UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

January 4, 2016

Mr. Mano Nazar
President and Chief Nuclear Officer
Nuclear Division
NextEra Energy
P.O. Box 14000
Juno Beach, FL 33408

SUBJECT: SAINT LUCIE PLANT, UNIT 1 – U.S. NUCLEAR REGULATORY COMMISSION POST-APPROVAL SITE INSPECTION FOR LICENSE RENEWAL, INSPECTION REPORT 05000335/2015010

Dear Mr. Nazar:

On November 20, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed a Post-Approval Site Inspection for License Renewal at your Saint Lucie Plant, Unit 1, in accordance with NRC Inspection Procedure 71003. The enclosed report documents the inspection results, which were discussed on November 20, 2015, with Mr. Christopher Costanzo, site Vice President, and other members of the management staff.

Based on the inspection sample selected for review, the NRC inspectors did not identify any findings or violations of more than minor significance.

The inspectors determined that the overall implementation of aging management programs and time-limited aging analyses was consistent with the licensing basis of the facility. The inspectors also determined that the regulatory requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 54.37(b) were met, and commitment changes were evaluated and reported in accordance with the applicable requirements.

In accordance with 10 CFR 2.390, “Public inspections, exemptions, requests for withholding,” of the NRC’s “Agency Rules of Practice and procedure,” a copy of this letter, its Enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room, or from the Publicly Available Records (PARS) component of NRC’s

Agencywide Documents Access and Management System (ADAMS); accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Shakur A. Walker, Chief
Engineering Branch 3
Division of Reactor Safety

Docket No. 50-335
License No. DPR-67

Enclosure:
NRC Inspection Report 05000335/2015010
w/Attachment: Supplementary Information

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SIGNATURE	JER6 via e-mail	RPC1 via e-mail	BCC2 via e-mail	AJB1 via e-mail	PEC via e-mail	SRS5 for LJB4	SAW4
NAME	J. Rivera-Ortiz	R. Carrion	B. Collins	A. Butcavage	P. Cooper	L. Suggs	S. Walker
DATE	12/ 21 /2015	12/ 23 /2015	12/ 18 /2015	12/ 21 /2015	12/ 18 /2015	12/ 28 /2015	1/ 4 /2016
E-MAIL COPY	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	05000335
License No:	DPR-67
Report No:	05000335/2015010
Licensee:	NextEra Energy
Facility:	Saint Lucie Plant, Unit 1
Location:	6501 South Ocean Drive Jensen Beach, FL 34957
Dates:	November 2–20, 2015
Inspectors:	J. Rivera-Ortiz, Senior Reactor Inspector, Team Lead R. Carrion, Senior Reactor Inspector B. Collins, Reactor Inspector P. Cooper, Reactor Inspector A. Butcavage, Reactor Inspector
Approved by:	Shakur A. Walker, Chief Engineering Branch 3 Division of Reactor Safety

Enclosure

SUMMARY

Inspection Report (IR) 05000335/2015010; 11/2/2015 – 11/20/2015; Saint Lucie Plant, Unit 1; Post-Approval Site Inspection for License Renewal

The report covers a team inspection conducted by five regional inspectors in accordance with the U.S. Nuclear Regulatory Commission (NRC) Inspector Manual Chapter 2515, and Inspection Procedure 71003.

This inspection resulted in no findings or violations of more than minor significance. On the basis of the sample selected for review, the inspectors determined that the licensee had completed, or was on track to complete, the necessary tasks to meet the license renewal commitments, license conditions, and regulatory requirements associated with the issuance of the renewed operating license at Saint Lucie, Unit 1. Based on the interviews with plant staff and the review of program documents and activities completed at the time of this inspection, the inspectors determined that the licensee had fully established the required aging management programs (AMPs), and time-limited aging analyses to manage the aging effects of in-scope structures, systems, and components (SSCs) through the period of extended operation of Unit 1, with the exception of the unresolved item discussed in this report.

The inspectors determined that the licensee took appropriate actions to ensure that newly identified SSCs within the scope of Title 10 of the *Code of Federal Regulations* (10 CFR) 54.37(b) were identified, and evaluated for management of aging affects. The inspectors did not identify significant inconsistencies between the description of the AMPs in the Updated Final Safety Analysis Report, as revised, and the aging management activities implemented by the licensee. The inspectors also determined that commitment changes were evaluated in accordance with the applicable requirements.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA5 Other Activities: Post-Approval Site Inspection for License Renewal (Phase 2)

.1 License Conditions and Commitments for License Renewal, Implementation of Aging Management Programs and Time-Limited Aging Analyses

a. Inspection Scope

The inspectors reviewed a sample of regulatory commitments, Aging Management Programs (AMPs), and Time-limited Aging Analyses (TLAAs) associated with the renewed operating license for Saint Lucie, Unit 1, issued on October 2, 2003. This inspection took place prior to the period of extended operation (PEO) of Unit 1, which begins on March 1, 2016. The inspectors reviewed license renewal implementing documents, and conducted interviews with licensee staff, to verify that the licensee completed the necessary actions to: (a) comply with the conditions stipulated in the renewed facility operating license; (b) meet the commitments for license renewal described in NUREG-1779, "NRC Safety Evaluation Related to the License Renewal of the Saint Lucie Plant, Units 1 and 2," (ADAMS Accession Number ML032940205), and (c) implement the AMPs and TLAAs as described in the NRC Safety Evaluation Report (SER), and the license renewal supplement to the Updated Final Safety Analysis Report (UFSAR).

