



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report No.: 50-395/85-02

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

Docket No.: 50-395

License No.: NPF-12

Facility Name: V. C. Summer

Inspection Conducted: January 1 - 31, 1985

Inspector:

C. W. Hehl

2/15/85
Date Signed

Approved by:

F. S. Cantrell, Section Chief
Division of Reactor Projects

2/15/85
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 144 inspector-hours onsite in the areas of plant tours; operational safety verification; monthly surveillance observations; monthly maintenance observations; followup on written reports of non-routine events and operating reactor events; independent inspection effort.

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Licensee Employees Contacted

- *O. Bradham, Director, Nuclear Plant Operations
- *K. Woodward, Manager, Operations
- B. Williams, Supervisor of Operations
- *M. Quinton, Manager, Maintenance
- *M. Browne, Manager, Technical Support
- B. Croley, Group Manager, Technical and Support Services
- *G. Putt, Manager, Scheduling and Materials
- *C. McKinney, Regulatory Compliance
- *M. Blue, Engineer, Nuclear Licensing
- *A. Koon, Associate Manager, Regulatory Compliance
- *J. Connelly, Deputy Director, Operations and Maintenance
- *R. Campbell, Engineer, ISEG
- *M. Irwin, Nuclear Licensing Specialist
- *R. Flowkes, Engineer, Regulatory Interface
- F. Bacon, Associate Manager, Chemistry
- B. Soult, Associate manager, Maintenance

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

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on February 1, 1985, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings and had no comment. The Licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Operational Safety Verification (71707, 71710)

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the report period. The inspector verified the operability of selected emergency systems,

reviewed removal and restoration logs, and tagout records, and verified proper return to service of affected components. Tours of the control, auxiliary, intermediate diesel generation, service water and turbine buildings were conducted to observe plant equipment conditions including potential fire hazards, fluid leaks, and excessive vibrations, and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector, by observation and direct interview, verified that the physical security plan was being implemented in accordance with the Station Security plan.

During this inspection period, the inspector performed walkdown verification of selected portion of the Emergency Feedwater (EFW), High Head Safety Injection, Low Head Safety Injection and the Reactor Building Spray Systems. No deficiencies were identified with the following exception:

On January 16, 1985, during verification of the alignment of the EFW system, the inspector noted that the locking chain for stop check valve 1019B was secured at one end by wrapping it around a snubber for flow control valve IFV3541. The duty shift supervisor was notified of this finding and the locking chain was immediately removed from the snubber and moved to a more suitable location. Since the locking tab chain involved was of very light weight design, it is doubtful whether the presence of this chain would have impeded the snubber function and the deficiency was immediately corrected, this item is considered closed.

No violations or deviations were identified in this area.

6. Surveillance Observation (61726)

During the inspection period, the inspector verified by observation/review that selected surveillances of safety-related systems or components were conducted in accordance with adequate procedures, test instrumentation was calibrated, limiting conditions for operation (LCO) were met, removal and restoration of the affected components were accomplished, test results met requirements and were reviewed by personnel other than the individual directing the test, and that any test deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

On January 18, 1975, during performance of Surveillance Test Procedure (STP) 506.002, Reactor Coolant Pump Undervoltage Trip Actuating Device Operational Test, the licensee determined that undervoltage (UV) relaying for reactor coolant pump (RCP) B was not functioning satisfactorily. In accordance with the requirements of Technical Specification (TS) Table 3.3-1, the associated RCP UV protection channel was placed in the tripped condition within one hour, allowing the plant to continue to operate until the next performance of STP 506.002, thirty days hence. Subsequent licensee investigation determined that time delay Agastat relay, 27Y1B, associated with UV relay 27Y was defective.

By design, the RCP UV protection scheme at V. C. Summer utilizes three UV relays (one per phase) on each RCP 7.2 KV bus. If three of three UV relays on two of the three RCP buses indicate an UV condition, the reactor protection system generates a reactor trip signal. Subsequent attempts by the licensee to replace the defective Agastat relay determined that due the mounting configuration, it could not be replaced without subjecting a technician to significant hazard from electrical shock and potentially initiating an inadvertent reactor trip. Based on this determination the licensee initiated a modification under the control of their plant modification program to individually isolate the affected Agastat relay allowing reenergization of remaining two of three undervoltage relays associated with RCP B. This modification effectively restored the required number of operable RCP UV protection channels and allowed the plant to exit the associated action statement of TS Table 3.3-1.

The licensee discussed this modification with NRC Region II prior to implementation on January 29, 1985. The inspector observed implementation of this modification and satisfactory performance of post-modification testing. The licensee will replace the defective Agastat relay at the next outage of sufficient duration.

