



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

Report Nos.: 50-348/92-31 and 50-364/92-31

Licensee: Southern Nuclear Operating Company, Inc.
P.O. Box 1295
Birmingham, AL 35201-1295

Docket Nos.: 50-348 and 50-364 License Nos.: NPF-2 and NPF-8

Facility name: Farley 1 and 2

Inspection Conducted: November 9 - December 8, 1992.

Inspectors: *R. W. Wright* 12/15/92
George F. Maxwell, Sr. Resident Inspector Date Signed
R. W. Wright 12/15/92
Michael J. Morgan, Resident Inspector Date Signed
R. W. Wright 12/15/92
Robert W. Wright, RII Farley Project
Engineer (November 30 - December 4, 1992) Date Signed

Approved by: *Floyd S. Cantrell* 12/15/92
Floyd S. Cantrell, Chief Date Signed
Reactor Projects Section 1B
Division of Reactor Projects

SUMMARY

Scope:

This routine, resident inspection involved on-site inspection of operations, maintenance, surveillance, cold weather preparations, training for emergency preparedness, and action on previous inspection findings. Deep backshifts were performed November 21, 29 and December 4, 1992.

Results:

Major items of Unit 1 refueling outage number 11 were completed November 29, paragraph 3.a. On November 29, one of two offsite sources of power was lost to the "1A" startup transformer due to a fault on a ring bus breaker, paragraph 3.b. On November 21, the "1A" residual heat removal (RHR) pump suction relief lifted, paragraph 3.c. During the week of November 30, the inspectors conducted a review of licensee's cold weather preparations, paragraph 6. On December 1, the inspectors observed portions of an "in-house" emergency preparedness training exercise, paragraph 7.

No deviations or violations were identified. Results of this inspection indicate that actions by management, operations, maintenance and other site personnel were adequate.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

W. Bayne, Supervisor, Safety Audit and Engineering Review
R. Coleman, Modification Manager
L. Enfinger, Administrative Manager
S. Fulmer, Superintendent, Operations Support
*R. Hill, General Manager - Farley Nuclear Plant
M. Mitchell, Superintendent, Health Physics and Radwaste
*C. Nesbitt, Operations Manager
*J. Osterholtz, Technical Manager
*L. Stinson, Assistant General Manager - Plant Operations
*J. Thomas, Maintenance Manager
L. Williams, Training Manager
B. Yance, Systems Performance Manager

Other licensee employees contacted included, technicians, operations personnel, security, maintenance, I&C and office personnel.

*Attended exit interview

F. S. Cantrell, Section Chief, DRP, IB was on site December 7-9, 1992, to review inspection activities, meet with resident inspector, and attend the exit interview.

During the week of November 30 - December 4, the Farley Region II Project Engineer, R.W. Wright, assisted the site resident inspectors.

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

2. Plant Status

a. Unit 1 Status

Unit 1 was in a refueling outage at the beginning of the inspection period. The reactor was returned to power (critical) November 29 at 1:25 p.m., achieved Mode 1 operation November 30 and placed on the grid December 2 at 8:46 p.m..

b. Unit 2 Status

Unit 2 operated at approximately 100 percent power for most of the reporting period.

c. NRC/Licensee Meetings and Inspections

During the week of November 30, Region II Radiological Effluents and Chemistry personnel conducted inspections of radiation and environmental monitoring, radioactive waste processing,

transportation of radiological material and documentation work practices. Results of the inspection are to be documented in Inspection Report 50-348,364/92-32.

On November 17, U.S. Department of the Interior personnel, from the Boise, Idaho office met with the resident inspectors and licensee personnel in order to update interagency emergency preparedness information.

During the week of November 16, Region II Test Programs personnel conducted a follow-up inspection of motor operated valves. Results of the inspection are to be documented in Inspection Report 50-348,364/92-30.

During the week of November 16, Region II Plant Systems personnel conducted an inspection of FNP's fire protection system and program. Results of the inspection are to be documented in Inspection Report 50-348,364/92-29.

