UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 30, 2008

Mr. J. Randy Johnson
Vice President - Farley
Southern Nuclear Operating Company, Inc.
7388 North State Highway 95
Columbia, AL 36319

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000348/2008004, 05000364/2008004, 05000348/2008502**,** AND 05000364/2008502

Dear Mr. Johnson:

On September 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Joseph M. Farley Nuclear Plant, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on October 6, 2008, with yourself and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The NRC reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Scott M. Shaeffer, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket No.: 50-348, 50-364
License No.: NPF-2, NPF-8

Enclosure: Inspection Report 05000348/2008004, 05000364/2008004, 05000348/2008502**,** And 05000364/2008502
w/Attachment: Supplemental Information

cc w/encl.: (See page 2)

October 30, 2008

Mr. J. Randy Johnson
Vice President - Farley
Southern Nuclear Operating Company, Inc.
7388 North State Highway 95
Columbia, AL 36319

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000348/2008004, 05000364/2008004, 05000348/2008502, AND 05000364/2008502

Dear Mr. Johnson:

On September 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Joseph M. Farley Nuclear Plant, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on October 6, 2008, with yourself and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The NRC reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/
Scott M. Shaeffer, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket No.: 50-348, 50-364
License No.: NPF-2, NPF-8

Enclosure: Inspection Report 05000348/2008004, 05000364/2008004,
05000348/2008502, And 05000364/2008502
w/Attachment: Supplemental Information

cc w/encl.: (See page 2)

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE

ADAMS: ☐ Yes ACCESSION NUMBER:_____ X SUNSI REVIEW COMPLETE ***CWR***

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRS	RII:DRS	RII:DRS
SIGNATURE		SMS /RA/	via email	via email	via email	BLC /RA/	SMS /RA for/
NAME	CRapp	SShaeffer	ECrowe	SSandal	LMiller	BCaballero	WRogers
DATE		10/30/2008	10/30/2008	10/30/2008	10/29/2008	10/30/2008	10/30/2008
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: I:\RPB2\FARLEY\REPORTS\08-04\FARLEY 2008004 IIR.DOC

cc w/encl:
B. D. McKinney
Licensing Services Manager
B-031
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

Jeffrey T. Gasser
Executive Vice President
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

William D. Oldfield
Quality Assurance Supervisor
Southern Nuclear Operating Company
Electronic Mail Distribution

L. Mike Stinson
Vice President
Fleet Operations Support
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

David H. Jones
Vice President
Engineering
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

Moanica Caston
Vice President and General Counsel
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

M. Stanford Blanton, Esq.
Balch and Bingham Law Firm
Electronic Mail Distribution

Dr. D. E. Williamson
State Health Officer
Alabama Dept. of Public Health
Electronic Mail Distribution

Mr. Mark Culver
Chairman
Houston County Commission
P. O. Box 6406
Dothan, AL 36302

Jim Sommerville
(Acting) Chief
Environmental Protection Division
Department of Natural Resources
Electronic Mail Distribution

Letter to J. Randy Johnson from Scott M. Shaeffer dated October 30, 2008

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000348/2008004, 05000364/2008004, 05000348/2008502, AND 05000364/2008502

Distribution w/encl:
C. Evans, RII
L. Slack, RII
OE Mail
RIDSNRRDIRS
PUBLIC
R. Jervey, NRR

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	05000348, 05000364
License Nos.:	NPF-2, NPF-8
Report No.:	05000348/2008004 and 05000364/2008004
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Joseph M. Farley Nuclear Plant, Units 1 and 2
Location:	Columbia, AL
Dates:	July 1, 2008 through September 30, 2008
Inspectors:	E. Crowe, Senior Resident Inspector S. Sandal, Resident Inspector B. Caballero, Operations Engineer (Section 1R11) L. Miller, Senior Emergency Preparedness Inspector (Section 4OA5.2) W. Rogers, Senior Reactor Analyst (Section 1R18)
Approved by:	Scott M. Shaeffer, Chief Reactor Projects Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000348/2008-004, 05000364/2008-004, 05000348/2008-502**,** and 05000364/2008-502; 07/01/2008 – 09/30/2008; Joseph M. Farley Nuclear Plant, Units 1 and 2; Routine Integrated Report

The report covered a three-month period of inspection by the resident inspectors, an operations engineer, a senior reactor analyst, and an emergency preparedness inspector. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began this inspection period at or near 100% Rated Thermal Power (RTP). On July 22, Unit 1 was shut down as required by Technical Specifications (TS) due to two inoperable emergency diesel generators (EDGs). The unit was restarted on July 29 and the unit achieved 100% RTP on August 1. On August 8, the unit was ramped down to 36% RTP to assist in steam leak isolation. On August 11, the unit was returned to 100% RTP. The unit operated at full power for the remainder of the inspection period.