For those license renewal action items that were not completed at the time of this inspection, the team verified that there was reasonable assurance that such action items were on track for completion prior to the PEO, or in accordance with an established implementation schedule consistent with the license renewal application (LRA), the NRC SER and the UFSAR supplement. The inspectors initiated unresolved items (URIs) for issues that require followup during future license renewal inspections.

The commitments and AMPs/TLAAs selected for the inspection sample are summarized below based on their description in Appendix D of the NRC SER issued in September 2003 (ADAMS accession number ML032940205), and the UFSAR supplement for license renewal, as revised, submitted with the LRA[1]. The specific inspection activities conducted for each commitment, AMP and TLAA, are also described below. Specific documents reviewed are listed in this report's Attachment.

Commitment 1 – Condensate Storage Tank Cross-Connect Buried Piping Inspection: This commitment specified that, prior to the PEO of Unit 1, the licensee would perform a visual inspection to determine the extent of loss of material due to pitting and microbiologically-induced corrosion on the external surfaces of the buried pipe that connects the Unit 1 and Unit 2 condensate storage tanks.

[1] The license renewal application for Saint Lucie Plant is available at: http://www.nrc.gov/reactors/operating/licensing/renewal/applications/st-lucie/stlucieappl.pdf

The licensee performed an exploratory excavation in order to expose the expected worst case corrosion location of the buried cross-connect piping, between the Unit 1 and Unit 2 condensate storage tanks. According to the revised UFSAR supplement for license renewal, the subject pipe was found encased in a concrete duct and was inaccessible for inspection. The licensee documented in the UFSAR that degradation of embedded metals is not an applicable aging effect. The licensee submitted a commitment change to the NRC via letter L2015-135, dated May 12, 2015, (ADAMS Accession Number ML15146A055) to eliminate the need for further inspections due to the as-found piping configuration. The NRC requested additional information from the licensee via letter, dated September 1, 2015 (ADAMS Accession Number ML15237A418). The licensee provided responses to the NRC in letter L2015-258, dated October 6, 2015 (ADAMS Accession Number ML15301A252). At the time of this inspection, the NRC was in the process of reviewing the licensee's response.

The inspectors reviewed the program basis documents, administrative and implementing procedures, and yard piping layout drawings in order to determine if the program was developed as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the selection process of the area to explore the condition of the condensate cross-tie pipe within the scope of the program, and verify that program procedures included appropriate inspection techniques and acceptance criteria as described in the commitment.

Commitment 2 – Galvanic Corrosion Susceptibility Inspection Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would perform inspections to determine if galvanic corrosion is active in systems where it is not expected. The program would involve selected one-time inspections of the surfaces of piping and components with the greatest susceptibility to galvanic corrosion. Additional inspections would be performed based on the results of the one-time inspections.

The inspectors reviewed the program basis documents along with administrative and implementing procedures, to verify that the program was developed as described in the LRA and the corresponding NRC SER. The inspectors reviewed the guidance provided in SPEC-M-098, "Galvanic Corrosion Susceptibility Inspection Program," to verify that the selection of inspection locations was consistent with the program scope. The inspectors interviewed licensee personnel and reviewed a sample of inspection results performed on-line and during the SL1-26 refueling outage, to verify that the examinations and evaluation of results were performed in accordance with the licensing basis. Based on the licensee's conclusion that no significant degradation was identified and that no follow-up examinations or programmatic corrective actions were required, the inspectors reviewed a sample of evaluations to determine whether the licensee's conclusions were consistent with the program attributes as described in the licensing basis.

Commitment 3 – Pipe Wall Thinning Inspection Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would perform examinations using volumetric techniques of the internal surfaces of stainless steel auxiliary feedwater (AFW) piping downstream of the recirculation orifices. Initially, these examinations were intended to be completed on a one-time basis, but based on the results of the initial examinations, the licensee revised the AMP to continue monitoring localized loss of material due to erosion of these AFW components into the PEO. The UFSAR

description of this AMP specified that examination techniques such as ultrasonic testing (UT) or radiography testing (RT) will continue to be performed.

The inspectors reviewed program basis documents, administrative and implementing procedures, to verify that the program was developed as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the implementation of the program, and verified that program procedures accomplished the actions as described in the commitment. The inspectors also reviewed a sample of non-destructive examinations (NDEs) of AFW components in Unit 1 to verify that the examinations and evaluations of results were performed in accordance with the program implementing procedures.

Commitments 4 and 5 – Reactor Vessel Internals Inspection Program: Commitment 4 specified that, prior to the PEO of Unit 1, the licensee would submit a report summarizing the aging effects applicable to reactor vessel internals, including a description of the inspection plan. Commitment 5 specified that, prior to the PEO of Unit 1, the licensee would perform a one-time inspection of the reactor vessel internals.