3. Operational Safety Verification and Unit 1 Refueling/Outage Activities (71707 and 60710)

The inspectors conducted routine plant tours to verify licensee requirements and commitments were being implemented. The inspection tours included review of site documentation, interviews with plant personnel and an on-going evaluation of licensee self-assessment.

a. Scheduled Refueling Outage Activities and Return To Power - Unit 1

On September 26, 1992, Unit 1 was shutdown to begin it's eleventh scheduled refueling outage. Major items of the outage were completed and the reactor was returned to power (critical) November 29 at 1:25 p.m.. The unit achieved Mode 1 operation November 30 and was placed on the grid December 2. Throughout the outage the inspectors observed in-process work activities associated with the following:

- o Steam generator (S/G) pressure pulse cleaning on all S/Gs
- o S/G "1A" "J" nozzle inspection
- o 100 percent eddy current testing on all S/Gs
- o 4160V bus cleaning on the "1D", "1E", "1H" and "1J" busses
- o Laser weld sleeving on all S/Gs
- o MOV actuator refurbishments and functional testing
- o Reactor coolant pump "1C" rotor refurbishment by the vendor
- o Reactor vessel flange repair

- o LP turbine, generator and exciter inspections
- o Overhaul of the "1B" motor driven auxiliary feedwater (AFW) pump
- o Inservice inspection hydrostatic testing of the "B" train residual heat removal (RHR), AFW suctions and RCS letdown systems
- o S/G tube pulls and repair demonstrations

The inspectors observed various stages of the startup which was conducted in accordance with FNP-1-UOP-1.2, Rev. 40, Startup of Unit From Hot Standby To Minimum Load. During startup operations on December 2, the inspectors noted that the unit experienced two turbine trips. The first, at approximately 2:41 a.m., was a manually actuated turbine trip upon recognition that condenser pressure had degraded because of insufficient steam pressure to the steam jet air ejectors. The second, at approximately 4:38 a.m., occurred when the "1B" unit auxiliary transformer differential relay tripped. The main generator was not on line during either of the above turbine startup trips. The inspectors determined that operator actions during these events were conducted in accordance with site procedural requirements.

b. Partial Loss of Offsite Power While In Hot Standby - Unit 1

On November 29, at about 12:01 a.m., one of two offsite sources of power was lost to the "1A" startup transformer. At 1:00 a.m. the inspectors arrived at the site and observed the on-going activities associated with the loss of power. As a result they determined that power was lost due to a fault on the internal gas operated breaker, "904", located on the supply side of the transformer. This fault caused the breaker and other internal breakers to automatically open for both internal fault and ring bus number one protection. These protective interlock actions, in turn, isolated the number one 230 kV offsite bus from the onsite loads. This resulted in a loss of power to nonvital 4.16 kV buses "1A" and "1D" and a temporary loss of power to vital 4.16 kV bus "1F". The "1-2A" diesel generator (D/G) automatically started and aligned to provide power to the "A" train emergency safety features (ESF) loads supplied from bus "1F". Loads were satisfactorily sequenced on the bus. Power to the "B" train ESF loads was unaffected.

Loss of power to nonvital bus "1A" resulted in one of three running reactor coolant pumps (RCP), the "1A" RCP, and the "1A" condensate pump to trip. The other RCPs continued to run throughout the event and condensate pump "1C" was manually started. The associated 4.16 kV circuit breakers for the "1A" RCP and the "1A" condensate pump, failed to open on the undervoltage

(UV) condition. Subsequent investigation revealed that the breaker's UV relay failed to operate as designed because of disk sticking within the UV relay.

The sticking relay (contacts) were cleaned, the relay was then tested and placed back into service. The sticking relay would not have impacted the ability of the plant emergency safety shutdown equipment to perform their safety related functions.

Unit 1 was stable and remained in a hot standby, Mode 3, condition throughout the event. Unit 2 remained operating at about 99 percent power and was unaffected by this event.

At about 4:24 a.m., the licensee electrically isolated the faulted supply breaker, "904" and reenergized startup transformer "1A" and nonvital buses "1A" and "1D". At 4:47 a.m., the licensee paralleled the "1-2A" D/G with startup transformer "1A", the "1-2A" D/G was secured after power was reestablished through the startup transformer.

