



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

Report Nos.: 50-338/96-04 and 50-339/96-04

Licensee: Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060

Docket Nos.: 50-338 and 50-339

License Nos.: NPF-4 and NPF-7

Facility Name: North Anna 1 and 2

Inspection Conducted: April 7 through May 18, 1996

Lead Inspector: *R. D. McWhorter* 6/12/96
R. D. McWhorter, Senior Resident Inspector Date Signed

Inspectors: D. R. Taylor, Resident Inspector
R. D. Gibbs, Reactor Inspector, paragraph 3.2

Approved by: *G. A. Belisle* 6/12/96
G. A. Belisle, Chief Date Signed
Reactor Projects Branch 5
Division of Reactor Projects

SUMMARY

Scope:

Inspections were conducted by the resident and regional inspectors in the areas of plant operations which included plant status, safety system walkdowns, rod drag testing, adverse weather response, containment integrity verification, evaluation of licensee self-assessment, NRC notification, and close out issue; maintenance which included service water restoration project, maintenance and surveillance observations, expansion joint inspections, and groundwater surveillance review; engineering which included deficiency report review, containment spray piping design basis reviews, emergency diesel generator voltage regulator problem review, and penetration leakage testing review; and plant support activities which included chemistry analysis review and vehicle barrier modification review.

ENCLOSURE

Results:

Plant Operations

A low head safety injection system walkdown found that the system was properly maintained and aligned except for minor discrepancies associated with pipe supports. An Unresolved Item was identified concerning an opening between the Safeguard and Quench Spray Pumphouse Building sumps that created a potential unfiltered and unmonitored radiological release path. A notification to the NRC regarding the above was properly made (paragraphs 2.2 and 2.7).

Control rod drag testing in the spent fuel pool was properly monitored and controlled (paragraph 2.3).

The licensee's response to high wind conditions on May 4 was appropriate (paragraph 2.4).

A containment penetrations walkdown identified that the penetrations were properly configured. Updated Final Safety Analysis Report description on page 6.2-141 for lines which penetrate the Main Steam header between the containment wall and the Main Steam Trip Valve outside containment was inconsistent with the as-built configuration (paragraphs 2.5 and 7).

Management Review Board activities continued to provide a regular management forum for station self-assessment and corrective action initiation (paragraph 2.6).

Corrective actions for a previous violation involving failure to follow procedures were appropriate and adequately implemented (paragraph 2.8).

Maintenance

The work area organization and cleanliness for a major service water refurbishment project was considered a strength (paragraph 3.1).

An overview inspection of the maintenance area provided a favorable impression of the overall maintenance program. Personnel were well qualified for their positions, work areas were orderly and well maintained, the plant material condition was excellent, and procedures were clear and concise (paragraph 3.2).

The material condition of rubber expansion joints in the Quench Spray Pumphouse and Alternate AC Diesel Generator Building was satisfactory (paragraph 3.3).

Ground water level surveillances required by Technical Specifications were appropriately performed (paragraph 3.4).

Engineering

Final analysis regarding the pressure at which locks on containment blow-out panels would fail demonstrated that preliminary calculations provided an accurate conclusion concerning safety significance (paragraph 4.1).

Appropriate reviews were conducted for a potential problem involving the containment spray piping design basis and an emergency diesel generator voltage regulator problem (paragraphs 4.2 and 4.3)

A minor administrative discrepancy was identified between the Updated Final Safety Analysis Report and Technical Requirements Manual requirements for a penetration leakage test (paragraph 4.4).

Plant Support

Chemical analysis of various tanks were properly completed (paragraph 5.1).

Modifications to a vehicle barrier gate were properly implemented (paragraph 5.2).

REPORT DETAILS

Acronyms used in this report are defined in paragraph 9.

1.0 PERSONS CONTACTED

Licensee Employees

Edmonds, I., Superintendent, Nuclear Training
*Funderburk, C., Superintendent, Outage and Planning
*Grecheck, E., Assistant Station Manager, Operations and Maintenance
Hayes, J., Superintendent, Operations
*Heacock, D., Assistant Station Manager, Nuclear Safety and Licensing
Kemp, P., Supervisor, Licensing
Maddy, T., Superintendent, Security
Matthews, W., Station Manager
Roberts, D., Supervisor, Station Nuclear Safety
*Royal, H., Director, Nuclear Oversight
Saunders, R., Vice President, Nuclear Operations
Schappell, D., Superintendent, Site Services
Shears, R., Superintendent, Maintenance
Smith, J., Superintendent, Station Engineering
Stafford, A., Superintendent, Radiological Protection
Stall, J., Station Manager

Other licensee employees contacted included office, operations, engineering, maintenance, chemistry/radiation protection, and corporate personnel.