The LRA submitted a plant-specific AMP for reactor internals based on a one-time inspection approach. On June 14, 2011, the licensee submitted letter L-2011-255 to the NRC (ADAMS Accession Number ML111650362) documenting the licensee's commitment to substitute the previous NRC-approved plant-specific Reactor Vessel Internals AMP for the NRC-approved MRP-227-A program, "Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines." By adopting MRP-227-A, the reactor vessel internals inspections will be performed on a periodic basis rather than a one-time inspection. On September 28, 2015, the licensee submitted letter L-2015-229 to the NRC (ADAMS Accession Number ML15300A574) describing the summary of aging effects on the reactor vessel internal components. The letter also described that the implementation of MRP-227-A required completion of the first inspection within two cycles of operation after the date of the PEO. Therefore, the first of these inspections on Unit 1 was scheduled for the spring refueling outage in 2018. Additionally, Letter L-2014-192 from the licensee to the NRC (ADAMS Accession Number ML14205A442) clarified the updated commitment and the inspection plan submittal dates. At the time of this inspection, the NRC was in the process of reviewing the licensee's submittals and no final SER was issued.

The inspectors reviewed a sample of the license renewal program basis documents and plant administrative procedures, in order to obtain reasonable assurance that the Saint Lucie Unit-1 program was developed based on the recommendations described in the MRP-227-A for a Combustion Engineering type reactor. The inspectors interviewed licensee personnel to discuss the status of the planed inspections for the Unit 1 reactor during the spring refueling outage in 2018. The inspectors reviewed a sample of inspection items and inspection techniques required by MRP-227-A, to verify that the planned inspection included the required type of inspections, and included provisions for corrective actions using the existing corrective action program (CAP), as well as consideration of site-specific and external operating experience. The inspectors were informed that the first inspection of Unit 1 reactor vessel internals will be tracked in the CAP as Action Request (AR) 1905927.

The inspectors also reviewed the program to verify that it addressed an MRP-227-A provision that requires licensees to address any plant-specific issues not addressed by

the MRP-227-A guidelines. Specifically, the Saint Lucie Unit 1 core barrel was repaired in 1983 to address areas with through-wall cracks. The affected locations were repaired by drilling crack arrester holes, and the holes were sealed by inserting expandable plugs. As part of the LRA review, a TLAA for the core support barrel middle cylinder addressed the fatigue of the core support barrel mid-cylinder and the expandable plug preload analysis, to demonstrate that these reactor internal components will continue to perform their intended function given the predicted fluence, operating temperature, operating hydraulic loads, and thermal deflections for the PEO.

The inspectors reviewed a sample of the fatigue analysis conclusions, as documented in vendor calculations, in order to verify that the cumulative usage factor for the core support barrel mid-cylinder was shown to be within required acceptance criteria, including Extended Power Uprate (EPU) conditions. For the core support barrel expandable plugs pre-load analysis, the inspectors confirmed that the repair plugs were evaluated to maintain their intended function for the PEO including EPU conditions.

Commitments 6 and 7 – Small Bore Class 1 Piping Inspection Program: Commitment 6 specified that, prior to the PEO of Unit 1, the licensee would submit a report to the NRC, for review and approval summarizing the inspection plan for small bore Class 1 piping. This inspection plan would describe the risk-informed methodology, and would establish the minimum number and locations of small bore piping full penetration butt welds to be volumetrically examined. The risk-informed methodology; however, would not be a basis to eliminate volumetric examination of welds. Commitment 7 specified that the licensee would perform the planned volumetric inspections of a sample of small bore Class 1 piping prior to the PEO of Unit 1.

The UFSAR stated that one-time volumetric inspections of a sample of small bore Class 1 piping will be performed to determine if cracking is an aging effect requiring management during the PEO. This inspection would address Class 1 piping less than 4-inches in diameter, and the need for additional inspections or programmatic corrective actions would be established based on the results of the one-time inspections. The UFSAR also stated that the licensee will provide the NRC with a report describing the inspection plan prior to its implementation.

On September 3, 2014, the licensee submitted the “One-Time Inspection of Class 1 Small Bore Piping Inspection Plan” to the NRC for review and approval (Letter L-2014-265, ADAMS Accession Number ML14261A107). The licensee amended the original commitment to include the recommendations from NUREG-1801, “Generic Aging Lessons Learned (GALL) Report,” Revision 2 (hereinafter referred to as “GALL Report”). The NRC reviewed the inspection plan and issued an SER establishing the criteria and basis for NRC’s approval (ADAMS Accession Number ML15069A172). On May 11, 2015, the licensee submitted a revision to the commitment and the inspection plan to the NRC for changes associated with the use of destructive examinations in lieu of volumetric examinations on Class 1 small bore piping welds that could not be fully inspected through volumetric examination (ADAMS ML15140A394). At the time of this inspection, the program revision was under NRC review.

The inspectors reviewed program basis documents, administrative and implementing procedures, correspondence between the licensee and NRC, and work orders (WOs) to verify that the program was developed and executed with the criteria described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel

to discuss the selection process associated with the number and locations of the volumetric examinations of Class 1 small bore piping samples. The inspectors then verified that the licensee had completed the minimum number of volumetric examinations as described in the program, and associated correspondence to the NRC. Additionally, the inspectors reviewed the results of the volumetric examinations to verify that the disposition of results was consistent with the program elements, as described in the licensing basis documents.

Commitment 8 – Thermal Aging Embrittlement of Cast Austenitic Stainless Steel Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would implement the Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS) Program. The program would manage the reduction of fracture toughness due to thermal aging embrittlement of CASS in susceptible reactor coolant system (RCS) pressure boundary components. The program would include a determination of the susceptibility of CASS components to thermal aging embrittlement, based on casting method and material composition. For potentially susceptible components, aging management would be accomplished through NDEs and/or flaw tolerance evaluation.

