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

March 7, 2003

Florida Power and Light Company
ATTN: Mr. J. A. Stall, Senior Vice President
Nuclear and Chief Nuclear Officer
P. O. Box 14000
Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE NUCLEAR PLANT - NRC INSPECTION REPORT
50-335/2003-03 AND 50-389/2003-03

Dear Mr. Stall:

On January 31, 2003, the NRC completed an inspection regarding your application for license renewal for your St. Lucie Nuclear Plant Units 1 and 2. The enclosed report documents the inspection findings, which were discussed on January 31, 2003, with Mr. D. Jernigan and other members of your staff in an exit meeting open for public observation at the St. Lucie site.

The purpose of this inspection was an examination of activities that support your application for a renewed license for the St. Lucie facilities. The inspection consisted of a selected examination of procedures and representative records, and interviews with personnel regarding the 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 2.790 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).

Should you have any questions concerning this letter, please contact us.

Sincerely,

\RA

Harold O. Christensen
Deputy Director
Division of Reactor Safety

Docket Nos. 50-335, 50-389
License Nos. DPR-67, NPF-16

Enclosure: Inspection Report 50-335/03-03, 50-389/03-03
w/attachment

cc w/encl: (See page 3)

cc:
Senior Resident Inspector
St. Lucie Plant
U.S. Nuclear Regulatory Commission
P.O. Box 6090
Jensen Beach, Florida 34957

Craig Fugate, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

M. S. Ross, Attorney
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Douglas Anderson
County Administrator
St. Lucie County
2300 Virginia Avenue
Fort Pierce, Florida 34982

Mr. William A. Passetti, Chief
Department of Health
Bureau of Radiation Control
2020 Capital Circle, SE, Bin #C21
Tallahassee, Florida 32399-1741

Mr. Donald E. Jernigan, Site Vice President
St. Lucie Nuclear Plant
6501 South Ocean Drive
Jensen Beach, Florida 34957

Mr. R. E. Rose
Plant General Manager
St. Lucie Nuclear Plant
6501 South Ocean Drive
Jensen Beach, Florida 34957

Mr. G. Madden
Licensing Manager
St. Lucie Nuclear Plant
6501 South Ocean Drive
Jensen Beach, Florida 34957

Mr. Don Mothena
Manager, Nuclear Plant Support Services
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Rajiv S. Kundalkar
Vice President - Nuclear Engineering
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. J. Kammel
Radiological Emergency
Planning Administrator
Department of Public Safety
6000 SE. Tower Drive
Stuart, Florida 34997

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304

Mr. Steve Hale
St. Lucie Nuclear Plant
Florida Power and Light Company
6351 South Ocean Drive
Jensen Beach, Florida 34957-2000

Mr. Alan P. Nelson
Nuclear Energy Institute
1776 I Street, N.W., Suite 400
Washington, DC 20006-3708
APN@NEI.ORG

David Lewis
Shaw Pittman, LLP
2300 N Street, N.W.
Washington, D.C. 20037

Mr. Stan Smilan
5866 Bay Hill Cir.
Lake Worth, FL 33463

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-335, 50-389
License Nos:	DPR-67, NPF-16
Report No:	50-335/03-03, 50-389/03-03
Licensee:	Florida Power and Light Company (FPL)
Facility:	St. Lucie Nuclear Plant, Units 1 & 2
Location:	6351 South Ocean Drive Jensen Beach, FL 34957
Dates:	January 13 - 31, 2003
Inspectors:	R. Moore, Reactor Inspector M. Scott, Reactor Inspector K. Van Doorn, Reactor Inspector H. Wang, Operations Engineer, NRR
Approved by:	Caudle Julian Team Leader Division of Reactor Safety

TABLE OF CONTENTS

SUMMARY OF FINDINGS

IR 05000335-03-03, IR 05000389-03-03; 1/13 -31 /2003; Florida Power and Light Company, St. Lucie Nuclear Plant, Units 1 & 2. License Renewal Inspection Program, Aging Management Programs.

This inspection of License Renewal (LR) activities was performed by four regional office engineering inspectors, and one staff member from the office of Nuclear Reactor Regulation. 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.

Documentation from the existing aging management programs was of good quality, detailed, thorough, and understandable. Minor exceptions were the following.

During review of the Systems and Structures Monitoring Program (SSMP) it was recognized that a link was needed in the procedure for excavation to alert license renewal personnel when buried concrete and components are to be exposed, so they may be inspected. The applicant agreed to modify the Work Control Guidlines excavation procedure and the SSMP basis document to establish such a link. This task is being tracked as a license renewal Plant Management Action Item (PMAI) PM01-09-090.

During review of the Preventive Maintenance program for inspection of electrical manholes for water, it was recognized that the program was not consistent regarding which manholes are inspected on each unit and that not all of the safety related manholes were being inspected. The applicant responded that this had been recognized during license renewal preparation and a Condition Report (CR) 02-3235 had been written on 12/27/02 to improve the program. NRC noted that this is a recurring problem where several attempts have been made in the past to correct the program.

The inspection looked at the status of the safety related spent fuel pool makeup path from the Intake Cooling Water system. The applicant had looked at this matter before the NRC and concluded that, although the system was operable, some enhancements needed to be made. Two CRs 03-0036 and 03-0078 were written on this matter and some of the work had been done. The rest is being tracked by PMAI to ensure completion.

NRC inspectors examined a substantial portion of plant safety related equipment. The NRC's overall conclusion was the material condition of the plant was being adequately maintained and has improved over time.

Attachment 1 of this report lists the applicant personnel contacted and the documents reviewed. A list of acronyms used in this report is provided in Attachment 2.

Report Details

I. Inspection Scope

This inspection was conducted by NRC Region II inspectors and members of the NRR staff 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. The inspectors reviewed supporting documentation and interviewed applicant personnel to confirm the accuracy of the LRA conclusions. For those programs which the applicant indicated were consistent with the Generic Aging Lessons Learned (GALL) report, the inspectors confirmed that the applicant's program included the GALL attributes. Attachment 1 of this report lists the applicant personnel contacted and the documents reviewed. A list of acronyms used in this report is provided in Attachment 2. For a sample of plant systems, inspectors performed visual examination of accessible portions of the systems to observe any effects of equipment aging.

II. Findings

A. Visual Observation of Plant Equipment

During this inspection, the inspectors performed walkdown inspections of portions of many of the plant systems, structures, and components (SSCs) to determine their current condition and to attempt to observe aging effects. No significant aging related issues were identified. The following SSCs were observed:

Chemical and Volume Control System
Containment Spray System
Instrument Air System
High and Low Head Safety Injection Systems
Primary Makeup Water System
Auxiliary Feedwater System
Auxiliary Feedwater Pipe Trenches
Control Room Ventilation System
Various small bore piping in the Reactor Auxiliary Building
Component Cooling Water System
Intake Cooling Water System (ICW) and associated trenches
Spent Fuel Pool
ECCS pipe trench Unit 2
Three electrical manhole areas
Main Steam Isolation and Relief Valve areas
Intake Structures
ICW connection to the Spent Fuel Pool Makeup System
Ultimate Heat Sink Dam and Valve House
Earthen Canal Bank with concrete lining
Condensate enclosures
Switchyard

B. Review of Mechanical Aging Management Programs

1. Fatigue Monitoring Program

The Fatigue Monitoring Program is an existing plant specific program credited in the LRA for confirming that analytical assumptions for fatigue cracking remain valid for the period of extended operation. The applicant plans to modify the program to notify plant management when 80% of projected plant cycles are reached. In addition, the applicant plans to conduct inservice inspections of the pressurizer surge line to confirm that Environmentally Assisted Fatigue has not resulted in cracking. The program provides for evaluation of actual fatigue cycles, e.g. heat up and cool down, which the plant experiences and to confirm these cycles will not exceed the design cycles assumed in the fatigue analysis.

The inspectors reviewed the License Renewal Basis Document (LRBD) which described program requirements, associated procedures, Technical Specifications, engineering documents, portions of the long term Inservice Inspection (ISI) plan, and recent evaluation results. In addition, the inspectors held discussions with site and corporate program owners in this area.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience information to determine aging effects. The applicant had established tracking items to assure implementation of proposed actions to support LR. In addition, the inspectors concluded that the applicant had provided adequate guidance to ensure that the aging effects will be appropriately managed. When implemented as described, there is reasonable assurance that the intended function of the Class 1 components and piping will be maintained through the period of extended operation.

2. Alloy 600 Inspection Program

The Alloy 600 Inspection Program is a plant specific program credited in the LRA as an aging management program for primary water stress corrosion cracking in all Alloy 600 Reactor Coolant System (RCS) pressure boundary components including the Reactor Vessel Head (RVH). The program consists of inspection for leakage during outages under the Boric Acid Wastage Surveillance Program and RVH inspections performed in accordance with applicant commitments to NRC Generic Letter 97-01, Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Head Penetrations, and NRC Bulletins.

For the RVHs, the applicant has committed to perform bare metal visual inspections and volumetric inspections of all control rod drive penetrations. A Unit 2 RVH inspection was conducted in December, 2001 with no problems noted. Unit 1 received bare metal RVH and volumetric inspections in September, 2002 with no leaks identified. The Unit 1 inspections were observed by NRC (see NRC Report 50-335, 389/2002-004). The applicant plans to perform bare metal RVH and volumetric examinations on Unit 2 in April, 2003 which will also be observed by NRC. The applicant plans to continue review of ongoing industry issues associated with the RVHs. In addition, for other Alloy 600 components, the applicant plans to continue the established data base of industry issues and update the existing susceptibility analysis and repair history.

The inspectors reviewed the applicable LRBD document, the pressurizer License Renewal Aging Management Review (LRAMR) document, plant procedures, associated engineering

documents, and inspection/repair status for Alloy 600 components. In addition, the inspectors discussed the program with responsible applicant personnel and reviewed responses to the NRC Bulletins. Review of the Boric Acid Wastage Program is documented in section II.B.8 of this report.

The inspectors concluded that the Alloy 600 Inspection Program was consistent with the description in the LRA and that enhancements to reflect current industry experience and updating of programs and associated documents is planned and tracked in the applicant's action item data base. Adequate historic reviews to determine aging effects had been conducted. In addition, the inspectors concluded that the applicant had provided adequate guidance to ensure that the aging effects will be appropriately managed. When implemented as described, there is reasonable assurance that the intended function of Alloy 600 components will be maintained through the period of extended operation.

3. Reactor Vessel Integrity Program

The Reactor Vessel Integrity Program is an existing plant specific program credited in the LRA as an aging management program for managing reactor vessel irradiation embrittlement. The program encompasses the following sub-programs: (1) Reactor Vessel Surveillance Capsule Removal and Evaluation, (2) Fluence and Uncertainity Calculations, (3) Monitoring Effective Full Power Years, and (4) Pressure - Temperature Limit Curves. The applicant had developed an engineering Quality Instruction to coordinate the four sub-programs.

The inspectors reviewed the applicable LRBD document, site procedures, and engineering documents. In addition, the inspectors held a discussion of the program with responsible applicant personnel.