On May 1, the following station management changes became effective: Mr. J. A. Stall, Station Manager, resigned to take a position with another utility. Mr. W. R. Matthews, Assistant Station Manager, Operations and Maintenance, was selected to replace Mr. Stall as Station Manager. Mr. E. S. Grecheck, Design Engineering and Support Manager, was selected to replace Mr. Matthews as Assistant Station Manager, Operations and Maintenance.

2.0 PLANT OPERATIONS (71707, 40500, 92901)

The inspectors conducted frequent control room tours to verify proper staffing, operator attentiveness, and adherence to approved procedures. The inspectors attended daily plant status meetings to maintain awareness of overall facility operations and reviewed operator logs to verify operational safety and compliance with TS. Instrumentation and safety system lineups were periodically reviewed from control room indications to assess operability. Frequent plant tours were conducted to observe equipment status and housekeeping. DRs were reviewed to assure that potential safety concerns were properly reported and resolved.

2.1 Plant Status

Both units operated the entire inspection period at or near full power.

2.2 Safety System Walkdowns

On April 23-24, the inspectors performed a LHSI system walkdown. The UFSAR, TSs and system drawing 11715-FM-096A, were reviewed and used as references for the walkdown. System alignments were verified to be in accordance with the UFSAR and drawing descriptions. Safeguards Building housekeeping was generally good except for debris and mud observed in the Unit 1 valve pit floor and sump areas. The valve pit was an area not normally accessed by plant personnel and had been scheduled for cleaning shortly following the inspectors walkdowns. The following material condition observations were identified and brought to the engineers' attention:

- Snubber 1-SI-HSS-701 would not rotate at its spherical bearing (DR N-96-849).
- A hexagonal pipe cap was discovered jammed between the RS piping and the floor sleeve where 4"-RS-E25-153A-Q2 pipe passed through the floor (DR N-96-860).
- The rear bracket on the extension rod end for snubber 2-SI-HSS-023 had a loose nut (DR-N-96-850).
- In the valve pit area, water was noted to be dripping from the wall at the A LHSI sump suction pipe containment penetration.

Prompt reviews by the licensee determined that the above mentioned items were not operability concerns. For the water dripping from the LHSI piping, an analysis indicated that the source was rain water seeping through the Safeguards Building walls. WRs were initiated as corrective action for the remaining items. The inspectors concluded that, except for some minor discrepancies, the system was properly maintained and aligned as required by drawings, the UFSAR and TSs.

On April 26, based on the above and previous inspection findings concerning minor hangar and support discrepancies, licensee managers directed station engineers to perform walkdowns to inspect hangars and supports in all safety-related areas. These inspections were completed during subsequent weeks. Numerous additional minor discrepancies were noted and DRs and WRs were submitted for corrective action. The inspectors considered that these walkdowns were a proper response to the inspectors' findings.

On May 15, the inspectors questioned the licensee regarding a sign on the Unit 2 Safeguards Building door. The sign informed operators that overfilling of the sump would result in flooding of the QSPH basement. The inspectors questioned whether the Safeguards Building sump could

overflow and potentially result in leakage to the QSPH sump. The QSPH ventilation was not monitored for radiological releases and was exhausted directly to atmosphere. The UFSAR chapter 15, section 15.4.1.8, Dosage from Leakage of ECCS Components, assumed a maximum seal leak of 50 gpm for 10 minutes leaking into only the Safeguards Building sump. Further, UFSAR section 9.4.6, described the radiological activity of the exhaust from the QSPH as negligible. Highly radioactive leakage from the recirculation loop was not discussed in the design basis for the QSPH ventilation system.

On May 16, the licensee completed reviewing this issue and determined that the potential existed for pump seal leakage to spill over into the QSPH sump. The review identified that the QSPH basement sump was tied directly to the Unit 2 Safeguards Building sump via a six-inch connection in the adjoining wall. Further, the licensee's existing LOCA analysis did not assume ECCS leakage into the unfiltered QSPH areas (DR N-96-1021). The licensee reviewed TSs for the safeguards area ventilation system and determined that the basis for the system was not met. Specifically the bases stated that the safeguards area ventilation system ensures that radioactive materials leaking from the ECCS equipment within the pump room following a LOCA are filtered prior to reaching the environment. With the potential to flood the QSPH sump, this condition could not be assured. At 8:10 p.m., TS 3.0.3 was entered due to both safeguards ventilation fans being declared inoperable. A temporary modification to plug the six-inch opening was installed, and TS 3.0.3 was exited at 9:00 p.m. Pending additional review of the issue's significance, this issue is identified as URI 50-339/96-04-01: Review Significance Of Safeguard Area Ventilation Not Meeting Design Basis.

