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Southern Nuclear Operating Company  
*the southern electric system*

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50-364

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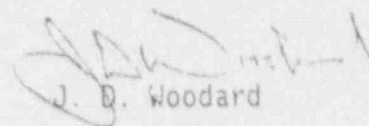
Joseph M. Farley Nuclear Plant  
Reply to Notices of Violation and Deviation  
Report Numbers 50-348/92-17 and 50-364/92-17  
Violation Number 50-348,364/92-17-01  
Violation Number 50-348,364/92-17-02  
Violation Number 50-348,364/92-17-03  
Deviation Number 50-348,364/92-17-04  
NRC inspection of June 8 - July 10, 1992

Gentlemen:

This letter refers to the violation and deviation cited in the subject inspection report. Attachment 1 provides the Southern Nuclear Operating Company (SNC) response to violation number 50-348,364/92-17-01, Attachment 2 provides the SNC response to violation number 50-348,364/92-17-02, Attachment 3 provides the SNC response to violation number 50-348,364/92-17-03 and Attachment 4 provides the SNC response to deviation number 50-348,364/92-17-04.

If you have any questions, please advise.

Respectfully submitted,

  
J. D. Woodard

DPH:cht-92.1968

Attachments

cc: Mr. S. D. Ebner  
Mr. S. T. Hoffman  
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ATTACHMENT 1

REPLY TO NOTICES OF VIOLATION

REPORT NUMBERS 50-348/92-17 AND 50-364/92-17

VIOLATION NUMBER 50-348,364/92-17-01

## THE VIOLATION STATES:

10 CFR 50, Appendix B, Criterion XVI, and the Licensee's accepted Operations Quality Assurance Program, FSAR 17.2.16, require measures which assure prompt identification and correction of conditions adverse to quality, such as failures, deficiencies, and noncompliances. Additionally, for significant conditions adverse to quality, the measures are required to assure that the cause is determined and that corrective action is taken to prevent recurrence.

Contrary to the above, the licensee's measures did not assure prompt identification and correction of deficiencies in relay settings or in the procedures for establishing and verifying compliance with Technical Specification (TS) requirements for the relay settings. Further, the measures did not assure that the causes were promptly determined nor that corrective actions were taken to preclude recurrence of noncompliance with the TS surveillance test setting limits for the relays. The relay setting deficiencies were significant in that (1) the settings determine proper actuation of equipment for design accident mitigation, and (2) multiple instances of failures to comply with TS limits were experienced within a period of a few months. Examples of the deficiencies are as follows:

1. Although timing relay settings in three of four Engineered Safeguards System/Loss of Offsite Power load sequencers failed TS 4.8.1.1.2.c.9 testing during April 1991, and the cause had not been determined, the licensee returned to power without verifying the operability of the fourth (B2G).
2. Although sequencer timing relay calibration procedure deficiencies were identified as the cause of the above failures in September 1991, and the sequencer B2G relays had been calibrated with a deficient procedure, no measures were taken to assure that B2G settings met TS limits. In the next regularly scheduled TS test, over eight months later, B2G timing relays failed to meet the specified limits.
3. The determination of the cause of the setting deficiencies for the timing relays, documented on Incident Reports 2-91-102 and -103 in September 1991, was inadequate in that:
  - It indicated there was not a generic problem, whereas five failures had occurred in one month and another apparently related failure remained undetected (i.e., B2G).
  - It failed to recognize two deficiencies in sequencer test procedures FNP 1/2-STP-80.3. First, there was no provision for re-centering settings found near the acceptance limits. Second, the potential measurement inaccuracy associated with the stopwatch timing employed by the procedures was excessive.

4. Although four 4.16 kV emergency bus undervoltage relays failed TS 3/4.3.2, Tables 3.3-4 and 3.3-5, trip voltage and response time setpoint tests in March/April 1992:
  - An investigation had only been initiated for one of the four failures.
  - Over four months later the investigation was not complete and the cause had not been documented.

This is a Severity Level IV violation (Supplement 1).

#### Admission or Denial

The violation occurred as described in the subject report.