The inspectors assessed the above event and concluded that the plant was not placed in an unsafe condition. FNP has written LER 92-007 to document circumstances, conditions, and corrective actions related to the event.

c. Residual Heat Removal Pump "1A" Relief Valve Lifting While in Mode 5 - Unit 1

On November 21 at 6:16 a.m., the "1A" residual heat removal (RHR) pump suction relief lifted. The inspectors arrived at the site about 7 a.m. and observed the in-process evaluations which had already started. The initial information revealed that prior to the event, RCS pressure was at about 400 psig with control on a pressurizer (PZR) bubble and RCS temperature was being maintained at 182 degrees F. The "1B" and "1C" RCPs were running, the "1A" RCP was secured and the licensee was preparing to swap the running RCPs. RHR pump "1A" was running and RHR pump "1B" was tagged out of service for maintenance. At 6:16 a.m., the "1C" RCP was secured for an RTD inspection and immediately after the pump was secured, a pressure spike close to 495 psig was observed. The "1A" RHR pump suction relief valve lifted since the pressure setpoint is approximately 450 psig. PZR level dropped from about 31 percent to 0 percent in about 3 minutes. Correspondingly, the PZR relief tank (PRT) level rose from approximately 7 percent to about 86 percent.

The event data and interviews with plant operators revealed that the control room operators performed immediate actions to restore PZR level by increasing charging flow to the RCS. The RHR relief valve reseated and PZR level rose from 0 to approximately 9 percent in about 2 minutes. The operators manually reenergized PZR heaters after PZR level was returned to normal. Approximately

1500 gallons of water was relieved from the RCS to the PRT. RCS forced cooling was maintained throughout the event by the "1B" RCP. RCS temperature rose to about 190 degrees and RCS pressure dropped to approximately 330 psig. The reactor core was covered throughout the event and RCS temperature and pressure were restored to approximately 182 degrees F and 365 psig at about 10:25 a.m..

A task force consisting of Bechtel, Westinghouse, and SNC corporate and site personnel was immediately formed, to assess cause and effects of the event.

The inspectors evaluated the above events and concluded that the plant was not placed in an unsafe condition. The licensee has drafted a special report as required by Technical Specification 3.4.10.3, to document the circumstances, conditions, and corrective actions related to the event. This special report is to be designated 92-007.

No deviations or violations were identified in this area. The results of inspections in the operations area indicate that operations personnel conducted assigned activities in accordance with applicable procedures.

4. Monthly Maintenance Observation (62703)

The inspectors reviewed various licensee preventative and corrective maintenance activities, to determine conformance with facility procedures, work requests and NRC regulatory requirements.

Portions of the following maintenance activities were observed:

- o MWR-223466; VCT purge flow indication pegged high - investigate and repair

Inspectors observed trouble-shooting efforts associated with the gauge. The indication was pegged high and the associated alarm remained actuated. The transmitter was found to have a higher than expected output signal. The signal was adjusted and the circuitry was tested. Inspectors noted that work performed was satisfactory and in accordance with directions contained in the MWR.

- o MWR-268558; AFW flow indication to the "1C" S/G reading high - repair

Inspectors noted that the indication was at about 180 gpm with no flow on the system. The associated computer point reading indicated 184.5 gpm. The transmitter, FT-3229C, required venting. The transmitter was filled and vented and testing was performed to verify proper indication prior to placing the indication back in service. Inspectors noted that work performed was satisfactory and in accordance with directions contained in the MWR and the

service. Inspectors noted that work performed was satisfactory and in accordance with directions contained in the MWR and the associated work package.

- o MWR-269821; Fire main leak inside the service water (SW) intake structure

Problems with the fire main were not readily detectable. Inspectors observed craft personnel excavating the area for investigation and possible repair. Two leaking joints were found near a 45 degree elbow fixture.

The joints were cleaned, repaired by retightening and the SW area backfilled with grading material. Inspectors noted that work performed was satisfactory and in accordance with the directions contained in the MWR and associated work package. In discussion with licensee personnel the inspectors were informed that SNC corporate office has been directed to form a task force to review the current problem with underground leaks and develop a program to reduce the likelihood of these leaks from occurring.

- o MWR-266667; Thermostat contact not opening for freeze protection system component.

The inspectors observed the trouble shooting, the replacement, testing and return to service of the freeze protection thermostat for the gaseous chlorination system.

No deviations or violations were identified in this area. The results of inspections in the maintenance area indicate that both operations and maintenance personnel conducted assigned activities in accordance with applicable procedures.