The inspectors concluded that the Reactor Vessel Integrity Program was in place, had been implemented, and was consistent with the description detailed in the LRA. Adequate historic reviews to determine aging effects had been conducted, and adequate guidance had been provided to reasonably ensure that aging effects will be appropriately managed. When implemented as described, there is reasonable assurance that the intended function of the Reactor Vessel will be maintained through the period of extended operation.

4. Reactor Vessel Internals Inspection Program

The Reactor Vessel Internals (RVI) Inspection Program is a new plant specific program credited in the LRA as an aging management program for cracking, reduction in fracture toughness, loss of mechanical closure integrity, and establishment of the significance of dimensional changes due to void swelling for the RVI. This program will also provide screening criteria to determine the susceptibility of cast austenitic stainless steel (CASS) parts to thermal embrittlement. The program is meant to supplement the RVI inspections required by the ASME Section XI, Subsections IWB, IWC, and IWD Inservice Inspection Program.

The industry is in the process of characterizing the aging effects associated with RVI. The applicant is participating in these industry efforts and plans to prepare procedures to implement the new inspection program after further industry understanding of the aging effects. The applicant anticipates that a new enhanced visual inspection procedure will be needed for selected components. It is anticipated that the new inspections will be performed after the end

of the current license period. The applicant plans to submit a report to the NRC prior to the end of the initial 40-year license term describing further understanding of aging effects and planned inspections.

The inspectors reviewed the applicable LRBD document, the LRAMR document, inspection guidance, and recent results of RVI inspections. In addition, the inspectors discussed the current and planned program with responsible applicant personnel. The inspectors concluded that the Reactor Vessel Internals Inspection Program is planned as described in the LRA and that the applicant's action item tracking system has captured actions required for future implementation of the program.

5. Steam Generator Integrity Program

The Steam Generator Integrity Program, an existing program, is credited in the LRA as an aging management program for the aging effects of stress corrosion cracking and loss of material due to corrosion and wear of steam generator tubes and stress corrosion cracking of steam generator tube plugs. In addition, for Unit 2, this program provides preventive measures for flow accelerated corrosion (FAC) of tube supports. The program includes: periodic inspection of tubing and plugs, secondary side integrity inspections, tube integrity assessments, assessment of degradation mechanisms, primary to secondary leakage monitoring, primary and secondary chemistry control, sludge lancing, maintenance and repairs, and foreign material exclusion. For Unit 2, the program includes sludge lancing and bundle flushing for prevention of FAC.

The inspectors reviewed the applicable LRBD document, the LRAMR for steam generators, applicable procedures, and a self-assessment of the program. In addition the inspectors discussed the program with responsible applicant personnel.

The inspectors concluded that the Steam Generator Integrity Program was in place, had been implemented, and included the components identified in the LRA. The LRBD included a comparison of the applicant's program to the comparable program in the GALL report. The inspectors concluded that the applicant's program was consistent with the ten attributes of Aging Management Program XI.M19, Steam Generator Tube Integrity, specified in the GALL. Adequate historic reviews to determine aging effects had been conducted, and adequate guidance had been provided to reasonably ensure that aging effects will be appropriately managed. When implemented as described, there is reasonable assurance that the intended function of the steam generators will be maintained through the period of extended operation.

6. Thermal Aging Embrittlement of Cast Austenitic Stainless Steel Program

The CASS program is a proposed new program credited in the LRA for monitoring the effects of reduction in fracture toughness on the intended function of specific components by identifying the CASS materials that are susceptible to thermal aging embrittlement. For potentially susceptible components, the applicant plans to implement enhanced volumetric inspections or evaluations consistent with the GALL.

The inspectors reviewed the LRBD document and the applicant's action item data base. The LRBD included a comparison of the applicant's program to the comparable program in the GALL report. The inspectors concluded that the proposed CASS program attributes are

consistent with the GALL program XI.M12 and the applicant's action item tracking system has captured actions required for future implementation.

7. Condensate Storage Tank Cross-connect Buried Piping Inspection (Unit 1 only)

This is a new program to be developed which is credited for assessing and managing the potential external loss of material due to pitting and microbiological influenced corrosion of the buried stainless steel piping (specifically, line 8-C-95) which connects the Unit 1 and Unit 2 Condensate Storage Tanks (CSTs). A one time visual inspection will assess the condition of the piping. If significant loss of material is identified, the appropriate corrective action including program revision, if needed, will be implemented. A work order will be generated to perform this inspection.

The inspectors discussed the program with the engineering staff and walked down the area above the buried piping to observe the location selected for the one time excavation and inspection of this piping. The LRAMR for the Auxiliary Feed Water and Condensate Systems identified the potential aging effects applicable to the CST cross-connect piping. The LRBD for the CST Cross-Connect Buried Piping Inspection identified the procedures and processes required for implementation of this aging management program, described the inspection methodology, identified acceptance criteria, and assigned departmental responsibility for the program development and implementation. The program development is scheduled to be completed prior to the end of the initial operating license. Action items for the development of the implementing work order and inspection performance were entered into the Plant Management Action Item (PMAI) list.

There was no historic information of plant specific or industry experience to determine aging effects of this equipment. The applicant had provided adequate guidance to ensure the 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.

8. Boric Acid Wastage Surveillance Program

This is an existing program which is credited with managing the loss of material or mechanical closure integrity due to boric acid wastage - aggressive localized chemical attack - of carbon steel, cast iron, and low alloy steel components and structures by boric acid leakage from the reactor coolant system or other borated water systems. The program uses leakage detection and periodic visual inspections to identify and manage boric acid wastage. The program will be enhanced for the LRA to include portions of the Waste Management System within the scope and to evaluate adjacent structures, systems, and components when leakage is identified.,

The inspectors reviewed the program documentation, discussed the program with the responsible station personnel, reviewed documentation of periodic boric acid surveillance inspections, and walked down a portion of the outside containment boric acid wastage inspection procedure. Additionally, the inspectors reviewed the documentation and resolution of licensee identified boric acid leakage conditions. The LRBD for the Boric Acid Wastage Surveillance Program identified the implementing procedures, processes, and evaluations required for program implementation and assigned departmental responsibility for implementation of program enhancements. The completion of the enhancements is scheduled

for February 14, 2016. Action items for the enhancements specified in the LRBD were entered into the PMAI.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience information to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately managed. As implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation. The LRBD included a comparison of the applicant's program to the comparable program in the GALL report. The licensee's Boric Acid Wastage Surveillance Program was consistent with the ten attributes of the GALL Aging Management program XI.M10, "Boric Acid corrosion".

9. Small Bore Class 1 Piping Inspection

This is a new activity being developed to perform a one time inspection using approved and qualified volumetric examination techniques to assess and manage the effects of service induced cracking on RCS small bore piping (less than 4 inch diameter). A sample of welds to be examined will be selected using a risk informed approach. The development of the small bore piping inspection activity is an industry initiative under development. If a weld flaw is identified it will be documented and evaluated using the applicant's existing condition reporting process and additional samples will be selected and examined. The inspection will be performed in the latter part of the initial operating period.

The inspectors reviewed the program description in the LRBD for the Small Bore Class 1 Piping Inspection and discussed the program with the engineering staff. The LRBD includes the actions to develop and implement this one time inspection. These actions include an engineering evaluation to determine the specific welds for examination, development of a specific volumetric examination procedure for small bore piping, and providing a report to the NRC describing the inspection plan prior to its implementation. The action items were entered into the PMAI.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience information 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 fluid systems will be maintained throughout the period of extended operation.

10. Chemistry Control Program

This is an existing mitigation program which is credited for managing the aging effects of loss of material, cracking, or fouling of internal systems and structures in the scope of license renewal. These components are exposed to borated water, closed cooling water, fuel oil, and treated water environments. The aging effects are minimized or prevented by controlling the chemical species that cause the underlying aging mechanisms. Station chemistry procedures specified sampling scope, acceptance criteria, frequency, and corrective actions for sample results not within the acceptance criteria. Enhancements to expand the scope of the program have been completed.

The inspectors reviewed the program documentation, discussed the program with the Chemistry department staff, reviewed chemistry sampling procedures and acceptance criteria, and reviewed documentation of periodic sampling. The LRBD evaluated the program for consistency with the 10 attributes of the GALL chemistry related programs.

The St. Lucie Chemistry Program was divided into three sub-programs for evaluation; Water Chemistry (GALL section XI.M2), Closed Cycle Cooling Water Systems (GALL section XI.M21), and Fuel Oil Chemistry (GALL section XI.M30). The licensee's Water Chemistry Program is consistent with GALL XI.M2. The Closed Cycle Cooling Water System Program was consistent with GALL XI.M21 with the exception of the attribute for inspection and surveillance which was addressed by other aging management programs. The Fuel Oil Chemistry program was plant specific. Although there is a comparable Fuel Oil Chemistry GALL Program (XI.M30), these attributes were addressed by other aging management programs rather than the Chemistry Program.

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

11. Galvanic Corrosion Susceptibility Program

This is a new program which is credited for managing the potential loss of material due to galvanic corrosion on the surfaces of susceptible piping and components. The program will perform a one time visual inspection of susceptible locations to assess loss of material due to galvanic corrosion. Model work orders will be developed to perform the one time inspections. An engineering specification will be developed to identify the components recommended for visual inspection, inspection criteria and methodology, acceptance criteria, evaluation criteria, and corrective action requirements. The inspections will be scheduled through the station Preventive Maintenance Five Year Plan. Results of the inspections of the most susceptible locations will be used to bound material loss of locations not inspected.

The inspectors reviewed the program documentation and discussed the program with the Engineering staff. The LRBD for the Galvanic Corrosion Susceptibility Program identified specific locations of galvanic couples and addressed the aging management program attributes. The inspectors reviewed the Turkey Point Galvanic Corrosion Susceptibility Inspection Program Engineering Specification which is similar to the specification to be developed for St. Lucie. The specification appropriately identified the components recommended for visual inspection, inspection criteria and methodology, acceptance criteria, evaluation criteria, and corrective action requirements.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience information to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately managed. When implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation. The action items for development of the work orders and the program engineering specification were entered into the PMAI.

12. Periodic Surveillance and Preventive Maintenance Program

This is an existing program which is credited with managing the aging effects of loss of material, crack initiation, loss of seal, fouling product buildup, cracking due to fatigue and cracking due to embrittlement for SSCs included in the license renewal scope. The program provides for visual inspection and examination of surfaces of SSCs and replacement of certain components on a specified frequency as appropriate, and periodic sampling and water removal from hydraulic accumulators and fuel oil storage tanks. The program will be enhanced to include inspections of components such as filter housings, radiator fins, flexible hoses, door seals and expansion joints. Enhancements will also include references as a license renewal commitment in existing program procedures

The inspectors reviewed the program documentation, discussed the program with the engineering staff, and reviewed documentation of surveillance and maintenance performance on license renewal scope equipment. The LRBD lists the specific program applicable SSCs, the environment to which they are exposed, the aging effects to be managed, the activity credited for managing these aging effects and the performance frequency of the activity as credited by the LRAMR.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience information to determine aging effects. The applicant had provided adequate guidance to ensure aging effects will be appropriately managed. When implemented, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation. The action items for development of the work orders and the program engineering specification were entered into the PMAI.

