UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-413/94-10 and 50-414/94-10

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

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

Facility Name: Catawba Nuclear Station Units 1 and 2

Inspection Conducted: March 6, 1994 - April 2, 1994

Inspectors: _____ 4/26/94
R. J. Freudenberger, Senior Resident Inspector Date Signed

P. C. Hopkins, Resident Inspector
J. Zeiler, Resident Inspector
C. Yates, Intern

Approved by: _____ 4/26/94
Marvin V. Sinkule, Chief Date Signed
Projects Branch 3
Division of Reactor Projects

SUMMARY

Scope: This resident inspection was conducted in the areas of plant operations, maintenance, engineering, plant support, previously identified items, and Licensee Event Reports. As part of this effort, numerous backshift inspections were conducted.

Results: In the operations area, operator response to the unexpected de-energization of a 600 volt essential power bus was timely and appropriate. Evaluation of the event was thorough and management involvement and direction was evident (paragraph 3.a). A non-cited violation (NCV) was identified by the licensee regarding the failure to comply with Technical Specification 3.6.4.1 (NCV 413,414/94-10-01: Reactor Coolant System Leakage Detection Systems Inoperable - paragraph 3.b). An inspection of the use and control of overtime identified a declining trend in the overall use of overtime (paragraph 3.d).

In the maintenance area, the licensee's actions in response to an abnormal noise in Nuclear Service Water pump 2B were thorough and demonstrated a questioning attitude in identifying the concern (paragraph 4.e). A weakness in the preplanning of maintenance on the Nuclear Service Water system required an unforeseen procedure

revision during post-maintenance testing (paragraph 4.f). Several changes were implemented regarding the work control process, the Work Control Center was moved to a new location and expanded, and the single point of contact (SPOC) concept was implemented (paragraph 4.g).

In the engineering area, evaluation and interim actions for a potential Technical Specification design basis problem identified by Westinghouse Corporation was considered to be untimely (paragraph 5).

REPORT DETAILS

1. PERSONS CONTACTED

Licensee Employees

B. Addis, Training Manager
S. Coy, Radiation Protection Manager
J. Forbes, Engineering Manager
W. Funderburk, Work Control Superintendent
T. Harrall, IAE Superintendent
*W. Kelley, Acting Human Resources Manager
W. McCollum, Station Manager
W. Miller, Operations Superintendent
*K. Nicholson, Compliance Specialist
*M. Patrick, Safety Assurance Manager
R. Propst, Chemistry Manager
D. Rehn, Catawba Site Vice-President
J. Roach, Security Manager
D. Rodgers, Mechanical Superintendent
Z. Taylor, Compliance Manager

Other licensee employees contacted included technicians, operators, mechanics, security force members, and office personnel.

*Attended exit interview.

Acronyms and abbreviations used throughout this report are listed in the last paragraph.

2. PLANT STATUS

a. Unit 1 Summary

Unit 1 began the report period operating at 97 percent power. On March 31, the unit returned to full power operation following a determination that total reactor coolant flow rate met the minimum Technical Specification value for full power operation. The unit operated at essentially full power for the remainder of the report period.

b. Unit 2 Summary

Unit 2 operated at essentially full power for the duration of the report period.

3. OPERATIONS (NRC Inspection Procedure 71707)

Throughout the inspection period, facility tours were conducted to observe operations and maintenance activities in progress. The tours included entries into the protected areas and the radiologically controlled areas of the plant. During these inspections, discussions were held with operators, radiation protection technicians, instrument

and electrical technicians, mechanics, security personnel, engineers, supervisors, and plant management. Some operations and maintenance activity observations were conducted during backshifts. Licensee meetings were attended by the inspector to observe planning and management activities. The inspections confirmed Duke Power's compliance with 10 CFR, Technical Specifications, License Conditions, and Administrative Procedures.