No violations or deviations were identified.

7. Maintenance Observation (62703)

Station maintenance activities of selected safety-related systems and components were observed/reviewed to ascertain that they were conducted in accordance with regulatory requirements. The following items were considered in this review: the (LCO) were met; activities were accomplished using approved procedures; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control record were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; and radiological controls were implemented as required. Maintenance Work Requests were reviewed to determine status of outstanding jobs to assure that priority was assigned to safety-related equipment which might affect system performance.

No violations or deviations were identified.

8. On Site Followup of Written Reports of Non-routine Events (92700)

The inspector reviewed the following Licensee Event Reports (LERs) to ascertain whether the Licensee's review, corrective action, and report of the identified event and associated conditions were adequate and in conformance with regulatory requirements, TS, license conditions, and licensee procedures and controls.

(Closed) LER 83-082, Diesel Generator Tripped on Spurious Alarm. On July 18, 1983, Diesel Generator "B" tripped, during a surveillance run, as a result of a spurious activation of the High Crank Case Pressure switch. This spurious trip was thought to have occurred as a result of vibration amplified by the pressure switch mounting configuration. On October 2, 1984, the licensee completed a modification which relocated the High Crank Case Pressure switches to locations less prone to vibration during diesel operation.

(Closed) LER 84-018, Steam Generator Blowdown System Snubber and Support Failures. This voluntary LER delineated the results of snubber inspections conducted in March and April of 1984 which indicated multiple snubber failures attributable to system transients apparently caused by system misoperation. The identified failures were corrected and the licensee committed to perform inspections of this system during the refueling outage. The inspector reviewed the results of walkdown inspections of this system conducted in July, 1984 and November, 1984 which detected no sign of damage. The system was found to be in its designed condition with no further indication of misoperation.

(Closed) LER 84-024, Reactor Trips Resulting From Turbine Trips, Due to Low Shaft Oil Pump Discharge Pressure. This LER reported two reactor trips on April 22 and 29, 1984, which occurred while rolling the main turbine. Investigation of the low shaft oil pump discharge pressure switch activations at the time of these events did not identify a root cause for the one inadvertent activation and the one instance of measured low discharge pressure. The licensee planned inspection of the pump and check valve during the first refueling outage. This inspection was performed in October, 1984, with no deficiencies identified.

(Closed) Special Report (SPR) 84-010, Seismic Instrumentation. This licensee special report, dated July 16, 1984, discussed the inoperability of seismic instrument IYM 01789 due to acceleration scribe marks, induced by low frequency pipe vibration, potentially masking indications of an actual seismic event. Corrective action proposed by the licensee was to relocate this instrument during the forthcoming refueling outage. The inspector reviewed documentation indicating this instrument was relocated from the pressurizer surge line to the accumulator safety injection line-loop 3, on October 26, 1984. The instrument was recalibrated on October 26, 1984 and returned to service. Technical Specification Amendment 32 which was issued on November 8, 1984, identifies the new location for seismic instrument IYM 01789. A revision to the applicable portions of the Final Safety Analysis Report, to incorporate this change, is being processed by the licensee's Licensing Department.

(Closed) LER 84-041, Reactor Trip During Conduct of Plant Shutdown. This LER reported a reactor trip which occurred on September 28, 1984, during a plant shutdown for a refueling outage. The trip resulted from an intermediate range detector (NI-35) remaining above its high flux trip setpoint

when power range nuclear instrumentation de-energized permissive P-10, unblocking the NI-35 high flux trip. As a result of this event, the licensee identified corrective actions to be completed prior to startup following the refueling outage. The inspector reviewed these corrective actions and their implementation. This review determined the corrective actions were implemented prior to plant startup and that the actions taken appear adequate to resolve the root causes of this event.

(Closed) Special Report (SPR) 84-013, Loose-Part Detection Instrumentation. This special report, required by TS 3.3.3.10 as a result of Digital Metal Impact Monitoring System (DMIMS) inoperability, described the licensee's plans for repairing this system prior to startup after the first refueling outage. The inspector reviewed licensee documentation of this repair effort and determined that the DMIMS system was repaired and returned to operable status prior to startup following the refueling outage.

(Closed) LER 83-100, Pressurizer Power Operated Relief Valve (PORV) Potential for Inadvertent Opening Due to Single Failure. This LER identified a concern regarding the protective channel assignment of an input to the Cold Overpressure Protection System (COPS), in that, a loss of power to Channel IV Protection Cabinet would inadvertently open PORV 445A via the COPS. During the recent refueling outage, the licensee implemented an NRC approved modification which transferred the COPS from the PORVs to the residual heat removal loop suction relief valves. As part of this modification, the COPS circuitry for PORV actuation was removed thus eliminating the above concern.