13. Systems and Structures Monitoring Program (Systems Portion)

For LR purposes, the applicant has credited existing system visual monitoring performed by system engineers in accordance with established procedures. In addition, the applicant plans to initiate an additional administrative procedure to provide more guidelines for inspections such as piping and supports not included in the Inservice Inspection program. The aging effects addressed by this AMP include loss of material, cracking, fouling buildup, loss of seal, and change in material properties. The inspectors reviewed the applicable basis document which described program requirements, identified associated procedures, and referenced selected system LRAMRs which identified aging effects. In addition, the inspectors conducted walkdowns of general equipment and components covered by the program as identified in the basis document Section 11.1 and 11.2. Material condition of the systems observed was adequate.

The applicant discussed the SSMP comparison to the GALL program Section XI.S6, Structure Monitoring program in their basis document. The inspector reviewed the section and the program concluding that general program attributes met and then exceeded the GALL guidelines and it was considered site specific. The GALL program would have the licensee inspect per their Maintenance Rule guidance and the additional inspections planned by the applicant's enhancement would cover other items outside of the Maintenance Rule, which is conservative. Concrete inspections performed by the SSMP are discussed in section II.D.2 of this report.

The licensee reviewed their Operating Experience (OE) to determine program requirements. The inspectors reviewed the general OE, program requirements, planned enhancements, and the current plant condition and found the planned program acceptable. Portions of this SSMP are integrated with the ICW system aging management inspections of Section II.B.16. SSMP will cover the ICW components and piping smaller than 20 inches in the enhanced MR walkdowns. Training and procedures were under development at the time of this inspection.

The inspectors concluded that the applicant had conducted adequate historic reviews of plant specific and industry experience information to determine aging effects. The applicant had established tracking items to assure implementation of proposed actions to support LR. In addition, the inspectors concluded that the applicant had provided adequate guidance to ensure that the aging effects will be appropriately managed. When implemented as described, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

14. ASME Section XI, Subsections IWB, IWC, IWD, and IWF Inservice Inspection Program (ISI Program)

The ISI Program, an existing program, is credited in the LRA as an aging management program. The existing program has been monitoring Class 1, 2 and 3 piping, components, and integral attachment conditions via their inservice inspections since plant construction. These various subsections' documents that constitute the program are required by the applicant's technical specifications and 10 CFR 55a. Specific details of the Alloy 600, reactor vessel, vessel internal components, and steam generator tube special programs are addressed elsewhere in this report.

The program for Class 1, 2 and 3 components consists of performing surface and volumetric nondestructive examinations of piping and components at various intervals in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code and other augmented requirements such as NUREGs, Generic Letters, etc. The ISI Program is controlled by procedure maintained and updated by engineering as various exemptions and addenda are changed or adopted and approved by the NRC. The program document is updated each 10-year interval and submitted to the NRC for approval of any relief requests. The inspectors determined that the applicant's program for Subsections IWB, IWC, and IWD met the GALL Criteria Section XI.M1.

For ASME Section XI IWF, the applicant has an existing inspection program and separate basis document that had been inspecting Class 1, 2, and 3 component supports. The applicant took credit for the program and that program met GALL Criteria Section XI.S3. During system walkdowns, the inspectors in general looked at the equipment supports finding them acceptable or problems were identified in the applicant's corrective action documentation. Although the GALL criteria have no preventive actions specified, in the site's coastal salt-laden atmosphere, the applicant has had to aggressively monitor, paint, and repair supports in a pro active manner. The inspectors examined inspection program output, finding the reports acceptable per the site's program requirements.

The inspectors reviewed: the applicable AMP basis documents; site procedures; and selected system LRAMRs as listed in Attachment 1. In addition to review of the above program documents and discussion of the program with responsible applicant personnel, the inspectors

reviewed the final ISI inspection results reports for the last outage, the ISI inspection plans for the next outages, and audit/self assessments generated by the applicant over the last several years. This review determined that the plan was in place and being implemented.

Also, periodic inspections of ISI activities have been performed by NRC ISI inspectors during outages. Recent inspections have found activities to be performed in accordance with program and plan requirements in an acceptable manner.

The inspectors concluded that ISI activities are being conducted as described in the ISI Program. The program includes the systems and components listed in the LRA, for which the LRA credited the ISI Program for aging management. Adequate historic reviews to determine aging effects had been conducted, and adequate guidance had been provided to reasonably ensure that aging effects will be appropriately managed.

15. Flow Accelerated Corrosion (FAC) Program

FAC is an aggressive thinning of carbon steel piping materials resulting from high energy steam/fluid flow. The FAC Program, an existing program, is credited in the LRA as an aging management program for portions of the main steam, steam generator, main feedwater, condensate, heater drains and vents, and blowdown systems.

The program is credited for managing the loss of material in carbon steel piping and components and consists of monitoring the wall thickness of susceptible carbon steel piping and components in various systems, and replacing affected piping prior to failure. In many cases, FAC resistant materials are used for replacements. The program is based on EPRI NSAC-202L, Recommendations for an Effective Flow-Accelerated Corrosion Program. The program computer models susceptible systems and predicts wear rates. The model is supplemented and updated with periodic thickness inspections of selected components each cycle. Based on the model and inspection results, decisions are made on pipe replacement schedules. The applicant is to enhance this program by including external corrosion inspections of main steam traps and drain lines that had historical problems.

The FAC Program is controlled by the following procedures: (1) ENG-CSI-FAC-100, Corporate Long-Term Flow-Accelerated Corrosion Monitoring Program, (2) ADM 17.07, and (3) ENG-FAC 2.3-1. The latter inspects the externals of small bore piping identified by the LR process. The inspector reviewed the applicable LRBD documents, reviewed selected condition reports on thin wall evaluations, selected audit reports, and selected LRAMRs as listed in Attachment 1. In addition to review of the above program implementing procedures and discussion of the program with responsible applicant personnel, the inspectors reviewed the final FAC inspection reports for the last outage to verify that the program was in place and being implemented. The inspectors compared the program with GALL Criteria Section XI.M17, finding the applicant's program comparable.

The inspectors concluded that the FAC program was in place, had been implemented, and included the systems and components identified in the LRA and should manage aging effects as defined in the LRA. Adequate historic reviews to determine aging effects had been conducted, and adequate guidance had been provided to reasonably ensure that aging effects will be appropriately managed.

16. Intake Cooling Water System (ICW) Inspection Program

By the ICW system flowing cool Atlanta Ocean salt water through the turbine cooling water (TCW) and component cooling water (CCW) heat exhangers, many of the plants' components are cooled by those closed cycle systems. The safety-related components needing cooling are cooled by CCW and the non-safety-related TCW is isolated should an accident signal be present and its cooled components are shut down.

For this AMP, the applicant mainly takes credit for existing programs. The applicant's program was initially based on a commitment to Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment. The applicant program generally consists of: visual inspections of the ICW/CCW heat exchangers (tube sheet), strainers, and piping; eddy current testing of the heat exchanger tubes; system performance testing; cathodic protection (zincs in the heat exchangers); state approved chlorine injection; routine preventive maintenance; and, procedures and training. Other AMPs are to maintain the smaller than 20 inch diameter ICW components (System and Structures Monitoring Program, Boric Acid Wastage Surveillance Program, and Periodic Surveillance and Preventative Maintenance Program) that are discussed elsewhere in this report. The AMP generally conforms to the GALL report program (Section XI.M20, Open cycle Cooling Water System Program) except that the applicant uses internal piping crawl-through inspections to account for external corrosion of buried or submerged piping, which is an enhancement to the GALL criteria guidance.

There are enhancements planned for the external piping visual inspection program. This was due to a recent external corrosion problem on Unit 2 intake structure piping. Visual inspection did not detect corrosion that caused two through wall leaks due to pitting. The applicant had to ask for permission from the NRC to perform a temporary repair until the next outage availability. The NRC letter allowing the temporary repair was dated 12/10/02 and the applicant documented the problem in condition report CR 02-2978. The anticipated corrective actions for the enhanced inspections should preclude further losses of wall material.

The inspectors reviewed parts of the existing program output; historical information on the system; the corrective action document covering the enhancements; site procedures; preventive maintenance documents for system components; compared the GALL criteria to the applicant program; the LRA attachments; reviewed the license renewal basis document; and performed a search of corrective action documents on various system components. The inspectors also viewed inspection video tapes of the intake wells, ICW piping internals, and ultimate heat sink barrier dam. Based on the review, the inspectors concluded that the applicant had conducted an adequate historic review of plant specific and industry experience information to determine aging effects. When implemented as described, there is reasonable assurance that the intended function of the ICW system will be maintained through the period of extended operation.

17. Boraflex Surveillance Program

Boraflex is neutron absorbing material that is sandwiched into the spent fuel racks of Unit 1's pool. Over time, irradiation embrittlement degrades the Boraflex material releasing boron silica to the pool from its polymer matrix. The Boraflex is slow losing its absorbing ability and structure. The industry recognized this problem and has addressed it by the release of

regulatory guidance (e.g., Generic Letter 96-04) and the utilities have responded with actions such as site procedures and their response to the letter.

The applicant has an existing program for this AMP. Boraflex racks are installed in Unit 1 only. Therefore, the program only applies to that unit. The AMP meets the GALL criteria (Section XI.M22) for this program. The applicant plans to continue their existing program for the extended operational period. The applicant is to initiate a parallel testing method that will be run conjunctive to the previous methodology. This new testing has been in operation at the Turkey Point plant for some time and its results have given a clearer understanding of the Boraflex condition than the existing blackness testing recognized by the GALL section. The inspectors reviewed the site procedures, reviewed corrective action documents, and discussed the program with site personnel. The inspectors concluded that the existing program is acceptable and will provide the applicant with useful information for the extended period of operation.

18. Pipe Wall Thinning Program

This new program is to assess, document, and trend pipe wall thinning in two systems not addressed by the FAC program. Operating experience has indicated that these two systems have water impingement erosion at component locations that direct the water flow acutely toward the side of the system piping that has led to pipe wall loss. The locations are in the Auxiliary Feedwater system downstream of recirculation orifices and in the Component Cooling Water return piping downstream of some throttling valves. The applicant planned to volumetrically evaluate these six locations and determine a frequency of future evaluations. There are no equivalent GALL criteria for the applicant's program. The inspector's reviewed the corrective action documents on the erosion problems and searched the applicant's condition report data base for other instances of erosional problems. Based the review, the inspectors concluded that the applicant had conducted adequate historic search of plant specific and industry experience information to determine aging effects. When implemented as described, there is reasonable assurance that the intended function of the CCW and AFW systems' affected piping will be maintained through the period of extended operation.