Reportability was also reviewed. The licensee determined that this item was reportable pursuant to 10 CFR 50.72(b)(2)(iii)(c) and 10 CFR 50.73(a)(2)(v)(c), as a condition that could have alone prevented the fulfillment of a system needed to control the release of radioactive material. This is discussed further in section 2.7.

2.3 Rod Drag Testing

During the first half of the inspection period, the inspectors monitored tests performed to gather data to assist the licensee's fuel vendor in investigating the cause for control rod drag problems (NRC Bulletin 96-01). The licensee worked with the fuel vendor to test individual and cluster rod drag forces in spent fuel assemblies stored in the SFP. Additionally, length measurements were taken on several spent fuel assemblies. The inspectors reviewed the UFSAR and the SE supporting the testing activities (95-SE-PROC-20) and discussed the activities with fuel engineers. Additionally, the inspectors reviewed procedures provided by the vendor and approved for use by the licensee. The inspectors found that the activities were appropriately reviewed and approved by engineers and the SNSOC. The inspectors noted that the special testing was encompassed by existing fuel testing

descriptions contained in the UFSAR. Three problems reported in DRs were encountered during the tests and were reviewed by the inspectors. The inspectors found that the licensee had appropriately responded to the problems.

On April 26 and May 7, the inspectors observed licensee and contractor personnel performing rod drag testing using fuel assemblies stored in the SFP. On both occasions, the inspectors found that licensee's oversight of contractor personnel was appropriate, procedures were correctly being used, and TS requirements for ventilation configurations were met. The inspectors concluded that the testing was properly evaluated and controlled by the licensee.

2.4 Adverse Weather Response

On May 6, the inspectors learned that the site had experienced extreme winds on May 4 (DR N-96-918). On that date, high winds associated with adverse weather were experienced for approximately fifteen minutes. From control room recorders, the winds were determined to have averaged 50 mph and peaked at 87 mph. Minor site damage to outdoor non-safety related equipment and trees was identified following the winds. The inspectors reviewed the damage and verified that safety-related equipment was not affected by the winds. Additionally, the inspectors reviewed emergency plan and UFSAR bases concerning high winds. The inspectors found that the licensee had appropriately classified the event as not requiring emergency plan activation since the winds were not sustained above 80 mph. This was consistent with building design bases contained in the UFSAR. The inspectors concluded that the licensee had appropriately responded to the high winds.

2.5 Containment Integrity Verification

The inspectors verified containment integrity by performing a walkdown of various containment penetrations using 1-PT-60.1, Containment Integrity, revision 20-P4. The inspectors verified that penetrations were in the condition prescribed by the procedure. No problems were identified. During the walkdown of the MSVH, the inspectors identified that the UFSAR description on page 6.2-141 for lines which penetrate the MS header between the containment wall and the MSTV outside containment was inconsistent with the as-built configuration. The inspectors considered this discrepancy as minor, and the licensee was made aware of it for a future correction to the UFSAR.

2.6 Evaluation of Licensee Self-Assessment

On April 22, the inspectors attended an MRB meeting in which several topics of interest were presented to key station managers. The inspectors observed discussions involving the results of RCE 96-01 which evaluated the cause of a March 24 plant shutdown which was required to repair a fluttering MSTV. The RCE concluded that the MSTV problem was caused by improper valve reassembly following maintenance during the outage. Recommended corrective actions included enhancing procedures,

improving post-maintenance testing, and changing practices concerning match marks used for mechanical component reassembly. During the presentation, other problems with personnel performance and work controls were discussed, and station managers added appropriate corrective actions in these areas. During the meeting, proposed self-assessment annunciators for first quarter station performance were presented. The inspectors observed that managers made minor adjustments to annunciator indications to improve the characterization of plant performance. The inspectors concluded that the MRB activities continued to provide a regular management forum for station self-assessment and corrective action initiation.

2.7 NRC Notification

The inspectors reviewed the following licensee notification to the NRC to ascertain if the required report was adequate, timely and proper for the event.