Unit 2 operated at or near 100% RTP during this inspection period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns. The inspectors performed partial walkdowns of the following two systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable and to identify discrepancies that potentially impacted system function. The walkdowns were performed using the criteria in licensee procedures FNP-0-AP-16, Conduct of Operations – Operations Group, and FNP-0-SOP-0, General Instructions to Operations Personnel. The walkdowns included reviewing the Updated Final Safety Analysis Report (UFSAR), plant procedures and drawings, checks of control room and plant valves, switches, components, electrical power, support equipment, and instrumentation. Documents reviewed are listed in the Attachment.

- Unit 1 and Unit 2 Safety-Related 4160 volt electrical buses during exhaust header replacement of 1-2A Emergency Diesel Generator (EDG)
- Unit 1 Turbine Driven Auxiliary Feedwater (TDAFW) Pump and 1A Motor Driven Auxiliary Feedwater (MDAFW) Pump during an equipment outage on 1B MDAFW pump.

Complete Walk-Down. The inspectors conducted a complete walk-down of the accessible portions of the following system. The inspectors used licensee procedures FNP-1-SOP-23.0, Component Cooling Water (CCW) System, and Functional System Description (FSD) A181000, CCW System, to verify the system alignment of on-service equipment. The inspectors also reviewed personnel, reviewed control room logs, Maintenance Rule (MR) monthly reports, Condition Reports (CRs), quarterly system health reports, outstanding work orders, and industry operating experience to verify alignment and equipment discrepancies were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

- Unit 1 CCW System

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Tours. The inspectors conducted a tour of the four fire areas listed below to assess the material condition and operation status of fire protection features. The inspectors verified combustibles and ignition sources were controlled in accordance with the licensee's administrative procedures; fire detection and suppression equipment was available for use; passive fire barriers were maintained in good material condition, and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with the requirements of licensee procedures FNP-0-AP-36, Fire Surveillance and Inspection; FNP-0-AP-38, Use of Open Flame; FNP-0-AP-39, Fire Patrols and Watches; and the associated Fire Zone Data sheets. Documents reviewed are listed in the Attachment.

- Unit 1/Unit 2 (shared) 1K and 2K switchgear room, Fire Zone 76
- Unit 1/Unit 2 (shared) 1L and 2L switchgear room, Fire Zone 75
- Unit 1/Unit 2 Service Water (SW) pump and discharge strainer decks, Fire Zone 72
- Unit 2 CCW Equipment Room, Fire Zone 6

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

Resident Inspector Quarterly Review. On August 14, 2008, the inspectors observed portions of the licensed operator training and testing program to verify implementation of procedures FNP-0-AP-45, Farley Nuclear Plant Training Program, FNP-0-TCP-17.6, Simulator Training Evaluation/Documentation, and FNP-0-TCP-17.3, Licensed Retraining Program Administration (Classroom). The inspectors observed operations simulator scenario S4-S104, conducted in the licensee's simulator for 'A' Reactor Coolant Pump (RCP) seal failure resulting in a manual reactor trip with one control rod failing to insert and one turbine throttle valve failing to close. Plant recovery was further complicated by a loss of AFW resulting in a loss of secondary heat sink and subsequent Site Area Emergency declaration. The inspectors observed high risk operator actions, overall performance, self-critiques, training feedback, and management oversight to verify operator performance was evaluated against the performance standards of the licensee's scenario. Documents reviewed are listed in the Attachment.

Annual Review of Licensee Requalification Examination Results. On February 29, 2008, the licensee completed administering the job performance measures portion and the dynamic scenario portion of the annual operating test on April 10, 2008. On June 26, 2008, the licensee completed the administration of the requalification biennial written examination. The licensee completed the requalification annual operating tests and biennial written exam which were required to be given to all licensed operators by 10 CFR 55.59(a) (2). The inspector performed an in-office review of the overall pass/fail results of the individual written examinations and operating tests, as well as the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 609 Appendix I, Operator Requalification Human Performance SDP.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Effectiveness

a. Inspection Scope

The inspectors reviewed the following two maintenance activities to verify (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) scoping in accordance with 10 CFR 50.65(b) of the MR; (4) characterizing reliability issues for performance; (5) trending key parameters for condition monitoring; (6) charging unavailability for performance; (7) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and (8) appropriateness of performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). In addition, the inspectors reviewed events where ineffective equipment maintenance resulted in invalid automatic actuations of Engineered Safeguards Systems affecting the operating units. Documents reviewed are listed in the Attachment.