The version of the UFSAR supplement for license renewal approved by the NRC staff in the final SER stated that the program was consistent with the 10 attributes of program X1.M12, "Thermal Aging Embrittlement of Cast Austenitic Stainless Steel," specified in the initial GALL Report (dated April 2001). On October 3, 2014, the licensee submitted letter L-2014-304 to the NRC (ADAMS Accession Number ML14294A448) stating that they will follow the guidance in GALL Report, Revision 2, which allows the option for using enhanced visual inspection (EVT-1) of susceptible materials. However, the inspectors were informed that the licensee opted to manage thermal aging embrittlement through flaw tolerance evaluations of susceptible components, also recommended by the GALL Report, Revision 2. The UFSAR was revised to state that the program is consistent with the 10 attributes of program X1.M12 in GALL Report, Revision 2.

The inspectors reviewed the license renewal program basis documents, administrative and implementing procedures, and scoping basis documents to determine if the program scope was developed as described in the LRA, the corresponding NRC SER, and post-approval correspondence submitted to the NRC. The inspectors also interviewed licensee personnel to discuss the selection and evaluation process for components within the scope of the program, and verified that program procedures included appropriate guidance to evaluate CASS locations. Specifically, the inspectors reviewed a flaw tolerance evaluation to verify that percent ferrite determinations were consistent with the scoping criteria in the GALL Report, Revision 2. The inspectors reviewed a sample of the flaw tolerance evaluation results documented in procedure ADM-17.36, "Cast Austenitic Stainless Steel Aging Management Program, Saint Lucie Plant," and verified that the limiting locations identified were evaluated for the PEO.

Commitment 9 – Alloy 600 Inspection Program: This commitment specified that prior to the PEO of Unit 1, the licensee would perform inspections and examinations of the reactor vessel head and incorporate NRC requirements, licensee responses to NRC Bulletins, and industry recommendations, including the Electric Power Research Institute (EPRI) Materials Reliability Project, into the program. The UFSAR description of this AMP stated that the existing Alloy 600 Inspection Program manages the aging effect of cracking due to primary water stress corrosion for susceptible components within the reactor coolant system pressure boundary, and that the program is based on the

requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME BPVC), Code Cases N-722-1, N-729-1 and N-770-1, as required by 10 CFR 50.55a. In addition, it stated that the Boric Acid Wastage Surveillance Program is also utilized to manage cracking of these components. The USFAR description noted that several of the Alloy 600 components in service at the time of the LRA submittal and issuance of the SER had been mitigated by replacement with Alloy 690 components.

The inspectors reviewed program basis documents, administrative and implementing procedures, and self-assessments to verify that the program was developed as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the implementation of the program, and verified that program procedures accomplished the actions described in the commitment.

Commitment 10 – ASME Section XI Subsection IWB, IWC, IWD Inservice Inspection Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would implement two enhancements for the ASME BPVC, Section XI Inservice Inspection (ISI) Program. The first enhancement would revise the program to include VT-1 visual inspections of the core stabilizing plugs and core support lugs. This enhancement is related to additional inspections associated with the reactor vessel internal components not specifically included in the industry generic requirements of MRP-227-A. The second enhancement would revise the program to include evaluation of pressurizer surge line flaws (if identified) with regard to environmentally assisted fatigue.

For the first enhancement, the inspectors verified that the current Unit 1 Fourth Interval ISI Plan included VT-1 visual inspections of the core stabilizing plugs and core support lugs, and that the program made reference to the corresponding regulatory commitment for license renewal.

For the second enhancement, the inspectors reviewed the current Unit 1 Fourth Interval ISI Plan summary sheets associated with welds on the pressurizer surge line, to determine if the requirement for an evaluation considering environmentally assisted fatigue issues had been included in the program. The inspectors reviewed a sample of future examinations of the pressurizer surge line welds included in the ASME BPVC, Section XI, ISI Program, to verify that the program contained instructions to evaluate for environmentally assisted fatigue in identified flaws.

Commitment 11 – Boraflex Surveillance Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would revise the program to include areal density testing (in lieu of blackness testing) of the encapsulated Boraflex material in the spent fuel storage racks.

However, on November 25, 2002, the licensee submitted a license amendment request to eliminate the need to credit Boraflex neutron absorbing material for the spent fuel pool (SFP) reactivity control (ADAMS Accession Number ML023450373). On September 23, 2004, the NRC approved the proposed license amendment (Amendment 193) as documented in an SER (ADAMS Accession Number ML042670562). With the implementation of the NRC-approved license amendment, this commitment is no longer applicable, and has been deleted from the UFSAR. This program was replaced by the Metamic® Insert Surveillance Program, which is described in Section 18.1.8 of the UFSAR.

The inspectors interviewed licensee personnel to discuss the elimination of the program. The inspectors also reviewed License Amendment 193 to verify that the licensee had properly interpreted and implemented the amendment.

Commitment 12 – Boric Acid Wastage Surveillance Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would expand the scope of the Boric Acid Wastage Surveillance Program to include waste management system components in the scope of license renewal. The UFSAR stated that this program manages the aging effects of loss of material and loss of mechanical closure integrity due to aggressive chemical attack resulting from borated water leaks. The program addresses the reactor coolant system, other systems which contain borated water, and structures and components containing, or exposed to, borated water.

The UFSAR also stated that the program is consistent with the 10 attributes of program X1.M10, “Boric Acid Corrosion” specified in the GALL Report, Revision 2. The program would utilize systematic inspections, leakage evaluations, and corrective actions to ensure that boric acid corrosion does not lead to degradation of the pressure boundary, or the structural integrity of components, supports, or structures in proximity to borated water systems. The program would include commitments in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants."

