



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

Report No.: 50-395/89-03

Licensee: South Carolina Electric & Gas Company
Columbia, SC 29218

Docket No.: 50-395

License No.: NPF-12

Facility Name: V. C. Summer

Inspection Conducted: February 6-28, 1989

Inspectors: <u>Leo P. Modemus</u>	<u>3/7/89</u>
for Richard L. Prevatte	Date Signed
<u>Leo P. Modemus</u>	<u>3/9/89</u>
for Perry C. Hopkins	Date Signed
Approved by: <u>Leo P. Modemus</u>	<u>3/9/89</u>
for Floyd S. Cantrell, Section Chief	Date Signed
Division of Reactor Projects	

SUMMARY

Scope: This routine inspection was conducted by the resident inspectors onsite in the areas of monthly surveillance observations, monthly maintenance observation, operational safety verification, engineered safety features system walkdown, and action on previous inspection findings. Certain tours were conducted on backshifts or weekends. Backshift or weekend tours were conducted on February 11, 12, 13, 15, 19, and 26, 1989.

Results: The plant was operated at a reduced power level for the majority of February due to maintenance of "B" main feedwater pump and out of specification secondary chemistry caused by resin intrusion into the feedwater system. During the performance of the ESF System Walkdown (paragraph 6), some administrative errors were identified in the system drawings and procedures. The majority of these errors were corrected prior to the end of the inspection period. During the system walkdown several deficiencies which indicated a lack of supervisory oversight and attention to detail were identified on the Emergency Feedwater System. A violation, for failure to follow procedures, which resulted in resin intrusion into the feedwater system was identified (paragraph 5d).

No other violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

W. Baehr, Manager, Chemistry and Health Physics
O. Bradham, Vice President, Nuclear Operations
C. Bowman, Manager, Scheduling and Modifications
W. Higgins, Supervisor, Regulatory Compliance
*S. Hunt, Manager, Quality Systems
*A. Koon, Manager, Nuclear Licensing
G. Moffatt, Manager, Maintenance Services
*D. Moore, General Manager, Engineering Services
*K. Nettles, General Manager, Nuclear Safety
C. Price, Manager, Technical Oversight
*M. Quinton, General Manager, Station Support
J. Shepp, Associate Manager, Operations
*J. Skolds, General Manager, Nuclear Plant Operations
G. Soult, General Manager, Operations and Maintenance
*G. Taylor, Manager, Operations
D. Warner, Manager, Core Engineering and Nuclear Computer Services
M. Williams, General Manager, Nuclear Services
K. Woodward, Manager, Nuclear Operations Education and Training

NRC Resident Inspectors

P. Hopkins, Resident Inspector
*R. Prevatte, Senior Resident Inspector

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

*Attended exit interview

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

2. Plant Status

The unit began the reporting period at 88 percent power due to maintenance on "B" main feedwater pump. After completion of maintenance the unit was returned to 100 percent power on February 10, 1989. The plant was shutdown on February 15, 1989, due to resin intrusion into the feedwater system. The plant was restarted on February 19, 1989, but was restricted to 28 percent power due to chemistry restrictions. Power level was increased to 47 percent on February 23, 1989. At the end of the reporting period power still remained at 47 percent.

3. Monthly Surveillance Observation (61726)

The inspectors observed surveillance activities of safety related systems and components to ascertain that these activities were conducted in accordance with license requirements. The inspectors observed portions of 14 selected surveillance tests including all aspects of Turbine Driven Emergency Feedwater Monthly Operability Test, STP 120.002. The inspectors verified that required administrative approvals were obtained prior to initiating the test, testing was accomplished by qualified personnel, required test instrumentation was properly calibrated, data met TS requirements, test discrepancies were rectified, and the systems were properly returned to service.

No violations or deviations were identified.

4. Monthly Maintenance Observation (62703)

The inspectors observed maintenance activities of safety related systems and components to ascertain that these activities were conducted in accordance with approved procedures, TS and appropriate industry codes and standards. The inspectors also determined that the procedures used were adequate to control the activity, and that these activities were accomplished by qualified personnel. The inspectors independently verified that equipment was properly tested before being returned to service. Additionally, the inspectors reviewed several outstanding job orders to determine that the licensee was giving priority to safety related maintenance and not developing a backlog which might affect a given system's performance. The following specific maintenance activities were observed:

MWR 890049	Investigate and repair bearing oil leak on MFP "B"
MWR 8900236	Trouble shoot and repair SG wide range level transmitter ILT-0497
MWR 88E0053	Replace cell switch on actuating arm in XSW1DA-12
MWR 8900261	Investigate and repair CCW pump "B" alarm
MWR 8900267	Investigate and repair transformer XTFIA
MWR 8900080	Repair/replace N43 upper detector current meter
MWR 8900274	Repair radiation monitor RMG 00011
PMTS P0109842	Repair refueling water heat tracing control panel
PMTS P0114025	Repair service water systems temperature flow transmitter

MWR 8900068 Repair and calibrate turbine temperature indication

MWR 20726 Perform repair to ATWAS

No violations or deviations were identified.