On May 16, the NRC was notified as required by 10 CFR 50.72 concerning the identification of a condition that could have prevented the fulfillment of the safety function of a system needed to control the release of radiation. Specifically, an opening between the Unit 2 Safeguards Building and the QSPH was identified which could have provided an unfiltered radiological release pathway. The inspectors' reviews of this problem are discussed in paragraph 2.2.

2.8 Close Out Issue

The following previous inspection item was reviewed and closed. The licensee's actions in response to the violation were reviewed to establish that corrective actions had been completed and that programs and practices had been strengthened to prevent recurrence.

(Closed) VIO 50-338, 339/95-11-01: Failure to Follow Procedures With Two Examples

This violation concerned two events where operators failed to follow plant procedures during equipment manipulations. Corrective actions included coaching and disciplinary actions along with changes to procedures. The inspectors verified that the corrective actions were completed by the licensee. The inspectors concluded that the licensee's response, dated August 10, 1995, was appropriate and corrective actions had been adequately implemented.

One URI was identified.

3.0 MAINTENANCE (62703, 61726)

Maintenance activities were observed and reviewed to verify that activities were conducted in accordance with TSs and procedures, and licensee commitments to regulatory guides and industry codes or standards. Surveillance testing activities were observed and reviewed

to verify that testing was performed in accordance with procedures, test instrumentation was calibrated, LCOs were met, and any deficiencies identified were properly reviewed and resolved.

3.1 Service Water Restoration Project

At the inspection period's start and continuing through April 22, the inspectors observed the maintenance activities associated with major refurbishments for the A header SW lines to and from both units' CC heat exchangers. On March 26, the licensee entered a special 49-day action statement of TS 3.7.4.1 for the refurbishment project and exited the 49-day action on April 18.

Throughout the period, the inspectors verified that SW system manipulations were made according to the project's planned sequences. Additionally, the inspectors verified that TS requirements were met throughout the unusual system alignments. The inspectors frequently toured the project work area in the Auxiliary Building basement and found that the area was exceptionally clean, material was well-organized, and work was progressing according to plans. The inspectors concluded that the refurbishment project had been well managed by the licensee. The work area organization and cleanliness was considered a strength by the inspectors.

On April 16, technicians near the SW work area identified that a SW rubber expansion joint, 2-SW-REJ-15A, had a surface crack extending approximately one-half around the joint's circumference (DR N-96-801). The licensee evaluated the crack and determined that it did not present an immediate operability concern, but plans were initiated to replace the joint promptly. The inspectors observed the joint's condition and reviewed joint construction drawings and verified that the licensee's conclusion was proper. Although the joint was near piping affected by the SW work, any connection between the problem and work in the area was not readily apparent. On April 22, joint replacement was completed. At the inspection period's end, evaluations to determine the cause for the joint cracking and burst test results for the joint had not been completed.

3.2 Maintenance and Surveillance Observations

During the period April 8 - 12, an overview inspection of the maintenance area was performed to provide the necessary background to support future, more detailed inspections in the area. The inspection included attendance at the daily meetings involving maintenance management, interviews with maintenance management personnel, tours of work areas and facilities, review of quality indicators which track maintenance performance, review of the maintenance organization and staffing, and a review of several key maintenance administrative procedures. In addition, the inspectors observed performance of the surveillance test on the Unit 2 train B RPS/ESF logic.

3.2.1 The inspectors attended the following meetings which involved maintenance management personnel:

- 7:30 a.m. Maintenance Superintendent Staff Meeting
- 8:15 a.m. Station Manager's Morning Meeting
- 9:30 a.m. Mechanical Maintenance Staff Meeting
- 10:30 a.m. Plan of the Day Meeting
- 3:00 p.m. Assistant Station Manager Final Plan of the Day Meeting

3.2.2 The inspectors conducted interviews with the Maintenance Superintendent, his lead supervisor in maintenance engineering, and discipline supervisors in mechanical, electrical, and instrumentation and controls. Each of these interviews focused on the background and training of each individual and general responsibilities in their current positions. In addition, the interview with the Maintenance Superintendent included a review of the organization and staffing of the Maintenance Department and a review of the quality indicators used to track maintenance performance. During this interview, it was learned that the Maintenance Department was staffed with approximately 209 people organized into the three trades, disciplines, maintenance engineering, a small outage planning staff, and a support group which performed the equipment predictive analysis function. Interviews with the discipline supervisors also included tours of each work area, tool rooms and material storage areas. The inspectors observed that all of the work areas were clean and orderly. All calibrated equipment observed by the inspectors in the work areas was noted to be within the required calibration due dates, and materials stored in these areas were properly identified and protected. The following quality indicators involving maintenance performance were reviewed by the inspectors during the inspection:

- Monthly Human Error Tracking Graphs (Mechanical, Electrical, and I&C) and the monthly Maintenance Department Event Tracking Summary
- Preventive Maintenance Quarterly Status and Monthly PMs Scheduled/Completed
- QMT Barriers Identified/Answered and Monthly QMT Summary
- Virginia Power Nuclear Business Plan Goal Performance:

Total Work Order Backlog
 Non-outage Corrective Maintenance Backlog
 Work Order Rework
 Work Orders Completed Not Closed
 Actual/Planned Outage Schedule
 Maintenance Rule SSCs in (a)(1)
 Safety System Failures (Maintenance Related Issues)
 EDG Reliability (Maintenance Related Issues)
 EDG Unavailability (Maintenance Related Issues)
 HHSI Unavailability (Maintenance Related Issues)

LHSI Unavailability (Maintenance Related Issues)
 Containment/Quench Spray System Unavailability (Maintenance Related Issues)
 Recirculating Spray System Unavailability (Maintenance Related Issues)
 AFW System Unavailability (Maintenance Related Issues)
 RHR System Unavailability (Maintenance Related Issues)
 SALP Rating (Maintenance Related Issues)
 Regulatory Performance Indicator (Maintenance Related Issues)
 Licensee Event Reports (Maintenance Related Issues)
 NRC Violations (Maintenance Related Issues)
 Forced Outage Rate by Unit (Maintenance Related Issues)
 Reactor Trips (Maintenance Related Issues)

3.2.3 The inspectors conducted a general plant tour and reviewed several administrative procedures which controlled the maintenance program. The plant tour included the control room, Turbine Building, and the Auxiliary Building. Areas observed by the inspectors were noted to be in excellent condition. The procedures reviewed during the inspection were as follows:

- MDAP-0001, Maintenance Department Organization, Responsibilities, and Authorities, revision 3
- MDAP-0002, Conduct of Maintenance, revision 3
- MDAP-0004, Processing Design Change Packages, revision 2
- MDAP-0008, Instrument Maintenance, revision 1
- MDAP-0019, Maintenance Procedure Usage, revision 5
- MDAP-0025, Quality Maintenance Team Process, revision 4

3.2.4 The inspectors observed the performance of the logic channel functional test on the Unit 2, train B, RPS and ESF logic. This test was accomplished in accordance with surveillance procedure 2-PT-36.1B, Train B Reactor Protection and ESF Logic Channel Functional Test, revision 2, and was performed to meet several Unit 2 surveillance requirements. The inspectors observed procedure adherence and data collection by the I&C technicians. In addition, during performance of the test, the technicians were questioned concerning the operation of the equipment and the data being collected. After the test was completed, the inspectors requested a copy of the data. The inspectors reviewed this data to verify that the data met the TS requirements and to verify that all data collected met the acceptance criteria of the test procedure. The inspectors also reviewed the information in the UFSAR (section 7.2) concerning RPS and ESF logic. No deficiencies were noted during this review.

3.2.5 The overview inspection of the maintenance area provided a favorable impression of the overall maintenance program. Personnel were well

qualified for their positions, work areas were orderly and well maintained, the plant material condition was excellent, and procedures were clear and concise.

3.3 Expansion Joint Inspections

On April 25, the inspectors visually inspected rubber expansion joints on systems located in the Auxiliary Building, the QSPHs, and the AAC DG Building. The inspectors observed the joints' surface conditions and the integrity of joint fasteners and restraining devices. No discrepancies were noted on joints in the Auxiliary Building and QSPH. On one AAC DG cooling water joint, a slight crack was noted in the joint surface coating, and the inspectors noted that a WR to inspect and replace the joint had already been submitted for the crack. At that time, it appeared to the inspectors that the joint might be overextended. Additionally, the inspectors noted that the restraining rods for all four joints on the AAC DG were loosely set and inconsistent in length. On April 26, the inspectors discussed the observations with a maintenance engineer who further researched the requirements. The maintenance engineer found that design data was not available on site for the AAC DG joints and contacted the vendor to obtain joint design data. After obtaining the data, the joint measurements were reviewed, and it was found that all joints were within length specifications and were not overextended. Additionally, all restraining rods were found to be within specifications except one, and a WR was submitted to adjust that rod. The inspectors concluded that based on external observations, overall rubber expansion joint material conditions were satisfactory.