5. Monthly Surveillance Observation (61726)

Inspectors witnessed surveillance test activities performed on safety-related systems and components, in order to verify that such activities were performed in accordance with facility procedures and NRC regulatory and licensee technical specification requirements.

The following surveillance activities were observed:

- o 1-STP-1.0; Operations Daily/Shift Surveillance Requirements Modes 2-STP-1.0; 1, 2, 3, and 4

Inspectors routinely observed unit operators while parameters were monitored, documented and evaluated.

- o 1-STP-226.1B ; "BIG" Sequencer Operability Test

Inspectors observed I&C technician performance for portions of the test and responses to Agastat performance.

- o 1-STP-109.1; Power Range Neutron Flux Channel Calibration With Plant Computer Operable - Unit 1

The inspectors evaluated the completion of STP-109.1 on December 7, which was conducted while at approximately 88 percent power.

- o 1-STP-27.1; AC Source Verification - Unit 1

The inspectors observed the AC power source electrical configuration and found it to be consistent with the alignment documented by the plant operators.

- o O-STP-60.3; EOF/TSC/OSC Intercom System Annual Operability Test

The inspectors verified that the plant intercom system testing was conducted in accordance with STP-60.3. This test was completed on December 7. The inspectors noted that the site annual emergency preparedness exercise is scheduled to be held on December 9, 1992. Therefore, completion of STP-60.3 provides assurance that the intercom system should function as expected during the emergency exercise.

No deviations or violations were identified in this area. The results of inspections in this area indicate that personnel conducted assigned activities in accordance with applicable procedures.

6. Cold Weather Preparations (71714)

The inspectors conducted a review of licensee's cold weather preparations to ascertain if effective measures were implemented for protection of safety related systems from extreme cold weather.

Procedures 1/2-EMP-1383.01, Rev. 2, Freeze Protection Inspections were completed by WA-380442 for Unit 1 and by WA-380443 for Unit 2 on December 1. These procedures require inspections and tests to demonstrate operability of the freeze protection heat tracing, heaters and insulation installed to protect the system from freezing during severe cold weather.

The licensee identified some discrepancies during their inspections and work orders were issued to correct the discrepancies. The inspectors verified that the maintenance work orders for these items were either completed or scheduled for work to assure the functional acceptability of the equipment.

The inspectors witnessed the work associated with the thermostat replacement (NIR37S041-N) per MWR 266713 and the subsequent verification testing to assure the thermostat was functional, that 120 VAC was present and that all circuitry power sensing pilot lights were operable.

Licensee actions indicate that they have an adequate program in place which can mitigate plant systems and components from being damaged during severe cold weather.

7. Training For Emergency Preparedness (82206)

On December 1, the inspectors observed portions of an FNP "full-scale" training exercise. This exercise was conducted as part of training for one of the designated emergency preparedness response groups. The plant general manager-operations, served as the emergency director during the exercise and all designated personnel responded appropriately and expeditiously to the emergency alarms and the overall drill scenario.

8. Action on Previous Inspection Findings (92702)

(Closed) NOV 50-364/92-20-01, Removal of the EOF and TSC ENNs without establishment of backup emergency telecommunications.

The inspectors evaluated SNC response dated November 30, 1992, for Report 348,364/92-20. The inspectors noted that the related FNP emergency preparedness procedures have been revised to clarify that commercial telephones are to be used as the alternative for the ENN during initial notifications. Therefore, this item is closed.

(Closed) NCV 50-348/92-24-01, Individual contaminated due to inadequate draining and tagging of system boundary valves.

The inspectors evaluated the corrective action and actions to prevent recurrence for this item. The inspectors noted that the shift foreman and shift supervisor were "coached" concerning their responsibilities to assure adequate isolation of systems prior to releasing work.

Actions have been taken to revise the administrative procedure for safety clearance and tagging, AP-14, Revision 12, to address any weakness in the development and execution of tagging orders.

Additional formal training is being scheduled for plant personnel who prepare tagging orders. Operations personnel responsible for reviewing and authorizing tagging orders are scheduled to be reinstructed on their responsibilities.

