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

Report Nos.: 50-338/94-10 and 50-339/94-10

Licensee: Virginia Electric and Power Company
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 17 through May 21, 1994

Inspectors: G A Belisle for 6/8/94
R. D. McWhorter, Senior Resident Inspector Date Signed

G A Belisle for 6/8/94
D. R. Taylor, Resident Inspector Date Signed

Approved by: W M Dean 6/9/94
for G. A. Belisle, Chief Date Signed
Reactor Projects Section 2A
Division of Reactor Projects

SUMMARY

Scope:

This routine resident inspection was conducted on site in the areas of plant status, plant operations, maintenance observations, surveillance observations, plant support activities, evaluation of licensee self-assessment activities, Licensee Event Report follow up, and previous inspection item followup. Licensee backshift activities were inspected on May 9, 10, 11, 12, and 15, 1994.

Results:

Plant Operations functional area

Technical Specification requirements for a facility leakage monitoring program were found to be appropriately implemented (paragraph 5).

Maintenance functional area

A violation was identified concerning the licensee's failure to implement an action statement after exceeding the time allowed by a Technical Specification Limiting Condition for Operation. The violation resulted from a hydrogen analyzer inadvertently being rendered inoperable during a calibration (paragraph 3.c).

A weakness was identified concerning the lack of a process by which safety evaluation conditional requirements were implemented into work instructions (paragraph 4).

Engineering functional area

A strength was identified concerning the licensee's identification and resolution of a new safety system failure mechanism involving charging pump discharge check valves (paragraph 3.b).

An inspector follow up item was opened to review the licensee's evaluation concerning the design bases for emergency core cooling system leakage into an unmonitored and unfiltered area (paragraph 3.f).

Plant Support functional area

A licensee emergency preparedness drill was well planned and performed. Additionally, the drill control staff presented sound findings and recommendations for areas needing improvement (paragraph 6).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

L. Edmonds, Superintendent, Nuclear Training
C. Funderburk, Superintendent, Outage and Planning
*J. Hayes, Superintendent, Operations
*D. Heacock, Assistant Station Manager, Nuclear Safety and Licensing
*G. Kane, Station Manager
P. Kemp, Supervisor, Licensing
*W. Matthews, Assistant Station Manager, Operations and Maintenance
D. Roberts, Supervisor, Station Nuclear Safety
R. Saunders, Vice President, Nuclear Operations
D. Schappell, Superintendent, Site Services
R. Shears, Superintendent, Maintenance
B. Shriver, Superintendent, Station Engineering
*J. Smith, Manager, Quality Assurance
A. Stafford, Superintendent, Radiological Protection
J. Stall, Acting Station Manager

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

NRC Personnel

*R. McWhorter, Senior Resident Inspector
*D. Taylor, Resident Inspector

*Attended Exit Interview

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

On May 11 and 12, 1994, the NRC Section Chief, Mr. G. A Belisle, visited the North Anna Power Station. Mr. Belisle toured the plant, met with licensee management and the inspectors and discussed plant status and current issues at the facility.

2. Plant Status

Unit 1 operated the entire inspection period at or near 100% power.

Unit 2 began the inspection period at 100% power. On April 29 and again on May 10, problems with an isophase bus duct cooling fan required power reductions to 83% and 95%, respectively (paragraph 3.d). In both cases, the unit returned to 100% power following repairs the same day. Unit 2 operated the remainder of the inspection period at or near 100% power.

3. Plant Operations (71707)

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.

a. Boric Acid Storage Tank Dilutions

The inspectors reviewed the licensee's ongoing efforts to manage a condition causing C BAST and Unit 2 BIT dilution. The dilution and potential cause was documented by DR 94-489. The licensee suspected that the inlet isolation valve to the BIT, 2-SI-MOV-2867A, was leaking by and diluting the BIT which was continuously recirculated with the C BAST. The valve normally had charging pump discharge pressure against its seat. Normal charging makeup water leak-by at RCS boron concentrations was causing about 300 ppm per day dilution to both tanks. This resulted in boron makeup being required approximately once every five days. The leak-by was estimated at about 0.2 gpm which was enveloped by the RCS unidentified leak rate calculation.