3.4 Groundwater Surveillance Review

The inspectors verified by completed procedure reviews that TS surveillance requirements 4.7.13.1 and 4.7.13.2 were properly met. The surveillances verified on a six month basis that service water reservoir groundwater level and groundwater flow rates did not exceed pre-established criteria. No discrepancies were identified.

No violations or deviations were identified.

4.0 ENGINEERING (37551)

4.1 Deficiency Report Review

On April 15, the inspectors met with the Superintendent, Station Engineering, and the Supervisor, Civil Engineering, to discuss statements contained in NRC Inspection Report Nos. 50-338/96-01 and 50-339/96-01. In paragraph 4.2, the inspectors stated that they identified two non-conservative errors in a calculation used to evaluate the significance of problems with containment blowout panels. The managers provided closeout information from DR N-96-258 which provided additional information concerning the items referred to as errors by the inspectors.

One error concerned the fact that forces from blowout panel spring latches were not considered in the engineering evaluation. The inspectors reviewed the DR closeout information and found that it included test results which explained why the spring latch forces were not considered. After reviewing the documentation, the inspectors found that the spring latch forces did not need to be included and concluded that this was not an error. The other error concerned the fact that the area of blowout panels used in the preliminary calculations reviewed by the inspectors were less conservative than the actual area. The inspectors reviewed the DR closeout information and found that the differences between the values used in the preliminary and final calculations were insignificant.

4.2 Containment Spray Piping Design Basis Reviews

On April 23, DR N-96-843 was received at the station from corporate engineering personnel who had been reviewing PPR 96-005. The PPR described an A&E notification to the licensee concerning a potential problem with the design of the QS and RS piping systems. The problem was related to the discovery at another facility that the accident temperatures experienced by QS and RS piping might exceed the temperature for which portions of the piping systems were originally designed and analyzed. The higher temperatures had the potential to cause excessive internal stresses in the piping or excessive stresses in pipe support systems. Of particular concern were areas where two pipe headers shared common supports and the two pipes might have widely varying temperatures in a post-DBA environment. Such differences in temperatures between the two headers required evaluations for the pipe supports to ensure that neither the supports nor the containment liner would be damaged enough to affect operability.

The inspectors initially reviewed the DR and supporting documentation to ascertain if the licensee had appropriately determined that system operability had not been affected. The inspectors found that the initial DR did not clearly address all operability concerns. The inspectors discussed their operability questions with station engineers who forwarded the concerns to corporate engineers. On April 24, a supplement was provided to the DR to clearly state that initial engineering reviews indicated that the systems would be able to perform their design functions and that operability was not affected.

On April 29, a more detailed initial problem evaluation was completed and on May 1, a licensing basis determination was completed. The evaluations continued to conclude that the systems remained operable. Copies of both documents were provided to the inspectors, and on May 9, the inspectors met with corporate engineers to discuss the evaluations. The inspectors reviewed the problem's definition, the problem's site-specific applicability, the evaluation methods, and the engineering conclusions. The inspectors found that the evaluations had correctly considered all applicable factors. The evaluations remained preliminary, but sufficient reviews had been performed to support the conclusion concerning operability. More detailed, final reviews were

continuing to be performed at the inspection period's end. The inspectors concluded that the licensee had appropriately reviewed the problem and that the initial evaluations' conclusions were properly supported.

4.3 EDG Voltage Regulator Problem Review

On May 1, operators performing 1-PT-82J, 1J Emergency Diesel Generator Slow Start Test, revision 2, observed a sudden swing in output KVARs while unloading the EDG. The EDG output indications suddenly surged to 1500 KVAR "in" and a local "loss of field" annunciator was received. The KVARs were returned to normal by adjusting the voltage regulator, and the EDG was shutdown normally.

The problem was similar to a problem which occurred on March 2, 1996, while operators were performing 1-PT-83.7J, 1J EDG 24-hour Run, revision 2. Approximately 15 minutes after fully loading the EDG on that date, the EDG output breaker, 15J2, tripped and a "generator over-excitation" alarm was received. On March 2 and 3, troubleshooting led technicians and engineers to conclude that the breaker trip was caused by interactions between the EDG voltage regulator and the RSS tap changer. It was believed that automatic RSS tap changer movement was causing perturbations in EDG KVAR, and at the high KVAR loading required by 1-PT-83.7J, this caused KVAR swings high enough to trip the EDG output breaker. EDG operability was concluded to not be affected because the affected regulator circuits were defeated when the EDG was supplying power under emergency conditions. At that time, the PT was revised to reduce the required KVAR loading, and the PT was completed satisfactorily.