- 1-2A EDG lube oil heat exchanger tube leak
- Unit 1 TDAFW Pump Uninterruptable Power Supply card failure

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the following four activities to verify appropriate risk assessments were performed prior to removing equipment for work. The inspectors verified risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors verified appropriate use of the licensee's risk assessment and risk categories in accordance with

requirements in licensee procedures FNP-0-ACP-52.3, Mode 1, 2, & 3 Risk Assessment; NMP-GM-006, Work Management; and FNP-0-AP-16.

- July 14, Unit 1 GREEN risk condition during 2C SW pump auto-start surveillance testing concurrent with 1B emergency air compressor out of service and 1-2A EDG surveillance testing
- August 28, Unit 2 YELLOW risk condition during scheduled 2B MDAFW pump maintenance outage
- September 9, Unit 2 GREEN risk condition during rack loop calibrations on 7300 system concurrent with CCW valve HV3096 jacked open and unable to perform its closing function
- September 25, Unit 2 GREEN risk condition during ground condition on control circuit of Turbine Building SW isolation valve MOV-514

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following six operability evaluations to verify they met the requirements of licensee procedures FNP-0-AP-16, and NMP-AD-012, Operability Determinations and Functionality Assessments for Resolution of Degraded and Nonconforming Conditions for technical adequacy, consideration of degraded conditions, and identification of compensatory measures. The inspectors reviewed the evaluations against the design bases, as stated in the UFSAR and FSDs to verify system operability was not affected.

- CR 2007111217, Unit 1 SW cyclone separators cycling during strainer back-flush
- CR 2008107415, Unit 1 Main Steam Isolation Valve 3370C failed to close
- CR 2008107290, Unit 1 and 2 1-2A EDG Lube Oil Cooler SW Leak
- CR 2008108099, Unit 1 1B EDG Jacket Water Heat Exchanger SW Leak
- CR 2008106337, Unit 1 and 2 corrosion-related degradation of the 1C EDG exhaust silencer
- CR 2008109679, Unit 1/2 Control Room Envelope Filtration System improperly performed surveillance

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

a. Inspection Scope

Temporary Modifications. The inspectors reviewed the following temporary modification (TM) and associated 10CFR50.59 screening criteria against the system design bases documentation and procedure FNP-0-AP-8, Design Modification Control. The inspectors reviewed implementation, configuration control, post-installation test activities, drawing and procedure updates, and operator awareness for this TM. Documents reviewed are listed in the Attachment.

- MDC S081367901 for added support to the discharge pipe on the outlet of the 2C EDG exhaust silencer

Permanent Modifications. The inspectors reviewed the licensee's change in the normal operating alignment of each unit's CCW system related to risk reduction of a failure of a single CCW pump. CCW was an independent two-train system at each unit with one CCW pump per train and a "swing" CCW pump to back-up the operating train. The previous operating strategy used one train of CCW continually operating (designated as "ON SERVICE"), supplying cooling to both the RCP thermal barrier coolers and the charging pump coolers with the other train in standby (designated as "OFF SERVICE"). In this configuration, only one train of CCW supplied RCP thermal barrier cooling and seal injection, making it vulnerable to a potential RCP seal Loss of Coolant Accident on loss of the operating train with failures in starting the standby train. The new operating strategy was for the "ON SERVICE" pumps to supply cooling to the RCP thermal barrier coolers with the "OFF SERVICE" pumps supplying cooling water to a single charging pump cooler and RCP seal injection. The change in operating procedures and modification of the Probabilistic Risk Assessment (PRA) model were made in June, 2008.

The inspectors reviewed the basis for modifying CCW Fussell-Vesely values to be used in the third quarter 2008 performance indicator (PI) report. The Fussell-Vesely value change was due to the revised operating strategy of the CCW pumps. The CCW and SW pumps were the reliability inputs to the Mitigating Systems Performance Indicator (MSPI), Cooling Water System PI. The inspectors reviewed the changes in Unit 2's PRA model assuming Unit 1 was similar. The most current schematic diagrams for both CCW and SW pumps were confirmed to reflect the PRA fault tree models for those systems. Benchmarking runs were made for several cases such as transients, partial losses of SW, and the loss of a safety bus with the changes in CCW operational configuration. Then, independent reliability calculations of the Cooling Water System were performed and compared to the licensee's projected output. The changes to the PI bases document were reviewed to verify the newly-developed Fussell-Vesely values for the applicable basic events were incorporated.

