



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

November 15, 2004

Southern Nuclear Operating Company  
Mr. L. M. Stinson  
Vice President - Farley Project  
Post Office Box 1295  
Birmingham, Alabama 35201

SUBJECT: J. M. FARLEY NUCLEAR PLANT - INSPECTION REPORT 50-348/2004-009,  
50-364/2004-009

Dear Mr. Stinson:

On October 1, 2004, the NRC completed an inspection regarding the application for license renewal for your Farley facility. The enclosed report documents the inspection findings, which were discussed on October 1, 2004, with you and members of your staff in an exit meeting open for public observation at the Houston County Administrative Building, 462 North Oates Street, Dothan, AL 36303.

The purpose of this inspection was an examination of activities that support the application for a renewed license for the Farley facility. The inspection consisted of a selected examination of procedures and representative records, and interviews with personnel regarding implementation of your aging management programs to support license renewal. For a sample of plant systems, inspectors performed visual examination of accessible portions of the systems to observe any effects of equipment aging.

The inspection concluded that your license renewal activities were conducted as described in your License Renewal Application and that documentation supporting your application is in an auditable and retrievable form. The inspection also concluded that existing aging management programs are functioning well and that when all the programs are implemented as described in your License Renewal Application, there is reasonable assurance that the intended function of vital plant systems, structures, and components will be maintained through the period of extended operation.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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 Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

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Should you have any questions concerning this meeting, please contact Caudle A. Julian at (404) 562-4603.

Sincerely,

*/RA/*

Charles A. Casto, Director  
Division of Reactor Safety

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

Enclosure: NRC Inspection Report Nos. 50-348/2004-009, 50-364/2004-009  
w/Attachment: Supplemental Information

cc w/encl:  
Mr. Randy Johnson  
General Manager - Plant Farley  
Southern Nuclear Operating Company  
Post Office Box 470  
Ashford, AL 36312

Mr. B. D. McKinney  
Licensing Manager  
Southern Nuclear Operating Company  
40 Inverness Center Parkway  
Post Office Box 1295  
Birmingham, AL 35201-1295

Mr. Stanford M. Blanton, esq.  
Balch and Bingham Law Firm  
Post Office Box 306  
1710 Sixth Avenue North  
Birmingham, AL 35201

Mr. J. B. Beasley, Jr.  
Executive Vice President  
Southern Nuclear Operating Company  
40 Inverness Center Parkway  
Post Office Box 1295  
Birmingham, AL 35201-1295

Dr. D. E. Williamson  
State Health Officer  
Alabama Department of Public Health  
The RSA Tower  
201 Monroe Street, Suite 1500  
Montgomery, AL 36130-1701

Chairman  
Houston County Commission  
Post Office Box 6406  
Dothan, AL 36302

Mr. William D. Oldfield  
SAER Supervisor  
Southern Nuclear Operating Company  
Post Office Box 470  
Ashford, AL 36312

Mr. Charles R. Pierce  
Manager - License Renewal  
Southern Nuclear Operating Company  
40 Inverness Center Parkway  
Post Office Box 1295  
Birmingham, AL 35201-1295

Mr. Fred Emerson  
Nuclear Energy Institute  
1776 I Street, NW, Suite 400  
Washington, DC 20006-3708

Resident Inspector  
U.S. Nuclear Regulatory Commission  
7388 N. State Highway 95  
Columbia, AL 36319

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-348, 50-364

License Nos.: NPF-2, NPF-8

Report Nos.: 05000348/2004009 and 05000364/2004009

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Farley Nuclear Plant

Location: 7388 N. State Highway 95  
Columbia, AL 36319

Dates: September 20 - October 1, 2004

Inspectors: C. Julian, Team Leader  
R. Moore, Senior Reactor Inspector  
T. Nazario, Reactor Inspector  
M. Scott, Senior Reactor Inspector  
K. VanDoorn, Senior Reactor Inspector

Approved by: Charles A. Casto, Director  
Division of Reactor Safety

Enclosure

## INSPECTION SUMMARY

IR 05000348-04-09,05000364-04-09; 9/20-10/01/2004; Southern Nuclear Operating Company; J. M. Farley Nuclear Plant; License Renewal Inspection Program, Aging Management Programs.

This inspection of License Renewal (LR) activities was performed by five regional office engineering inspectors. The inspection program followed was NRC Manual Chapter 2516 and NRC Inspection Procedure 71002. This inspection did not identify any "findings" as defined in NRC Manual Chapter 0612.

The inspection concluded that LR activities were conducted as described in the License Renewal Application (LRA) and that documentation supporting the application is in an auditable and retrievable form. The inspection also concluded that existing aging management programs (AMPs) are generally functioning well and that when all the programs are implemented as described in the LRA, there is reasonable assurance that the intended function of vital plant systems, structures, and components will be maintained through the period of extended operation.

The applicant had not yet loaded items into the official plant commitment tracking system to assure implementation of proposed actions to support LR. This was identified as an item for followup during a future NRC inspection. Several of the LRA committed aging management programs were new programs yet to be developed at the time of this inspection. NRC will review the applicant's progress on developing these AMPs during a future NRC inspection.

In walking down plant systems and examining plant equipment the inspectors found no significant adverse conditions and it appears plant equipment was being maintained adequately.

Attachment 1 to this report contains a partial list of persons contacted and a list of documents reviewed. The Aging Management Programs selected for review during this inspection are listed in Attachment 2 to this report. Attachment 3 is a list of acronyms used in this report.

## Report Details

### I. Inspection Scope

This inspection was conducted by NRC Region II inspectors to interview applicant personnel and to examine a sample of documentation which supports the license renewal application (LRA). This inspection reviewed the implementation of the applicant's Aging Management Programs (AMPs). The inspectors reviewed supporting documentation to confirm the accuracy of the LRA conclusions. For a sample of plant systems, inspectors performed visual examination of accessible portions of the systems to observe any effects of equipment aging. Attachment 1 of this report lists the applicant personnel contacted and the documents reviewed. The Aging Management Programs selected for review during this inspection are listed in Attachment 2 to this report. A list of acronyms used in this report is provided in Attachment 3.

### II. Findings

#### A. Visual Observation of Plant Equipment

During this inspection, the inspectors performed walkdown inspections of portions of plant systems, structures, and components (SSCs) to determine their current condition and to attempt to observe aging effects. The inspectors noted debris such as pieces of wire, plastic, and tape in the residual heat removal (RHR) pump rooms left from previous maintenance. The applicant initiated corrective action by issuing Condition Report (CR) 2004103286. In addition, the inspector noted many areas of paint on stainless steel piping in 2B containment spray pump room. Overall the material condition at Farley was good and no significant aging management issues were identified. The following SSCs were observed:

- Reactor Building Spray System
- Spent Fuel Cooling System
- Auxiliary Feedwater
- Chemical and Volume Control
- Containment Spray
- Residual Heat Removal
- Spent Fuel Pool Cooling Systems
- Component Cooling Water
- Diesel Generators
- Cranes
- Spent Fuel Pool
- Fire Water Pumphouse
- Service Water Intake Structure
- Electrical Transformer Area
- Switchyard

#### B. Review of Mechanical Aging Management Programs

##### 1. Reactor Vessel Surveillance Program

The Reactor Vessel (RV) Surveillance Program is an existing program credited in the LRA as a program for managing RV irradiation embrittlement. The applicant's program consists of periodic testing of RV surveillance capsules and updating calculations for fracture toughness Upper Shelf Energy (USE) and Reference Temperature (RT). The

applicant has removed capsules approximating a fluence level of 60 Effective Full Power Years (EFPY) and plans to remove a final capsule at approximately 80 EFPY. The applicant also imposes pressure and temperature limits on plant operations. The applicant has recently performed calculations which showed that USE complies with requirements of 10 CFR 50 Appendix G and projected RT meets 10 CFR 50.61 screening criteria.