a. Unit 1 "A" Train 600 Volt Essential Bus 1ELXC Trip

On March 6, at 5:28 p.m., the Unit 1 normal incoming breaker to the "A" train 600 volt AC essential bus 1ELXC, opened, resulting in loss of power to the bus. This de-energized both of the 600 volt Essential Motor Control Centers, 1EMXI and 1EMXK, which are powered from 1ELXC. The control room operators received several annunciators indicating that power was lost to 1ELXC and personnel were dispatched to investigate. The operators noted that the normal charging and letdown valves had failed open on loss of power, causing charging to exceed letdown. Letdown was manually increased to reduce the rate of level increase in the pressurizer. A decrease in reactor coolant pump seal injection flow was also noted due to the seal injection valve opening on loss of power. While an increase in reactor coolant pump seal leakoff temperature was observed, temperature did not reach the alarm setpoint. At approximately 6:00 p.m., the alternate incoming breaker to 1ELXC was closed, re-energizing the bus from the alternate 4160/600 volt AC essential transformer, 1ETXE. Shortly afterwards, charging and letdown was stabilized and plant parameters returned to normal. The inspector noted that due to the timely actions on the part of the operators and IAE personnel, who assisted in evaluating the reliability of closing the alternate incoming breaker to 1ELXC, the transient was minimized.

The following day, the licensee determined that the normal incoming breaker to 1ELXC opened due to a short in the light socket for the breaker closed position indication. The root cause of this short was the incorrect installation of the light bulb in the socket. The prongs in the light bulb socket were found bent and touching, indicating that the bulb was improperly installed. Licensee engineering determined that a resistor in the light indication circuit prevented the short from tripping the breaker when the bulb was initially installed incorrectly during the previous month. Eventually, the short caused the resistor to overheat and fail, resulting in the breaker opening. The inspector reviewed the licensee's cause analysis and discussed the failure with appropriate plant personnel. The inspector noted that the licensee's root cause analysis was effective in identifying the unusual failure mode.

That same week, licensee management decided to initiate an Abnormal Plant Event meeting to discuss the event, root causes, and determine necessary corrective actions. Action items

identified by the licensee included: (1) evaluate instructions for proper light bulb installation; (2) review all other 6.9 kilovolt, 4160 volt, and 600 volt AC buses for proper indication light operation; and (3) develop procedure for re-aligning 1ELXC to its normal configuration.

On March 24, the licensee successfully transferred power to 1ELXC from the standby 4160/600 volt AC essential transformer 1ETXE, to its normal essential transformer, 1ETXC. The inspector witnessed the re-alignment and reviewed the procedure developed to perform the re-alignment. The inspector noted that the activity was well controlled and the procedure adequately addressed the plant and personnel safety concerns for conducting the activity.

The inspector concluded that the licensee's corrective actions for this event were appropriate to prevent future failures of this nature.

b. Reactor Coolant System Leakage Detection Instrumentation

On March 14, during auxiliary safeguards testing, valve MISV-5233 did not indicate full closed when stroked to the closed position. Valve MISV-5233 is the inboard containment isolation valve for the containment atmosphere radiation monitors. To comply with TS 3.6.1, the outboard containment isolation valve was closed and deenergized, isolating the penetration and rendering the containment atmosphere gaseous and particulate radioactivity RCS leakage detection subsystems inoperable. This resulted in entering a 30 day TS 3.4.6.1 action statement which required daily grab samples of the containment atmosphere for radioactivity.

At 9:09 a.m. on March 18, the Operator Aid Computer (OAC) was removed from service for planned maintenance. After being returned to service at 3:50 p.m., operators were reviewing PT/1/A/4600/09, Loss of Operator Aid Computer, for completion. During the review, they recognized that operability of two of the RCS leakage detection subsystems relied on operation of the OAC. While the OAC was removed from service, the Containment Floor and Equipment Sump Level and Flow Monitoring Subsystem, as well as the Containment Ventilation Unit Condensate Drain Tank Level Monitoring Subsystem, were not capable of detecting RCS leakage and generating an alarm with the sensitivity delineated in the FSAR. Therefore, while the OAC was removed from service, no RCS leakage detection subsystems were operable and TS 3.4.6.1 action to be in Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours applied. This action was not implemented.