C. Review of Electrical Systems Aging Management Programs

1. Containment Cable Inspection Program

This is a new AMP that is yet to be developed. The Environmental Qualification (EQ) program is a well established program to ensure that electrical components, such as cables, that may be subject to a harsh environment are properly constructed to perform their intended function even when subject to that harsh environment. This new program will perform periodic visual inspections of non-EQ cables and connections within the containment at St. Lucie which are in the scope of license renewal. The inspections will look for adverse localized equipment environments caused by heat or radiation which can accelerate aging of these electrical components. The inspections are to be performed with a 10 year frequency and the first inspection will be performed before the end of the initial 40 year license period. This AMP will also address aging of cables for sensitive circuits associated with the source, intermediate, and power range neutron detectors. The results of routine calibration tests required by technical specifications for these circuits will be monitored to attempt to detect aging degradation of the

cables and connectors. The inspectors reviewed the LRBDs and the LRAMR documents for cables and connectors and found them acceptable for the early stage of development of this program.

2. EQ Program

The applicant considers the EQ program to be a Time Limiting Aging Analysis rather than an aging management program. The inspector reviewed the EQ documentation package for electrical cables and saw that the bounding harsh environment calculation for cables had been revised to reflect a 60 year service life for cables and the results were acceptable. The applicant had similarly revised all the EQ documentation packages to reflect a 60 year plant operating life and adjusted the EQ program appropriately. The inspectors discussed the past performance of the EQ program with engineers responsible for the program and asked for records to show that periodically replaced items were being replaced. The applicant produced maintenance records to show that the selected short lived items had been replaced at the required intervals. The inspectors concluded that the EQ program was functioning successfully.

3. Electrical Manholes

At St. Lucie there are many power, instrumentation and control electrical cables routed through underground duct banks with numerous electrical manholes along the route. The manholes were used for original cable installation and are available for maintenance and cable replacement. The manholes are susceptible to flooding from rain water, ground water or other sources and they should be periodically pumped out to avoid having energized cables under water. There is an industry concern that submerged continuously energized power cables are susceptible to early failure. The inspectors asked the applicant to open a sample of the manholes containing safety related cables. The applicant opened electrical manholes 128, 129, and 229 and the inspectors observed there was no water present and equipment conditions were satisfactory.

The inspectors inquired about a program to periodically inspect manholes for water. The applicant stated that semi-annual inspections are scheduled as a preventive maintenance (PM) item in their computerized PM scheduling program. The inspectors reviewed records of manhole inspections completed 4/4/02 and 8/24/01 and observed that nearly all were found satisfactory with only one non-safety related manhole found flooded due to sump pump failure and required pumping.

The inspectors reviewed the list of manholes inspected under the semi-annual PM and compared it to site drawings that depict yard duct runs and electrical manhole drainage systems for both units. Some discrepancies were identified. Manholes were not consistently inspected on each unit. For example on unit 1 some safety related manholes around the intake structure were examined but no comparable ones were being examined around the unit 2 intake structure. Additionally the PM inspected a mixture of safety related and non safety related manholes, but the PM did not inspect all of the safety related manholes depicted on the plant drawings.

When these discrepancies were pointed out the applicant responded that this condition had been recognized during license renewal preparation and a CR 02-3235 had been written on

12/27/2002 to improve the program. The CR was dispositioned on 1/24/03 and future action to include all safety related manholes is being tracked under PM Program Change Request number 03-0049.

The inspectors learned that another CR 02-0616 had been written earlier 3/29/2002 on this topic in response to operating experience presented in NRC Information Notice 2002-12 "Submerged Safety-Related Electrical Cables" and the discrepancies described above were not identified. This CR was closed by saying St. Lucie already has a program to look at all safety related manholes, apparently without confirming that conclusion. By closing this CR without confirmation an earlier opportunity was missed to correct the problems. Applicant representatives stated at the exit interview that management attention would be placed on correcting these problems.

D. Review of Structural Component Aging Management Programs

1. Aging Management Review

The applicant performed an aging management review of structures and structural components in accordance with 10CFR54.21(a)1. The applicant grouped the review into four commodity groups. They are: Steel Structures and Components in air, Steel Structures and Components in fluid, Concrete Components, and Miscellaneous Civil/Structural Components.

The inspectors reviewed PSL-ENG-LRAM-00-065, "License Renewal Aging Management Review - Steel Structures and Components in air," Revision 3. The scope of this review encompasses an aging management review of all of the passive, long-lived Steel Structures and Components in air which support an intended safety function as defined in 10CFR54.4. The type of components reviewed in this document are listed in Table 2.1-1 and the materials reviewed are in Table 2.2-1. Table 5.2-1 lists all aging effect/mechanisms that require aging management as loss of material, cracking, and change in material properties. Section 6.0 lists all the aging management programs to manage these aging effects.

The inspectors also reviewed PSL-ENG-LRAM-00-087, License Renewal Aging Management Review - Concrete Components, Revision 4. Table 2.2-2 lists all the concrete components evaluated in this document. Section 5.0 of this document summarizes the applicable aging effects that require an aging management review as loss of material, cracking, and change in material properties. Section 6.0 of this document lists all the programs that are required to manage the applicable aging effects.

PSL-ENG-LRAM-00-066, License Renewal Aging Management Review - Steel Structures and Components in fluids, Revision 1 evaluates steel structures and components in various fluid environments including the spent fuel pool liner, fuel transfer canal liner, and other steel components. The applicable aging effects are loss of material, cracking and change in material properties.

PSL-ENG-LRAM-00-088, License Renewal Aging Management Review - Miscellaneous Civil/Structural Components, Rev. 3 evaluates all other in scope components such as fire barriers, fire doors, seals and gaskets, non-metallic conduit, earthen dam dikes, lubrite plates, etc. The applicable aging effects are loss of material and loss of seal.

The inspectors found the quality of these documents acceptable.

2. Systems and Structures Monitoring Program (Structures)

The System and Structures Monitoring Program (SSMP) is a site specific program which extends from the Maintenance Rule Structures Monitoring Program with enhancements. Section 8.0 of PSL-ENG-LRAM-00-095, Systems and Structures Monitoring Program - License Renewal Basis Document, Rev. 3 lists the enhancements. The existing Maintenance Rule inspection program is to assess the material condition of the system components, related supports and structures, including inspection of their external surfaces. The SSMP will expand the existing Maintenance Rule inspection program, as required, to manage the aging effects of systems and structures. The SSMP utilizes visual inspection to determine the material condition of the systems/structures included in the scope of the program. Attachments 11.1 and 11.2 of the Basis document list the systems and structures, respectively, which require inspection for license renewal.

The inspectors reviewed the following plant procedures. St Lucie Plant Administrative Procedure ADM-17.08, Implementation of 10CFR50.65, The Maintenance Rule, Rev. 14B provides specific inspection attributes and criteria for structures and supports. The procedure also defines the responsibilities of the system owners. St Lucie Plant System and Component Guideline (SCEG) 019, System and Component Engineering Walkdown Program, Rev. 2A provides the instructions and expectations for the System and Component Engineering department in the conduct of System, Structure, or Component (SSC) walkdowns. Appendix A of SCEG-019 is a detailed check list and report for the walkdowns. SCEG-009, Guideline for Maintenance Rule Structural Condition Monitoring by a Qualified Inspector, Rev. 0 provides the general guidelines for the monitoring of structures. Attachment 1 of SCEG-009 provides a detailed check list for reinforced concrete, Attachment 2 for masonry structures, Attachment 3 for structural steel, and Attachment 4 for roofing. SCEG-003, Guideline for the Condition Survey of Structures and Supports by Plant Personnel, Rev 1 provides the general guidelines for assessing and reporting the conditions of structures and supports. Attachment 1 is the structure deficiency report and Attachment 2 is the support deficiency report.

In response to RAI 3.5-10, the applicant states that “for inaccessible concrete components, such as the exterior surfaces of below groundwater concrete structures, accessible interior surfaces below groundwater concrete will be monitored for signs of degradation by visual inspection under the SSMP. In addition, consistent with Page II A2-8 of the GALL report, examination of representative samples of below groundwater concrete, when excavated for any reason, will be performed as part of the SSMP credited for managing aging of these structures.” The inspectors noted that Section 8.0-h on Page 10 of PSL-ENG-LRAM-00-095 does not provide a means to inform the proper engineering department when inaccessible concrete structural components become accessible due to excavation. The applicant immediately revised Section 8.0-h of the document to indicate that an instruction shall be provided in Section 12 of WCG-009, “Plant work Order Planning,” Revision 17B, 11/18/02 to specify to contact Engineering (SSMP Engineer) for inspection of any excavation exposing buried concrete or utilities in accordance with ADM-XXX, the new administrative procedure to be created to implement the SSMP. PMAI #PM01-09-090 was issued to direct that ‘Generate a new ADM and add PSL-ENG-LRAM-00-095 as a reference and “Commitment Document”. See Section 8.0 of PSL-ENG-LRAM-00-095. Provide instructions to examine representative samples of

buried concrete when excavated for any reason, consistent with page II A2-8 of NUREG 1801, as indicated in RAI 3.5-10.' The inspectors were satisfied with this approach.

The inspectors reviewed the latest inspection reports for Containment Buildings, the Reactor Auxiliary Buildings, the Intake Structures, and the Ultimate Heat Sink Dam. In the May 7, 2000 Unit 2 Containment coating inspection, the applicant's inspector found many minor findings, such as unqualified coatings, deteriorated coatings, rust stains, and paint blisters. Condition report 00-0940 was issued to address these issues. Engineering evaluation determined that these conditions are minor and can remain as they are until the next refueling outage. PMAI PM00-05-078 was issued for the repair work to be completed in accordance with Specification SPEC-C-034 by 12/24/01.

Condition report CR-02-2562 was issued to address a 3/16" pitting on the Unit 1 containment shell during the October, 2002 walkdown inspection. An engineering evaluation was performed to evaluate this finding. The containment shell has a 2" thickness at the affected region. The shell was constructed of carbon steel and designed to ASME Section III, 1968 Edition, Winter 1968 Addenda. The evaluation indicated that local discontinuity (pitting) is acceptable without a proximity analysis if the local stresses are less than 1.1 times the ASME design stress intensity (S_{m}). 1.1 S_m corresponds to a local thickness of 1.743". The maximum pitting was 3/16" which is 0.188" then the local thickness is 2 - 0.188 = 1.802". This is greater than the minimum allowable thickness of 1.743", therefore, the condition is acceptable without repair or proximity analysis. The inspectors agreed with this conclusion. There were other minor findings about the Containment Buildings and the Auxiliary Building but the inspectors found that condition reports were issued and properly dispositioned.

During the walkdown of the Intake Structure, the inspectors noticed several examples of the beginning of concrete degradations. The conditions were not severe enough to challenge structural integrity. The applicant responded that those degradations were observed during the recent inspection and condition reports were issued to address them. Both Intake Structures were thoroughly visually inspected in July, 2001. Condition report CR 01-2554 was issued on 10/24/01 to address the many findings of both structures. There were 15 findings for Unit 1 and 31 for Unit 2. Of particular interest to the inspectors were Item 7 of the Unit 1 findings which concerns the cracks and delaminations of the 1A intake cooling water (ICW) pump pedestal and Item 13 of the Unit 2 findings which addressed the cracking and delamination of the wall opening between the 2A1 intake bay and the mechanical valve pit. PMAI PM01-11-189 was issued to address the ICW pump pedestal concern.