In response to the May 1 perturbation in KVARs, a SNSOC meeting was held and it was decided to keep the EDG in an inoperable status pending further troubleshooting and evaluation. Technicians and engineers then reviewed possible causes and prepared troubleshooting procedures. The EDG voltage regulator droop circuit was postulated to be the most likely cause of the observed problems. On May 2, troubleshooting identified that a potentiometer in the regulator droop circuitry was incorrectly set. The potentiometer was found to be at minimum resistance, which effectively gave the EDG zero droop when operating parallel with off-site power. Such a condition could cause generator instability, such as the KVAR swings, with small changes in off-site power system voltage. The potentiometer was set to approximately mid range as recommended by the vendor, and the EDG was properly retested. The potentiometer was contained in a portion of the regulator circuit which was defeated under emergency conditions, and was preliminarily considered to have not affected EDG operability in the past.

On May 8, the inspectors met with licensee engineers to review the troubleshooting findings and their potential effect upon EDG operability. The engineers presented the inspectors with the troubleshooting procedure test results and explained the effect of the incorrectly set potentiometer using circuit wiring diagrams.

Additionally, the engineers explained that initial reviews had not identified any past maintenance or activities which may have affected the potentiometer's setting. The inspectors found that the licensee's troubleshooting, findings, and corrective actions were appropriate for the problems experienced with the EDG voltage regulator, and the inspectors did not have any immediate concerns with current or past EDG operability for emergency conditions. At the inspection period's end, a detailed analysis concerning past EDG operability with the incorrectly set potentiometer was continuing. Additionally, the licensee was in the process of checking the other three EDGs for similar problems during regular planned maintenance periods.

4.4 Penetration Leakage Testing Review

During a walkdown of the Unit 1 control panel, the inspectors observed that the normally isolated loop fill header was pressurized. Subsequent review did not indicate that this was a problem. The inspectors also reviewed the requirements for this section of pipe, including 10 CFR 50, Appendix J, testing requirements, and identified a minor discrepancy. The UFSAR described the penetration associated with this line as being Type C test required. However, the TRM listed the RCS loop fill inside containment check valve as not subject to Type C testing. Upon review, the inspectors verified that the valve was included in the Type C test program and that the TRM incorrectly listed the valve as not subject to Type C testing. The inspectors were informed that the valve was incorrectly annotated with a "#" in lieu of a "##" when transferring the valve requirements from the TS to the TRM. The "#" indicated that Type C testing was not required where as the "##" indicated that Type C leakage values were not required to be added to the Type A leakage rate. The error was also applicable to Unit 2, and DR N-96-989 documented the discrepancy. The inspectors concluded that this discrepancy was minor and administrative, and did not affect actual test conduct.

No violations or deviations were identified.

5.0 PLANT SUPPORT (71750)

Plant support activities were observed and reviewed to ensure that programs were implemented in conformance with facility policies and procedures and in compliance with regulatory requirements. Activities reviewed included radiological controls, physical security and fire protection.

5.1 Chemistry Analysis Review

On April 14, the inspectors reviewed chemical analysis results for the Unit 1 and Unit 2 BIT, RWST, casing cooling tank and the cold leg accumulators. The inspectors verified that the analyses were performed at the required frequency and the analyses met UFSAR and TS requirements. No discrepancies were identified.

5.2 Vehicle Barrier Modification Review

During the inspection period, the inspectors monitored physical protection modifications being installed by the licensee to comply with 10 CFR 73.55 requirements. The licensee had previously completed all modifications by February 29, 1996, to comply with the rule's implementation date except for modifications to the East Vehicle Gate. At that protected area entrance, modifications to install a new vehicle gate had been delayed due to excavation problems and temporary barriers had been placed to ensure compliance until modifications could be completed. The licensee completed the permanent East Vehicle Gate installation in late April. The inspectors verified that proper compensatory actions were taken by the licensee during gate construction operations and that the new gate met the requirements for protective area fencing. The inspectors concluded that the modifications had been properly implemented.

No violations or deviations were identified.