Prior to removing the OAC from service, an operations assessment had been performed. The assessment determined that implementing PT/1/A/4600/09 was a sufficient compensatory action and did not recognize the dependence on the OAC for operability of the Leakage

Detection Subsystems. The assessment included reference to a licensee Technical Specification Interpretation for specification 3.4.6.1, Leakage Detection Systems. The interpretation addressed the reliance on the OAC in the Basis/Discussion section but focused on level instrumentation required to be operable for operability of the RCS Leakage Detection Subsystems.

Upon recognizing the operability concern, repair of valve MISV-5233 was expedited to return the containment atmosphere radiation monitors to operable status and PIP 1-C94-0334 was initiated. In evaluating the PIP, the licensee identified outstanding issues documented in previous PIPs regarding the operability requirements of the RCS Leakage Detection Subsystems based on their ability to meet sensitivities described in the FSAR including Table 5-10, Leakage Detection Sensitivity. To resolve the issues, the licensee implemented Duke Nuclear System Directive 203, Operability. Responsibilities for resolution of portions of the issues were assigned, operability determinations for the subsystems were made, and appropriate compensatory actions for operation without the OAC were developed and communicated to Operations. The licensee plans to submit an LER regarding the inoperability of the RCS Leakage Detection System. Corrective actions planned by the licensee include an assessment of the basis for the sensitivities of the RCS Leakage Detection Subsystems included in the FSAR, an assessment of other Technical Specification requirements which rely on the operation of the OAC and adequacy of procedures for compensatory measures when the OAC is out of service, and an assessment of the appropriateness of existing Technical Specification Interpretations.

Inspector review of the circumstances of this issue identified the following:

- The control room operators demonstrated a questioning attitude in identifying this issue.

- The licensee's Technical Specification Interpretation contributed to confusion regarding the operability evaluation of the RCS Leakage Detection Subsystems.

- The failure to implement Technical Specification 3.4.6.1 actions with the RCS Leakage Detection Systems inoperable is identified as a violation (413,414/94-10-01). However, this violation will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria specified in section VII.B. of the Enforcement Policy.

c. Unit 1 Return to Full Power Operation

On January 10, Unit 1 was restricted to less than 98 percent power in accordance with TS 3.2.5 when total RCS flow rate was measured

(using a calorimetric heat balance) to be less than the required TS value for 100 percent power operation. The licensee attributed the lower RCS flow rate results to a measurement uncertainty in the hot leg temperature indications. The licensee believed that a phenomenon termed hot leg streaming had become more pronounced, resulting in the hot leg temperature sensors indicating slightly higher than the true bulk average hot leg coolant temperature. The affect of this higher temperature indication results in the calculation of a conservatively low RCS flow rate when using the heat balance method.

On March 30, the NRC issued an amendment to the license for Catawba involving a change to the TS method for measuring total RCS flow rate. This TS change allowed RCS flow rate to be measured based on calibration of the RCS cold leg elbow tap differential pressure instrumentation instead of a calorimetric heat balance method. The change applied only to Unit 1 for the remainder of the current fuel cycle (cycle 8). Upon receipt of the TS Amendment, new elbow tap coefficients were installed for calibrating the RCS flow rate. As a result, the measured total RCS flow rate attained was 389,240 gpm, which was well above the minimum allowed 382,000 gpm required by TS 3.2.5. The inspector reviewed the amendment and verified the flow rate measurements met TS minimum requirements.

d. Control of Work Hours

As the result of recent concerns at three other Region II facilities regarding control of overtime and shift staffing levels, apparently contributed to by organizational downsizing and emphasis on shorter outages, an inspection was conducted to evaluate the use and control of overtime at Catawba.