(Closed) LER 83-102, Turbine Room Sump Liquid Radiation Monitor Inoperable Due to Clogged Solenoid Valve. The licensee implemented a modification, MRF 20355, during the first refueling outage which should alleviate recurrence of this condition.

(Closed) LER 84-38, PORV Position Indication.

(Closed) LER 84-35, RB Radiation Monitor Inoperable.

(Open) LER 83-074, Diesel Generator Output Breaker Tripped Due to Line Surge from Lightning Strike. The licensee is implementing modification MRF 20426 to relocate the existing surge suppression capacitors to reduce the likelihood of recurrence. The inspector has reviewed the subject modification and finds this item acceptable for closure following its implementation.

(Open) LER 83-094, Ambient Temperature in the Service Water Pump House (SWPH) Exceeding Temperature Limits. The licensee has evaluated the summer time ambient temperature concerns identified in this LER and has developed a modification to install cooling coils in the SWPH forced ventilation system. The modification MRF 10759, is in the process of being implemented. The inspector has reviewed this modification and finds this item acceptable for closure following its implementation.

9. Onsite Followup of Events at Operating Reactors (93702)

- A. On January 7, 1985, the plant was shutdown to repair a two pound per hour hydrogen leak on the main generator. The hydrogen leakage was determined to have been caused by a defective weld in the main generator seal oil return line. Due to the physical location of the leak, an interim fix of constructing a sealed enclosure around the weld was implemented. A permanent repair is planned for a future outage. The unit was returned to power on January 8, 1985.
- B. On January 13, 1985, the unit was shutdown from 100% power in response to out-of-specification secondary chemistry. The out-of-specification chemistry resulted from condensate polishing resin inadvertently entering the main condenser from the Kidney Loop.

The Kidney Loop, a plant modification the license installed during the last refueling outage is designed to supplement the online condensate polishing units by drawing condensate from the main condenser hotwell, passing the condensate through a condensate polisher and then returning the condensate to the hotwell. Startup testing of this modification, which occurred concurrent with startup of the plant following the refueling outage, identified numerous equipment problems which prompted a licensee decision to halt work on the Kidney Loop. At approximately 2:30 A.M. on January 13, 1985, the duty shift supervisor and the duty instrument and control technician working independent of each other on resolution of Kidney Loop equipment problems inadvertently opened a path from the main condenser to the inlet of the Kidney Loop polishers resulting in condenser vacuum sucking resin into the condenser hotwell.

At approximately 3:00 A.M. on January 13, 1985, a chemistry technician noted an increase in steam generator (SG) blowdown cation conductivity and notified the shift supervisor. Subsequent steam generator samples determined cation conductivity at 112 umho/cm, pH at 4.1 units, sulfates at 5200 ppb and chlorides at 306 ppb. In accordance with guidelines contained in plant chemistry procedures at 3:45 A.M. a plant shutdown was initiated. Following discussions with Westinghouse, the plant was stabilized at approximately 350 degrees F to facilitate secondary system cleanup. As cleanup of the secondary system chemistry progressed, the unit was restarted on January 14, 1985, and returned to full power on January 19, 1985. Preliminary evaluations of this event by Westinghouse and the licensee indicate no significant degradation of the steam generators has occurred. The licensee is continuing to evaluate this event and formulate corrective action which will preclude reoccurrence.

The inspector will followup on this corrective action determination. This is inspector followup item 85-02-01.

10. Independent Inspection Effort (92706)

A. Review of Inspector Followup Items

(Closed) IFI 84-14-02, Undercut Acceptance Criteria. This IFI was opened to track a licensee commitment to amend Welding Manual Procedure (WM) 1.0 to reflect the undercut requirement of paragraph 3.6.4 of AWS d1.1-72. Revision 7 to WM-1.0, issued on December 6, 1984, reflects this requirement.

B. Review of Licensee Action in Response to IE Information Notice No. 84-92

IEN 84-92, Cracking of Flywheels on Cummins Fire Pump Diesel Engines, alerted recipients of a potentially significant problem of cracking flywheels on certain models of Cummins fire pump diesel engines. In response to this IEN, the licensee has verified that the Cummins diesel fire pump engine utilized at V. C. Summer does in fact have the suspect part number flywheel. The licensee has placed an order for the recommended replacement truck engine flywheel and intends upon receipt to replace and inspect the suspect flywheel. The inspector will followup on the results of this inspection (IFI 85-02-02).