The inspectors reviewed license renewal drawings, program basis documents, and administrative and implementing procedures to verify that the program was enhanced as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the scope of the program, and to verify that the examinations and evaluations of boric acid walkdown inspection results were performed in accordance with the program implementing procedures and the licensing basis.

Commitment 13 – Fatigue Monitoring Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would revise program procedures to provide guidance in the event that fatigue design cycle limits are approached. As described in the UFSAR, the Fatigue Monitoring Program provides the means of counting fatigue sensitive design cycles, and comparing the actual accumulated cycles with the design cycles assumed in the Class 1 reactor coolant system component fatigue analyses. The specific fatigue analyses validated by the program are associated with the reactor vessel, reactor vessel internals, pressurizer, steam generators, reactor coolant pumps, and reactor coolant system Class 1 piping. In order to stay within the design limits and to meet the commitment, the program procedure would be revised to initiate appropriate corrective action should the accumulated cycle count reach 80 percent of any design cycle limit.

The inspectors reviewed program basis documents, WOs, and administrative and implementing procedures to verify that the program was revised and continues to be implemented, as described in the LRA and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the monitoring, trending, and recording of fatigue cycles, as well as actions that would take place should the accumulated cycle count reach 80 percent of any design cycle limit as described in the commitment.

Commitment 14 – Fire Protection Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would incorporate testing of wet pipe sprinklers into the Fire Protection Program in accordance with the National Fire Protection Association (NFPA) Code, NFPA-25, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 Edition. Testing of wet pipe sprinkler heads per NFPA-25 would start in year 2026. The UFSAR also stated that wet pipe sprinkler heads, which have been in service for 50 years, may be replaced instead of performing testing. The UFSAR described that the program manages the aging effect of loss of material for the components of the fire protection system. It also manages the aging effect of loss of material for structural components associated with fire protection.

The inspectors reviewed program basis documents, and administrative and implementing procedures to verify that the program was developed as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the scope of the program, and verified that the testing outlined in the commitment was scheduled in the licensee's Nuclear Assets Maintenance System. The inspectors also reviewed the following Preventive Maintenance Requirements (PMID-RQs) to verify that replacement activities were scheduled for those sprinkler heads that would not be tested per NFPA-25.

- PMID 82573-01, Turbine Lube Oil, Fast Response
- PMID 82574-01, Turbine Lube Oil, Non Fast Response
- PMID 82755-01, Turbine Building Pumps
- PMID 82756-01, Reactor Auxiliary Building, Hatches and East Stair

Commitment 15 – Flow-Accelerated Corrosion Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would expand the scope of the Flow-Accelerated Corrosion (FAC) Program to include internal and external loss of material of drain lines and selected steam traps. The UFSAR description of this AMP stated that the program manages the aging effect of loss of material due to FAC by predicting, detecting, monitoring and mitigating FAC in high energy carbon steel piping associated with the main steam, reactor coolant (steam generators), main feedwater, and blowdown systems, and is based on industry guidelines and operating experience.

The inspectors reviewed program basis documents along with administrative and implementing procedures to verify that the program was developed as described in the LRA and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the implementation of the program, and verified that program procedures accomplished the actions described in the commitment. The inspectors also reviewed a sample of NDEs of steam trap lines in Unit 1 to verify that the examination, and evaluation of results, were performed in accordance with the program implementing procedures.

Commitment 16 – Periodic Surveillance and Preventive Maintenance Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would enhance the Periodic Surveillance and Preventive Maintenance Program to include components such as filter housings, radiator fins, flexible hoses, door seals, and expansion joints. The UFSAR description of this AMP stated that the program manages the aging effects of loss of material, cracking, loss of seal, and fouling (mechanical components only) for

various plant SSCs. The scope of the program provides for visual examination of selected surfaces of specific SSCs. Additionally, the program provides for

replacement/refurbishment of selected components on a specified frequency, as appropriate, and periodic sampling and water removal from fuel oil storage tanks.

Additionally, licensee's letter L-2003-135 to the NRC, dated June 10, 2003, (ADAMS Accession Number ML031630886) stated that, prior to the PEO, the Periodic Surveillance and Preventive Maintenance Program would include visual inspections of a representative sample of the bus bar insulation associated with the non-segregated phase buses. Additional inspections would then be performed every 10 years thereafter. The scope of the inspections would include age-related defects (e.g., discoloration, cracking) in bus bar insulation, interior of the bus ducts for moisture or dust/debris, as well as verifying the proper torque of the bus bar splice connection bolting.

The inspectors reviewed program basis documents, administrative and implementing procedures, self-assessments, and WOs to verify that the program was developed and executed with the criteria described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the scope, monitoring and trending, as well as the process for the generation of WOs. The inspectors reviewed a sample of WOs to verify that the licensee had completed the inspections and implemented appropriate corrective actions as described in the program, and associated correspondence to the NRC.

Commitment 17 – Reactor Vessel Integrity Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would enhance program documentation to integrate all aspects of the four subprograms that makeup the Reactor Vessel Integrity Program. The four subprograms were the Reactor Vessel Surveillance Capsule Removal and Evaluation, Fluence and Uncertainty Calculations, Monitoring Full Power Years, and Pressure-Temperature Limit Curves programs. The licensee credited fleet procedure ER-AA-110, "Reactor Vessel integrity Program Nuclear Fleet," for the integration of the four subprograms.