The inspectors reviewed TS boric acid concentrations and sampling requirements. Several TSs require verifying the boric acid concentration in both tanks to be between 12,950 and 15,750 ppm at least once each seven days. Due to the dilution, the licensee had increased the sample frequency to once per shift. The inspectors reviewed operating logs and verified that the concentration was maintained above the TS minimum allowed. The inspectors noted that on one occasion the upper limit on the C BAST was out of specification high due to adding too much boron. DR 94-632 was initiated. The inspectors verified that TS-required actions were complied with and corrective actions were appropriate. The licensee plans to continue to monitor the problem until plant conditions allow valve repair.

b. Charging System Transient

On April 18, 1994, Unit 2 operators observed an unexpected transient when switching running charging pumps while performing 2-PT-14.1, Charging Pump 2-CH-P-1A, revision 21. Charging pump 2-CH-P-1A was started normally, but when charging pump 2-CH-P-1C was secured, charging header pressure and flow were noted to drop. Additionally, alarms associated with insufficient charging and seal injection were received. Pressure dipped to 2100 psig, and then flow and pressure promptly recovered without operator action.

Later the same day, operators completed the PT, returned 2-CH-P-1C to service, and secured 2-CH-P-1A without additional problems.

DR 94-501 was initiated, and the licensee investigated possible causes for the transient. Event reviews led to the conclusion that the transient was probably caused by pump 2-CH-P-1C's discharge check valve, 2-CH-208, momentarily sticking open. This was based on local operator reports that an abnormally loud check valve slam was heard shortly after the pump was secured. A system history review revealed three check valve failures in 1986-1987. Also, a 1992 notification under 10 CFR 21 by the manufacturer, Velan Corporation, identified a possible failure mechanism for the three inch, bolted bonnet swing check valve.

On April 20, the pump was removed from service, and maintenance to inspect the check valve was initiated. Check valve disassembly revealed that the check valve internals were intact, shut, and free to swing as required. Several minor spots were found which showed contact between the internals and the body. These spots were examined and measurements were taken to ascertain valve condition. The measurements revealed that the contact could not interfere with valve operation. However, as a precaution, the licensee removed material from the contact areas to prevent possible further contact.

Additionally, the licensee examined the check valve for the potential failure mechanism reported by the manufacturer under 10 CFR 21. The potential failure mechanism concerned internal pivot pin bushing binding. No binding was conclusively observed, but the bushings and other valve internals were replaced as a precautionary measure. The valve was reassembled, and pump 2-CH-P-1C was retested and returned to service on April 23. No additional problems were noted.

The inspectors reviewed the facility history for similar problems. In March 1987, the same valve had failed open. Internal inspections revealed the failure cause to be excessive grit in the valve internals. As a result, the licensee submitted voluntary LER 50-339/87-02. Also, the licensee took action to ensure that the abnormal procedure for a normal charging loss included steps to immediately shut the pump discharge isolation valve upon indication that a check valve had failed. The inspectors verified that this procedure, 2-AP-49, Loss of Normal Charging, revision 4, was still available for operators during the most recent problem. In 1987, the check valves were scheduled to be opened and inspected for proper operation every eighteen months. In 1990, this inspection frequency was extended to five years based on an ISI program experience review. Based on this most recent event, the licensee was planning to increase the inspection frequency back to eighteen months.

During this event review, licensee engineers identified a new potential safety system failure mechanism. By plant design, if charging pump 1-CH-P-1A or 2-CH-P-1A were running when an SI occurred, the pump would be stopped and the B and C pumps would automatically start. DR 94-517 documented the discovery that in this condition, if the A pump check valve were to stick open when the pump stopped, both the remaining charging pumps would be unable to deliver sufficient flow to meet high head safety injection requirements. The licensee reviewed the failure mechanism and concluded that since the check valve was considered to be a passive component, the plant's design basis did not require that its failure be endured without operator action. Existing abnormal procedures, 1-AP-49 and 2-AP-49, were reviewed and found to be adequate for directing operators' response to this situation. The licensee submitted voluntary LER 50-338/94-02 on May 23 to inform the NRC concerning this new failure mechanism.