The inspection included a review of TS 6.2.2.f.; Duke Nuclear System Directive (NSD) 200, Overtime Control; various NRC Information Notices and Generic Letters on the subject; Catawba Safety Review Group Evaluation 93-010 performed in May 1993; and review of overtime approval records and statistics for 1993 which included the last two refueling outages.

Based on this review, the inspector determined that overall overtime use decreased by approximately 5% in 1993 compared to 1992. There was 1 refueling outage in 1992 and 2 in 1993. Review of data from the last two refueling outages indicated a continuation of the decreasing overall overtime trend. Review of work hour extensions in excess of TS guidelines revealed that cases of apparent "after the fact" authorization had been questioned by management review of the authorizations and appropriately dispositioned.

The inspector noted the following minor discrepancies and communicated them to the licensee for resolution.

- In some cases, first line supervisors were listed as personnel who were included in the work group which was receiving authorization to extend work hours beyond TS guidelines. In these cases, they were performing an assessment of their ability to work safely and competently, as well as the crews. The inspector considered that more independence may be desirable. As an interim measure the licensee plans to ensure that management approval in these cases includes an assessment of the supervisor.

- The description of the purpose of the monthly management review of work hour extensions beyond the TS guidelines included in NSD 200 was not consistent with Catawba's TS 6.2.2. However, the inspector judged that the intent of the TS monthly review was being met.

- Documentation of a periodic report to be complied for site management as delineated in NSD 200 was not available. The licensee stated that those reports had been performed verbally in the past.

Overall, the licensee's process for the control of hours of work appeared to be effectively implemented.

4. **MAINTENANCE** (NRC Inspection Procedures 62703, 61726, & 37828)

Surveillance tests were observed to verify that approved procedures were being used; qualified personnel were conducting the tests; tests were adequate to verify equipment operability; calibrated equipment was utilized; and TS requirements appropriately implemented.

In addition, the inspector observed maintenance activities to verify that correct equipment clearances were in effect; work requests and fire prevention work permits, as required, were issued and being followed; quality control personnel performed inspection activities as required; and TS requirements were being followed.

The following items were reviewed in detail.

a. Component Cooling Water Pump Outboard Bearing Replacement

On March 8, 1994, the inspector observed maintenance performed to replace the outboard bearing on the Component Cooling Water system pump 2B2. Following replacement of the bearing, maintenance personnel attempted to hand rotate the shaft prior to the post maintenance alignment check. They discovered that the rotating element of the pump was restrained. This was later determined to be caused by galling of the outboard pair of casing and impeller wear rings. The seized impeller wear rings necessitated removal and replacement of the rotating element.

Previously, the licensee had encountered difficulty in replacing the outboard bearing of a similar pump without removing the entire rotating assembly. Based on repetitive difficulty in performing this procedure, the licensee plans to remove the rotating assembly and replace it with a refurbished spare when performing similar maintenance in the future. The inspector considered the licensee's action to restore the pump's operability, as well as plans for future outboard bearing replacements, to be appropriate.

b. Emergency Core Cooling System Valve Alignment Verification

On March 15, the inspector witnessed the performance of surveillance test PT/2/A/4200/06B, ECCS Valve Line Up Verification. The purpose of this surveillance was to verify that the valves in the ECCS flow paths were in their correct positions and to verify that the ECCS piping was filled by venting the ECCS pump casings and accessible discharge piping high points. The performance of this procedure meets the requirements of TS 4.5.2.b.1, 4.5.b.2 and 4.5.2.1.

The inspector witnessed the preparation for the test including radiation protection coverage, verification of procedures to controlled copy, and operating crew briefings.