The inspectors interviewed licensee personnel, and reviewed the license renewal program basis documents and administrative and implementing procedures, to determine if the integration of the subprograms for Unit 1 was consistent with the LRA, and the corresponding NRC SER.

Commitment 18 – Systems and Structures Monitoring Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would enhance the Systems and Structures Monitoring Program to include: (a) monitoring of the interior surfaces of below groundwater concrete, and examination of a representative sample of below groundwater concrete, when excavated for any reason, (b) aging management of inaccessible concrete, inspection of insulated equipment and piping, and evaluating masonry wall degradation and uniform corrosion, and (c) aging management of accessible reinforced concrete and reinforced masonry block walls. The UFSAR supplement for license renewal stated that the program manages the aging effects of loss of material, cracking, fouling (for mechanical components only), loss of seal, and change in material properties. The program also provides for periodic visual inspection and examination, following strict guidelines and specific acceptance criteria for the inspection attributes, for degradation of accessible surfaces of specific SSCs; and

corrective actions, as required, based on these inspections. The UFSAR also stated that conditions that exceed the acceptance criteria are entered into the CAP for evaluation.
The inspectors reviewed program basis documents, administrative and implementing procedures, and license renewal drawings to verify that the program was enhanced as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the scope of the program, and verified that the results of the inspections outlined in the commitment were consistent with the licensing basis. The inspectors reviewed the results of the latest program walkdowns to verify that the evaluation of results was performed in accordance the program's implementing procedures.

The inspectors also performed independent walkdowns of selected SSCs to verify that the results from previous licensee walkdowns, as captured in "Action Request" documents, were evaluated in accordance with the program's implementing procedures. Specifically, the inspectors performed walkdowns of the following SSCs in Unit 1:

- Yard structures, including the:
  - 1A and 1B city water tanks and fire pumps
  - Condensate storage tank (CST)
  - Condenser polisher building
  - 1A and 1B main transformers
  - 1A start-up transformer
- Reactor Auxiliary Building Rooms at elevations -0.5 feet and 19.5 feet
  - 1A and 1B shutdown cooling heat exchangers
  - 1A and 1B containment spray pumps
  - 1A, 1B, and 1C high pressure safety injection pumps
  - 1A and 1B reactor drain pumps
  - 1A and 1B low pressure safety injection pumps
  - 1A, 1B, and 1C charging pumps
  - 1A and 1B boric acid make-up tanks and associated pumps
  - 1A and 1B boric acid condensate tanks
  - Hold-up recirculation pump (added to this program as part of the radiation waste management enhancement)
- Component cooling water (CCW) structure
  - 1A, 1B, and 1C CCW heat exchangers and associated pumps and piping
- Ultimate heat sink (HS) dam and intake structure
- 1A and 1B emergency diesel generator buildings

Commitment 19 – Containment Cable Inspection Program: This commitment specified that, prior to the PEO of Unit 1, the licensee would establish an AMP to address cables and connections in the containment that are not subject to the environmental qualification (EQ) requirements in 10 CFR 50.49 (i.e., non-EQ cables and connections). The non-EQ cables and connections managed by this program would include those associated with sensitive, low-level signal circuits (source, intermediate, and power range neutron detectors). The licensee would also complete the first inspection described in the program prior to the PEO.

The UFSAR description of this AMP stated that the program consists of: (a) periodic visual inspection of accessible non-EQ cables and connections within the scope of

license renewal, located in the containment that may be installed in adverse localized environments, and (b) review of calibration tests results for indication of age-related degradation of cables associated with the neutron detectors.
The inspectors reviewed program basis documents, and administrative and implementing procedures to verify that the program was developed as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the selection process of non-EQ cables within the scope of the program, and verified that the inspections were performed in accordance with the program implementing procedures.

Commitment 20 – Environmentally-Assisted Fatigue: This commitment specified that the licensee would address environmentally-assisted fatigue of the pressurizer surge line using one or more of the following approaches:

- Further refinement of the fatigue analysis to lower the cumulative usage factors to below 1.0
- Repair of the affected locations
- Replacement of the affected locations
- Manage the effects of fatigue by an NRC-approved inspection program

The licensee chose to address environmentally-assisted fatigue by managing the effects of fatigue by an NRC-approved inspection program. The licensee submitted the program to the NRC via letter L-2015-272 (ADAMS Accession Number ML15314A160) for review and approval. The program would examine the surge line welds once per 10-year ISI interval. At the time of this NRC inspection, the NRC was in the process of reviewing the licensee's program, submitted in letter L-2015-272.

The inspectors reviewed the licensing basis and program basis documents to verify that the program was developed as described in the LRA, and the corresponding NRC SER. The inspectors interviewed licensee personnel to discuss the implementation of the program, and verified that program procedures accomplished the actions described in the commitment.

Commitment 21 – Alloy 600 Instrument Nozzle Repairs: This commitment specified that, prior to the PEO of Unit 1, the licensee would disposition the TLAA for the half-nozzle replacement designs in the Unit 1 reactor coolant system pursuant to 10 CFR 54.21(c)(1). Specifically, the TLAAs were required to address: (1) the potential growth of the original flaw due to thermal or mechanical cycling, and (2) the potential wastage of the ferritic material that is adjacent to the half-nozzle configuration and exposed to borated reactor coolant. The UFSAR supplement stated that the TLAAs for these two issues were addressed by a Westinghouse site-specific calculation, a generic Westinghouse Report, and two Relief Requests submitted to the NRC for the Third and Fourth ASME BPVC, Section XI ISI Intervals.