The inspectors reviewed the LR program and other related documentation, the LR commitment data base, and calculations and held discussions with applicant personnel. The inspectors concluded that the applicant had continued to comply with the existing program to manage RV embrittlement and adequate guidance was in place to ensure aging effects will be appropriately managed for RV embrittlement for the period of extended operation.

## 2. Flow Accelerated Corrosion (FAC) Program

The FAC program is an existing program credited for management of flow accelerated corrosion which will be enhanced to add the auxiliary feedwater pump turbine exhaust piping to the scope of the program. The applicant's program consists of periodic inspections and evaluation of the data to detect wall thinning and compare data to current requirements and historical data values to predict when and if minimum wall thickness will occur. Piping replacements are planned prior to wall thickness reaching minimum requirements. Inspection points and inspection periodicity are periodically adjusted dependant on inspection data, plant operations history, and industry information.

The inspectors reviewed LR program documentation, the LR commitment data base, selected plant inspection data, site procedures, and the Program Health Report and also discussed the program with responsible personnel. The program has functioned well to assure timely piping replacements and appropriately adjust inspections according to plant and industry experience. The inspectors concluded that the FAC program is adequately functioning and there is reasonable assurance that FAC will be adequately managed through the period of extended operation.

## 3. Reactor Vessel Internals Program

The Reactor Vessel Internals Program is a new program intended to supplement the ongoing internals inspections being performed as required by the American Society of Mechanical Engineers (ASME) Code. It is credited as a program for managing cracking, reduction in fracture toughness, thermal embrittlement, void swelling, and changes in material dimension due to void swelling. The applicant plans to stay involved with the industry groups, EPRI Materials Reliability Program Reactor Vessel Internals Issue Task Group and the Westinghouse Owners Group, which are developing the model for the inspection.

The inspectors reviewed LR program documentation, the LR commitment data base, and the proposed procedure for this program and held discussion with responsible applicant personnel. The inspectors concluded that the Reactor Vessel Internals Program is planned and the applicant is appropriately involved with industry initiatives to assure an adequate program will be initiated. In addition, the applicant is committed to

submit the inspection plan for NRC review at least 24 months prior to entering the periods of extended operation.

#### 4. Flux Detector Thimble Inspection Program

The applicant currently inspects flux thimble tubes, in accordance with general plant procedures, for wear in response to previous industry problems in this equipment. The applicant plans to formalize this inspection into a specific procedure. The program includes eddy current testing, trending and evaluating wear rates, repositioning tubes as necessary, and capping tubes if necessary, such as when the tube cannot be inspected. In addition, the applicant plans to submit Unit 1 wear information and results of the upcoming Unit 1 testing to NRC.

The inspectors reviewed LR program documentation, site procedures, the proposed formal procedure, and plant data and held discussions with applicant personnel. The inspectors concluded that the applicant had in the past conducted adequate inspections to manage wear of flux thimble tubes and plans to formalize this program. There is reasonable assurance that the intended function of the flux thimble tubes will be maintained through the period of extended operation.

#### 5. NiCrFe Component Assessment Program

The NiCrFe Component Assessment Program will be a new program developed to address industry concerns regarding primary water stress corrosion cracking in nickel alloy components exposed to reactor coolant water. The applicant plans to assess susceptibility to cracking and perform inspections as necessary. The applicant is active in the industry group assessing this area. Components containing nickel alloys include the top and bottom RV penetrations, the RV flange leakage monitoring tube, and butt welds for piping to the RV, pressurizer and steam generators. It should be noted that a number of inspections have been performed as required by NRC generic communications. Inspections to date have included the RV top and bottom heads, six butt welds on the Unit 2 pressurizer, and one safe end butt weld on Unit 2 RV with no problems found. The applicant plans to visually inspect all Unit 1 butt welds during the upcoming 2004 outage. An existing procedure is in place for currently planned inspections and a new procedure is planned to incorporate any future changes.

The inspectors reviewed LR program documentation, the LR commitment data base, the existing procedure, the proposed procedure, plant inspection correspondence and results, and outage ISI plans and discussed this program with responsible applicant personnel. The inspectors concluded that ongoing inspections were being performed of nickel based alloys and adequate enhancements were planned for management of cracking in nickel base alloys. There is reasonable assurance that the intended function of nickel based alloys components will be maintained through the period of extended operation.

#### 6. Fatigue Monitoring Program

The Fatigue Monitoring Program is a new program which will be used to monitor fatigue of the metal piping and components that form the reactor coolant pressure boundary. The applicant currently conducts thermal plant equipment cycle counting, as required by Technical Specifications, manually. The applicant plans to modify the program to use



computer software to automatically count monitored cycles using installed plant equipment and add additional transients including pressurizer heat up, small step load increase/decrease, and large step load increase. Cycles will be monitored to confirm these remain below those assumed in the fatigue analysis. In addition, the applicant plans to monitor stress base fatigue of the pressurizer surge line and lower region as well as thermal stratification at susceptible locations. For selected locations where environmental factors indicate that fatigue life may not be maintained, the applicant plans to conduct further refined analysis or replacement.

The inspectors reviewed LR program documentation, the LR commitment data base, current site procedures, the proposed procedure, and current plant data and discussed the program with responsible applicant personnel. The inspectors concluded that the program had been implemented in accordance with current requirements and appropriate enhancements were planned. When implemented as described, there is reasonable assurance that cracking due to fatigue for the reactor coolant pressure boundary components and piping will be managed through the period of extended operation.

#### 7. Inservice Inspection Program

The Inservice Inspection (ISI) Program is an existing program, subject to regular NRC inspections, which has recently been updated to a risk informed ISI Program and submitted to NRC. In addition, the applicant plans to enhance inspections or perform flaw tolerance evaluation for cast austenitic stainless steel piping. The applicant has also enhanced a maintenance procedure to add controls of RV closure stud lubricant.

The inspectors reviewed the LR program documentation, the LR commitment data base, and site procedures and discussed the program with applicant personnel. The inspectors concluded that the ISI Program was in place and included elements described in the LRA. When implemented as described, there is reasonable assurance that adequate inspections required by the ASME Code will be performed through the extended period of operation.

#### 8. Service Water (SW)

The SW system provides a heat sink or removal capability for safety-related equipment and heat removal from the reactor during normal operations, normal plant shut downs, and emergency situations. The local river water is pumped to a retention pond that is maintained at 30 plus day supply level by non-safety-related equipment. The water is then pumped into the plant by safety-related pumps for cooling of equipment.

The inspectors previously reviewed the Service Water system during the performance of a NRC Temporary Instruction Procedure 159, Review of Generic Letter 89-13: Service Water System Problems Affecting Safety-Related Equipment, inspection during the week of September 6, 2004. This activity was documented in inspection report 500348, 364/2004-004. During the current inspection, the inspectors continued walk down inspections and reviewed the license renewal implementation effort on the SW system. Very few physical problems were observed on the SW system passive components. The licensee corrective action program contained actions to evaluate known passive problems with the SW system. The majority of these problems had been addressed. Although most had been addressed, there were potential pipe wall degradation

problems in a pair of in-ground pipe expansion boxes. Rain water had partially filled the boxes on occasions and rusted the exterior of two 42 inch pipes. This condition had not been evaluated since the problem was placed in the corrective action program (8/31/04). Due to the NRC team's re-inspection efforts and new system insights, site management was placing a higher priority on the problem evaluation. A new action item was added 9/22/04 to evaluate the exterior wall thinning. In the long term, the pipe exterior problems would be captured in the future by a new license renewal program, External Surfaces Monitoring Program, that has yet to be fully developed.