Considering this failure mechanism's relationship to the manufacturer's 10 CFR 21 notification issue, a compensatory action was put in place on both units. The action was to not normally run 1-CH-P-1A or 2-CH-P-1A until their check valves were inspected. This inspection was completed satisfactorily for pump 2-CH-P-1A's check valve, 2-CH-170, on May 19. No bushing binding was found, but the bushing was worn and valve internals were replaced. The licensee will complete inspections for the remaining four check valves during the next scheduled pump outages, with pump 1-CH-P-1A's check valve receiving the highest priority.

The inspectors reviewed the licensee's actions in response to the event. The inspectors determined that the licensee complied with all regulatory requirements. Additionally, the licensee's corrective actions appeared proper. Finally, the inspectors concluded that the new failure mechanism identification and resolution concerning the charging pump discharge check valve was a strength in engineering.

c. Hydrogen Analyzer Inlet Line Leak

On April 25, 1994, the licensee identified that piping to the Unit 1 hydrogen analyzer, 1-HC-H_2A-101, would not hold design pressure. The problem was discovered while operators were performing O-PT-68.5, Leak Test of the Containment Atmosphere Cleanup System, revision 1. On April 26, the licensee examined the system and identified that a mechanical fitting at the inlet to the analyzer internal "hot box" section was leaking. The fitting was tight, but technicians were able to stop the leak by applying additional torque to the fitting. The test was then successfully completed.

The licensee investigated possible causes for the leak and identified that the fitting was routinely disassembled during quarterly analyzer calibrations. Procedure ICE-HC-1-H_2A-101, Containment Hydrogen System Reactor Containment Hydrogen Analyzer, revision 6, step 4.4.8, required technicians to disassemble the fitting to provide an analyzer flow path for testing. Simultaneous verification step 4.4.130 required fitting reassembly. The procedure was last performed on February 4, 1994, at which time the fitting was recorded as being disconnected and reassembled. There were no records that other work had been recently performed on the fitting. The licensee concluded that the leak must have existed since the last calibration.

After concluding that the leak existed from February 4 until repaired on April 26, the licensee performed an analysis to determine the problem's significance. The leak rate was estimated by testing the leak test rig used on April 25. From the pressures and flows measured by the test rig during the unsuccessful leak test, the licensee calculated the as-found fitting leakage. Since the hydrogen analyzer lines would be placed in service to containment during a DBA, this leakage's effect on total containment leakage was evaluated. This leakage value was calculated for containment design accident pressure and added to the current known containment leakage rates for each unit. The total leak rate was found to be within TS 3.6.1.2 limits.

Additionally, the licensee evaluated the leak's effect upon analyzer operability. It was found that in late DBA phases when the containment would be under sub-atmospheric conditions, the leak would allow air to be drawn into the analyzer suction and dilute the sample flow from containment. This dilution was calculated and evaluated to have a significant impact upon analyzer accuracy whereby indicated concentrations could be as much as 58% low. The significance for this error was that operators could use an erroneously low indication as a basis for making emergency procedure decisions to place a hydrogen recombiner in service. Placing the hydrogen recombiner in service with high H_2 levels could cause recombiner overheating and automatic shutdown. As a result, the licensee concluded that the analyzer could not meet TS 3.6.4.1 operability requirements and was inoperable from the period from February 4 to April 26, 1994. This period exceeded the 30 day time frame allowed for one analyzer to be inoperable by TS LCO 3.6.4.1, action statement "a". The licensee submitted LER 50-338/94-03 to the NRC on May 17 to report this plant operation as a condition prohibited by TS.

The inspectors reviewed the basis for the containment leakage rate estimates and found that the analysis was accurate. Additionally, the inspectors found that the evaluation to determine analyzer inoperability and the resultant reporting requirements was correct for the situation. The inspectors concluded that the licensee had

properly evaluated the leak's impact on the analyzer inlet line. The fact that the Unit 1 hydrogen analyzer was inoperable for a period exceeding the time allowed by TS LCO 3.6.4.1 without implementing the action statement was identified as Violation 50-338, 339/94-10-01, Inoperable Hydrogen Analyzer.