A new condition report CR 03-0035 was issued on 1/8/03 to address 18 new findings of both structures (9 for each structure) observed during a recent inspection. The inspectors discussed these issues with applicant engineers and reviewed an inter-office correspondence (IOC), dated 6/27/02, addressing the applicant's planned major effort at refurbishment of the Intake Structures. The IOC contains a minor engineering package (MEP) which lists all the work orders (WO) associated with the refurbishment of the Intake Structures. WO 31007051-01 addresses the repair of the opening to 2A1 intake bay. During the second week of inspection, the inspectors walked down the Intake Structures and found that the delamination described above as item13 had been repaired and other work was in process for refurbishment of the intake structure.

The Ultimate Heat Sink Dike was recently inspected on 11/21/01 by divers from a contractor. Condition report CR 02-2849 was issued to address minor issues. The inspectors watched the video tape taken by the divers and did not identify any concerns. The inspectors also walked down the Dike and the Valve room and found the material conditions acceptable.

The inspectors concluded that the applicant had provided adequate guidance to ensure that the aging effects will be appropriately managed. When implemented as described, there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

3. ASME Section XI, Subsection IWE Inservice Inspection Program

The St Lucie ASME Section XI, Subsection IWE, “Inservice Inspection Program” is a GALL program, in that the applicant claims that this program is consistent with the IWE program described in the GALL report.

Section 6 of PSL-ENG-LRAM-00-118, “ASME Section XI, Subsection IWE Inservice Inspection Program - License Renewal Program Basis Document,” Revision 2 provides a comparison between the GALL requirement and the St Lucie program, attribute by attribute. Section 6-3 compares the parameters to be monitored. The GALL report (XI.S1) specifies seven categories for examination. The St Lucie program only specifies five categories. The St Lucie program does not include the two categories specified as optional by 10CFR50.55a(b)(2)(ix)(C). These are Categories E-B (pressure retaining welds) and E-F (pressure retaining dissimilar metal welds). This is acceptable since these categories are designated as optional. The St Lucie IWE program also obtained reliefs from the NRC not to perform examination on Categories E-D (seals, gaskets, and moisture barriers) and E-G (pressure retaining bolting). Instead they will be tested as part of the Integrated Leakage Rate Test (ILRT) of the containment. The inspectors reviewed the relief requests and the NRC approving document and found them to be satisfactory. The inspectors reviewed the rest of the comparison and found that the St Lucie attributes are compatible with the GALL report.

The inspectors also reviewed the ISI/IWE-PSL-1/2-Program,”Containment Building Metal Containment Inservice Inspection Program,” Revision 1. Section 1.5 of the document specifies the inspection interval and inspection periods. The expedited examination of Class MC components was to be completed by 9/9/01. The sequence of periods following 9/9/01 will comply with IWE-2412, Inspection Program B. 100 percent of the required examinations will be completed by 9/7/08. Section 3.5 of the document specifies the acceptance standards shall be in accordance with IWE-3500. The inspectors found that the program follows the ASME requirements and is therefore, acceptable.

The inspectors reviewed the most recent IWE inspection reports, 9/21/01 for Unit 1 and 11/13/00 for Unit 2. In the Unit 1 report, it states there was pitting of the containment ranging from 1/8" to 3/16" where the moisture barriers are located. These are similar to the findings from the SSMP inspections. Work orders 32006371 and 31017130 were issued to address these pitting problems. The inspectors reviewed these two work orders and found they were to clean the affected surface areas and re-coated them in accordance with applicable codes. The inspectors found this approach acceptable.

The inspectors also reviewed the latest ILRT report of Unit 1 which was completed on 5/20/93. The ILRT was considered part of the IWE program due to the reliefs obtained by the applicant from NRC to allow the applicant to use the results of the ILRT in lieu of the required Categories E-D and E-G examinations. The results of the Type "A" test were 0.319% mass /day for the "as found" result and 0.293% mass/day for the "as left". They are within the maximum allowable leak rate of 0.375% mass/day for a Type "A" test. They inspectors found the applicant IWE program acceptable.

E. Fire Protection Program

The inspectors reviewed the LRA section and the LRBD for the Fire Protection Program and found those documents acceptable. The Fire Protection Program is a well developed program which has evolved over its years of development. The program includes many test and inspection features to detect and prevent aging effects in fire protection equipment. To confirm that the test and inspection programs are functioning properly, inspectors selected five surveillance tests and requested records from the last two performances of those surveillances. The applicant produced the records and the inspectors reviewed them and concluded that those past surveillances had been completed with successful results.

The inspectors discussed the fire protection program and the status of plant fire protection equipment with responsible plant engineers. St. Lucie has had much less trouble than other plants with fouling and/or corrosion of piping because the St. Lucie system uses clean potable water for fire protection. During plant tours, inspectors examined various parts of the fire protection equipment and found it in good condition.

F. Inspection Items From NRR Staff Review

The NRR staff reviewed the St. Lucie, Units 1 and 2, license renewal application and the associated responses to requests for additional information (RAIs). The staff requested that the inspectors inspect, confirm or verify certain items that it had identified during its reviews. The following items are in response to the staff's request.

1. Earthen Canal Dikes

The inspectors were requested to verify the applicant's response to RAI 3.5-5 that the losses of material and form are not applicable aging effects for earthen canal dikes, including those located in the intake, discharge, and emergency cooling canals. The applicant stated in its response that all earthen canal dikes within the scope of license renewal are covered by concrete erosion protection installed on the dike embankments, and that the associated aging management is performed by the Systems and Structures Monitoring Program (LRA Appendix B Subsection 3.2.14 page B-57). The applicant concluded that aging management of the earthen dikes is not required because the concrete erosion protection prevents aging of the earthen dikes. The inspectors walked down the in-scope portions of the earthen canal dikes and verified that concrete erosion protection is installed on the earthen dikes.

2. Galvanized Carbon Steel in Outdoor Environments

The inspectors were requested to verify whether there is significant difference between the applicant's description of outdoor–wetted versus outdoor environments, and that galvanized carbon steel components in an outdoor environment do not require aging management. The applicant stated in its response to RAI 3.5-2, that "As noted in LRA Appendix C Section 5.1, galvanized steel is not susceptible to general corrosion except when buried, submerged, or subject to wetting other than humidity, such as salt spray. A 'wetted' outdoor environment is one in which standing water accumulates or significant salt spray is present."

The inspectors inspected galvanized carbon steel components in an outdoor environment at various locations of the plant, and confirmed that these components are not susceptible to general corrosion or loss of material. The inspectors also noted the difference between outdoor–wetted and outdoor environments, and concluded that there was a distinction between the two. The inspectors verified that galvanized carbon steel components in an outdoor environment do not require an aging management program.

3. Verification of Fire Protection Materials Used in the Reactor Auxiliary Building

The inspectors were requested to verify several fire protection materials identified in Table 3.5-8 of the LRA. The applicant concluded that no aging effects are applicable to these materials that are exposed to various indoor environments.

The inspectors walked down the Unit 2 Reactor Auxiliary Building (RAB) and inspected various fire protection materials including Cerablanket, Marinite board, silicone gel, Ethafoam, Dymeric sealant, Thermo-lag, and fire retardant coatings. Specifically, the inspectors observed the following fire rated assemblies during the walkdown:

- Reactor Containment Building and RAB isolation joint seal (Cerablanket, Dymeric sealant, Ethafoam, carbon steel plate) inside the 2A and 2B penetration rooms, Thermo-lag fire barriers around Fire Zone 51 and around stairwells at fire doors RA-154 and RA-155

- Marinite Board and fire retardant coating penetration seal for cable trays penetrating concrete wall between Fire Zones 51W and 51E, conduit plugs (Cerafibre and Quelpre) in conduits passing between Fire Zones 51W and 51E

- Thermo-lag conduit fire wrap on several conduits marked "Required for Appendix R"

- Silicone elastomer penetration seals for tubing and piping through concrete fire barriers between Appendix R Fire Zone 20 and adjacent Fire Zones 16II, 17L, and 40.

The inspectors concluded that the conditions of these materials are acceptable and that there are no aging effects for these materials that require an aging management program.

4. Systems and Structures Monitoring Program Procedures

The inspectors were requested to review procedures associated with the Systems and Structures Monitoring Program (SSMP), particularly those related to "Acceptance Criteria," to determine the level of detail, specific parameters to be monitored, and criteria used to evaluate

an identified degradation. Specifically, the inspectors were requested to review the forms used to document the assessment of the material condition of components and system checklists used for system walkdown.

The inspectors reviewed the applicant's engineering evaluation, PSL-ENG-LRAM-00-095, "SSMP – License Renewal Basis Document." The applicant's SSMP utilizes visual inspections to determine the material condition of the systems and structures included in the scope of the license renewal program. Condition Reports are generated to evaluate conditions that do not meet acceptance criteria. These evaluations are performed by using existing plant procedures, including administrative procedures ADM -17.08, "Implementation of 10 CFR 50.65, The Maintenance Rule," and ADM-17.12, "Duties and Responsibilities of System Engineers." ADM-17.08 provides specific inspection attributes and criteria for structures and supports by incorporating other plant procedures, such as, SCEG-009, "Guideline for Maintenance Rule Structural Condition Monitoring by a Qualified Inspector," and SCEG-003, "Guideline for the Condition Survey of Structures and Supports by Plant Personnel." ADM-17.12 refers to SCEG-019, "System and Component Engineering Walkdown Program," for specific inspection attributes and criteria for system components.

The applicant plans to expand the existing Maintenance Rule inspection program, as required, to manage the aging effects for systems/components and structures/supports requiring inspection for license renewal, which are listed in Attachments 11.1 and 11.2 of PSL-ENG-LRAM-00-095. To increase focus for detecting identified aging effects, the applicant plans to restructure the inspections required for the SSMP by preparing a new administrative procedure to include these types of inspections. The applicant has committed to enhance the SSMP prior to the end of the initial operating license term.

The inspectors reviewed the aforementioned plant procedures and found them to be acceptable. Specifically, acceptance criteria and guidelines for structural inspection are provided in SCEG-009, which contains surveillance terminology and survey checklists for reinforced concrete, masonry, structural steel, and roofing. Inspections for corrosion and leakage for components, piping, and fittings are required by SCEG-019, which includes a SSC walkdown report.

In addition, the inspectors reviewed ADM-07.02, "Condition Reports," which provides a process by which any conditions of concern may be identified, tracked, evaluated, analyzed, and corrected. This is a comprehensive plant procedure addressing condition reports with the following appendices: guidance for the issuance of a condition report, significance levels and associated examples, a matrix of attributes, the change form, causal codes, notice of corrective action, condition report form, event codes, independent review checklist, system code index, and special requirements applicable to significance level 1 condition reports.

The inspectors also reviewed selected examples of condition reports that the applicant had previously written, and concluded that material conditions and system checklists contained in the relevant condition reports were well addressed and documented. The inspectors determined that the SSMP procedures contained acceptance criteria and detailed guidance that includes specific parameters and limits for evaluating identified degradation. The inspectors concluded that the SSMP procedures, condition report forms, and independent checklists were adequate to identify and manage the effects of aging.