The ECCS valves were verified to be in their correct positions, documented on the correct valve checklists, and signed off by appropriate supervision. The ECCS piping was verified filled by checking the high point vents. The vent isolation valve was verified closed, the pipe cap removed, a hose and fitting was attached to the vent, and the opposite end was placed directly into a poly bottle. The valve was throttled open until a solid stream of water was emitted, then the valve was reclosed. There was no indication of gas in the lines. The venting rig was then removed and the pipe cap was reinstalled. Operators in the control room verified valves to be in their designated positions by observing their control room indicators.

No discrepancies were noted by the inspector during the performance of this test.

c. Unit 2 Steamline Pressure Analog Channel Operational Test

On March 16, the inspector witnessed portions of a routine, monthly ACOT on the Unit 2 7300 process instrumentation for the channel 2 steamline pressure. The purpose of this testing was to verify the operability of the alarm and safety injection functions associated with this channel, as well as to ensure that the trip setpoints were within acceptable ranges. Testing was conducted to meet the surveillance requirement of TS 4.3.2.1. The ACOT was performed under WO No. 94016037-01. Two IAE technicians performed the ACOT using procedure IP/2/A/3222/00B, Analog Channel Operational Test Channel II 7300.

The inspector verified that activities were conducted in accordance with the procedure and that the TS Action Item Log in the control room properly documented removing the steamline pressure channel from service. The inspector noted good communication between the operations and IAE personnel involved with the activity. The inspector also observed the IAE technicians practicing good independent verification techniques in that both technicians verified that critical actions (e.g., manipulating test switches, connecting test equipment, etc...) were proper prior to performing them. Testing was accomplished satisfactorily and without incident.

d. Unit 1 Refueling Water Storage Tank Level Channel Calibration

On March 17, the inspector witnessed portions of testing to verify the calibration of the channel 2 FWST level instrumentation on Unit 1. The four FWST level transmitters provide signals to the Solid State Protection System to alarm and initiate ECCS Recirculation Mode on FWST low level during an accident. TS 4.3.2.1 requires that a channel calibration be performed every 18 months. The calibration activity was performed under WO No. 94017263-01. Three IAE technicians performed the calibration checks using procedure IP/1/A/3222/01B, Refueling Water Storage Tank Level Channel 2.

The inspector verified that the Limiting Condition for Operation Action Requirement for TS 3.3.2 was appropriately entered, and the TS Action Item Log properly documented that Channel 2 FWST Level was out-of-service. The inspector reviewed the WO package and procedure, which appeared to be complete and accurate. The calibration activity was well organized and performed by experienced IAE technicians. The inspector concluded that the calibration check was performed satisfactorily.

e. Troubleshooting Nuclear Service Water Pump 2B Abnormal Noise

On January 24, 1994, operations personnel noted an abnormal noise emanating from RN pump 2B while it was operating. During the weeks that followed, the licensee conducted troubleshooting which included pump inservice testing, pump and motor vibration data collection, and upper motor bearing inspections. In addition, on January 27, a technical representative from the pump manufacturer arrived onsite to aid in the evaluation of the pump. The results of these investigations did not reveal any abnormal pump operating conditions, although, slightly elevated vibration was measured at six times running speed frequency. The pump inservice test vibration results, however, were well within the acceptance ranges, and there was no evidence of increasing vibration trends based on previous inservice test results.

On March 19, the licensee conducted inspections of the 2B RN pump suction piping using vendor contracted divers. The purpose of

these inspections was to determine if any debris was lodged near the first stage impeller of the pump. Although unlikely, engineering personnel theorized that debris (e.g., a piece of wood, etc...) might be lodged near the first stage impeller resulting in each of the six vanes on the impeller striking the debris as the impeller rotated. The licensee believed that this could account for the elevated vibration at the six times running speed frequency. The inspector witnessed the pump inspections, verifying that adequate controls were implemented to ensure its proper execution. The results of the pump inspections were inconclusive, in that, although no visible debris was identified, water visibility was poor, making it difficult to conduct the inspections. The activity was conducted without incident. The inspector considered the identification of the problem to be an example of good questioning attitude and attention to abnormal conditions on the part of the operators. The inspector considered the licensee's actions in response to the abnormal noise to be thorough.