The licensee did have available an incomplete proposed AMP document to highlight the existing SW maintenance program and to link this program to LR activities and commitments. The proposed procedure tied together program elements that are based on the Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment, recommendations. With the exceptions documented in the above-mentioned report, the existing SW program appears to be maintaining the system integrity.

9. Electrical Equipment Environmental Qualification(EQ)

The EQ program includes electrical equipment relied upon to remain functional during and following design basis events to ensure the integrity of the reactor coolant pressure boundary, ensure the capability to shut down the reactor and maintain it in a safe shutdown condition, or to ensure the capability to prevent or mitigate the consequences of accidents that could result in offsite exposures beyond specific guidelines. The applicant is to maintain equipment in this program and as the equipment approaches loss of qualification due to aging, repair or replace it with qualified equipment.

The inspectors reviewed the proposed AMP for the existing EQ program. Additionally, the inspector looked at a program overview document that was being written by corporate personnel. The proposed documents did contain the elements found in the applicable NRC documents: NUREG-1801, Generic Aging Lessons Learned Report; NUREG-0588, Revision 1, Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment, and 10 CFR 50.49, Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants. The inspectors discussed program details utilizing existing procedures with corporate and site personnel. Specific equipment types were discussed as examples. The applicant planned to review the qualified equipment types against the proposed plant life extension on a case by case basis. Based on the inspection review, it appears that the applicant has an existing program that will address EQ life extension.

10. Overhead and Refueling Crane Inspection Program (ORCI)

The application submittal and NUREG-1801 (Section XI.M23, Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling System) discuss ORCI. The selected license renewal in-scope cranes handle reactor fuel. The existing site crane program maintains the selected cranes to limit fuel accidents.

The inspectors reviewed the proposed AMP that highlights the existing program and link this program to LR activities and commitments. The inspectors reviewed the existing crane inspection procedures that will be used over the long term for crane maintenance activities. The crane components aging effects that are in the program are general

corrosion of structural girders, bolting, and rails. The items are routinely visually inspected for degradation. The inspectors walked down the available cranes at the time of the inspection (spent cask and spent fuel bridge crane) with engineering and maintenance personnel. The other cranes in the applicant's program are the reactor polar crane and the reactor cavity manipulator crane, which are inside the containments and inaccessible with the reactors in power operation. The applicant's program is dependent on vendor inspections and vendor oversight. Based on the inspection review, it appears that the applicant has an existing program that will assure proper crane maintenance and operation.

#### 11. External Surfaces Monitoring Program

This is a new condition monitoring program that will be implemented through periodic inspections of external surfaces of carbon steel, low alloy steel and other materials susceptible to material loss in components requiring aging management for license renewal. The program will use visual inspection to identify potentially unacceptable conditions where degradation of protective coating or corrosion of the underlying base metal could result in an inability of the component to perform its intended function. The inspectors reviewed the program documentation, discussed the program with responsible applicant personnel, and reviewed proposed procedures which implemented the scope and actions of this program. The inspectors performed field walk downs of a sample of equipment within the program scope to assess the present material condition. The aging management program scope, inspection attributes, and acceptance criteria are described in FNP-IMP-AMP-18, External Surfaces Monitoring Program License Renewal Implementation Package, dated 9/9/04.

As mentioned in paragraph 8 above, during the field walk downs of equipment within the program scope the inspectors identified significant exterior rust on service water piping within underground service water distribution valve box enclosures. These valve boxes were not specifically included in the detailed scope description of program inspection areas. The inspectors discussed this issue with the applicant and learned that a Condition Report (CR) had been recently written on the conditions in the valve boxes, however it did not address the rusted pipe and potential for pipe wall thinning. The applicant wrote additional CRs and maintenance work orders to correct the problems. Additionally, the applicant recognized that these service water valve boxes and several others similar should have been included in the External Surfaces Monitoring Program. The applicant amended the proposed External Surfaces Monitoring Program Manual, FNP-O-M-TMD, Version A, Table 2, Plant Areas Required to be Inspected by the External Surfaces Monitoring Program, to include these valve box enclosures.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. When implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

#### 12. One Time Inspection Program

This is a new program which performs one time inspections to verify that an aging effect is not occurring or that the aging mechanism is so slow that it will not effect the component of interest before the end of the extended period of operation. The

inspections will be performed within a window of five years immediately preceding the extended period of operation. The aging effect to be assessed is selective leaching in cast iron, bronze, brass, and other alloys. The inspectors reviewed the program documentation, discussed the program with responsible applicant personnel, and reviewed proposed procedures which implemented the scope and actions of this program. The aging management program scope, inspection attributes, and acceptance criteria are described in FNP-IMP-AMP-20, One Time Inspection Program License Renewal Implementation Package, dated 9/9/04.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. When implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

13. Borated Water Leakage Assessment and Evaluation Program

This is an existing program that manages the aging effect of loss of material due to borated water leakage onto carbon steel and low alloy steel structures and components or electrical components. The program was developed in response to NRC Generic Letter (GL) 88-05, Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants. The inspectors reviewed the program documentation, discussed the program with responsible station personnel, and reviewed procedures which implemented the program. Additionally, the inspectors reviewed station actions for identification, trending and correction of previous and existing boric acid leaks. The aging management program scope, inspection attributes, and acceptance criteria are described in FNP-IMP-AMP-07, Boric Acid Corrosion Control Program License Renewal Implementation Package, dated 9/9/04.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. As implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

14. Buried Piping and Tanks Inspection Program

This is a new inspection activity credited for aging management of external surfaces on buried carbon steel piping and tanks. Buried components will be visually inspected when they are excavated for any reason. Preventive measures were originally implemented during installation in accordance with standard industry practices for external coating and wrappings. The inspections will verify the adequacy of the protection. This new program will be implemented prior to the period of extended operation. The inspectors reviewed the program documentation, discussed the program with responsible applicant personnel, and reviewed existing and proposed procedures which implemented the scope and actions of this program. The aging management program scope, inspection attributes, and acceptance criteria are described in FNP-IMP-AMP-19, Buried Piping and Tank Inspection Program License Renewal Implementation Package, dated 9/9/04.

The inspectors' reviewed the proposed changes to the existing General Excavating and Trenching Guidelines, FNP-0-GMP-81.0, Version 8, for this program to verify that adequate reference was included to assure the inspections were performed. It was noted and discussed with the applicant that the Excavation Permit Data Sheet and Instructions, of this procedure did not include a reference to assure the aging management program inspection was performed. The applicant amended the proposed procedure to include this reference on the Excavation Permit Data Sheet.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. When implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

15. Water Chemistry Control Program

This is an existing program which will manage loss of material and cracking within system components and structures. The program includes monitoring of detrimental species and addition of chemical additives and is subdivided into primary, secondary and closed cooling water chemistry sections. There were no program changes required for license renewal. The inspectors reviewed the program documentation, discussed the program with responsible applicant personnel, and reviewed existing procedures which implemented the scope and actions of this program. The inspectors reviewed trending of chemistry parameters, actions taken for identified conditions in which parameter limits were exceeded, and applicant self-assessments of the program.. The aging management program scope, inspection attributes, and acceptance criteria are described in FNP-IMP-AMP-02, Water Chemistry Control Program License Renewal Implementation Package, dated 9/9/04.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. As implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