The inspectors reviewed the licensee's history for similar problems. On May 9, 1993, the licensee had identified that a sensing line for a pressure switch on the same analyzer had been left disconnected during the quarterly calibration. The analyzer was determined at that time to have been inoperable for an approximately 89 day period which also exceeded the 30 day TS LCO 3.6.4.1 limit. As a result, the licensee submitted LER 50-338/93-16 to report the condition to the NRC. Also, violation 50-338/93-18-01 was issued by the NRC for the failure to meet TS 3.6.4.1 requirements.

The inspectors compared this event to the 1993 problem. Although the events both concerned analyzer inoperability due to improper mechanical joints, a different root cause was noted. The 1993 problem directly resulted from I&C technicians' failure to follow the surveillance procedure in reconnecting the sensing line. As corrective action for that problem and the resulting violation, the licensee changed the procedure to include simultaneous verification for reconnecting lines, reordered procedure steps to ensure that some joints not made up would be detected during the calibration, and counseled the involved technicians. In this event, the technicians properly followed the procedure and made up all connections with normal tightening torque. However, the normal torque was insufficient to prevent leakage in this case. The inspectors concluded that this problem was not a repeat of the 1993 problem.

As corrective actions for the problem, the licensee immediately tightened and successfully retested the fitting. A leak test was performed satisfactorily for the other unit's analyzer, and a work order was submitted to replace the fitting during the next calibration. Additionally, the calibration procedure was revised to use existing vent valves for the analyzer flow path rather than breaking fittings. Finally, at the inspection period's end, the licensee was considering reviewing all similar tests where fittings were broken for similar problems.

d. Isophase Bus Duct Cooling Fan Problems

On April 29, 1994, during a Unit 2 power reduction for a turbine valve freedom test, a "Generator Leads Cooling Trouble" annunciator was received in the control room. Investigations revealed that the breaker for one isophase bus duct cooling fan, 2-GM-F-2, had tripped and would not reset. The unit had two motors available to drive a common fan in an arrangement such that one motor was connected at a time via drive belts. In accordance

with alarm response procedures, a power reduction was commenced while generator leads temperatures were monitored and maintenance was initiated. The alarm response procedure required a unit trip if leads temperatures exceeded 120°C. Approximately 25 minutes later, belts were installed to drive the fan from the other available motor, 2-GM-F-1, and the fan was restored. The power decrease was then stopped at approximately 83%, with a 98°C maximum temperature being observed on the leads. Power was returned to 100% later the same day.

On May 10, the annunciator was again received in the control room indicating problems with the cooling fan. At the same time, an operator investigating noise from the fan found that the drive belts had broken. The control room operators then began a power reduction. Maintenance personnel were dispatched to the fan, and the belts were replaced approximately 15 minutes later. The plant's power reduction was then stopped at 95%. With the fan not running, generator leads temperatures rose to approximately 91°C. After additional maintenance activities were completed, the unit returned to 100% power later the same day. The inspectors reviewed power maneuvers and the maintenance for both events and concluded that they were properly managed by the licensee.

e. Containment Isolation Valve Test Failure

On May 13, 1994, at 9:46 am, Unit 1 containment isolation valve, 1-IA-TV-102A, failed to stroke closed upon an initial attempt by operators performing 1-PT-213.14, Valve Inservice Inspection (Misc A), revision 9. TS LCO 3.6.3.1, action "a" was entered which allowed 4 hours to correct the condition or take other compensatory actions as allowed by the action statements. On the third attempt to stroke the valve, the valve went shut. The licensee suspected SOV sticking to be the problem and elected to replace the SOV. To accomplish the work without losing IA to containment, a jumper was installed around the SOV which maintained the valve open. The inspectors verified that the jumper installation was in accordance with VPAP-3001, Safety Evaluations, revision 2-PN4. VPAP-3001, step 6.3.12, allowed SNSOC to orally approve jumper installation followed by written approval as soon as possible thereafter. The inspectors observed the maintenance, verified that TS actions were complied with, and verified administrative procedures were followed. At 1:39 pm, following successful SOV replacement and valve stroke testing, the TS LCO action statement was cleared. The inspectors concluded that the maintenance was performed in a quality manner and in accordance with station-approved procedures.