#### Reason for Violation

This violation was caused by:

1. Personnel error on the part of plant management for not completing timely review of plant incident reports 2-91-102 and 103.
2. Personnel error on the part of Operations in that test and restoration activities were not specified or were inappropriately deleted subsequent to replacing sequencer relays in October/November 1990.
3. Personnel error on the part of maintenance management in that an inadequate review was performed on plant incident reports 2-91-102 and 103. This inadequate review failed to identify the root cause of the relay out-of-tolerance conditions such that effective corrective action was not taken.
4. Procedural inadequacy in that the calibration procedure allowed sequencer ESS/LGSP relays to be initially setup using all of the allowable Technical Specification tolerance of  $\pm 10\%$ . This permitted relays to be installed with a bias toward the higher or lower tolerance band and did not allow any margin for inaccuracies such as relay drift. In addition, the calibration procedure did not specify the order in which certain sets of contacts were to be set. This oversight could have resulted in final setting values to be different than initially calibrated.
5. Procedural inadequacy in that a plant incident report was not clearly required and as such was not generated for three of the four undervoltage relay test failures in March/April 1992.

#### Corrective Steps Taken and Results Achieved

1. All relays in sequencers B1F, B1G, B2F and B2G were either replaced and/or recalibrated using a new procedure developed by I&C. This procedure utilizes electronic timing techniques to ensure setpoint measurement accuracies in the millisecond range whereas the original

procedure used stopwatch methods. Using this procedure, all Agastat relays were set as close as possible to the center of their individual tolerance band. In addition, other relays (non sequencer, safety related Agastats) which may have been subject to similar calibration errors have been evaluated, retested and reset as appropriate.

The Technical Specification interval for surveillance of the ESS/LOSP sequencers is 18 months. In an effort to gain insight into performance of Agastat relays, all four of the sequencer panels were tested several times at approximately 24 hour intervals. Once this data was obtained and confidence was established in performance of the relays, the interval for repeating the surveillance was extended to 3 days. Subsequently, the interval was extended to 1 week. Presently, the surveillance is conducted at 2 week intervals. Surveillance results to date indicate that the procedural changes in relay calibration and data collection techniques have yielded significant improvements in sequencer performance and re-established confidence in capability to satisfy Technical Specification criteria.

Analyses were performed by Southern Company Services using the diesel generator dynamic model and assuming the worst case potential errors in sequencer step loadings. This analysis indicated that the diesel would have been capable of starting and accelerating under these conditions. The results of these analyses were provided to the NRC during the EDSFI. Accident analysis assumptions for component start times were also reviewed based on the as-found sequencer relay settings and it was concluded that the analyses remain valid.

2. ESS/LOSP sequencer relays have been retested in accordance with revised test procedures and are within Technical Specification limits.
3. A thorough review was performed on plant incident reports 2-91-102 and 103. The conclusions of that review are reflected in 1 and 4.
4. The calibration procedure for sequencer relays was revised to require initial settings in the center of the tolerance band. In addition, the procedure was modified to specify the order in which certain contact sets were to be calibrated to prevent potential setting errors.
5. The cause of failure of the four undervoltage relays has been investigated and appropriate corrective action taken.

#### Corrective Steps to Avoid Further Violations

1. Plant management is placing greater emphasis on timely evaluation and appropriate corrective action of plant incident reports.
2. Operations personnel have been reinstructed to ensure appropriate test and restoration procedures are performed following work on safety related equipment.
3. Maintenance Management personnel have been coached on the requirements for timely and thorough review of plant incident reports.

4. All sequencer relays have been placed on a testing program to provide greater assurance that the relays remain within their allowable setpoints. In addition, this program establishes adjustment tolerances to allow identification of relay drift prior to reaching Technical Specification limits so that appropriate corrective action can be taken.
5. Procedures will be revised to clarify the requirements for generation of plant incident reports.

Date of Full Compliance

December 19, 1992

ATTACHMENT 2

REPLY TO NOTICES OF VIOLATION

REPORT NUMBERS 50-348/92-17 AND 50-364/92-17

VIOLATION NUMBER 50-348,364/92-17-02

**THE VIOLATION STATES:**

10 CFR 50, Appendix B, Criterion XII, and the licensee's accepted Operations Quality Assurance Program, FSAR 17.2.12, require that measures be established such that measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits.

Contrary to the above, the surveillance start timer, a device used to verify operability of each emergency diesel generator during surveillance testing, was not in a calibration program and there was no documentation of calibration of this device. The subject surveillance testing was performed to meet the requirements of Technical Specification 4.8.1.1.2 and was controlled through Surveillance Test Procedures such as FNP-0-STP-80.1.

