP-2302, ETQS Training and Qualification Guide, Excepted Package Shipment, Rev.000.

PIPs

C-02-00377, A hot particle (6,000 ccpm) was found on an individual at MNS on 12/06/01 - (It was suspected that the particle came from ONS. 01/24/02)

Audits and Assessments

GO-02-15(NPA)(RP)(ALL), Radiation Protection Functional Area Evaluation, 03/28/02
 GO-02-18(CNS)(NPAS)(PreINPO), Self-Assessment, 01/31/02

UFSAR Sections, License Amendments, Safety Evaluation Reports

Catawba Nuclear Station Updated Final Safety Analysis Report (UFSAR), Chapter 11, Radioactive Waste Management, Rev. 9.
 Certificate of Compliance for Duratek model CNS 8-120B shipping cask, Rev. 12, Certificate Number 9168.

(Section 3)Security Documents and Procedures

Catawba Physical Security Plan, Revisions 9, 10, and 11
 Catawba Plant Access Training, Revision 7, 1/02
 Duke Power Company General Employees Training, Revision 7
 Nuclear Generation Division Special Access Training, Revision 3
 Duke Power Nuclear Security Manual Directive 8.0, Protected Area Security/Ingress Process,
 Revision 8
 Duke Power Nuclear Security Manual Directive 3.0, Nuclear Security Badge Process,
 Revision 9
 Duke Power Nuclear System Directive 217, Nuclear Security Program, Revision 10
 Duke Power Nuclear System Directive 218, Duke Power Company Nuclear Access
 Authorization Program, Revision 7
 Duke Power Nuclear Assessment, SA-00-07 (ALL)(RA), 10/05/00
 Catawba Security Badging Sponsor Training (RI-2002)
 Site Procedure (SP)- 210, Final Access Control Officer, Revision 13
 SP 105, Security Lock and Key Procedure, Revision 19
 SP 417, Emergency Access Control Procedure, Revision 8
 SP 311, Metal/Weapon Detection Equipment Operability and Testing Procedure, Revision 6
 SP 304, X-Ray Equipment Operability and Testing, Revision 4
 SP 303, Explosive Detector Operability and Testing, Revision 5
 SP 319, Hand Geometry Unit Operational Test, Revision 2
 Operations Management Procedure 2-9 (SOM)
 Semi-Annual Fitness for Duty Report, July - December, 2001

(Section 40A1.3)Procedures

SH/0/B/2006/001, NRC Performance Indicator Data Collection, Validation, Review and Approval, Rev. 001, 9/19/01

PIPs

C-01-01158, Discrepancy in RMC Exposure Report, 3/12/01
 C-01-03145, Access Control and Posting at U-1 Upper Containment CAD Door, 7/18/01
 C-01-03317, Unit 1 Lower Containment CAD Door Not Posted as an Extra High Radiation Area,
 7/30/01
 C-01-03992, Worker Entered Aux. Bldg. Without Electronic Dosimeter, 9/6/01
 C-01-05215, Ladder Locking Device Used to Control Access to U-2 Refueling Cavity Not
 Installed, 10/17/01
 C-02-00497, Incorrect Total in UFSAR Table 11.14, Estimated Annual Airborne Effluent
 Releases, 1/30/02