5. Operational Safety Verification (71707)

- a. The inspectors toured the control room, reviewed plant logs, records and held discussions with plant staff personnel to verify that the plant was being operated safely and in conformance with applicable requirements. Specific items inspected in the control room included: adequacy of staffing and attentiveness of control room personnel, TS and procedural adherence, operability of equipment and indicated control room status, control room logs, tagout books, operating orders, jumper/bypass controls, computer printouts and annunciators. Tours of other plant areas were conducted to verify equipment operability, control of ignition sources and combustible materials, the condition of fire detection and extinguishing equipment, the control of maintenance and surveillance activities in progress, the implementation of radiation protective controls and the physical security plan. Tours were conducted during normal and random off-hour periods.
- b. In the previous monthly report (89-01), the plant had reduced power to 88 percent due to the MFWP bearing oil leakage into the feedwater system. The licensee, with assistance from the pump vendor, identified the source of contamination as excessive wear on the pump seals. Repairs were completed on "B" pump and the unit was returned to 100 percent power on February 10, 1989.
- c. On February 6, 1989, RCS chemistry experienced an increase in Iodine 131 activity from approximately 5×10^{-4} microcuries per millimeter to approximately 3×10^{-2} microcuries per millimeter. A power reduction on February 15, 1989, resulted in the levels increasing to approximately 7×10^{-1} microcuries per millimeter. The activity level has continued to follow power level changes as they occur. The licensee has interpreted this as indication of tight fuel defects. The licensee has provided RCS Cesium 134 and 137 activity data to Westinghouse for analysis. Preliminary feedback on this data indicates that there may be from 2 to 5 tight defects in new or once burned fuel. The inspectors will continue to monitor this item and provide additional information as it becomes available.
- d. On February 15, 1989, the unit was shutdown to a hot standby condition due to out of specification chemistry in the secondary system. An investigation by the licensee determined that the source of this problem was resin that had been pumped from the nuclear blowdown system into the main condenser and subsequently into the SG.

The cause of this problem has been partially attributed to a leaking check valve and incomplete system realignment after corrective maintenance on the monitor tank/hold-up tank transfer isolation valve XVD-6186-NB on February 14, 1989. SOP-212, Steam Generator Blowdown, Attachment 1B, lists the normal position of this valve as closed. SAP-201, Step 6.10.3(A), Danger Tagging, requires that the qualified danger tagging insure that the equipment within the tagout boundary be placed in its required position prior to removal of the installed danger tags.

When removing the danger tags on February 14, 1989, the operators failed to follow these procedural requirements. This is contrary to the requirements of 10 CRF 50, Appendix "B", Criteria V and is a violation, "Failure to Follow Procedures", 89-03-01.

To correct this item the licensee issued station order 89-03 on February 17, 1989. This order states that all components worked on under a clearance shall be restored to the normal position before the first tag is removed. A procedural change to SAP-201 to clarify the above has been initiated.

Secondary Chemistry has basically exceeded the EPRI recommended limit for sulphates and cation conductivity since the resin intrusion on February 14, 1989. Plant management made a conscientious decision first not to go to cold shutdown and clean up the system by feed and bleed or drain and fill, but to remain at hot standby and clean up the system using SG blowdown. The plant was maintained on hot standby for four days and was restarted when it appeared that chemistry was returning to established station limits. Upon start-up the chemistry again went out of specification. At that time power level was restricted to 28 percent for four days while cleanup continued. As chemistry approached the required levels, power was escalated to 47 percent. Power was held at that level for three days to allow additional system cleanup. On February 28, 1989 power was raised to 50 percent, a second condensate pump was started and cation conductivity and sulphate levels increased to greater than 10 micromhos per centimeter and 600 parts per billion respectively. At that time a decision was made to periodically start and stop pumps in the condensate and feedwater system on an attempt to flush out any resins laying at low points in the system. At the conclusion of the reporting period, chemistry was out of specifications and the licensee was still attempting to clean up the system. Additional information on this item will be provided in the next monthly report.

This is the second incident of resin intrusion into the secondary system since the unit was restarted from the refueling outage in December 1988. The previous incident involved resin carry over from the condensate polishers which occurred on January 4, 1989. The cause of that occurrence was attributed to failure of a check valve

in the condensate polishers during a system transient. As a result of that incident, unit power was reduced to 40 percent for approximately two days until correct chemistry limits were reestablished.

6. ESF System Walkdown (71710)

The inspectors verified the operability of an ESF system by performing a walkdown of the accessible portions of the Emergency Feedwater System. The inspectors confirmed that the licensee's system line-up procedures matched plant drawings and the as-built configuration. The inspectors looked for equipment conditions and items that might degrade performance (hangers and supports were operable, housekeeping, etc.) and inspected the interiors of electrical and instrumentation cabinets for debris, loose material, jumpers, evidence of rodents, etc. The inspectors verified that valves, including instrumentation isolation valves, were in proper position, power was available, and valves were locked as appropriate. The inspectors compared both local and remote position indications.