The inspectors reviewed the permanent modification and associated 10CFR50.59 screening criteria against the system design bases documentation and the licensee's procedure FNP-0-AP-8. The inspectors reviewed implementation, configuration control, post-installation test activities, drawing and procedure updates, and operator awareness

for this modification. The inspectors verified normal, abnormal, and emergency station procedures accurately reflected the change in system configuration. The inspectors observed simulator training sessions to verify operators were properly trained on the modification and that no unintended consequences were identified. The inspectors reviewed the proposed changes to system flow and evaluated potential effects of the flow changes upon system components, including potential for unmonitored release to the environment.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the criteria contained in licensee procedures FNP-0-PMT-0.0, Post-Maintenance Test Program, to verify post-maintenance test procedures and test activities for the following five systems/components were adequate to verify system operability and functional capability. The inspectors either witnessed the test or reviewed test data to verify test results adequately demonstrated restoration of the affected safety function(s). Documents reviewed are listed in the Attachment.

- FNP-1-STP-8.0, RCP Seal Injection Leakage Test following repairs to Q1E21HCV186
- FNP-2-STP-24.7, SW Valves Inservice Test following maintenance on Q2P16V519
- FNP-0-EMP-1130.02, SW River Water Motor Replacement following replacement of the motor cooling coil for the 1C SW pump
- FNP-0-STP-80.1, DG 1-2A Operability Test following replacement of the diesel exhaust header
- FNP-1-STP-33.0B, Solid State Protection System Train B Operability Test following replacement of 'B' train isolation cards

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors responded to the required TS shutdown of Unit 1 on July 22 due to two EDGs being inoperable. The inspectors monitored portions of the cooldown process to verify TS cooldown restrictions were followed. The inspectors verified the licensee evaluated outage risk for key safety functions when taking equipment out of service. When configuration changes were made due to emergent work and unexpected conditions, the inspectors verified these changes were controlled in accordance with

station procedures. The inspectors verified electrical system status and configurations meet TS requirements for existing plant conditions. the inspectors reviewed teactivity control to verify TS and station procedure requirements were met. The inspectors verified licensee-identified problems related to outage activities at an appropriate threshold and entered them in their CAP.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed surveillance test procedures and either witnessed the test or reviewed test records for the following surveillance tests to determine if the tests adequately demonstrated equipment operability and met the TS requirements. The inspectors reviewed the activities to assess for preconditioning of equipment, procedure adherence, and valve alignment following completion of the surveillance. The inspectors reviewed licensee procedures FNP-0-AP-24, Test Control; FNP-0-M-050, Master List of Surveillance Requirements; and FNP-0-AP-16; and attended selected briefings to determine if procedure requirements were met. Documents reviewed are listed in the Attachment.

Surveillance Tests
- FNP-2-STP-23.2, CCW Pump Quarterly Inservice Test
- FNP-1-STP-22.16, TDAFW Pump Quarterly Inservice Test (TAVG ≥ 547^{o}F)

In-Service Test (IST)
- FNP-2-STP-16.1, 2A Containment Spray Quarterly Inservice Test

Containment Isolation Valve
- FNP-1-STP-627.2, Leak Testing of the Containment Purge System

Reactor Coolant System (RCS) Leakage Detection
- FNP-2-STP-9.0, RCS Leakage Test

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP7 Emergency Preparedness Evaluation During Force-on-Force (FOF) Exercise

a. Inspection Scope

The inspectors observed communications, event classification, and event notification activities by the simulated shift manager. The inspectors reviewed the emergency preparedness-related corrective actions from a previous inspection conducted by the NRC's Office of Nuclear Security and Incident Response to determine if they had been completed and adequately addressed the cause of the previously-identified weakness. The inspectors also observed portions of the post-exercise/drill critique to determine whether their observations were also identified by the licensee's evaluators. The inspectors verified minor issues identified during this inspection were entered into the licensee's corrective action program (CAP).

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspectors sampled licensee data for the PIs listed below to verify the accuracy of the PI data reported during the period listed. Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Rev. 5, was used to verify the basis in reporting for each data element. Documents reviewed are listed in the Attachment.