16. Fuel Oil Chemistry Program

This enhanced program is credited for managing the aging effects due to loss of material on Fuel Oil system components for the Emergency Diesel Generators and the diesel driven fire pump. The program is governed by Technical Specifications and includes surveillance procedures to mitigate corrosion and actions to minimize exposure to fuel oil contaminants by verifying the quality of new oil. The program enhancement includes revision to existing procedures to ensure adequate monitoring and maintenance of the diesel driven fire pump fuel oil system. The inspectors reviewed the program documentation, discussed the program with responsible applicant personnel, and reviewed existing and proposed procedures which implemented the scope and actions of this program. The inspectors reviewed documentation which established the current material condition of the fuel oil storage tanks. During the inspection, the applicant performed an ultra-sonic examination of the diesel driven fire pump fuel oil storage tank to verify the current material condition (wall thickness) of this tank. The aging management program scope, inspection attributes, and acceptance criteria are

described in FNP-IMP-AMP-12, Fuel Oil Chemistry Control Program License Renewal Implementation Package, dated 9/9/04.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. As implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

17. Periodic Surveillance and Preventive Maintenance Program

This new program is a conditioning monitoring program credited for managing the aging effects applicable to the components included in the program, that are not managed by other aging management programs, by performance of repetitive tasks or surveillance. The components included in this program are the tank diaphragms for the Boric Acid Tanks, Reactor Makeup Water Storage Tanks, and Condensate Storage tanks. Additionally, the High Head Safety Injection (HHSI) Pumps' casings were added to the scope of this program to monitor loss of material due to clad cracking and subsequent corrosion of the carbon steel base metal. The inspectors reviewed the program documentation, discussed the program with responsible applicant personnel, and reviewed existing and proposed procedures which implemented the scope and actions of this program. Additionally, the inspectors reviewed documentation of past performances of periodic ultra-sonic and visual examinations of the HHSI pump casings. The aging management program scope, inspection attributes, and acceptance criteria are described in FNP-IMP-AMP-24, Periodic Surveillance and Preventive Maintenance Activities License Renewal Implementation Package, dated 9/9/04

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. As implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

18. Steam Generator Program

The inspectors reviewed the document FNP-IMP-AMP-10 Steam Generator Program License Renewal Implementation Package. The steam generator inspection program is a well established program which is being credited as an AMP for license renewal. The document specified the following three enhancements. The steam generator program in accordance with the technical Specifications will be continued during the period of extended operation. The program will be based upon NEI 97-06, "Steam Generator Program Guideline" or its successors. And the program will include monitoring of secondary side internal components whose failure could prevent the steam generator from fulfilling its intended safety-related function.

The inspectors reviewed proposed changes to existing procedures Farley Steam Generator Strategic Plan and NMP-ES-004, SNC Steam Generator Program (FNP, VEGP).

## 19. Fire Protection

The inspectors reviewed the document FNP-IMP-AMP-15 Fire Protection Program License Renewal Implementation Package, 9/9/2004. It described that the fire protection (FP) program is a long established plant program and that of the many existing FP surveillances only some are being credited for license renewal. The inspector reviewed a proposed revision to plant procedure FNP-0-M-32 Farley Nuclear Plant Master List of Fire Surveillance, Version 21.0. That document had attachment tables listing all the FP surveillances and the ones to be credited for LR were marked in the margin as LR commitments. The inspectors selected ten credited surveillances and asked the applicant to retrieve the records of the last two performances of those tests. The applicant retrieved the records and after review the inspectors concluded that eight of the tests were being accomplished successfully, but there were problems with two test.

The applicant told the inspectors that the surveillance FNP-0-FSP-2 Fire Pump Functional Test, had been "voided" and was being replaced by three other procedures FNP-0-FSP-203.4, 203.5, and 203.6 which test the fire pumps. The inspectors reviewed the records of the last two performances of the latter three procedures and found them satisfactory. The inspectors inquired of the applicant if there were other inaccuracies in procedure 32, the Master List of Surveillances. The inspectors were shown an Action Item number 2004204686 initiated 9/30/04 which directed to replace procedure 2 with the latter three, correct another typographical error, and add six other surveillance procedures to the Master List of Surveillances. The applicant subsequently concluded that under their corrective action system a Condition Report (CR) should have also been written to address these discrepancies and CR 2004204573 was initiated.

Procedures FNP-1-FSP-7 and FNP-2-FSP-7 Halon System, are semi annual surveillances to confirm system operability of the Halon fire suppression system in six rooms of the auxiliary building. The inspectors reviewed the last two performances of each procedure and observed that the test results are marked as unsatisfactory because several of the Halon bottles have lost pressure over time and are not being recharged by management decision. Halons are bromofluorocarbons and because Halons destroy the atmospheric ozone layer, their production has been phased out. Depressurized tanks would have to be sent off site at great expense to be recharged and the decision was made in late 2000 to abandon the system in place and discontinue surveillance testing. However surveillance testing continues with the results being routinely marked unsatisfactory and the procedure changed to direct that no corrective action document be initiated for the under pressure bottles.

These Halon systems protect rooms 201 and 2201 (computer rooms), 202 and 2202 (communications rooms), and 235 and 2235 (switchgear rooms) which are designated as fire areas 1-14, 2-14, 1-15, 2-15, 1-23, and 2-23 respectively. The inspectors reviewed document ABN 99-0-1491 which contains a 10 CFR 50.59 evaluation of the acceptability of modifying the FSAR description of the Halon system to delete it as a regulatory requirement. The document states that the NRC in its Fire Protection Safety Evaluation Report (SER) of February 12, 1979 discussed the existence and acceptability of these Halon systems and indicated that the fire protection features present in these rooms would satisfy the provisions of the NRC's Appendix a to the Branch Technical Position (BTP) APCS 9.5-1. The document further states that the applicant reviewed BTP 9.5-1 and determined that a Halon suppression system, or any type of a fixed

suppression system is not required in these rooms and that the intent of the positions as stipulated in the BTP 9.5-1 will be met with or without a fixed automatic fire suppression system present in these rooms.

The inspectors observed that the revised wording that was placed in the FSAR was not clear that the Halon system is being abandoned. It stated typically for the six entries "There is an automatically acting Halon fire suppression system installed in the room, however, there is a manual CO2 hose station in the adjacent area that fulfills the intent of (BTP) APCSB 9.5-1". The inspectors commented that this wording seems to say that the Halon system is still installed and fully operable when in fact it is degraded and gradually losing capacity as the bottles depressurize with age.

The inspectors further asked for the last two records of the surveillances that test fire loop piping flow capacity. The inspectors reviewed the last two performance records for FNP-0-FSP-53 performed every three years. This test installs a test pressure gauge and a hose on two hydrants at the remote ends of the fire water piping loop. It measures pressure with no flow and then at pressure at two different flow rates. The data is plotted on a graph and the results compared to ones from previous tests. The acceptance criteria is that flow capability has not decreased more than 20% from the original base line tests performed in 1986.

The test performed on March 25, 1999, found acceptable results for hydrants located near the diesel building and near the low voltage switchyard, but unacceptable results for hydrants located near the Service Water Intake Structure (SWIS). The test performed on June 3, 2002, concluded with unsatisfactory results saying the data was anomalous and did not fit the expected curve. The inspectors inquired what was being done about these two successive tests with unsatisfactory results. The inspector was shown a document RER 03-0209 which was a request for engineering review initiated in 2003 requesting the corporate engineering staff to review the unsatisfactory test results and propose a course of action. The completed RER was actually being approved during the inspection and the proposed actions were not certain. The document stated that it was thought that the hydrants may have been mislabeled in the procedure and/or in the field causing inconsistent test methods and there had been reports of a loop piping leak that could have effected test results.