5. Flow Accelerated Corrosion Program

The inspectors were asked to review the Flow Accelerated Corrosion (FAC) Program including components most susceptible to FAC and each component's nominal, current and future predicted wall thickness. The inspectors were also asked to verify the accuracy of the future predicted wall thickness values that were generated from EPRI's CHECWORKS computer code. The inspectors reviewed operating experience from the past year (2001) and the condition reports database. Out of 94 condition reports concerning leakage, only one leakage condition was found to be related to FAC.

The inspectors reviewed FPL's Corporate Long-Term Flow-Accelerated Corrosion Monitoring Program (ENG-CSI-FAC-100). This program, last revised in September 2002, provides the methodology for analytical evaluation, inservice inspection, and repair and replacement of carbon and low alloy steel piping items susceptible to wall thinning as a result of FAC. The evaluation consists of comparing wall thickness measurements against the minimum wall thickness and screening criteria. Minimum wall thickness is the thinnest wall section that the component can have and still operate as designed. The screening criteria is determined by adding the minimum wall thickness and an allowance for FAC, which represents the wall thickness that is projected to be lost between refueling outages. The applicant will prepare an Outage Inspection Final Report following completion of the inspection activity. The FAC program includes over 20 implementing procedures.

The inspectors also reviewed administrative procedure ADM-17.07, which contains instructions concerning on site implementation of the FAC plan. This procedure ensures implementation of the Corporate Long-Term FAC Monitoring Program in a safe and economical manner, consistent with regulatory requirements. The administrative procedure addresses 13 other plant procedures. Appendix C of the procedure includes a chart of the FAC inspection process.

The inspectors reviewed the FAC Final Report, previously mentioned in the Corporate Long-Term FAC Monitoring Program, for two refueling outages – St. Lucie, Unit 2 in Fall of 2001 (cycle 13), report CSI-FAC-PSL-2-13D and St. Lucie, Unit 1 in Fall of 2002 (cycle 18), report CSI-FAC-PSL-1-18D. The outage inspection activities from the Fall 2001, Unit 2 outage included 66 large bore components, 24 small bore components, valve SC-10-4B, and four other components identified in plant condition report CR 01-2542. Of these, four large bore and nine small bore components were examined using computed radiography. There were no planned component replacements, one large bore and six small bore unplanned replacements, and five large bore unplanned component repairs. The Fall 2002, Unit 1 outage included 79 large bore components, 23 small bore components, valve SC-10-4B, and five other components identified in plant condition report CR 01-2542. Of these, five large bore and 16 small bore components were examined using computed radiography. There was one planned component replacement of a small bore component, one large and one small bore unplanned component replacement, and one large bore unplanned component repair. Both reports used the CHECWORKS program to select the components to be inspected. The reports also listed each component with its nominal, screening, and minimum wall thickness values in the Inspection Plan – Component Status Summary. The examination data sheets by system are kept in a database. The inspectors concluded that the program is sufficient for ensuring the effectiveness of the FAC program during the period of extended operation.

6. Electrical Cables and Connectors

The inspectors were asked to verify that the cables and connectors that are installed in adverse environments caused by heat, radiation, or moisture are located only in the containment. In response to a request for addition information (RAI) 2.5-2, concerning an AMP for non-safety related electrical cables, the applicant proposed an AMP only for those cables and connectors inside the containment. The inspectors used Unit 1 drawing 8770-G 413, "Reactor Auxiliary Building Fire Detection System Conduit Layout," sheets 1-3, and Unit 2 drawing 2998-G-413, "Reactor Auxiliary Building Fire Detection System Conduit Layout," sheets 1-3 to review the location of cables in the the reactor auxiliary buildings. The inspectors identified the location of cable runs in the Unit 1 and 2 reactor auxiliary buildings and determined the proximity of cable trays and electrical conduits for non-safety related electrical cables to areas with the potential for adverse environments caused by heat, radiation, or moisture.

The inspectors then walked down the cable trays and electrical conduits that were in the closest proximity to the areas where an adverse environment could possibly exist. The inspectors verified that the trays and conduits were separated from adverse areas by cinder block walls and iron doors. Also, areas such as the chemical and volume control letdown heat exchanger rooms, the safety injection pump rooms, and the residual heat removal pump rooms have separate safety-related ventilation systems. The inspectors concluded that the cables and connectors outside the containment were in an indoor air-conditioned environment and were outside radiological control areas.

7. Intake Cooling Water Makeup to the Spent Fuel Pool

The inspectors were asked to evaluate the measures that the applicant has taken to ensure the reliability of the spent fuel pool makeup path from the intake cooling water (ICW) system by:

- Evaluating human reliability by determining whether this makeup path is included in the operator training program and in off-normal or alarm response procedures.

- Evaluating the reliability of infrequently operated components (valves, hoses, and pipe caps) by verifying that components in this makeup path are included in inservice testing or comparable surveillance procedures.

- Evaluating the reliability of the flow path by reviewing the extent and frequency of surveillance tests or GL 89-13 program measures that demonstrate normally stagnant portions of the flow path are free of blockage and capable of providing necessary makeup flow.

The inspectors reviewed off-normal procedure No. 1-0350030, "Fuel Pool Cooling System," and the senior nuclear operator training program lesson plan No. 0511029, "Fuel Pool Cooling, Purification and Ventilation System." The off-normal procedure includes a step to makeup to the spent fuel pool from the ICW system using fire hose connections. The training plan identified that emergency makeup to the spent fuel pool is available from the ICW system by using hoses and hose connections. The applicant stated that it plans to strengthen the off-normal procedure and lesson plan by including additional details concerning establishing a flow path between the ICW system and the spent fuel pool, and to identify the location and operation of the manual isolation valves. The inspectors reviewed the applicant's proposed corrective actions for revising the off-normal procedure and lesson plan and found them adequate.

The inspectors walked down the four ICW lines associated with makeup to the spent fuel pools. Two lines, one from each of the two trains of ICW, are available to provide water to the Unit 1 fuel handling building standpipe. A separate set of ICW lines are available to provide water to the Unit 2 fuel handling building standpipe. One ICW makeup line for the Unit 1 fuel handling building had a fire hose adapter installed. The other line had a cap, which could not be removed because the isolation valve for the line was leaking. The cap could not be replaced with a hose adaptor until the ICW pump was secured. A second fire hose adapter, two 100 foot hoses for connecting the ICW lines to the fuel handling building standpipes, and wrenches for installing the fire hoses were available in a locked fire protection cabinet outside the Unit 1 fuel handling building.

The inspectors reviewed the proposed final dispositions for CR 03-0036 and CR 03-0078. The reports identified the following corrective actions:

- Install a manual drain valve on each line to provide a means of draining the line after cycling the isolation valve.

- Leave the drain valve open to ensure a dry environment inside piping and to identify any valve leakage.

- If the system design requirements dictate that the drain valve should be normally shut, verify the internal coating or lining of the pipe and specify appropriate aging management requirements to manage aging effects in a stagnate salt water environment.

- Include cycling of the ICW line isolation valves in the preventive maintenance program or the test program.

- Replace existing pipe caps with fire hose adaptors.

- Revise P&ID 8770-G-082 Sheet 1 and Isometric Drawing 8770-G-125 Sheet CW-F-13 to show fire hose adaptors instead of “quick connects.”

- Fabricate and hang tags on the makeup line piping and connections.

On the basis of the system walkdown and the proposed final disposition of the condition reports, the inspectors determined that the ICW makeup lines to the fuel handling building will be adequately managed over the period of extended operation.

8. Unit 2 Diesel Generator Building Drain System

In RAI 2.2-2, the staff requested the applicant to explain why the floor drains in the Unit 2 diesel generator building were not within the scope of license renewal. In its response, the applicant explained that the floor drains were not credited for removal of water during a moderate energy line break, since the water would drain under the two doorways in each room in the Unit 2 diesel generator building. The inspectors were asked to verify the gap size under the doors.

The inspectors reviewed Section 3.6F.2.2.1(e) of the Unit 2 Updated Final Safety Analysis Report (UFSAR). On page 3.6F-6a of this Section of the UFSAR, the applicant presents the

criteria and assumptions associated with moderate energy pipe failures outside the containment. The assumed failure in the Unit 2 diesel generator building is a crack in a 2 inch nominal diameter service water system pipe that results in a 18 gpm leak. The USFAR states that the entire flow from the crack drains through the drainage system to a pump box located in the yard.

The inspectors reviewed calculation PSL-2FSM-02-022, "EDG Area Drain Evaluation," which the applicant performed to verify that the existing gaps under the doors of the Unit 2 diesel generator building are adequate to drain the water entering the building from the cracked service water line. The results of this calculation concluded that the elevation of water required to drain an 18 gpm leak rate from the cracked service water line does not exceed the flooding elevation of safety related components. The calculation assumed a 1/8 inch gap between the door and the curb.

The inspectors walked down the Unit 2 diesel generator building to verify the size of the assumed gap at the bottom of the door. The gaps between the doors and the floor are greater than 1/8 of an inch. The gaps between the doors and the curbs are also greater than 1/8 of an inch. However, the east doors of the Unit 2 diesel generator building have rubber weather stripping between the doors and the curbs, which reduces the gap below 1/8 of an inch. One of the west doors of the Unit 2 diesel generator building room has rubber weather stripping between the door and the curb for about 20 percent of the width of the door. The other door has no weather stripping between the door and the curb.

The inspectors reviewed Minor Engineering Package PC/M 03006M, "Removal of Threshold Seals (Weather Stripping) on Diesel Generator BLDG Tornado Resistant Doors DG-3, DG-4, DG-5, and DG-6." The PC/M provides instructions for removing the rubber weather stripping at the bottom of the doors and for revising the affected design documents and the UFSAR. The inspectors concluded that the modifications described in PC/M 03006M will ensure that the failure of the Unit 2 diesel generator building drain system will not prevent any safety-related structure, system, or component from accomplishing its intended function.

Exit Meeting Summary

The results of this inspection were discussed on January 31, 2003, with members of the FPL staff in an exit meeting open for public observation at the St. Lucie site. The applicant acknowledged the findings presented and offered no dissenting comments. During the inspection the inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. The applicant replied that no proprietary information was reviewed during this inspection.