The actions which have been taken by FNP as it relates to more definitive actions to be taken and establishment of a reasonable date for completion of these actions was evaluated by the inspectors and was found to be acceptable. Therefore, this non-cited violation as described in the cover letter for Report 50-348,364/92-24 from Region II dated October 28, 1992, does not require additional response from SNC. These additional steps taken by your staff have been found to be satisfactory. This NCV is closed.

9. Exit Interview

The inspection scope and findings were summarized during management interviews throughout the report period, and on December 8, with the plant manager and selected members of his staff. The inspection findings were discussed in detail. The licensee acknowledged the inspection findings and did not identify as proprietary any material reviewed by the inspectors during this inspection. The licensee was informed that the items discussed in paragraph 8 were closed.

10. Acronyms and Abbreviations

AFW	-	Auxiliary Feedwater
ALARA	-	"As Low As Reasonably Achievable"
AOP	-	Abnormal Operating Procedure
AP	-	Administrative Procedure
APCO	-	Alabama Power Company
BTRS	-	Boron Thermal Regeneration System
CFR	-	Code of Federal Regulations
CVCS	-	Chemical and Volume Control System
CCW	-	Component Cooling Water
CRDM	-	Control Rod Drive Mechanism
CS	-	Containment Spray System
DDFP	-	Diesel Driven Fire Pump
D/G	-	Emergency Diesel Generator
DRP	-	Division of Radiation Protection
DPM	-	Disintegration Product
ECP	-	Emergency Containment Procedure
EIP	-	Emergency Plant Operating Procedure
ENN	-	Emergency Notification Network
EOF	-	Emergency Operations Facility
EP	-	Emergency Preparedness
EPA	-	Environmental Protection Agency
EQ	-	Environmental Qualifications
ESF	-	Engineered Safety Features
FNP	-	Farley Nuclear Plant
FSP	-	Fire Surveillance Procedure
GPM	-	Gallons Per Minute
HHSI	-	High Head Safety Injection
HSB	-	Hot Standby
I&C	-	Instrumentation and Controls
IN	-	Information Notice
ISI	-	Inservice Inspection
IST	-	Inservice Test
LCO	-	Limiting Condition for Operation
LHSI	-	Low Head Safety Injection
LLRT	-	Local Leak Rate Testing
LER	-	Licensee Event Report
MDFP	-	Motor Driven Fire Pump
MOV	-	Motor-Operated Valve
MOVATS	-	Motor-Operated Valve Actuation Testing
MWR	-	Maintenance Work Request

NCR	-	Nonconformance Report
NRR	-	NRC Office of Nuclear Reactor Regulation
NSSS	-	Nuclear Steam Supply System
OATC	-	Operator at the Controls
OSHA	-	Occupational Safety and Health Administration
OTDT	-	Over-temperature Differential Temperature
PAP	-	Primary Access Point
PCCV	-	Positive Closing Check Valve
PCN	-	Plant Change Notice
PCR	-	Plant Change Request
PMD	-	Plant Modifications Department
PORV	-	Power Operated Relief Valve
PPB	-	Parts Per Billion
PRT	-	Pressurizer Relief Tank
PSID	-	Pressure per Square Inch Differential
PVC	-	Polyvinyl Chloride
PZR	-	Pressurizer
RCP	-	Reactor Coolant Pump
RCS	-	Reactor Coolant System
RHR	-	Residual Heat Removal
RPC	-	Rotating Pancake Coil
RTD	-	Resistance Temperature Detector
RWST	-	Refueling Water Storage Tank
S/G	-	Steam Generator
SI	-	Safety Injection
SAER	-	Safety Audit and Engineering Review
SCS	-	Southern Company Services
SFI	-	Shift Foreman - Inspecting
SFO	-	Shift Foreman - Operating
SGFP	-	Steam Generator Feedwater Pump
SO	-	Systems Operator
SFP	-	Spent Fuel Pool
SOP	-	Standard Operation Procedure
SP	-	Systems Performance Group
SPDS	-	Safety Parameter Display System
SS	-	Shift Supervisor
SSPS	-	Solid State Protection System
STAR	-	"Stop, Think, Act, Review"
STP	-	Surveillance Test Procedure
SWS	-	Service Water System
TS	-	Technical Specification
TSC	-	Technical Support Center
VCT	-	Volume Control Tank
VDC	-	Voltage Direct Current
WA	-	Work Authorization