Mitigating Systems Cornerstone

- Mitigating Systems Performance Index, Cooling Water Systems

Barrier Integrity Cornerstone

- RCS Activity
- RCS Leakage

The inspectors reviewed samples of raw PI data, Licensee Event Reports (LERs), and Monthly Operating Reports for the period covering April 2007 through June 2008. The data reviewed from the LERs and Monthly Operating Reports was compared to graphical representations from the most recent PI report. The inspectors also examined a sampling of operations logs and procedures to verify the PI data was appropriately captured for inclusion into the PI report, as well as ensuring the individual PIs were calculated correctly.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Daily CR Reviews. As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the NRC performed a daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing each CR, attending daily screening meetings, and accessing the licensee's computerized CR database.

.2 Selected Issue Follow-up Inspection

a. Inspection Scope

The inspectors performed an in-depth review of the following CR. The inspectors also reviewed the licensee's condition reporting database for previous issues for the previous year. The inspectors also reviewed previous work orders related to the issue listed below. The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of CRs; and (7) completion of corrective actions in a timely manner.

- CR 2008107612, RCP Seal Injection Flow Control Valve Hydraulic Control Valve (HCV) 186 packing leakage

b. Observations

The inspectors determined that licensee follow-up to a June 24 packing leak of Reactor Coolant Seal Injection Flow Control Valve (HCV-186) on Unit 1 was a missed opportunity for the licensee to discover side loading of the valve packing which resulted in excessive wear and/or premature leakage of the packing. The inspectors determined the objective evidence that existed on June 24, which included: (1) an abnormal as-found packing torque, (2) directly observable off-center position of the valve steam in its gland stuffing box, and (3) previous indications of flow oscillations was sufficient for the licensee to identify the side loading issue. The inspectors discovered CR 2008106377 written for the June 24 was originally classified as severity level 3 due to an unplanned entry into technical specifications as required by current operating mode of the plant. The condition report documented the requirement by the corrective action program to perform an apparent cause determination and an equipment clock reset evaluation. Management Review Meeting members downgraded the condition report to a severity

level 4 and required a basic cause determination performed. The inspectors determined the justification provided was insufficient and contributed to the missed opportunity to identify the side loading issue.

The inspectors determined the licensee's actions related to the subsequent packing failure of this valve on July 30 adequately identified and corrected the condition. The licensee entered the July 30 packing failure into their corrective action program as CR 2008107612 and performed an apparent cause determination. The licensee with vendor assistance determined the apparent cause was side-loading of the packing resulting to increased packing wear due to the valve stem not being centered in the gland stuffing box. The improper centering was caused by a misalignment of the valve actuator and exacerbated by the previous methodology of repacking the valve without its actuator installed. The licensee's apparent cause determination stated this condition was definite indication that the two packing failures (June 24 and July 30) were caused by side loading. The apparent cause determination also concluded previous flow oscillations documented in the licensee's corrective action program on 12/26/07; 4/5/08; 6/3/08; and 7/18/08 were symptoms of premature packing degradation.

4OA3 Event Follow-up

.1 1-2A and 1B EDGs Inoperable

a. Inspection Scope

On July 21, the licensee declared the 1-2A EDG inoperable due to the presence of excessive water in the lube oil system. The 1B EDG had previously been removed from service for scheduled maintenance and was also inoperable. The inspectors discussed the event with licensee personnel to gain an understanding of the event and assess follow-up actions. The inspectors monitored licensee compensatory actions and verified actions taken by the licensee were in accordance with plant TS. The licensee determined the source of the water in the 1-2A EDG lube oil system to be through-wall tube leakage of SW into the lube oil system at the diesel lube oil heat exchanger. The inspectors also reviewed the initial licensee notification to verify it met the requirements specified in NUREG-1022, Event Reporting Guidelines. This event resulted in a shutdown of Unit 1 as required by plant TS for 2 EDGs inoperable until repairs could be made and the EDG returned to service.

b. Findings

No findings of significance were identified.

.2 Tone Alert Radio Distribution

a. Inspection Scope

The inspectors conducted a review of the licensee's tone alert radio (TARs) distribution process. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: An Unresolved Item (URI) was identified for changes to the TAR distribution and maintenance procedure which may have required regulatory review and approval prior to implementation.

Description: The licensee used TARs as the primary emergency alert notification system for residences located within the licensee's 10-mile EPZ, but outside the area covered by alert notification sirens. A database of addresses within the 10-mile EPZ requiring TARs was maintained by the licensee and updated by reviewing electrical power service connect/disconnect information provided by five utilities supplying electric service. The licensee also mailed annual emergency preparedness informational calendars to all addresses within the 10-mile EPZ. In January 2008, an abnormal number of calendars were returned to the licensee as non-deliverable. As result, the licensee determined that the database of addresses requiring TARs was not accurate. The licensee reviewed the electrical power service connect/disconnect information and determined that approximately 177 of 2900 addresses within 10-mile EPZ were not provided TARs. TAR mailings to the affected addresses were completed on June 20, 2008.