f. Review of Nuclear Service Water Train A Modifications

Between March 29 and 31, the licensee implemented several minor modifications to RN Train A valves and instrumentation. The modifications consisted of the following:

- CE-60203: Add Torque Switch Bypass to RN Suction Isolation Valves 1RN-1A and 1RN-5A (normal suction supply)

  This modification involved adding a torque switch bypass in order to increase the reliability of the valves opening. With the bypass installed, the maximum motor torque will be available to unseat and open the valve against maximum differential pressure and friction loads without allowing the torque switch to trip the motor. In addition, the actuator and gearbox to these valves were refurbished and inspected.

- CE-04457: Motor Replacement on Standby Nuclear Service Water Pond (assured supply) Isolation Valve 1RN-3A

  This modification involved replacing the 10 ft-lb motor on 1RN-3A with a 15 ft-lb motor. The licensee determined that the 10 ft-lb motor was marginal for the application and more stall torque was needed.

- CE-04319: Provide Separate Electrical Power Sources to RN A Pit Level Instrumentation

  This modification involved providing power supply isolation capability between RN level instruments ORNLT7390 and 1RNLT7400. These level instruments provide signals to swap RN Train A suction to its assured water source and share

common power supplies. The purpose of the power supply isolations is to allow any maintenance on one of the instrument loops without risking impact of the other. The licensee suspected that the inadvertent automatic RN B train alignment to its assured source of water on August 20, 1992, while performing calibration of the level instrumentation, occurred due to such interaction.

During this maintenance activity and the subsequent post-modification testing, RN Train A had to be aligned for Standby Nuclear Service Water Pond recirculation due to the impact of the work on the system. The inspector witnessed portions of the work and reviewed the WO and modification documentation. In general, the work was well planned and controlled. However, the inspector noted one weakness in the planning for post-maintenance testing of valve 1RN-3A. The licensee did not adequately review ahead of time the inservice test procedure for stroking 1RN-3A which required the RN system be aligned to the lake. A procedure change had to implemented to allow stroke testing with the RN system aligned to the pond.

g. Work Control Center Transition

As part of the licensee's Work Control Quality Improvement Project, several changes were implemented during the report period regarding the work control process. The Work Control Center was moved to a new location and expanded, improvements to the computerized Work Management System were implemented, and a new process for handling the initiation of corrective maintenance activities was implemented. The new process included the establishment of a Single Point of Contact (SPOC) team to process newly identified corrective work. The SPOC team is led by the Operations Shift Manager and consists of approximately twelve maintenance technicians with mechanical or instrument and electrical backgrounds, one or two team leaders, and a maintenance planner. The SPOC teams work rotating shifts providing 24 hour coverage, everyday. The purpose of the SPOC team is to evaluate incoming corrective maintenance activities to prevent duplicate work orders, perform limited troubleshooting to establish the scope of the problem, and to perform minor maintenance which meets certain criteria without the development of a full work order.

The inspectors reviewed the Work Process Manual, Section 104, Catawba Nuclear Station Site Specific Transition Plan; applicable sections of the recently developed Work Process Manual; and implementation of the SPOC concept during observation of several maintenance activities mentioned above. In addition, a sampling of completed work documents for work performed without a full work order was reviewed. Sufficient data was included in the documentation to provide the basis for maintenance history of the

equipment. The inspectors plan to continue to observe the effectiveness of the SPOC concept in future inspections.

No violations or deviations were identified.

5. **ENGINEERING** (NRC Inspection Procedures 37828 & 71707)

Review of Non-Conservative Reactor Trip Setpoints for Inoperable Main Steam Safety Valves

During this report period, the inspector learned of a problem identified by Westinghouse involving a deficiency in the derivation of reduced reactor trip setpoints for inoperable MSSVs. This deficiency could result in the potential overpressurization of the main steam system beyond limits assumed during a design basis accident when operating with inoperable MSSVs. Westinghouse notified all affected plants, including Catawba, via Nuclear Safety Advisory Letter 94-01, dated January 20, 1994.