The inspectors concluded that the fire protection program was being implemented but there has not always been timely resolution of unsatisfactory test results. These matters will be reviewed further during future inspections focused on fire protection. This issue will be identified as Unresolved Item 50-348,50-364/2004-009-001.

#### C. Review of Electrical Aging Management Programs

The Farley LRA concluded that the only electrical components that require an aging management program are electrical cables and connectors. Electrical equipment, including cables, that are already subject to the 10 CFR 50.49 environmental qualification (EQ) program are aging managed by that program. The applicant considers the EQ program subject to a Time Limited Aging Analysis (TLAA) to demonstrate that EQ components' qualified life can be extended an additional 20 years or ensure that they will be replaced at the appropriate time.



At Farley there is an electrical cable system called Oil-Static Cables which are in the scope of license renewal. It is a pressurized oil insulated buried electrical cable system that provides power from the switchyard to the auxiliary startup transformers. The buried portion of system is included in the Buried Piping and Tank Inspection AMP and the exposed ends are included in the External Surfaces Monitoring Program. The applicant concluded that the oil immersed conductors require no AMP and the inspectors agreed with that conclusion.

The Non-EQ Cable program is the only cable program credited for license renewal. This is a new AMP to be established prior to the period of extended operation and it consists of three parts.

For Non-EQ cables accessible for visual observation a representative sample of in-scope cables exposed to adverse localized environments caused by heat and/or radiation will be visually inspected at least once every 10 years. Cables and connections i.e. connectors, splices, terminal blocks, fuse holders and electrical penetration assembly pigtail leads will be inspected for evidence of surface embrittlement, discoloration, cracking or surface contamination.

The inspectors reviewed the Non-EQ Cables Program Implementation Package FNP-IMP-AMP-21. The document contained two proposed procedures. FNP-0-EMP-1372.01 Adverse Localized Equipment Environments Inspection directs the applicant to survey the entire plant to identify locations of adverse localized environment for heat and/or radiation which contain in-scope cables. These identified locations are to be included in the second procedure FNP-0-EMP-1372.02 Cables and Connections Inspection. This procedure directs the applicant to periodically inspect cables in the identified adverse environment locations for surface anomalies and to evaluate the significance of any anomalies found.

The second part of the AMP specifies that all in-scope instrumentation circuit cables with high voltage, low signal levels which are installed in adverse environments will be tested at least once every ten years. The applicant has identified a contractor to provide this service but has not yet determined the test method to be employed.

The third part of the AMP concerns inaccessible medium voltage cables which may be water submerged while energized. The AMP specifies that periodic actions will be taken such as inspection for and removal of water collection in cable manholes and conduits. The inspectors reviewed proposed procedures FNP-0-GMP-60.1 General Inspection Outdoor Electrical Duct Run Pull Boxes and FNP-0-GMP-60.2 General Inspection Outdoor Electrical Duct Run Pull Boxes (Non-Safety Related). These procedures had been recently approved and there were no records of past inspections to be reviewed.

The inspector was told that in support of the LRA most electrical pull boxes on site had been opened and inspected. Only a few were found to have a water accumulation. Several had been reinspected as a repetitive task, but it was decided to establish the above referenced procedures to do rotating periodic inspections of pull boxes, record as found water level and pump any water from the boxes. For several boxes that were found during the LRA inspections to have significant amounts of water, inspections will be done every three months to establish a trend and to determine if box modifications are needed.

For inaccessible in-scope medium voltage cables exposed to significant moisture the cables will be tested at least once every 10 years to provide an indication of the condition of the insulation. The specific type of test and acceptance criteria has yet to be determined.

The inspectors concluded the proposed program was acceptable. The proposed program agrees with the GALL recommendations and is comparable to those of past applicants.

D. Review of Structural Aging Management Programs

1. Structural Monitoring Program

FNP-IMP-AMP-13, "Structural Monitoring Program License Renewal Implementation Package" provides basis information, program commitments and procedural implementation for the license renewal aging management program. Section 3.0 contains a Program Commitment Cross Reference Table which identifies the new or existing commitment, the commitment source and the procedural implementation. FNP-0-SYP-18, "Maintenance Rule Structure Monitoring Program," Version 3 monitors the conditions of structures and structural components by conducting periodic walkdowns and visual inspections in accordance with the requirements and guidance in the maintenance rule, 10 CFR 50.65 and Regulatory Guide (RG) 1.160, Rev. 2. The FNP Structural Monitoring Program (SMP) assesses the conditions of the buildings and structures, including accessible areas that may be below ground. Items identified during the SMP inspections are entered into an observation database. The acceptance criteria contained in FNP-0-SYP-18 is in accordance with ACI-349-3R, "Evaluation of Existing Nuclear Safety Related Concrete Structures." The applicant will continue to address masonry wall considerations consistent with NRC IE Bulletin (IEB) 80-11 and NRC Information Notice (IN) 87-67 as stated in FNP-IMP-AMP-13. The FNP SMP will also include provisions to monitor buried commodities, inaccessible areas during opportune soil excavations, submerged portions of the Service Water Intake Structure (SWIS), structural portions of the Oil Static Pump House, and in-scope support features for ATWS, SBO, and fire protection safe shutdown equipment in the Turbine Building. Structures are inspected every 5 years based on FNP-0-SYP-18 which is similar to NEI 96-03, "Industry Guidelines for Monitoring the Condition of Structures at Nuclear Power Plants."

The inspectors performed a walkdown of the Unit 1 tendon access gallery to assess the conditions of the concrete walls. The inspectors observed leaching in areas along the concrete wall and approximately 1/2" of water at some locations which had filtered through the concrete walls. Electrical wiring conduits which are no longer in use remain in the Unit 1 tendon gallery and the applicant noted this as a housekeeping issue. The tendon cans in the Unit 1 tendon gallery were properly aligned and some humidity was observed around the cans due to the existing conditions of the gallery. The foam-like material was missing in some gaps between the bottom of the containment basemat and beams that extend along the tendon gallery. The inspectors concluded that the overall structural condition of the tendon gallery was adequate with no signs of structural deterioration.

A number of tendon grease stains were observed around the exterior of the containments; based on observations from a distance. The grease leakage appears to

be inactive or progressing very slowly. The applicant indicated that these areas had been previously identified under the SMP and are being monitored.

Section 7.2.1 of FNP-0-GMP-81.0, "General Excavating and Trenching Guidelines", specifies the inspection of exposed concrete structures due to excavation by a qualified engineer. This addresses the aging mechanisms applicable to below-grade concrete structures and attachments that may be exposed to groundwater or other adverse conditions such as settlement. The inspectors questioned whether deterioration of concrete structures exposed during an excavation may be considered representative of the inaccessible concrete surfaces. The applicant indicated that most of the buried concrete structures at FNP are designed independent of each other and that FNP-0-GMP-81.0 has been modified to require that whenever a structure is excavated it will be inspected for deterioration. The inspectors considered this approach acceptable.

The inspectors reviewed Maintenance Rule Structural Monitoring 1997 Baseline Inspections Report which documents structures and structural components which are monitored under the 10 CFR 50.65 scope. FNP stated in the report that "These structures remain capable of performing their intended functions." The inspectors did not identify any significant items in the report which required additional assessment for license renewal purposes.