f. ECCS Leakage into Unfiltered Areas

During a Unit 2 QS pump house basement walkdown, the inspectors observed personnel cleaning boric acid from overhead pipe caps for two LHSI vent valves. The inspectors toured the area several days later and again noted boric acid buildup on the pipe caps. The inspectors reviewed the significance for leakage from these valves since QS pump house ventilation was exhausted unfiltered and unmonitored directly to the atmosphere. In addition, the valves were in the recirculation flow path from the containment sump to the HHSI pumps during a design basis accident.

The inspectors reviewed a similar issue addressed by DR 94-317 which documented leakage from a different vent valve, 2-SI-378, located in the same building. The vent connection had one normally open valve and one closed valve (2-SI-378) which was directed to a drain funnel. The licensee determined that an existing 48 drops/minute seat leakage (at RWST standing head) would result in a 10.9 rem incremental thyroid dose increase to control room personnel during a large break LOCA. To stop the leak, the second isolation valve in the line was shut. The DR response stated, "The existing North Anna LOCA analysis does not assume any ECCS leakage into unfiltered areas. Therefore, it must be demonstrated that no ECCS leakage into the unfiltered Quench Spray Pump house will occur. Otherwise, the design basis must be changed to allow leakage in this area."

In response to the DR, a CTS item was opened for the Nuclear Analysis and Fuels Department to review the design basis for leakage into the unmonitored and unfiltered area. Until the inspectors review the CTS item response, this item is identified as Inspector Follow up Item (IFI) 50-338/94-10-02: ECCS Leakage Effects in Unfiltered Areas.

g. NRC Notifications

On May 1, 1994, the licensee notified the NRC as required by 10 CFR 50.72 concerning the notification of off-site authorities. Specifically, the licensee informed the National Response Center and the Virginia Department of Emergency Services concerning a small oil spill into the North Anna River. During routine inspections, operators had discovered that 2-3 gallons of oil had leaked into the river from a hydroelectric unit at the North Anna Dam. The inspectors reviewed this notification and verified that there were no NRC safety-related concerns associated with the event.

One violation was identified.

4. Maintenance Observations (62703)

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

Air Ejector Containment Isolation Valve Troubleshooting

On May 9, 1994, the inspectors observed air-operated containment isolation valve 2-SV-TV-202-1 diagnostic testing. This normally closed valve was designed to open to divert the air ejector exhaust to containment upon receiving an air ejector high radiation signal. The valve was also designed to close on a containment phase A isolation. Failure of the valve to open when called upon could result in an unmonitored radiological release. During the past several months, the trip valve opening stroke time had been inconsistent when tested in accordance with 2-PT-213.14, Valve Inservice Inspection (Misc. A), revision 10. The opening stroke time ranged from approximately 2.5 seconds to one minute. The required stroke time was 1.3 seconds to 3.8 seconds when performed for the PT. The licensee had been unable to determine the cause for the valve's sluggish response since the problem was difficult to repeat and no equipment failures could be identified. The inspectors reviewed this issue in NRC Inspection Report Nos. 50-338, 339/94-02 after a failure on February 12, 1994.

Subsequent to the February failure, the valve continued to experience initial stroke times greater than allowed by the PT. In an ongoing effort to correct this condition, the licensee increased the air supply line size to the valve, repacked the valve, replaced the valve operator's diaphragm, and increased testing frequency from monthly to weekly. Also, procedure 2-PT-213.14 was revised to allow up to 30 seconds for the valve to stroke open. No problems had been experienced with the valve's close function and that acceptance criteria was not changed.