The inspector reviewed drawings D302-083 and D302-085 for the Emergency Feedwater System. Drawing D302-085 is an interim drawing awaiting the issuance of the final as-built drawing by the AE. It was noted that the essential control room drawing for D302-085 has some area where the numbers for instrumentation isolations valves were not legible. A review of the above drawings against the SOP valve, electrical, instrument and control panel line-up sheets (attachments I, II, III, & IV) revealed the following discrepancies:

- a. Valves IPI-13502-HR-EF, IPI-13503-HR-EF, IPI-13506-HR-EF, XVG-11037-EF, XVT-11023-EF, IPI-3531-HR-EF, IPI-3536-HR-EF, IPI-3541-HR-EF, IPI-3546-HR-EF, IPI-3551-HR-EF, IPI-3556-HR-EF, IFV-3531-AVI-EF, IFV-3531-VMI-EF, IFV-3541-AVI-EF, IFV-3536-AVI-EF, IFV-3546-AVI-EF, IFV-3546-VMI-EF, IFV-3556-AVI-EF, and IFV-3556-VMI-E5 are listed on valve line-up sheets but not shown on drawing D302-085. If details are provided on another drawing then that drawing should be listed as a procedure reference.
- b. Valves IFV-3541-VMI-EF, IFV-3551-VMI-EF and IFV-3536-VMI-EF not listed on drawing and not listed on valve line-up sheet. Change "C" to Rev. 8 of SOP-211, issued on November 1, 1988 incorporated six valves installed under MRF 21017 into the procedure. The above three were not incorporated.
- c. IPT-3501 not listed under instrument line-up. Change "D" to Rev. 8 of SOP-211 indicates that this has been changed to a closed and capped connection. The as found condition during the inspection was that the valve was closed but not capped.

- d. The inspectors, accompanied by an auxiliary operator, performed a hand-over-hand evaluation of the system to verify that the system line-up matched the valve line-up list and that the system was accurately reflected in the as-built drawings D302-083 and D302-085.

The following deficiencies were identified:

- (1) Missing identification tag on IFT-3631-HR-EF
- (2) Field standard gauge not removed after testing on IPS-3514
- (3) Plug removed for testing on XVT-11002 not reinstalled
- (4) MWR881180 on XPP-21A for leaking oil; this item was over six months old and was not repaired during the refueling outage
- (5) Miscellaneous I & C fittings laying around in area of emergency feedwater pumps
- (6) MWR8801073 on XPP-0008 for leaking oil; this item was over six months old and was not repaired during the refueling outage
- (7) MWR8801003 on TDEFWP for leak; this item was over six months old and was not repaired during the refueling outage
- (8) Wiring insulation split on TDEFWP
- (9) Area around TDEFWP needs general cleanup
- (10) Bottom cover on TDEFWP not reinstalled after outage maintenance.
- (11) Boot in TDEFWP exhaust in need of replacement
- (12) XVT-2826-MS leaking in TDEFWP room
- (13) APN-01DB2-EM door missing closure bolt

The overall condition of the system appeared satisfactory, with the exception of the area of the TDEFWP. The failure to correct leaks and incomplete maintenance activities performed in this area indicates a lack of attention to detail and supervisory oversight. The inspector observed the satisfactory monthly operational surveillance test performed on the TDEFWP on February 12, 1989.

The majority of the above deficiencies were corrected prior to the end of the inspection period.

No violations or deviations were identified.

7. Action on Previous Inspection Findings (92701, 92702)

(Closed) Violation 88-17-01, Failure to follow procedures. The licensee provided a written response to this item in a letter to Region II, dated October 14, 1988. In this letter the licensee took exception to the violation as stated, but agreed that corrective action was required to correct the deficiency and prevent future occurrences. Region II, in a letter dated November 7, 1988, agreed with the licensee's position. The inspector reviewed the corrective action implemented by the licensee and found it to be appropriate for the event.

8. Exit Interview (30703)

The inspection scope and findings were summarized on March 1, 1989, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed the inspection findings. The violation for Failure to Follow Procedures (paragraph 5d) and the deficiencies identified during the Emergency Feedwater System Walkdown (paragraph 6) were discussed in detail. 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 the inspection.

9. Acronyms and Initialisms

AE	Architect Engineer
ATWAS	Anticipated Transient Without a Scram
CCW	Component Cooling Water
DG	Diesel Generator
DWG	Drawing
EFWP	Emergency Feedwater Pump
EPRI	Electric Power Research Institute
ESF	Engineered Safety Feature
I & C	Instrumentation and Control
MFWP	Main Feedwater Pump
MWR	Maintenance Work Request
NRC	Nuclear Regulatory Commission
PMST	Preventive Maintenance Task Sheet
RCS	Reactor Coolant System
SAP	Station Administrative Procedure
SG	Steam Generator
SOP	System Operating Procedure
STP	Surveillance Test Procedures
TDEFWP	Turbine Driven Emergency Feedwater Pump
TS	Technical Specifications