The inspectors conducted a walkdown of the Service Water Intake Structure (SWIS) which is also monitored under the SMP. During the walkdown, the inspectors identified some minor ponding on the roof of the SWIS. The inspectors also observed approximately 2"-4" of standing water in valve boxes (VB) 1 and 2 adjacent to the SWIS which has caused corrosion of anchor bolts associated with the service water main pipe supports. Condition Report 200300128 was written to address this issue and Work Order M200176301 to perform the work. Prior flooding of the valve boxes was evidenced by water marks along the concrete wall. This could possibly lead to long term aging management issues if not corrected adequately. The sealant material between the service water 42" piping and the wall in VB-2 appeared to be degraded causing a gap in the area specified. The applicant identified the issues during the 1<sup>st</sup> 5-year Periodic Maintenance Rule Structural inspections and indicated that additional measures such as repainting of the components will be taken to minimize corrosion and the infiltration of water into the valve boxes by resealing the entrances to the valve boxes. The applicant specifies submerged portions of the SWIS to be inspected within the scope of license renewal.

During the 1<sup>st</sup> 5-year Periodic Maintenance Rule Structural inspections which took place between April 2000 and October 2001, the applicant identified 10 areas which could become a degradation problem. Deficiency Reports were written to address 7 of the 10 identified areas and are documented in Farley Condition Report 2001001490. One of the areas included groundwater in auxiliary building room 194 from the joint between the auxiliary building and containment. Work order 2002298 was written to address this issue. The inspectors toured auxiliary building room 2175 which also had the same problem and identified no visible leakage. There were no apparent signs of significant degradation of the hydrophilic grout between the auxiliary building and Unit 2 containment.

The inspectors performed a walkdown of the Diesel Cable Tunnel and observed no visible groundwater leakage. No unusual conditions were observed along the cable

ducts, bolts or concrete walls. Water had collected in the sump which indicated that the system was functioning properly by pumping water out of the tunnel. The Diesel Generator Building supports, skid pads, bolts and concrete walls appeared to be in acceptable conditions for license renewal purposes.

## 2. Integrated Leak Rate Test (ILRT) Program

Procedure FNP-1-STP-167, "Containment Integrity Examination," Revision 1 identifies Containment Type A testing which is required once every 10 years in accordance with Option B, 10 CFR Part 50 Appendix J requirements. NRC Regulatory Guide 1.163 requires a general visual examination during two other refueling outages, approximately 40 months apart. The acceptance criteria is defined as no evidence of containment damage or deterioration which could affect containment leakage or structural response to internal pressure.

The inspectors reviewed the Farley Unit 1 Fifth Periodic ILRT final report issued June 1995 and the Unit 2 Fourth Periodic ILRT final report issued July 1994. Both reports indicated leakage test rates below the acceptance limit of 0.1125 wt %/day; however, Unit 2 final leakage rate was 0.1112 wt %/day which is within 1 % of the acceptance limit. The value continues to be below the acceptance limit and includes penalties associated with localized leak rate tests performed, therefore the program is adequately testing the integrity and leak rate of the containment.

## 3. ASME Section XI, Subsection IWE/IWL/IWF Inservice Inspection Program

The FNP ASME Section XI, Subsection IWE/IWL/IWF Inservice Inspection (ISI) Program was developed considering the requirements of 10 CFR 50.55a, and the ASME Code (1992 Edition and Addenda). FNP-IMP-AMP-01b, "ISI Program (IWE, IWL, IWF) License Renewal Implementation Package," provides basis information, program commitments and procedural implementation for the license renewal aging management program. Section 3.0 contains a Program Commitment Cross Reference Table which identifies the new or existing commitment, the commitment source and the procedural implementation.

The inspectors reviewed FNP ASME Section XI, Subsection IWE ISI 2003 report and noted that the applicant identified bowing of the Unit 1 liner plate. Liner thickness measurements were performed and the results of the area where the bowing exists was within the acceptance criteria. This could be a potential aging management concern due to a potential for corrosion in the void between the liner plate and the containment wall. The applicant is aware of the issue and is monitoring the liner under the IWE inspections.

The inspectors reviewed the most recent FNP containment inservice inspection results. In general, the inspections found the containment structures acceptable. FNP-0-NDE-100.25, "Visual Examination VT-3 for IWE Components" and FNP-0-NDE-100.24, "Visual Examination VT-1 for IWE Components" provides requirements for performing general and detailed visual examination of Class MC pressure retaining components and their integral attachments. The inspectors concluded that the applicant's ISI/IWE Program is an adequate aging management program to provide reasonable assurance that the intended function(s) of the containment steel components will be maintained during the extended period of operation.

#### 4. Service Water Pond Dam Inspection Program

Procedure FNP-IMP-AMP-05, "Service Water Pond Dam Inspection Program License Renewal implementation Package," provides basis information, program commitments and procedural implementation for the license renewal aging management program. The applicant has included the service water pond dam and spill way to be inspected in accordance with NRC RG 1.127, Revision 1, "Inspection of Water-Control Structures Associated with Nuclear Power Plants." Procedure FNP-0-ETP-4389, "Service Water Storage Pond Dam Biennial Inspection," describes the regular biennial inspection of the service water pond dam at FNP. The service water pond dam inspection includes the earthen dam, the service water pond embankments and the spillway slopes.

The inspectors reviewed the regular biennial inspection reports of the FNP Service Water Storage Pond Dam and related facilities conducted on August 22, 2002 and another in 2000. The 2000 inspection identified 8" settlement of the slab at the end of the discharge flume. The inspectors conducted a walkdown of the area mentioned and verified that the slabs had been fixed appropriately. There were no signs of abnormal seepage, erosion, unusual settlement or displacement of the dam or dike structures. Some small trees were observed growing at various locations along the slope of the embankment which could possibly result in long term aging management concerns if not corrected due to seepage of the earthen dam. The applicant has identified these issues in their inspection reports and plans to eliminate the vegetation identified surrounding the dam. During the walkdown of the spillway structure, the inspectors observed that the spillway structure was free of debris and the retaining walls were performing their intended function with no visible deformation.

The inspectors reviewed the October 8, 1998, FNP Cooling Water Storage Pond Dam audit conducted by Federal Energy Regulatory Commission (FERC) and the NRC. The report states, "...no conditions were found that should adversely affect the immediate safety and permanence of the project structures." The edges along the embankment of the dam did not present any significant visible soil erosion. The inspectors concluded that the service water storage pond dam is capable of maintaining its integrity.

### III. Conclusions

The inspection concluded that LR activities were conducted as described in the License Renewal Application (LRA) and that documentation supporting the application is in an auditable and retrievable form. The inspection also concluded that existing aging management programs are generally functioning well and that when all the programs are implemented as described in the LRA, there is reasonable assurance that the intended function of vital plant systems, structures, and components will be maintained through the period of extended operation.

#### Exit Meeting Summary

The results of this inspection were discussed on October 1, 2004, with members of the applicant staff in an exit meeting open for public observation at the Houston County Administrative Building, 462 North Oates Street, Dothan, AL 36303. The applicant acknowledged the results presented and presented no dissenting comments. The inspectors asked if any of the applicant materials reviewed were proprietary and were told none were proprietary.