TS 3.7.1 allows continued operation with inoperable MSSVs; however, reactor power must be reduced, and the high neutron flux trip setpoint must be lowered according to TS Table 3.7-1 for the number of MSSVs out-of-service. The reduced reactor trip setpoints in this table were derived assuming that the maximum allowable initial power level is a linear function of the available MSSV relief capacity. Westinghouse identified this as a non-conservative assumption, since at lower initial power levels during a design basis accident the reactor may not trip as early as assumed for the case with initial power at 100 percent. This results in a longer time that primary heat is transferred to the secondary side of the plant, and subsequently, higher steam line pressures than expected. Westinghouse considered that this issue did not represent a substantial safety problem since there is still considerable conservatism in the reactor trip setpoint calculations.

The inspector verified the licensee received the Westinghouse letter referred to above and reviewed the status of their corrective actions for this issue. On February 7, the Westinghouse letter was screened by Operating Experience Program personnel at the Duke Power Company general office in Charlotte, North Carolina, and PIP O-G94-0050 was initiated to address the issue. The inspector reviewed the PIP and noted that, while proposed corrective actions had been identified, the evaluation of these actions had not been initiated. The PIP indicated that the due date for evaluation of the proposed corrective actions was May 8, 1994. The inspector questioned the timeliness of this evaluation since it may become necessary for the high flux reactor trip setpoints to be set lower than currently described in TS table 3.7-1. The inspector was also concerned that operations personnel had not been made aware of the problem to ensure that appropriate action was taken in the unlikely event that a MSSV be declared inoperable. By the end of the report

period, operations personnel were provided details of the problem and directed to contact applicable engineering personnel should the operability of a MSSV be questioned.

No violations or deviations were identified.

6. **PLANT SUPPORT** (NRC Inspection Procedures 71707 & 82301)

Control of Contaminated Respirators

During the annual emergency preparedness exercise on March 1, 1994, the licensee simulated the failures of plant equipment which necessitated repair team response from the Operational Support Center. Due to the number of repair teams dispatched, the simulated radiological conditions at the repair locations, and the limited number of new respirators staged, used respirators were retrieved from storage in the Radiologically Controlled Area (RCA) and used for the exercise. The respirators were taken to the Operational Support Center outside the RCA and issued to a repair team which re-entered the RCA wearing protective clothing, including the respirators, to simulate emergency conditions. Upon exiting the RCA, two of the used respirators were discovered to be contaminated at the RCA exit portal monitors.

A member of the NRC inspection team on site to evaluate the emergency exercise noted the contamination alarm at the portal monitor and observed the response of radiological controls personnel. The inspector noted that although the radiological controls technician promptly identified the cause of the contamination alarm, techniques utilized to survey the respirators and document the survey results did not facilitate detailed evaluation of the cause of the contamination.

In order to assess controls in place to prevent removal of contaminated materials from radiologically controlled areas, the inspector reviewed survey data which was taken to support placing the respirators into "clean" storage, station procedures HP/0/B/1005/08, Radiological Respirators, and HP/0/B/1000/30, Removal of Items from RCA/RCZs and Use of Release/Radioactive Material Tags, and discussed the issue with the Radiation Protection Manager. The inspector concluded that adequate controls were in place to prevent the removal of radioactive material from the RCA. The respirators had been surveyed, found "clean," bagged, and placed in storage several months prior to the emergency exercise. Due to the implementation of revised 10 CFR Part 20 regulations, the usage and the frequency of cleaning individual respirators has declined. It appears that fixed contamination leached out of the respirators while in storage, causing the loose contamination. The licensee returned the respirators to similar storage conditions, tagged "not for use," with plans to resurvey them after an appropriate time. Corrective actions to resolve this issue were being tracked by PIP 0-C94-0428. The inspector considered the licensee's planned actions appropriate.