The inspectors reviewed program basis documents and calculations, and discussed these with licensee personnel to verify the TLAAs were addressed as described in the LRA, and the corresponding NRC SER.

UFSAR Section 18.1.8 – Metamic® Insert Surveillance Program: The UFSAR supplement for license renewal stated that the Metamic® Insert Surveillance Program is

a new monitoring program which replaced the previous Boraflex Surveillance Program. There are no commitments listed in Appendix D to NUREG 1779 for this program. The program was structured to GALL Report, Revision 2, Section XI.M40, "Monitoring of

Neutron-Absorbing Materials Other Than Boraflex." The program would include the following essential elements: (a) visual inspection of inserts, (b) dimensional and weight measurements of coupons, and (c) neutron attenuation testing of coupons. The program was implemented to assure that degradation of the neutron-absorbing material used in SFPs, that could compromise the criticality analysis, will be detected. The program relied on periodic inspection, testing, monitoring, and analysis of the criticality design to assure that the required 5 percent sub-criticality margin is maintained during the PEO.

The inspectors reviewed program basis document PSL-ENG-LRAM-12-001, "Metamic® Insert Surveillance Program-License Renewal Program Basis Document", and implementing procedure 0-OSP-67.01 "Metamic® Insert Surveillance," to verify that the program was developed as described in the UFSAR. The inspectors also reviewed AR 01751336-02-00 to verify that the first scheduled surveillance was consistent with the program description.

UFSAR Section 18.2.5 – Chemistry Control Program: The UFSAR described the Chemistry Control Program as an existing program that manages the aging effects of loss of material; cracking; and fouling for primary and secondary systems, closed cooling water, and fuel oil SSCs. The Chemistry Control Program consisted of three subprograms: Water Chemistry Control Subprogram; Closed-Cycle Cooling Water System Chemistry Subprogram; and the Fuel Oil Chemistry Subprogram. The UFSAR stated that the Chemistry Control and Closed-Cycle Cooling Water System Chemistry Subprograms are consistent with the 10 attributes of Program X1.M2, "Water Chemistry" specified in GALL Report, Revision 2, with some exceptions related to the inspection of in-scope components. The UFSAR also stated that the Fuel Oil Chemistry Control Program is a plant-specific program. There were no specific regulatory commitments for this program resulting from the NRC's review of the LRA.

The inspectors reviewed the program basis document, recent program health reports, a sample of implementing procedures, and a sample of CAP documents to verify that the program was implemented in accordance with the licensing basis. The inspectors interviewed licensee personnel to discuss the implementation of the program as described in the UFSAR. The inspectors also reviewed a sample of chemistry trending data for the Unit 1 CCW system, CST, reactor coolant system, and SFP, to verify that chemistry parameters were monitored in accordance with the applicable program procedures and industry standards. The inspection sample included maintenance procedures and WOs associated with the CCW system to verify that they contained instructions to inspect for aging effects when component disassembly is performed.

Additionally, the inspectors reviewed a sample of testing and inspection results as part of the Fuel Oil Chemistry Program, to verify that aging management activities were consistent with licensing basis documents and program procedures. The inspection sample included chemical testing results of fuel oil upon receipt and transfer, as well as visual inspection reports for the storage tanks, and routine checks for accumulated water in the tanks.

UFSAR 18.2.6 & 18.3.3 – Environmental Qualification Program: This TLAA specified that for equipment covered by the existing EQ Program – required by 10 CFR 50.49 – analyses would be performed to evaluate if the existing environmental qualification aging analyses could be projected to the end of the PEO. This TLAA applied to equipment which was initially qualified for a 40-year qualified life or greater. Equipment with a qualified life of less than 40 years would be addressed through the Preventive Maintenance Program. The UFSAR description of this TLAA stated that while the existing EQ Program was not credited as an AMP, the evaluations of equipment covered by the EQ Program were identified as TLAAs and addressed accordingly.

The inspectors reviewed program basis documents and calculations, and discussed these with licensee personnel to verify that the TLAAs were addressed as described in the LRA, and the corresponding NRC SER.

UFSAR 18.2.10 – Intake Cooling Water System Inspection Program: The UFSAR stated that the Intake Cooling Water (ICW) Inspection Program manages the aging effects of loss of material due to various corrosion mechanisms, and particulate and biological fouling for ICW system components, and the ICW side of the CCW heat exchangers. According to the UFSAR, the program includes inspections, performance testing, evaluations, and corrective actions as a result of a commitment in response to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." Generic Letter 89-13 recommended, in part, the implementation of an on-going program of surveillance and control techniques to significantly reduce the incidence of flow blockage caused by biological fouling, corrosion, erosion, protective coatings failures, and silting in systems and components supplied by service water.