## PARTIAL LIST OF PERSONS CONTACTED

### Applicant

B. Badham, Security Manager  
R. Bayne, Performance Analysis supervisor  
L. Bohn, Consultant  
S. Chesnut, Engineering Manager  
M. Crisler, Senior Engineer  
J. Fridrichsen, Project Manager License Renewal  
R. Fucich, Work Controls, Supt.  
P. Ghosal, Senior Engineer  
P. Harlos, Health Physics Manager  
J. Hornbuckle, Senior Engineer  
R. Johnson, Asst. Gen. Manager Operations  
J. Kale, Performance Analysis  
D. Lisenby, Engineering Support  
T. Livingston, Chemistry Manager  
W. Lunceford, Consultant  
M. MacFarlane, Project Manager License Renewal  
M. Maddox, Sr. Emergency Preparedness Spec.  
R. Martin, Operations Manager  
J. Mulvehill, Senior Engineer  
C. Pierce, License Renewal Services Manager  
D. Stephens, Senior Engineer  
M. Stinson, Vice President, Farley Project  
B. Thomas, Corp. Communications  
R. Tyler, Engineering Support Manager  
R. Vanderbye, Emergency Preparedness Coordinator  
R. Vierkandt, Health Physics

### NRC

H. Christensen, Deputy Division Director, DRS, RII  
R. Fanner, Resident Inspector  
R. Hannah, RII Office of Public Affairs  
T. Liu, Project Manager  
C. Patterson, Senior Resident Inspector

## LIST OF DOCUMENTS REVIEWED

### Licensing Documents

Joseph M. Farley Nuclear Plant License Renewal Application dated September 2003 and related NRC Requests for Information and applicant answers  
Farley Updated Final Safety Analysis Report

### License Renewal Documents

LR AMP Commitment Cross Reference Table Report

### Existing Plant Procedures and Programs

NMP-ES-011, Flow Accelerated Corrosion for Plant Piping, Version 1  
NMP-ES-011-GL01, FAC Program Guideline, Version 1  
FNP-0-AP-63, Conduct of Operations-Engineering Support Department, Version 15.0  
FNP-0-M-73, FNP Trending Manual, Version 9.0  
FNP-0-ETP-4494, RPV Alloy 600 Material Inspections and Reports, Version 2.0  
FNP-0-ETP-4325, Thermal Cycle/Stratification Monitoring, Rev. 3  
FNP-1-STP-165, Component Cyclic or Transient Limits, Rev. 10  
FNP-0-AP-57, Inservice Inspection and Testing of ASME Class 1, 2, and 3 Systems, Version 8  
ES-MIS-311, ISI Program-Including Relief Requests, Version 1.0  
ES-MIS-311, Inservice Inspection Plans, Version 1.0  
FNP-1-MP-1.0, Independent Inspection Procedure, Version 39.0  
FNP-0-ETP-4108, FNP Environmental Qualification Program Implementation  
FNP-0-M-60, Environmental Qualification Program Description, Version 5  
ES-CEEQ-001, Environmental Qualification Evaluation for Farley Nuclear Plant, Version 2.0  
FNP-0-ETP-4385, Service Water Storage Pond Volume Survey Evaluation, Revision 0  
SCEW No. 0009E, System Component Evaluation Worksheet, Containment Penetrations, Tab C.2, Rev. 12, Sht 1 of 6,  
FNP-O-STP-24.6, Surveillance Test Procedure, Service Water Buried Pipe Inspection, Version 10, 8/8/03  
FNP-0-M-101, Boric Acid Corrosion Control Program, Version 10, 7/27/04  
FNP-0-BGP-2, Diesel Generator Fuel Oil Storage Tank Cleaning, Version 6, 3/5/03  
FNP-0-CCP-1112, Diesel Fuel Oil Storage Tank Sampling, Version 18, 3/12/03  
FNP-0-STP-423, Analysis of a Diesel Fuel Storage Tank Contents, Version 24, 9/18/03  
FNP-0-ETP-4496, Engineering Technical Procedure, Corrosion Assessment, Version 3  
FNP-0-SYP-18, Maintenance Rule Structure Monitoring Program, Version 3  
FNP-0-GMP-81.0, General Excavating and Trenching Guidelines  
FNP-1-STP-167, Containment Integrity Examination, Revision 1  
FNP-0-NDE-100.25, Visual Examination VT-3 for IWE Components  
FNP-0-NDE-100.24, Visual Examination VT-1 for IWE Components  
FNP-0-ETP-4389, Service Water Storage Pond Dam Biennial Inspection  
FNP-0-M-32 Farley Nuclear Plant Master List of Fire Surveillance, Version 21.0

### Proposed Procedures

FNP-IMP-AMP-06, Reactor Vessel Surveillance Program License Renewal Implementation Package dated 09/09/2004

FNP-IMP-AMP-11, Flow Accelerated Corrosion Program Implementation Package dated 09/09/2004

FNP-IMP-AMP-16, Reactor Vessel Internals Program License Renewal Implementation Package dated 09/09/2004

FNP-IMP-AMP-17, Flux Detector Thimble Inspection Program Implementation Package dated 09/09/2004

FNP-IMP-AMP-23, NiCrFe Component Assessment Program License Renewal Implementation Package dated 09/09/2004

FNP-IMP-AMP-22, Fatigue Monitoring Program License Renewal Implementation Package dated 09/09/2004

FNP-IMP-AMP-01A, Inservice Inspection Program (IWB, IWC, IWD) License Renewal Implementation Package dated 09/09/2004

NMP-EP-999, SNC Reactor Vessel Internals Program

FNP-0-SYP-TBD, Flux Detector Thimble Inspection Program

NMP-ES-998, SNC NiCrFe Component Assessment Program

FNP-0-SYP-XX.0, Fatigue and Cycle Monitoring Program

FNP-IMP-AMP-08, Overhead and Refueling Crane Inspection Program

FNP-IMP-AMP-09, EQ Program Implementation Package

FNP-IMP-AMP-14, Service Water Program License Renewal Implementation Package

NMP-ES-016, Environmental Qualification Program, Version 1.0

FNP-IMP-AMP-20-BD-01, One Time Inspection Program Basis Document, 9/9/04

NMP-ES-019-GL01, Boric Acid Corrosion Control Implementation Guideline, version 1, August 2004

FNP-IMP-AMP-12, Fuel Oil Chemistry Program, 9/9/04

FNP-IMP-AMP-18, External Surfaces Monitoring Program, 9/9/04

FNP-IMP-AMP-24, Periodic Surveillance and Preventive Maintenance Activities, 9/9/04

FNP-IMP-AMP-19, Buried Piping and Tank Inspection Program, 9/9/04

FNP-IMP-AMP-20, One Time Inspection Program, 9/9/04

FNP-IMP-AMP-07, Boric Acid Corrosion Control Program, 9/9/04

FNP-IMP-AMP-02, Water Chemistry Control Program, 9/9/04

FNP-O-GMP-0.0, Farley Nuclear Plant, General Maintenance Procedure, Mechanical Maintenance Precautions & Limitations, Version 23, 6/25/04

FNP-O-GMP-81.0, General Excavating and Trenching Guidelines, Version 8, 6/25/05

FNP-O-MP-54.1, Maintenance Procedure, Visual Inspection of Underground Pipes and Tanks, Version 1, 6/17/04

FNP-O-M-999-LR, One Time Inspection Program Manual, Version 1, 9/7/04

FNP-O-MP-54.2-LR, One Time Examination of Gray Cast Iron and Brass Components for De-Alloying Corrosion (selective leaching), Version 1, 8/17/04

FNP-O-MP-54.3-LR, One Time Examination of Jacketed Service Water System Piping External Surfaces, Version 1, 8/17/04

FNP-O-MP-54.5-LR, One Time Examination of TDAFW Pump Turbine Lubricating Oil Cooler, (lube oil side), Version 1, 8/17/04

FNP-1-SPP-999-LR, One Time Ultra-sonic Examination of the Unit 1 CST Bottom, Version 1, 8/17/04

NMP-ES-019, Nuclear Management Procedure, Boric Acid Corrosion Control Program, Version 1, 9/30/04

FNP-0-CCP-332, Chemical Addition to the Diesel Fuel Oil Storage Tanks, Version 11, 5/20/04

FNP-0-FSP-62, Analysis of a Fire Diesel Fuel Storage Tank contents, Version 4, 5/20/04