No violations or deviations were identified.

7. **PREVIOUS INSPECTION FINDINGS AND LICENSEE EVENT REPORTS** (NRC Inspection Procedures 92700 & 90712)

a. (Closed) LER 413/93-02: Technical Specification 3.0.3 Entered Due to Inoperable Pump Discharge Valves.

On February 25, 1993, with Unit 1 at full power and Unit 2 in No Mode, both "B" train RN pump discharge valves failed to open during an inservice pump test when either RN pump was operated. Due to the potential that the discharge valves on the "A" train RN pumps were also affected, the licensee placed Unit 1 in the action requirements of TS 3.0.3. Within several hours, the closed position of the Unit 1 RN discharge valves were modified to ensure that they would open properly. After testing the valves, they were declared operable and Unit 1 exited TS 3.0.3. It was later determined that all four of the RN pump discharge valves had been incapable of opening against full differential pressure at various times since plant startup. Failure of the RN discharge valves to open was attributed to several factors, including: (1) lack of detailed information in the torque switch setup procedure which resulted in 2RN28A and 2RN38B to be setup at a lower torque switch setting than required and (2) higher than expected unseating and dynamic torque loads under flow and pressure conditions.

This issue was considered a violation of NRC requirements involving the inoperability of both loops of the RN System while both units operated in Modes 1-4 (see EEI 50-413,414/93-07-03, below. The corrective actions associated with this LER were reviewed as part of the review of the violation.

b. (Closed) Escalated Enforcement Item (EEI) 413,414/93-07-03: Inadequacy in Design, Engineering and Procedure Implementation resulting in inoperability of the RN System.

The violation described in NRC Inspection Report 50-413,414/93-07 was addressed in an Enforcement Conference held on April 14, 1993, concerning the inoperability of both loops of the RN system due to improper torque switch settings on the pump discharge valve motors. As a result, a Notice of Violation and Proposed Imposition of Civil Penalty was issued on April 30, 1993 (EA 93-054).

The licensee responded by letter dated May 27, 1993, which included corrective actions that would be taken to avoid further violations. The corrective actions adequately addressed the problems associated with valve issues. The inspector verified that all significant corrective actions were complete. The only remaining corrective action item outstanding was an evaluation of the use of turbulence factors in butterfly valve torque calculations. The scheduled completion date for this evaluation to be completed was June 1, 1994.

8. EXIT INTERVIEW

The inspection scope and findings were summarized on April 6, 1994, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection findings in the summary and listed below. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

Item Number	Description and Reference
413,414/94-10-01	NCV: RCS Leakage Detection Systems Inoperable (paragraph 3.b)

9. ACRONYMS AND ABBREVIATIONS

AC	-	Alternating Current
ACOT	-	Analog Channel Operational Test
CFR	-	Code of Federal Regulations
EA	-	Enforcement Action
ECCS	-	Emergency Core Cooling System
EEI	-	Escalated Enforcement Item
FSAR	-	Final Safety Analysis Report
FWST	-	Refueling Water Storage Tank
KC	-	Component Cooling Water
IAE	-	Instrument and Electrical
IP	-	Instrumentation Procedure
gpm	-	gallons per minute
LER	-	Licensee Event Report
MSSV	-	Main Steam Safety Valve
NCV	-	Non-Cited Violation
NSD	-	Nuclear System Directive
OAC	-	Operator Aid Computer
PIP	-	Problem Investigation Process
PT	-	Periodic Test
RCA	-	Radiation Control Area
RCS	-	Reactor Coolant System
RCZ	-	Radiation Control Zone
RN	-	Nuclear Service Water System
R&R	-	Removal and Restoration (Tagging Order)
TS	-	Technical Specifications
WO	-	Work Order