6.0 OTHER NRC PERSONNEL ON SITE

On April 11, the NRR Project Director, Mr. E. V. Imbro, visited the site. On May 9, the NRR Project Manager, Mr. B. C. Buckley, visited the site. Mr. Imbro and Mr. Buckley toured the plant and met with licensee management and the inspectors to discuss plant status and current issues at the facility.

7.0 REVIEW OF UFSAR COMMITMENTS

A recent discovery of a licensee operating their facility in a manner contrary to the UFSAR description highlighted the need for a special focused review that compared plant practices, procedures and/or parameters to the UFSAR description. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the UFSAR that related to the areas inspected. The following inconsistency was noted between the wording of the UFSAR and the plant practices, procedures and/or parameters observed by the inspectors:

- UFSAR page 6.2-141 description for lines that penetrate the MS header between the containment wall and the MSTV outside containment was inconsistent with the actual as-built configuration (paragraph 2.5).

Unresolved Item 50-338, 339/96-03-05, was previously opened to review UFSAR discrepancies. The above item will be considered when closing this open Unresolved Item.

8.0 EXIT

The inspection scope and findings were summarized on May 21, 1996, by Mr. R. D. McWhorter with those persons indicated by an asterisk in

paragraph 1. An interim exit was conducted on April 12, and an additional exit was conducted on June 7. The inspectors described the areas inspected and discussed in detail the inspection results. A listing of inspection findings is provided. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

<u>Type</u>	<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
VIO	50-338, 339/95-11-01	Closed	Failure to Follow Procedures With Two Examples (paragraph 2.8).
URI	50-339/96-04-01	Open	Review Significance Of Safeguard Area Ventilation Not Meeting Design Basis (paragraph 2.2).

9.0 ACRONYMS

AAC DG	ALTERNATE AC DIESEL GENERATOR
AC	ALTERNATING CURRENT
A&E	ARCHITECT AND ENGINEER
AFW	AUXILIARY FEEDWATER
BIT	BORON INJECTION TANK
CC	COMPONENT COOLING
CFR	CODE OF FEDERAL REGULATIONS
DBA	DESIGN BASIS ACCIDENT
DR	DEVIATION REPORT
ECCS	EMERGENCY CORE COOLING SYSTEM
EDG	EMERGENCY DIESEL GENERATOR
ESF	ENGINEERED SAFETY FEATURE
gpm	GALLONS PER MINUTE
HHSI	HIGH HEAD SAFETY INJECTION
I&C	INSTRUMENTATION AND CONTROL
KVAR	THOUSAND VOLT-AMPERES REACTIVE
LCO	LIMITING CONDITION FOR OPERATION
LER	LICENSEE EVENT REPORT
LHSI	LOW HEAD SAFETY INJECTION
LOCA	LOSS OF COOLANT ACCIDENT
MDAP	MAINTENANCE DEPARTMENT ADMINISTRATIVE PROCEDURE
mph	MILES PER HOUR
MRB	MANAGEMENT REVIEW BOARD
MS	MAIN STEAM
MSTV	MAIN STEAM TRIP VALVE
MSVH	MAIN STEAM VALVE HOUSE
NO.	NUMBER
NOV	NOTICE OF VIOLATION
NRC	NUCLEAR REGULATORY COMMISSION
NRR	OFFICE OF NUCLEAR REACTOR REGULATION
PM	PREVENTATIVE MAINTENANCE
PPR	POTENTIAL PROBLEM REPORT

PT	PERIODIC TEST
QMT	QUALITY MAINTENANCE TEAM
QS	QUENCH SPRAY
QSPH	QUENCH SPRAY PUMPHOUSE
RCE	ROOT CAUSE EVALUATION
RCS	REACTOR COOLANT SYSTEM
RHR	RESIDUAL HEAT REMOVAL
RPS	REACTOR PROTECTION SYSTEM
RS	RECIRCULATION SPRAY
RSS	RESERVE STATION SERVICE
RWST	REFUELING WATER STORAGE TANK
SALP	SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE
SE	SAFETY EVALUATION
SFP	SPENT FUEL POOL
SG	STEAM GENERATOR
SNSOC	STATION NUCLEAR SAFETY AND OPERATING COMMITTEE
SSC	STRUCTURES, SYSTEMS AND COMPONENTS
SW	SERVICE WATER
TRM	TECHNICAL REQUIREMENTS MANUAL
TS	TECHNICAL SPECIFICATION
UFSAR	UPDATED FINAL SAFETY ANALYSIS REPORT
VIO	VIOLATION
WR	WORK REQUEST