FNP-0-FSP-62.1, Fire Diesel Fuel Oil Bottom Sample Quality Appearance Test, Version 1, 4/27/04

FNP-0-M-TBD, External Surfaces Monitoring Program, Version A, 9/7/04



FNP-IMP-AMP-15 Fire Protection Program License Renewal Implementation Package,  
 9/9/2004  
 FNP-IMP-AMP-21 Non-EQ Cables Program Implementation Package  
 FNP-0-EMP-1372.01 Adverse Localized Equipment Environments Inspection  
 FNP-0-EMP-1372.02 Cables and Connections Inspection  
 FNP-0-GMP-60.1 General Inspection Outdoor Electrical Duct Run Pull Boxes  
 FNP-0-GMP-60.2 General Inspection Outdoor Electrical Duct Run Pull Boxes (Non-Safety  
 Related)  
 FNP-0-AP-63, Conduct of Operations - Engineering Support Department, version 15, 8/18/04  
 FNP-IMP-AMP-13, Structural Monitoring Program License Renewal Implementation Package  
 FNP-IMP-AMP-01b, ISI Program (IWE,IWL,IWF) License Renewal Implementation Package  
 FNP-IMP-AMP-05, Service Water Pond Dam Inspection Program License Renewal  
 implementation Package

### **Plant Data/Test Results**

Pressure Temperature Limits Report, Unit 1, Rev. 1  
 Pressure Temperature Limits Report, Unit 2, Rev. 2  
 WCAP-16221-NP, Analysis of Capsule V from Farley Unit 1 Reactor Vessel Radiation  
 Surveillance Program, Rev. 0  
 Inspection results for RV weld APR1-4100-14DM dated 04/09/2004; pressurizer top head butt  
 welds dated 04/18/2004; and surge line butt weld dated 03/31/2004  
 Surveillance data for FNP-1-STP-165 dated 01/26/2004  
 Surveillance data for FNP-0-ETP-4325 dated 07/03/2004 and 08/27/2004  
 Data table for Unit 1 and Unit 2 RTDs (FNP-0-ETP-4325) covering dates 09/06/2001 through  
 06/11/2004  
 Visual Examination Record VT-1, 1B Charging/HHSI Pump, 9/21/04  
 Visual Examination Record VT-1, 1C Charging/HHSI Pump, 9/28/98  
 Visual Examination Record VT-1, 1A Charging/HHSI Pump, 3/25/03  
 Visual Examination Record VT-1, 2A Charging/HHSI Pump, 2/19/01  
 Visual Examination Record VT-1, 2C Charging/HHSI Pump, 4/5/04  
 Work Order (WO) 0693034, 1A Charging/HHSI Pump Casing NDE-UT, 4/16/03  
 WO 0693035, 1B Charging/HHSI Pump Casing NDE-UT, 4/16/03  
 WO 0693036, 1C Charging/HHSI Pump Casing NDE-UT, 4/16/03  
 WO 0707686, 2A Charging/HHSI Pump Casing NDE-UT, 4/16/03  
 WO 0693098, 2B Charging/HHSI Pump Casing NDE-UT, 4/16/03  
 WO 0693099, 2C Charging/HHSI Pump Casing NDE-UT, 4/16/03  
 Maintenance Rule Structural Monitoring 1997 Baseline Inspections Report  
 Farley Unit 1 Fifth Periodic ILRT final report issued June 1995 and the Unit 2 Fourth Periodic  
 ILRT final report issued July 1994  
 FNP ASME Section XI, Subsection IWE ISI 2003 report  
 October 8, 1998 FNP Cooling Water Storage Pond Dam Audit

### **Plant Drawings**

D-170976, Piping - Service Water Return to Wet Pit, Revision 0  
 D-181900, Installation Details for Environmentally Qualified CTMT Penetration Assembly,  
 Revision 0

**Miscellaneous Documents**

Letter NEL-99-0125, Southern Company to USNRC, Unit 2 Reactor Vessel Surveillance Capsule Z Results  
Letter USNRC to L. M. Stinson; Joseph M. Farley Nuclear Plant, Units 2 and 2 Re: Specimen Capsule Withdrawal Schedule Revisions dated 03/15/2004  
Letter NL-04-0372, Specimen Capsule Withdrawal Schedule Revisions-Additional Information dated 03/05/2004  
Letter NL-04-0264, Standby Specimen Capsule Withdrawal Plans dated 02/23/2004  
Flow Accelerated Corrosion Program Health Report through 12/31/2003  
Letter ALA-03-7, Flux Thimble Current Data Evaluation for Unit 2 Cycle 15 dated 02/04/2003  
Letter ALA-00-015, Transmittal of Corrected Flux Thimble Wear Evaluation Report - 2R13 dated 03/24/2000  
Farley Unit 1 RF19 ISI Plans  
RER 03-282, Joseph M. Farley Nuclear Plant Units 1 and 2 Alloy 600/82/182 Material  
MRP 2003-039, Recommendation for Inspection of Alloy 600/82/182 Pressure Boundary Components dated 01/20/2004  
Letter NL-04-0910, Results of Reactor Pressure Vessel Head Inspections Required by First Revised NRC Order EA-03-009 dated 05/26/2004  
Letter NL-03-1387, Results of Reactor Pressure Vessel Head Inspections Required by Order EA-03-009 dated 06/30/2003  
Letter NL-04-1150; Response to NRC Bulletin 2004-01, Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at Pressurized Water Reactors dated 07/26/2004

**Condition Reports**

2003000969, License Renewal Auxiliary Building Walkdown Findings the week of 4/14/03  
2004102505, Findings in the SW Expansion Valve Boxes 1 and 2

## JOSEPH M. FARLEY NUCLEAR PLANT

### AGING MANAGEMENT PROGRAMS SELECTED FOR INSPECTION

Water Chemistry Control Program  
Borated Water Leakage Assessment and Evaluation Program  
Fuel Oil Chemistry Control Program  
External Surfaces Monitoring Program  
Buried Piping and Tank Inspection Program  
One Time Inspection Program  
Periodic Surveillance and Preventive Maintenance Activities  
Reactor Vessel Surveillance Program  
Flow Accelerated Corrosion Program  
Reactor Vessel Internals Program  
Flux Detector Thimble Inspection Program  
Nicro Component Assessment Program  
Fatigue Monitoring Program  
Service Water Program  
Overhead and Refueling Crane Inspection Program  
Environmental Qualification Program  
Service Water Pond Dam Inspection Program  
Structural Monitoring Program  
Fire Protection Program  
Non-Eq Cables Program  
Inservice Inspection Program  
Steam Generator Program

## LIST OF ACRONYMS USED

AFW	Auxiliary Feedwater System
AMP	Aging Management Program
CCW	Component Cooling Water System
CST	Condensate Storage Tank
CVCS	Chemical and Volume Control System
ECCS	Emergency Core Cooling Systems
EDG	Emergency Diesel Generator
EQ	Environmental Qualification Program
FNP	Farley Nuclear Plant
FP	Fire Protection
LR	License Renewal
LRA	License Renewal Application
NRR	NRC Office of Nuclear Reactor Regulation
RAI	Request for Additional Information
RCS	Reactor Coolant System
RHR	Residual Heat Removal System
RWMS	Reactor Water Makeup System
RWST	Refueling Water Storage Tank
SBO	Station Blackout Event
SFP	Spent Fuel Pool
SG	Steam Generator
SR	Safety Related
SSC	Systems, Structures, and Components
SW	Service Water System
SWIS	Service Water Intake Structure
UFSAR	Updated Final Safety Analysis Report