This is a Severity Level IV violation (Supplement 1).

Admission or Denial

This violation occurred as described in the subject report.

Reason for Violation

This violation was caused by:

Procedural inadequacy in that the Surveillance Test Procedure allowed use of the SST and did not require verification that the SST was calibrated.

Corrective Steps Taken and Results Achieved

The SST was calibration checked satisfactorily on July 8, 1992. Voltage and frequency inputs to the SST had previously been incorporated into the calibration program.

The last 100 normal surveillances for the 4075 KW diesels and the last 100 normal surveillances for the 2850 KW diesels were reviewed with regard to start times. In each case, the time measured by the calibrated stopwatch and the SST were compared and with the exception of one start on 2C diesel generator, all recorded times were less than technical specification limits. In the case of the 2C diesel generator, both the calibrated stopwatch and the SST indicated times greater than technical specification limits and both were within one second of each other.

Thus, the use of the SST for the last 100 D/G normal surveillances has been validated and no operability concerns exist.

Corrective Steps Taken to Avoid Further Violations

- 1) A procedure has been written and implemented to calibration check the SST at periodic intervals.



- 2) The diesel generator Surveillance Test Procedures have been revised to record the SST calibration due date to ensure it is within the current calibration period.
- 3) Other Surveillance Test Procedures will be reviewed to ensure the procedures require verification that installed plant instrumentation relied upon for acceptance criteria is within calibration.

Date of Full Compliance

December 19, 1992

ATTACHMENT 3

REPLY TO NOTICES OF VIOLATION

REPORT NUMBERS 50-348/92-17 AND 50-364/92-17

VIOLATION NUMBER 50-348,364/92-17-03

**THE VIOLATION STATES:**

10 CFR 50, Appendix B, Criterion V, and the licensee's accepted Operations Quality Assurance Program, FSAR 17.2.5, require that activities affecting quality be prescribed by and performed in accordance with instructions, procedures or drawings which include appropriate acceptance criteria for determining the activity is satisfactorily accomplished. The installation and inspection of supports which serve to prevent damage to safety-related equipment are activities affecting quality and, as such, must comply with this requirement.

Contrary to the above, installations of supports which serve to prevent damage to safety-related equipment were not prescribed by and/or were not performed in accordance with instructions, procedures or drawings which included the appropriate acceptance criteria. Examples were as follows:

1. Vent dryer tanks were located above Emergency Diesel Generator fuel oil transfer pumps where, if inadequately supported for a seismic event, they could fall and disable the safety-related pumps. The following conditions indicated support installation was inadequately prescribed by and/or performed in accordance with instructions, procedures or drawings containing appropriate acceptance criteria:
  - The installation was made in accordance with Change Notice SM-982 which showed the vent dryer tank to be mounted six inches above the fuel oil storage tank. Instead, it was installed approximately six feet above the fuel oil storage tank.
  - The vent dryer tank legs had been modified for the support arrangement without controlled drawings or instructions for assuring acceptable installation.
  - Bolted clips to aid in preventing movement of the dryer tanks on the supports were loose in some installations, and would not fully perform as intended.
  
2. Emergency Diesel Generator exhaust mufflers were not supported to permit appropriate thermal expansion during diesel operation, while precluding inappropriate movement of the mufflers to positions that might damage safety-related equipment or structures. The following conditions indicated support installation and subsequent inspections were inadequately prescribed by and/or performed in accordance with instructions, procedures or drawings containing appropriate acceptance criteria:
  - Damage to the supports and to concrete beneath the supports was apparently due to thermal expansion and indicated the original installation was inadequate. For diesel 1B the support was visibly in contact with bolting that would restrain movement during muffler thermal expansion.

- Maintenance Procedure FNP-O-MP-12.2, "Diesel Generator Intake and Exhaust Visual Inspection," required a verification that the exhaust silencer (muffler) is free to slide through the thermal expansion support. Verifications had not been performed in accordance with the procedure, as they had failed to identify damage to structures and the supports caused by interferences which prevented free support movement during muffler heat up and expansion.

This is a Severity Level IV violation (Supplement 1).

#### Admission or Denial

The violation occurred as described in the subject report. However, SNC review concludes that the installation of the fuel oil vent filter was consistent with the original Change Notice. The six inch dimension referenced on the subject Change Notice depicts the location to cut the vent pipe to tie in the vent filter piping rather than the proposed location of the vent filter.