The inspectors reviewed the work documentation for the May 9 maintenance, attended the pre-job briefing, and observed the troubleshooting. The work was performed using MDAP-19, Maintenance Procedure Usage, revision 2, Supplemental Work Instructions. Work instruction steps three and four installed jumpers to defeat the interlock between 2-SV-TV-202-1 and 2-SV-TV-202-2 (normal flow path to vent stack). By design, 2-SV-TV-202-1 would not open until 2-SV-TV-202-2 was full shut. The jumpers were necessary to allow both valves to be open simultaneously for the maintenance. The SNSOC-approved work instruction referenced safety evaluation 94-SE-JMP-021 dated April 22. This safety evaluation was written for a similar jumper installation performed on April 22.

The inspectors reviewed the safety evaluation. Part A, item 7, listed limiting conditions and special requirements identified or assumed by the safety analysis. One special requirement directed operators to shut the Auxiliary Steam valve to the air ejector to prevent an unmonitored

radiation release if a valid high radiation alarm was received. After the jumpers were installed, the inspectors questioned the unit SRO concerning this special requirement. The inspectors found that operators were not aware of this requirement, nor did they have a safety evaluation copy in the control room. The unit SRO also indicated that they were not briefed on the safety evaluation special requirements and that requirements were not included in the SNSOC-approved work instruction installing the jumper. Operators then obtained a safety evaluation copy for use in the control room.

The inspectors informed the licensee concerning this finding. The licensee initiated DR 94-613 and determined that there was not an existing method to ensure that safety evaluation special requirements were incorporated into other documents which use the safety evaluation. The inspectors agreed with the licensee's conclusions and considered that the lack of a process by which safety evaluation conditional requirements were implemented into work instructions was a weakness. Although the DR response was not final at the inspection period's end, the licensee indicated that corrective action would include procedural enhancements and personnel training.

During the maintenance, the valve was satisfactorily stroked four times. AOV diagnostic equipment brought from Surry power station was used to evaluate the valve, and no problems were identified. The valve was again stroked satisfactorily on May 16. The licensee plans to continue the increased test frequency until confidence is gained that the valve's sluggish open stroke condition has been corrected.

No violations or deviations were identified.

5. Surveillance Observations (61726)

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.

Leakage Monitoring Program

The inspectors reviewed the licensee's program for implementing TS 6.8.4.a., Primary Coolant Sources Outside Containment. The review was initiated due to questions the inspectors developed concerning leaking valves in the QS pump house basement (paragraph 3.f). The TS required a program to reduce leakage to as low as practical levels from systems outside containment that could contain highly radioactive fluids during an accident. Specifically, the inspectors verified procedures were in place to perform integrated leak tests for the RS, SI and containment atmosphere cleanup systems. The inspectors noted that acceptance criteria for the procedures did not give a value for acceptable leakage and did not require an engineering review for the leakage. However, in practice, the licensee evaluated leakage for system and environmental impact as evidenced by the hydrogen analyzer leak test previously noted

in paragraph 3.c. Also, the system engineer responsible for the program indicated that they were looking at ways to enhance the program. The inspectors performed a detail review for the RS system. The inspectors determined that the test boundaries and pressure were adequate to meet the TS requirement for a refueling interval leak test. The inspectors concluded that the TS requirements for the leakage monitoring program were being met.

No violations or deviations were identified.

6. Plant Support Activities (71750)

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

On May 11, 1994, the inspectors observed and participated in an emergency preparedness drill conducted by the licensee for site and corporate personnel training. The drill was a large scope evolution which exercised the entire licensee's emergency response organization. The inspectors observed that the drill appeared to be well planned and that participants performed required duties. The inspectors also participated in a drill critique with station management and found that the licensee's drill control staff presented sound findings and recommendations for areas needing improvement.

No violations or deviations were identified.

7. Evaluation of Licensee Self-Assessment Activities (40500)

Self-assessment programs were reviewed to determine if programs contributed to the prevention of plant problems by monitoring and evaluating plant performance, providing assessments and findings, and communicating and following up on corrective action recommendations.