ATTACHMENT 1
SUPPLEMENTAL INFORMATION
PARTIAL LIST OF PERSONS CONTACTED

Applicant
T. Abbatiello License Renewal Environmental Lead
B. Beisler, License Renewal Civil Lead
L. Giardino, FPL Energy Encounter
S. Hale, FPL License Renewal Manager
D. Jernigan, Site Vice President
D. Joy, License Renewal Mechanical Lead
F. Prieto, License Renewal Electrical/I&C Lead
T. Menocal, License Renewal Technical Lead
H. Onorato, License Renewal Design Basis
V. Spencer, FPL Energy Encounter

NRC
H. Christensen, Deputy Division Director
N. Dudley, Sr. Project Manager, NRR
T. Ross, Senior Resident Inspector

Public
D. Sells, Florida Municipal Power Authority

LIST OF DOCUMENTS REVIEWED

Engineering Documents

FPL-11Q-302, Development of Partial Cycle Counts for Charging System Events, Rev. 0

PSL-LR-01-0117, Thermal Cycle Projections and GSI 190 Analysis, 9/20/2001

SIR-01-102, Thermal Cycle Evaluation for St. Lucie Units 1 and 2, Rev. 0

SIR-01-086, Position Document to Address GSI-190 Issues Related to Fatigue Evaluation for St. Lucie Units 1 and 2, Rev. 1

PSL-ENG-LRAM-01-026, Engineering Evaluation of Environmental Effects of Fatigue, Rev. 1

JPN-PSL-SEMP-96-048, Evaluation of PWSCC Susceptibility & Recommendation for Repair/Replacement of Alloy 600 RCS Penetrations for St. Lucie Units 1 and 2, Rev. 0

L-2001-198, Response to NRC Bulletin 2002-01, dated 09/04/2001

L-2001-247, Supplemental Respose to NRC Bulletin 2001-01, dated 11/01/2001

L-2002-061, Response to NRC Bulletin 2002-01, dated 04/03/2002

L-2002-116, NRC Bulletin 2002-01 Response Supplement 1, dated 06/27/2002

L-2002-185, Response to NRC Bulletin 2002-02, dated 09/11/2002

L-2002-233, NRC Bulletin 2002-02 Supplement Response, dated 11/21/2002

PSL-BFJS-01-002, Calculation-St. Lucie Units 1 & 2 60 Year Surveillance Capsule Removal Schedule, Rev. 2

PSL-ENG-SESJ-00-121, Analysis of Capsule 284 Degrees from the Reactor Vessel Irradiation Surveillance Program, Rev. 1

CE NPSD-1216, Generic Aging Management Review Report for the Reactor Vessel Internals, Rev. 0

PSL-2FSM-02-022, Calculation-EDG Area Drain Evaluation

Minor Engineering Package PC/M 03006M, Removal of Threshold Seals (Weather Stripping) on Diesel Generator BLDG Tornado Resistant Doors DG-3, DG-4, DG-5, and DG-6

ISI-PSL-1-Program & ISI-1 Plan, St. Lucie Nuclear Plant Unit 1 Third Inservice Inspection Interval Program Plan

ISI-PSL-200 & ISI-PSL-201, St. Lucie Nuclear Plant Unit 2 Second Inservice Inspection Interval Program Plan

Licensing Documents

St. Lucie Units 1&2 Updated Final Safety Analysis Report, Ammendments 18 and 13, respectively

Application For Renewed Operating License - St. Lucie Nuclear Plant Units 1 & 2

FPL Letter L-2000-215, NRC Commitment Change to Generic Letter 89-13, dated November 9. 2000

CSI-FAC-PSL-2-13D, Unit 2, Cycle 13, Fall 2001 Flow-Accelerated Corrosion Final Report. dated 02/01/02

FPL Letter L2001-190, 10CFR 50.55a/10CFR 50.36 Owner's Activity Report, dated September 12, 2001 [Unit 1 ASME Section XI, IWF]

FPL Letter L-96-260, Generic Letter 96-04 Response, dated October 22, 1996 [Boraflex]

FPL letter L-2000-104, to NRC dated 4/24/00, relief request IWE-01 from the required visual examination of the seals and gaskets (Category E-D) and IWE-02, bolt torque or tension test of the bolted connections (Category E-G) and NRC evaluation of the relief requests, dated 7/13/00

License Renewal Aging Management Reviews

PSL-ENG-LRAM-00-057, Aging Management Review for the Pressurizer, Rev. 3

PSL-ENG-LRAM-00-061, Aging Management Review for the Reactor Vessel Internals. Rev. 1

PSL-ENG-LRAM-00-062, Aging Management Review for Steam Generators, Rev. 3

PSL-ENG-LRAM-00-063, Aging Management Review for Medium and Low Voltage Power Cables and Connections, Rev. 4

PSL-ENG-LRAM-00-064, Aging Management Review for Low Voltage Instrumentation and Control Cables and Connections, Rev. 4

PSL-ENG-LRAM-02-028, Aging Management Review for Buses, High Voltage Insulators, and Transmission Conductors, Rev. 0

PSL-ENG-LRAM-00-061, License Renewal Aging Management Results Class 1 Piping, Rev. 1

PSL-ENG-LRAM-000-080, License Renewal Aging Management Review for non-Class 1 RCS, Rev. 0

PSL-ENG–LRAM-00-069, License Renewal Aging Management Review - Intake Cooling water System and Emergency Cooling Canal

PSL-ENG-LRAM-00-078, License Renewal Aging Management Review - Main Steam System, Rev. 2

PSL-ENG-LRAM-00-062, Aging Management Review of the Steam Generators, Rev. 2

PSL-ENG-LRAM-00-081, Aging Management Review - Component Cooling Water System, Rev. 3

PSL-ENG-LRAM-00-065, Steel Structures and Components in Air, Rev. 3

PSL-ENG-LRAM-00-0066, Steel Structures and Components in Fluid, Rev 1

PSL-ENG-LRAM-00-0087, Concrete Components, Rev. 4

PSL-ENG-LRAM-00-0088, Miscellaneous Civil/Structural Supports, Rev 3

License Renewal Basis Documents

PSL-ENG-LRAM–00-098, Fatigue Monitoring Program, Rev. 1

PSL-ENG-LRAM-00-111, Alloy 600 Inspection Program, Rev. 2

PSL-ENG-LRAM-00-120, Reactor Vessel Integrity Program, Rev. 1

PSL-ENG-LRAM-00-056, Reactor Vessel Internals Inspection Program, Rev. 1

PSL-ENG-LRAM-00-092, Steam Generator Integrity Program, Rev. 1

PSL-ENG-LRAM-01-022, Thermal Aging Embrittlement of CASS Program, Rev. 0

PSL-ENG-LRAM-00-093, Chemistry Control Program, Rev. 3

PSL-ENG-LRAM-00-117, Small Bore Class 1 Piping Inspection, Rev. 1

PSL-ENG-LRAM-00-110, Galvanic Corrosion Susceptibility Inspection Program, Rev. 2

PSL-ENG-LRAM-01-023, Condensate Storage Tank Cross-Connect Buried Pipe Inspection, Rev. 1

PSL-ENG-LRAM-00-090, Boric Acid Wastage Surveillance Program, Rev. 2

PSL-ENG-LRAM-00-096, Periodic Surveillance and Preventive Maintenance Program, Rev. 1

PSL-ENG-LRAM-00-094, Fire Protection Program, Rev. 2

PSL-ENG-LRAM-00-099, EQ Program, Rev. 1

PSL-ENG-LRAM-02-029, Containment Cable Inspection Program, Rev. 0

PSL-ENG-LRAM-00-115, Intake Cooling Water System Inspection Program, Rev. 1

PSL-ENG-LRAM-00-91, Flow Accelerated Corrosion Program, Rev.2

PSL-ENG-LRAM-00-78, Main Steam, Auxiliary Steam and Turbine System, Rev. 2

PSL-ENG-LRAM-00-97, ASME Section XI, Subsections IWB, IWC, and IWD Inservice Inspection Program, Rev. 1

PSL-ENG-LRAM-00-114, Pipe Wall thinning Inspection Program, Rev. 1

PSL-ENG-LRAM-00-0119, ASME Section XI, Subsection IWF Inservice Inspection Program, Rev. 1

PSL-ENG-LRAM-00-116, Boraflex Surveillance Program, Rev. 0

PSL-ENG-LRAM-00-118, ASME Section III, Subsection IWE Inservice Inspection Program, Rev. 2

PSL-ENG-LRAM-00-095, Systems and Structures Monitoring Program, Rev. 3 and 4, 1/15/03 and 1/29/03, respectively

Existing Plant Procedures and Programs

0010134, Component Cycles and Transients, Rev. 19B

1-GOP-403, Reactor Plant Heatup-Mode 4 to Mode 3, Rev. 10

2-GOP-302, Reactor Plant Heatup-Mode 3 to Mode 2, Rev. 16

Unit 1 Inservice Inspection Long Term Plan Class 1, Rev. 3

Unit 2 Inservice Inspection Long Term Plan Class 1, Rev. 3

1-0120022, Reactor Coolant System Leak Test, Rev. 35

2-0120022, Reactor Coolant System Leak Test, Rev. 28

ENG-QI 5.8, Reactor Vessel Integrity Program, Rev. 0

0010127, Reactor Engineering Schedule of Periodic Tests and Reports, Rev. 34

OSP-01.01, Reactor Vessel Irradation Specimen Capsule Removal and Transfer to Spent Fuel Pool, Rev. 4D

NDE 4.3, Visual Examination VT-3, Rev. 9

ENG-QI 5.7, Steam Generator Integrity Program, Rev. 4

ENG-CSI 2.3, Steam Generator Integrity Program Administration, Rev. 6

ENG-CSI 2.2, Planning and Reporting Results of Steam Generator Tubing Examinations, Rev. 7

1-0830030, Off Normal Operating Procedure for Steam Generator Tube Leak, Rev. 25

2-0830030, Off Normal Operating Procedure for Steam Generator Tube Leak, Rev. 25

1-0120031, Off Normal Operating Procedure for Excessive Reactor Coolant System Leakage, Rev. 30A

2-0120031, Off Normal Operating Procedure for Excessive Reactor Coolant System Leakage, Rev. 21

ADM-02.02, Steam Generator Integrity Program Administration, Rev. 3

COP-05.04, Chemistry Department Surveillances and Parameters, Rev. 25

COP-05.01, Chemistry Department QA/QC Program, Rev. 19

COP-05.05, Auxiliary Cooling Water System Inspection and Sampling, Rev. 0A

CG-18, Chemistry Guideline, Sampling Instrument Air for Particulate, Rev. 2

1-ISP-01.01, RCS ASME Leakage Test, Rev. 1A

1-OSP-24.01,Operations Surveillance Procedure, Reactor Auxiliary Building Fluid Systems Periodic Leak Test, Rev. 3

2-M-0041, Charging Pump Maintenance, Rev. 37

MMP-14.01, Component Cooling Water Heat Exchanger Cleaning and Repair, Rev. 18

0-GMP-26, Relief Valve Testing using the New Test Bench, Rev. 3

ADM-17.12, Duties and Responsibilities of System Engineers
ADM-07.02, Condition Reports

Off-Normal Procedure No. 1-0350030, Fuel Pool Cooling System

Senior Nuclear Operator Training Program Lesson Plan No. 0511029, Fuel Pool Cooling, Purification and Ventilation System

1-0640020, Intake Cooling Water System Operation, Rev. 49B

OP-1-0010125, Surveillance Data Sheets [Shiftily Intake Cooling Water Loop Operability, Data Sheet 43], Rev. 73A