The licensee documented this condition as CR 2008106217. However, the licensee did not notify NRC, Federal Emergency Management Agency (FEMA), or the Alabama or Georgia State Emergency Management Agency. FEMA-43, Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants, stated that the alert and notification program should include a record system that contains an accurate list of addresses in geographical areas where TARs were needed. The inspector determined that the licensee did not maintain an accurate listing of addresses needing TARs and had not offered TARs on an annual basis to individuals who had initially refused a TAR as required by the Alert and Notification System (ANS) design documents. It was also determined the licensee had made significant changes to the revision of the Alert Radio Distribution and Maintenance procedure included in the Farley ANS Quality Verification report that may have required FEMA review and approval prior to implementation. The NRC determined that a request to FEMA for interpretation of the acceptability of the licensee's actions to meet their ANS design requirements was necessary. Therefore, this issue is identified as URI 05000348,364/2008502-01, Inaccurate Tone Alert Radios Addresses.

4OA5 Other Activities

.1 Resident Security Personnel and Activities Observations. During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings of significance were identified.

.2 (Discussed) Temporary Instruction (TI) 2515/176, EDG TS Surveillance Requirements Regarding Endurance and Margin Testing

a. Inspection Scope

The objective of this TI was to gather information to assess the adequacy of nuclear power plant EDG endurance and margin testing as prescribed by plant-specific TS. The inspector interfaced with the appropriate station staff to obtain the information specified in Attachment 1 of the TI Worksheet. The TI applies to all operating nuclear power reactor licensees that use EDGs as the onsite standby power supply. The inspector verified the accuracy of the information by review of TS, EDG Design Basis Event (DBE) loading calculations, EDG endurance run test procedures, test data from the last three endurance tests performed on each EDG, EDG ratings, and EDG operating history. The information gathered will be forwarded to Nuclear Reactor Regulation/Division of Engineering/Electrical Engineering Branch (NRR/DE/EEEB) for further review to assess the adequacy and consistency of EDG testing at nuclear stations.

b. Findings and Observations

The TI is presently scheduled to be open until August 31, 2009, pending completion of the NRR/DE/EEEB review.

4OA6 Meetings, Including Exit

On October 6, 2008, the NRC presented the inspection results to members of your staff who acknowledged the findings. The NRC confirmed proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel
K. Armstrong, Emergency Preparedness Supervisor
C. Collins, Plant Manager
B. Grinder, Engineering Support Manager
P. Hayes, Engineering Director
L. Hogg, Security Manager
J. Horn, Training Manager
J. Jerkins, Performance Improvement Senior Engineer
J.R. Johnson, Site Vice President
W. Lee, Emergency Planning Supervisor, Corporate
T. Livingston, Chemistry Manager
H. Mahan, Licensing Engineer
B.D. McKinney, Licensing Supervisor
B.L. Moore, Site Support Manager
W. Oldfield, Fleet Oversight Supervisor
C. Peters, HP Manager
J. Swartzwelder, Work Control Superintendent
R. Wells, Operations Manager
C. Wimberly, Emergency Preparedness Assistant

NRC personnel
Scott M. Shaeffer, Branch Chief, Region II, Division of Reactor Projects

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened		
05000348, 364/2008502-01	URI	Inaccurate Tone Alert Radio Addresses (Section 4OA3)
Discussed		
2515/176	TI	EDG TS Surveillance Requirements Regarding Endurance and Margin Testing (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Drawings
D-172701
D-175007
D-177001
D-207001

Functional System Description
A-181000, Component Cooling Water System, Revision 21.0
A-181010, Auxiliary Feedwater System, Revision17.0

Procedures
FNP-1-SOP-22.0, Auxiliary Feedwater System, Revision 59
FNP-1-SOP-23.0, Component Cooling Water System, Attachment A, Revision 10.0
FNP-1-SOP-36.2, 4160V AC Electrical Distribution System, Revision 19

Technical Specifications
3.7.5; 3.7.7; 3.8.1

Section 1R05: Fire Protection
Condition Report 2008106837

Miscellaneous:
A-177678, Sheet 5-S-022, Version 69.0

Plant Drawings:
A-508651, Sheet 7, Version 8.0
A-508651, Sheet 8, Version 5.0
A-508651, Sheet 9, Revision 1