On May 6, 1994, the inspectors attended a meeting between the NRC and the licensee at the Region II office in Atlanta. At the meeting, the licensee presented their station self-assessment results. Meeting items were documented in an NRC Region II letter to the licensee dated May 9, 1994.

No violations or deviations were identified.

8. Licensee Event Report Follow up (92700)

The following LERs were reviewed and closed. The inspectors verified that reporting requirements had been met, causes had been identified, corrective actions appeared appropriate, and generic applicability had been considered.

a. (Closed) LER 50-338, 339/93-13: Missed Surveillance to Functionally Test the Entire Circuitry for Manual Phase A Isolation Switches and Safety Injection Interlock for H and J Bus Undervoltage Protection Due to Personnel Error

This LER documented a failure to functionally test manual phase A isolation switch circuitry portions and the SI interlock to the H and J bus undervoltage protection circuitry. When the condition was discovered, the licensee entered TS 4.0.3, which allowed testing within 24 hours. The missed circuitry portions were then tested satisfactorily. The inspectors verified that the Unit 2 PT, 2-PT-57.4, Safety Injection Functional Test, revision 20, was revised to incorporate the test requirements into future tests. The inspectors also verified that a CTS item was opened to revise the Unit 1 PT prior to the next Unit 1 outage. The inspectors concluded that these corrective actions, when combined with those taken for Violation 50-339/92-04-01 (closed in NRC Inspection Report Nos. 50-338, 339/94-02), were adequate.

b. (Closed) LER 50-338, 339/93-16: Containment Hydrogen Analyzer Inoperable for Greater Than 30 Days Due to a Disconnected Pressure Switch Sensing Line as a Result of Personnel Error

This LER concerned the May 1993 inoperable hydrogen analyzer event discussed in paragraph 3.c. The inspectors reviewed this past event in detail and verified that corrective actions from this LER had been properly completed by the licensee. Additionally, the associated violation, 50-338/93-18-01, was reviewed and closed in NRC Inspection Report Nos. 50-338, 339/93-27. The inspectors concluded that the licensee's actions were sufficient for LER closure and will review additional related actions during violation 50-338, 339/94-10-01 closeout.

c. (Closed) LER 50-338, 339/94-03: Containment Hydrogen Analyzer Inoperable Due to a Failed Tubing Fitting

This LER concerned the April 1994 inoperable hydrogen analyzer event discussed in paragraph 3.c. The inspectors verified that corrective actions discussed in the LER had been completed. Additional corrective actions will be reviewed during closeout for the associated violation, 50-338, 339/94-10-01.

No violations or deviations were identified.

9. Previous Inspection Item Follow Up (92904)

The following previous inspection items were reviewed. The licensee's actions in response to violations were reviewed to establish that corrective actions had been completed and that programs and practices had been strengthened to prevent recurrence.

a. (Open) VIO 50-338, 339/92-18-04: Failure to Maintain Penetration Fire Barriers

This violation concerned the licensee's failure to maintain adequate penetration fire barriers. The inadequate barriers resulted from both original construction deficiencies and problems in the design change process. The licensee's corrective actions included reviews and enhancements to controlling procedures to ensure that affected penetration fire barriers were inspected following work affecting the area. Additionally, the licensee inspected walls upgraded when implementing 10 CFR 50, Appendix R requirements and submitted an exemption from Appendix R requirements to the NRC for certain walls and ceilings in the charging pump areas. Finally, the licensee upgraded all penetration inspection procedures and planned to inspect one fifth of all penetrations each year. This would result in inspections for all penetrations by the end of five years. The inspectors reviewed all corrective actions performed by the licensee and found that all were properly implemented. Also, the inspectors reviewed results for penetration fire barrier inspections performed since the violation (two inspections, with a third in progress). The inspectors noted that a significant number of penetration fire barriers were found inoperable during the inspections and questioned the five year schedule adequacy. The inspectors learned that similar concerns were currently being reviewed by engineering to determine if the penetration inspection results justified accelerating the schedule. This item is left open pending review of the licensee's findings concerning current schedule adequacy for inspecting the remaining penetrations.