1-M-0031, Intake Cooling Water Pump Disassembly, Repair and Reassembly, Rev. 27

SPEC-M-081, CCW Heat Exchangers Tube Integrity Inspection, Turkey Point Units 3 and 4, and, St. lucie Units 1 and 2, Rev. 0

ENG-CSI-FAC-100, Corporate Long-Term Flow Accelerated Corrosion Monitoring Program, Rev. 10

ADM-17.07, Flow-Accelerated Corrosion Inspection Implementation Program, Rev. 7

ENG-FAC 2.3-3, Codes and Inspections, Selection of Locations for Examinations, Rev. 9

ADM-0005760, St. Lucie Plant Implementation Guidelines of the ASME Section XI Repair and Replacement Program, Rev. 11B

COP-05.04, Chemistry Department Surveillances and Parameters, Rev. 25 [Boraflex]

ADM 0010127, Engineering Schedule of Periodic Tests and Reports, Rev. 34

1-LOI- RE- 16, Unit 1 Boraflex Blackness Testing, Rev. 0

1-COP-02.11, Sampling Unit 1 Spent fuel Pool [Boraflex]

WCG-009, Plant Work Order Planning, Rev. 17B

ISI/IWE-PSL-1/2-Program, Containment Building Metal Containment Inservice Inspection Program, Rev 1

ADM-17.08, Implementation of 10 CFR 50.65 - The Maintenance Rule - St Lucie Plant, Rev. 14B

SCEG-009, Guideline for Maintenance Rule Structural Condition Monitoring by a Qualified Inspector, Rev. 0
SCEG-003, Guideline for The Condition Survey of Structures and Supports by Plant Personnel, Rev. 1

SCEG-019, System and Component Engineering Walkdown Program, Rev. 2A

St Lucie Inservice Inspection Program - Third Interval First Period of ASME Section III, Subsection XI for St Lucie Unit 1, October, 2002

St Lucie Inservice Inspection Program - Second Interval Second Period of ASME Section III, Subsection XI for St Lucie Unit 2, November, 2001

Plant Records

PSL-100-40, 2002 Annual Cumulative Report of Plant Design Cycles and Transients

0-OSP-15.16 Fire Protection System Annual Flush, Rev. 0A, performed 4/16/02 and 5/15/01

OP-1800053 Fire Protection Water System Annual and 3 Year Tests, Rev. 41, performed 2/17/97

0-OSP-15.17 Fire Protection System Triennial Flow Test, Rev. 1, performed 4/6/00 and 3/12/97

1/2-EMP 15.01 12 Month Operability Test of the Diesel Generator Fire Protection System, Rev. 3, unit 1 performed 7/11/02 and 8/30/01, unit 2 performed 11/1/02 and 9/24/01

1/2-EMP 15.02 12 Month Operability Test of the Fire Protection Sprinkler System for the Unit 1 RAB, Rev. 1, unit 1 performed 5/8/02, unit 2 performed 11/1/02 and 9/24/01

1/2-MMP-100.18B, Fire Vault Preventive Maintenance (PM), Rev. 3, unit 1 performed 8/29/02 and 5/31/01, unit 2 performed 8/29/02 and 6/15/01

CSI-FAC-PSL-2-13D Outage Inspection FAC Final Report St. Lucie, Unit 2 in Fall of 2001 (cycle 13)

CSI-FAC-PSL-1-18D Outage Inspection FAC Final Report St. Lucie, Unit 1 in Fall of 2002 (cycle 18)

PM FYP-1135, 36 month frequency 2A1 Intake Structure Inspection/Cleaning

PM 37-1025, Ultimate Heat Sink Dam Inspection

PM FYP-1081 “B” ICW Piping Inspection/Repair

Work Order 30003512-01, 1A ICW Pump Replacement (96 Months, TYP)

Work Order 32014257-01, FYP-3572, 2B CCW Heat Exchanger Strainer Cleaning and Inspection [18 months or when required, TYP]

Containment Integrated Leakage Rate Final Computer Generated Test Report 1993 St Lucie Unit 1 ILRT, 5/20/93

Walkdown Inspection Report for Zone 19a - Unit 1 Reactor Building-Vessel, 2/5/98

Walkdown Inspection Report for Zone 40b - Unit 2 Reactor Building Internal Structures, 10/27/99

PMAI PM01-09-090, Generate a new ADM and add PSL-ENG-LRAM-00-095 as a reference and commitment document. Provide instruction to examine samples of buried concrete when excavated for any reason, date issued 1/19/03, due date 2/14/16

Work Orders WO-30003450 and 31015808 to perform underwater inspections of the Ultimate Heat Sink Barrier, 4/4/00 and 11/20/01

PC/M 02019M, Intake Structure Refurbishment, Rev. 0

Walkdown Inspection Report for Zone 12 - Unit 1 Intake Structure, 9/27/02

Walkdown Inspection Report for Zone 33 - Unit 2 Intake Structure, 9/27/02

Condition Reports

02-0616, Review NRC IN 2002-12 for Operating Experience

02-3235, Review Manhole Inspection Program for Inconsistencies Discovered from License Renewal Activities

02-2332, Item Identified in RCS Leak Test of 10/22/02

02-2194, Dry Boric Acid (DBA) Discovered on Flange Near RCP Seal 1A2

02-2300, DBA on Body/Bonnet Connection V-1290 Vent Valve

02-2245, Leaks and DBA Found During Unit 1 2002, RAB Fluid Walkdown

02-1842, Active Seat Leakage on VO-7126(<1 drop per minute)

01-0601, Unit 1 RCS Lithium Concentration out of Band

02-0075, Unit 2 Steam Generator Boron Concentration Out of Specification Low

02-1733, High ph in Unit 2 Steam Generator Blowdown Cooling System

02-1813, 2B EDG Cooling Water High Bacterial Activity

02-0091, Unit 2 Steam Generator Boron Concentration

01-2638, Vent Valve V-3891 leakage at 30 dpm

00-2035, Followup of Industry Event, Reactor Coolant System Leak at V. C. Summer Facility

97-0642, Ultimate Heat Sink Barrier Valve Stroke Time

97-1660, Ultimate Heat Sink Valve Stroke Time

98-0874, SB-37-1 Limit Switch Corrosion

02-0875, Inadequate Drawing Detail for Valve SB-37-2

98-2127, Auxiliary Feedwater Pinhole Leak

01-2521 CCW Erosion Pipe Leakage

02-2978, Pipe I-36-CW-16 Has Through Wall Corrosion Pinhole

01-2542, MS-98 Drain Line Through Wall Leakage

96-0877, Small Bore Main Steam Piping with External Corrosion and Internal Erosion with Corrosion

98-1856, FAC component M9.8MS19-P-2-4 Below Minimum Wall Evaluation

01-2421, INPO OE O&MR 435, Unanticipated Feedwater Pipe Wall Thinning From Flow Accelerated Corrosion

00-1896, Loss of a Tie-Wrap into the SFP [TYP, Boraflex]

00-0940, Unit 2 Containment Coating Inspection

01-1018, Unit 1 Reactor Containment Building walkdown Inspection, 4/1/01; Supplement 1 - 5/30/02; Supplement 2 - 10/18/02

02-2219, Unit 1 Reactor Containment Building Walkdown Inspection of Joint Sealant

01-2980, Unit 2 Containment Vessel Surface Inspection, 12/4/01

02-2849, Ultimate Heat Sink Barrier Inspection, 11/8/02

01-2554, Degraded Condition of both Intake Structures, 10/24/01
03-0035, Degraded Condition of both Intake Structures, 1/8/03

Applicant Audits and Self Assessments

CSI-NDE-00-030, Process Self-Assessment, Component, support, and Inspection, 9/15/00 [ASME Section XI and Reactor Vessel Material Surveillance Program, Steam Generator Integrity Program, Flow-Accelerated Corrosion monitoring Program, Containment Inspection Program]

CSI-NDE-02-004, Component, Support and Inspection (CSI-Codes and Inspections), Spring 2001 St. Lucie Unit No. 1 and Fall 2001 St. Lucie Unit No. 2 Outage Self-Assessment., 6/10/02

QSL-ISI-99-08, Inservice Inspection & Inservice Testing Functional Area Audit, October 28, through December 7, 1999

OSL-DES-97-12, Unit 2 Intake Cooling water system Vertical Slice Audit, dated 8/26/97

Quality Assurance Quality Report No. 02-188, Review of PSL Boric Acid Leakage Detection Process, dated 11/22/02

SL 2-12, Refueling Outage Periodic Self Assessment, 2nd Quarter 2000, July 1, 2000

SL 2-13, Refueling Outage Chemistry Self Assessment 4th Quarter, 2001

CSI-NDE-02-004, Spring 2001 St. Lucie Unit 1 and Fall 2001 St. Lucie Unit 2 Outage Self-Assessment, dated 06/10/2002

Plant Drawings

8770-G-407 Sh. 1, Yard Duct Runs (unit 1), Rev. 20

2998-G-407, Yard Duct Runs (unit 2), Rev. 11

2998-G-486, Electrical Manhole & Handhole Drainage System, Rev. 7

8770-G-213, Reactor Containment Building Piping Penetrations, Rev. 6

2998-G-213, Reactor Containment Building Piping Penetrations, Rev. 6

8770-G-080, Flow Diagram -Feedwater & Condensate System Rev. 36

8770-G 413, Reactor Auxiliary Building Fire Detection System Conduit Layout, sheets 1-3, (unit 1)

2998-G-413, Reactor Auxiliary Building Fire Detection System Conduit Layout, sheets 1-3 (unit 2)

Miscellaneous Documents

St. Lucie Action Report 1094110485, Unit 1 RWT Bottom External Corrosion

SPEC-M-078,Turkey Point Engineering Specification, Galvanic Corrosion Susceptibility Inspection Program, Rev. 0

SPEC-M-020,Turkey Point Engineering Specification, Containment Cable Inspection Program, Rev. 0

ATTACHMENT 2
LIST OF ACRONYMS USED

AMP	Aging Management Program
AMR	Aging Management Review
ASME	American Society of Mechanical Engineers
CASS	Cast Austenitic Stainless Steel
CCW	Component Cooling Water
CR	Condition Report
CST	Condensate Storage Tank
EDG	Emergency Diesel Generator
EQ	Environmental Qualification Program
FAC	Flow Accelerated Corrosion
FPL	Florida Power and Light Company
GALL	Generic Aging Lessons Learned report
ICW	Intake Cooling Water System
ILRT	Integrate Leak Rate Test
ISI	Inservice Inspection
LR	License Renewal
LRA	License Renewal Application
LRAMR	License Renewal Aging Management Review report
LRBD	License Renewal Basis Document
NRR	NRC Office of Nuclear Reactor Regulation
OE	Operating Experience
PM	Preventive Maintenance
PMAI	Plant Management Action Item
RAB	Reactor Auxiliary Building
RAI	Request for Additional Information
RCS	Reactor Coolant System
RV	Reactor Vessel
RVH	Reactor Vessel Head
RVI	Reactor Vessel Internals
SSC	Systems, Structures, and Components
SSMP	Systems and Structures Monitoring Program
TCW	Turbine Cooling Water
UFSAR	Updated Final Safety Analysis Report