Section 1R11: Licensed Operator Requalification
Procedures:
FNP-1-AOP-4.1, Abnormal Reactor Coolant Pump Seal Leakage, Version 4.0
FNP-1-EEP-0.0, Reactor Trip or Safety Injection, Version 36.0
FNP-1-ESP-0.1, Reactor Trip Response, Version 27.0
FNP-1-FRP-H.1, Response to Loss of Heat Sink, Version 26.0

Simulator Scenario:
Scenario S4-S104, Reactor Coolant pump seal leak and Loss of Secondary Heat Sink

Section 1R12: Maintenance Rule Implementation
Condition Reports: 2004104784, 2006105332, 2006105393, 2006105404, 2007100212, 2007102175, 2007107989, 2007108410, 2007108420, 2007110600, 2007111601, 2008105884, 2008105920, 2008107439, 2008107558, 2008107622, 2008108122, 2008108803, 2008108356
Design Change Package 1029983401
Design Change Package 2029983301
Document of Engineering Judgment DOEJ-SE-2029983301-001
Specification SS-1125-001

Section 1R15: Operability Evaluations
Condition Reports: 2008106337, 2008107290, 2008108099

Action Items:
2008204280

Documents:
1-2A, 1B, 2B, 1C, and 2C Diesel Generator Lube Oil Sample Analysis Reports
Farley Operability Determination 08-10
Farley Operability Determination 08-11
Farley Operability Determination 08-12
Farley Operability Determination 08-13

Work Order:
S081367901

Section 1R18: Plant Modifications
Condition Reports:
2008104688, 2008106337

Documentation:
Farley Action Item 2008204280
Farley Operability Determination 08-10

Work Orders:
S081367901, S081367902

Section 1R19: Post Maintenance Testing
Condition Reports:
2008105565, 2008105902, 2008106377, 2008107136

Procedures:
FNP-0-GMP-27.0, Disassembly and Reassembly of Safety-Related and Non-Safety-Related Valves
FNP-0-GMP-27.5, Valve Packing Replacement Safety-Related and Non-Safety-Related Valves
FNP-0-STP-80.1, Diesel Generator 1-2A Operability Test

Work Orders:
1081349601, 1081368109, 1081473901, 2081515401, S080356201

Section 1R22: Surveillance Testing
Procedures:
FNP-1-STP-22.16, Turbine Driven Auxiliary Feedwater (TDAFW) Pump Quarterly Inservice Test (TAVG ≥ 547^{o}F), Version 44.0
FNP-1-STP-627.2, Leak Testing of the Containment Purge System, Version 17.0
FNP-2-STP-9.0, RCS Leakage Test, Version 37.0
FNP-2-STP-16.1, 2A Containment Spray Pump Quarterly Inservice Test, Version 42.0
FNP-2-STP-23.2, 2B Component Cooling Water Pump Quarterly Inservice Test, Version 33.0

Work Orders:
1070210901, 1070317001, 2063296901, 2070067301, 208178901

Section 4OA1: Performance Indicator Verification

Farley Unit 1 and Unit 2 Consolidated Data Entry ROP Parent Process Data Review Reports for Reactor Coolant System Activity and Identified Leakage
Farley Unit 1 and Unit 2 Consolidated Data Entry Unavailability and Unreliability Derivation Reports for Cooling Water Systems
FNP-0-AP-54, Preparation and Reporting of NRC Performance Indicator Data and NRC Operating Data, Version 10.0
Selected Unit 1 and Unit 2 Control Room Logs from April 2007 through June 2008

Section 4OA2: Identification and Resolution of Problems

Condition Reports: 2004100326, 2004101385, 2005103039, 2006110542, 2006111148, 2007100177, 2007107032, 2007111339, 2007111345, 2007112847, 2008103381, 2008105565, 2008106377, 2008107219, 2008107606, 2008107612, 2008108174

Work Orders: 1063321801, 1063322101, 1063528801, 1070131101, 1070131102, 1070154701, 1070256601, 1071871901, 1072670901, 1081204301, 1081204302, 1081349601, 1081349602, 1081349603, 1081349604, 1081349605, 1081349606, 1081349607, 1081487501, 1081570101, 1081606901