b. (Closed) VIO 50-338, 339/92-18-05: Failure to Establish Adequate Fire Barrier Inspection Procedure

This violation concerned the licensee's failure to have an adequate procedure for inspecting penetration fire barriers. As corrective actions, the licensee upgraded inspection procedures to incorporate lessons learned concerning inspection acceptance criteria and station drawing use for penetration identification. Additionally, the licensee added additional guidance concerning access to the penetrations for inspections. The inspectors verified that the appropriate revisions were made to penetration fire barrier inspection procedures (0-PT-105.1.4 series). The inspectors also observed the technicians performing 0-PT-105.1.4C, Fire Protection System-Fire Barriers, revision 2. The inspectors noted that personnel performing the inspections made strong efforts to inspect all penetrations and referred penetrations which were impossible to access to site engineering for

resolution. The inspectors concluded that the licensee's response dated November 18, 1992, to the violation and the corrective actions were adequate.

No violations or deviations were identified.

10. Exit Interview

The results were summarized on May 24, 1994, with those persons identified in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection results addressed in the Summary section and those listed below.

Type	Item Number	Status	Description
VIO	50-338, 339/94-10-01	Open	Inoperable Hydrogen Analyzer (paragraph 3.c)
IFI	50-338/94-10-02	Open	Effects of ECCS Leakage in Unfiltered Areas (paragraph 3.f)
LER	50-338, 339/93-13	Closed	Missed Surveillance to Functionally Test the Entire Circuitry for Manual Phase A Isolation Switches and Safety Injection Interlock for H and J Bus Undervoltage Protection Due to Personnel Error (paragraph 8.a)
LER	50-338, 339/93-16	Closed	Containment Hydrogen Analyzer Inoperable for Greater Than 30 Days Due to a Disconnected Pressure Switch Sensing Line as a Result of Personnel Error (paragraph 8.b)
LER	50-338, 339/94-03	Closed	Containment Hydrogen Analyzer Inoperable Due to a Failed Tubing Fitting (paragraph 8.c)
VIO	50-338, 339/92-18-04	Open	Failure to Maintain Penetration Fire Barriers (paragraph 9.a)
VIO	50-338, 339/92-18-05	Closed	Failure to Establish Adequate Fire Barrier Inspection Procedure (paragraph 9.b)

Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

11. Index of Acronyms and Initialisms

AOV	AIR-OPERATED VALVE
BAST	BORIC ACID STORAGE TANK
BIT	BORON INJECTION TANK
C	CENTIGRADE
CFR	CODE OF FEDERAL REGULATIONS
CTS	COMMITMENT TRACKING SYSTEM
DBA	DESIGN BASIS ACCIDENT
DR	DEVIATION REPORT
ECCS	EMERGENCY CORE COOLING SYSTEM
GPM	GALLONS PER MINUTE
HHSI	HIGH HEAD SAFETY INJECTION
IA	INSTRUMENT AIR
I&C	INSTRUMENTATION AND CONTROL
IFI	INSPECTOR FOLLOW UP ITEM
ISI	INSERVICE INSPECTION
LER	LICENSEE EVENT REPORT
LCO	LIMITING CONDITION FOR OPERATION
LHSI	LOW HEAD SAFETY INJECTION
LOCA	LOSS-OF-COOLANT ACCIDENT
NOS.	NUMBERS
NRC	NUCLEAR REGULATORY COMMISSION
PPM	PARTS PER MILLION
PSIG	POUNDS PER SQUARE INCH GAGE
PT	PERIODIC TEST
QS	QUENCH SPRAY
RCS	REACTOR COOLANT SYSTEM
REM	ROENTGEN EQUIVALENT MAN
RS	RECIRCULATION SPRAY
RWST	REFUELING WATER STORAGE TANK
SI	SAFETY INJECTION
SNSOC	STATION NUCLEAR SAFETY AND OPERATING COMMITTEE
SOV	SOLENOID-OPERATED VALVE
SRO	SENIOR REACTOR OPERATOR
TS	TECHNICAL SPECIFICATION
VIO	VIOLATION