#### Reason for Violation

The violation was caused by:

1. Inadequate procedures in that the fuel oil vent filters were installed by plant staff with little or no procedural guidance for design and installation of small bore piping and supports.
2. a) Inadequate design in that insufficient detail information to ensure proper installation of the muffler sliding supports was provided.  
b) Inadequate procedural guidance/acceptance criteria for inspection of the diesel generator muffler sliding supports.

#### Corrective Steps Taken and Results Achieved

1. The fuel oil vent filters were installed in 1978 as a system enhancement and perform no safety related function. As a conservative measure, these filters were removed on June 12, 1992. An analysis that demonstrated the as-found vent filter configuration did not constitute a Seismic II/I concern was prepared and provided to the NRC during the EDSFI.
2. The existing configuration of the diesel generator muffler sliding supports does not adversely affect system operability. This was concluded after detailed inspections and analysis were completed indicating that the as-found configuration of the sliding supports was adequate to resist anticipated loads.

Corrective Steps to Avoid Further Violations

1. The FNP staff developed and implemented procedures for design installation of small bore piping and supports in 1983. These procedures require consideration of Seismic II/I concerns.

A review of other small bore piping changes implemented by plant staff prior to 1983 will be performed to verify compliance with Seismic II/I criteria.

2.
  - a) Design changes have been developed and will be implemented to correct the identified muffler support problems.
  - b) Procedures have been revised to clarify the acceptance criteria for inspection of the sliding support.

Date of Full Compliance

January 31, 1993

ATTACHMENT 4

REPLY TO NOTICE OF DEVIATION

REPORT NUMBERS 50-348/92-17 AND 50-364/92-17

DEVIATION NUMBER 50-348,364/92-17-04

**THE DEVIATION STATES:**

Licensee Final Safety Analysis Report, Revision 10, Section 9.5.4, Diesel Generator Fuel Oil System, states that buried piping and tanks are provided with cathodic protection.

Contrary to the above, the licensee failed to assure that the cathodic protection was provided in that:

For the period from installation of the cathodic protection system in 1982 to 1988 the system was not monitored or maintained in a manner which would assure that adequate protection from [sic] galvanic corrosion was provided for the piping and tanks. A 1988 evaluation by a corrosion specialist determined that the system had not been providing adequate protection. Licensee actions to upgrade the system were accomplished in 1991. The licensee had not evaluated the potential degradation of the unprotected piping and tanks, nor had they implemented actions to accomplish periodic ground potential monitoring as recommended by the 1988 evaluation.

Reason for Deviation

The cause of this deviation was:

1. Personnel error in that there was no periodic maintenance procedure for the cathodic protection system from 1982 to 1990.
2. Procedural inadequacy in that work control procedures did not clearly require an evaluation to determine potential effects on buried piping and tanks due to a long term degraded cathodic protection system.
3. Personnel error in that the recommendation to perform ground potential testing was not included in the periodic maintenance program.

Specific Action Taken

1. Prior to the EDSFI, the cathodic protection system had been restored to its original design capability, consistent with the FSAR statement.
2. The cathodic protection system was added subsequent to licensing of FNP as an enhancement to the primary means of corrosion protection which is the wrapping system for underground piping and bitumastic coating for the fuel oil storage tanks. The FSAR statement regarding cathodic protection of the fuel oil system was added during preparation of the updated FSAR. In response to NRC questions during the EDSFI, the potential degradation of the diesel generator fuel oil storage tanks and piping due to poor performance of the cathodic protection system was evaluated, and it was concluded that galvanic corrosion could only occur if the existing protective coatings were flawed. Further, if corrosion did occur, it would result only in localized small perforations which would not compromise the structural integrity of the tanks or piping or their capability, consistent with the FSAR statement.

3. Ground potential testing was performed by a vendor at FNP in August of 1991. This testing confirmed proper functioning of the cathodic protection system.

Corrective Steps to Avoid Further Deviations

1. Work control procedures will be revised to require that a determination be made during work order processing as to whether or not an engineering review is needed to evaluate the reported condition and potential long term effects.
2. Maintenance procedures have been implemented for the rectifier units. Maintenance procedures will be implemented to institute periodic ground potential testing.

Date Corrective Action Will Be Completed

December 31, 1992