Section 4OA3: Event Follow-up 71153

Condition Reports: 2005105902, 2008100234, 2008104013, 2008106217

Guidance and Controlling Documents
Farley Nuclear Plant Alert and Notification System Design Report, March 1989
FEMA's analysis of the prompt alert and notification system quality assurance verification, June 4, 1991
FEMA REP-10, Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants, November 1985
Guidance Memorandum (GM) AN-1, FEMA Action to Qualify Alert and Notification Systems against NUREG-0654/FEMA REP-1 and FEMA-REP-10

Procedures
FNP-0-TCP-28.1, Alert Radio Distribution and Maintenance, revision 1
GO-EIP-136, Alert Radio Distribution and Maintenance, revision 4-8 and 10
NMP-GM-002-001, Corrective Action Program Instructions, Revision 7.0
NMP-GM-002-GL03, Cause Determination Guideline, Revision 10.0

Other Documentation
E-mail from Farley Licensing to the Emergency Preparedness Assistant – no commitment to conduct door-to-door radio survey, June 22, 2006
FNP-2002-109LIC, Letter to file – NRC Information Notice [IN] 2002-25, Challenges to Licensee's Ability to Provide Prompt Public Notification and Information during an Emergency Preparedness Event, October 17, 2002
FNP-2005-058LIC, Letter to file – NRC Information Notice [IN] 2005-06, Failure to Maintain Alert and Notification System Tone Alert Radio Capability, July 29, 2005

Section 4OA5: Other

Calculations:
E-042, Steady State Diesel Generator Loading Calculation for LOSP, SI and SBO, Ver. 18
SE-90-1845-2-PE, Large, Small, and SBO Diesel Dynamic Study, Rev. 5

Condition Reports: 2007102003, 2007104092, 2008102092, 2008102490, 2008105195, 2008105348

Drawings:
D-172776, Elementary Diagram Diesel Generator 1B Relaying, Rev. 11
D-172778, Elementary Diagram Diesel Generator 1B Start, Stop and Shutdown, Rev. 19
D-177032, Logic Diagram Diesel 1B Auto Start and Loading, Rev. 18
D-177142, Elementary Diagram 4160V Bus 1G Incoming Breaker from Diesel Generator 1B, Ver. 21.0
D-177646, Elementary Diagram Loading Sequencer B1G ESS Sequencer, Rev. 16
D-177650, Elementary Diagram Loading Sequencer B1G LOSP Sequencer Bus 1G, Rev. 15
D-177654, Elementary Diagram Sequencer B1G Load Shedding Circuit, Rev. 15

Licensing Documents:
Technical Specifications, Farley Unit 1, Amendment 176
Technical Specifications, Farley Unit 2, Amendment 169

Procedures:
FNP-0-STP-80.6, Diesel Generator 1-2A 24 Hour Load Test, Ver. 26.0
FNP-0-STP-80.7, Diesel Generator 1C 24 Hour Load Test, Ver. 22.0
FNP-1-STP-80.6, Diesel Generator 1B 24 Hour Load Test, Ver. 22.0
FNP-2-STP-80.6, Diesel Generator 2B 24 Hour Load Test, Ver. 17.0

Other:
A181005, Functional System Description Diesel Generator System, Ver. 34.0
DOEJ-FRC072420401, Loss of Offsite Power (LOSP) with Diesel in Test, Ver. 1
FNP-0-STP-80.6, Diesel Generator 1-2A 24 Hour Load Test, 2/05
FNP-0-STP-80.6, Diesel Generator 1-2A 24 Hour Load Test, 8/06
FNP-0-STP-80.6, Diesel Generator 1-2A 24 Hour Load Test, 1/08
FNP-0-STP-80.7, Diesel Generator 1C 24 Hour Load Test, 4/05
FNP-0-STP-80.7, Diesel Generator 1C 24 Hour Load Test, 9/06
FNP-0-STP-80.7, Diesel Generator 1C 24 Hour Load Test, 2/08
FNP-1-STP-80.6, Diesel Generator 1B 24 Hour Load Test, 4/05
FNP-1-STP-80.6, Diesel Generator 1B 24 Hour Load Test, 10/06
FNP-1-STP-80.6, Diesel Generator 1B 24 Hour Load Test, 3/08
FNP-2-STP-80.6, Diesel Generator 2B 24 Hour Load Test, 1/05
FNP-2-STP-80.6, Diesel Generator 2B 24 Hour Load Test, 7/06
FNP-2-STP-80.6, Diesel Generator 2B 24 Hour Load Test, 12/07
U184804, Diesel Engine Generators 1C and 2C Operation and Maintenance Manual, Ver. 10.0
U184852, Diesel Engine Generators 1-2A, 1B and 2B Operation and Maintenance Manual, Ver. 16.0