The inspectors reviewed program basis documents, administrative and implementing procedures, and system health reports to verify that the program was developed and implemented as described in the UFSAR, LRA, and the corresponding NRC SER. The inspectors also conducted a walkdown to assess the material condition of accessible SSCs associated with the ICW system, including the intake structure, traveling screens, strainers, pumps, piping, and component supports. The inspectors interviewed licensee personnel to discuss the system health, inspection frequency, program effectiveness, and associated corrective actions. The inspectors reviewed a sample of WOs and reviewed the results of the inspections, to verify that appropriate actions were performed based on the conclusions reached from the inspection.

b. Findings and Observations

No findings were identified. On the basis of the sample selected for review, the inspectors determined that the licensee had completed, or was on track to complete, the necessary tasks to meet the license renewal commitments, license conditions, and regulatory requirements associated with the issuance of the renewed operating license at Saint Lucie Unit 1. Based on the interviews with plant staff, and the review of program documents and activities completed at the time of this inspection, the inspectors determined that the licensee had fully established the required AMPs and TLAAs to manage the aging effects of in-scope SSCs through the PEO of Unit 1, with the exception of the URI discussed below.

The inspectors identified a URI associated with the implementation status of the various commitment items. This URI is described in Item 1 below, and requires followup during

future license renewal inspections to obtain reasonable assurance that the license renewal commitments are met, and that the aging effects of affected SSCs would be managed during the PEO. The inspectors also identified various observations associated with the implementation of certain AMPs and TLAAs, as described in Item 2 below.

1) (Opened) Unresolved Item 05000335/2015010-001, Implementation of Commitments and Aging Management Programs

Introduction: The inspectors identified a URI associated with the implementation status of various commitments and AMPs.

Description: The inspectors identified that there were pending actions for various regulatory commitments/AMPs as a result of commitment changes implemented by the licensee after the renewed operating license was issued. The licensee informed the NRC of such changes, and submitted correspondence to the NRC for review and approval. At the time of this inspection, the NRC was still in the process of reviewing the licensee's submittals. While the licensee met its commitment to submit the proposed changes to the NRC prior to the PEO, the inspectors were unable to determine whether the licensee's implementation of the affected AMPs was consistent with the staff's final position, which will be provided through the issuance of SERs. The affected commitment items, and their respective pending actions, are summarized below.

- Commitment 1, Condensate Storage Tank Cross-Connect Buried Piping Inspection – On May 12, 2015, the licensee informed the NRC of a commitment change based on the as-found configuration of the cross-tie line after excavation. On September 1, 2015, the NRC issued a Request for Additional information, for which the licensee provided responses in letter L2015-258, dated October 6, 2015. At the time of this inspection the NRC was reviewing the licensee's response to the Request for Additional Information, and no SER had yet been issued.

- Commitments 4 and 5, Reactor Vessel Internals Inspection Program – As described in the inspection scope section of this report, the licensee submitted several letters to the NRC after the renewed operating license was issued describing the proposed program to manage the aging effects of the reactor vessel internals. At the time of this inspection, the NRC was reviewing the licensee's submittals and no final SER had yet been issued.

- Commitment 6, Small Bore Class 1 Piping Inspection Program – On May 11, 2015, the licensee submitted a revision to the previously approved Small Bore Class 1 Piping Inspection Program for NRC review and approval. The revision was related to the use of destructive examinations in lieu of volumetric examinations. At the time of this inspection, the NRC was reviewing the licensee's submittal and no final SER had yet been issued.

- Commitment 20, Environmentally-Assisted Fatigue of the Pressurizer Surge Line – On October 29, 2015, the licensee submitted its proposed program for managing environmentally-assisted fatigue of the pressurizer surge line to the NRC. The inspectors noted that the proposal detailed the licensee's intent to utilize the ASME BPVC, Section XI ISI Program (UFSAR Section 18.2.2) to manage the recurring

inspections, and the associated evaluations for any flaws noted. At the time of this inspection, the NRC was reviewing the licensee's submittal and no SER had yet been issued.

In addition to the commitment changes under NRC review, the inspectors identified a followup item for Commitment 17, "Reactor Vessel Integrity Program." The inspectors noted that the licensee credited fleet procedure ER-AA-110 to meet the regulatory commitment associated with the integration of all four reactor vessel integrity subprograms into a single program document. Fleet procedure ER-AA-110 requires a plant-specific procedure be developed for each site describing the important parameters needed to meet the regulatory requirements specific to that station. The inspectors noted that the plant-specific procedure for Unit 1, procedure ADM 17.38, was still under development with a target completion date of March 1, 2016. Therefore, the inspectors concluded that there still were pending actions associated with the development of the site-specific program, and additional inspection was required to verify that the Reactor Vessel Integrity Program was implemented as intended. The licensee initiated AR 02094578 to enter this item in the CAP.

The inspectors determined that it was necessary to open a URI to further review the implementation of the commitments/AMPs, and verify that the commitments were met as approved by the NRC in the final SERs. This issue requires followup inspection, and will be tracked as URI 05000335/2015010-001, "Implementation of Commitments and Aging Management Programs."

2) Observations for Aging Management Programs: The inspectors identified various observations associated with the implementation of certain AMPs and TLAAs. The observations involved issues of minor significance that were captured in the CAP documents (i.e., ARs) listed below for evaluation and resolution. Therefore, these observations are not subject to enforcement action in accordance with the NRC Enforcement Policy.

- AR 02061624 – Implementation of the PZR Surge Line Inspection Program (11/18/2015)
- AR 02089309 – Record retention requirements for FAC Program (11/9/2015)
- AR 02089322 – Flow Accelerated Corrosion Program (11/8/2015)
- AR 02089329 – Enhancement to Fatigue Monitoring Program procedure (11/6/2015)
- AR 02089359 – License renewal reference in procedure 0-COP-05.04 (11/6/2015)
- AR 02089367 – Enhancement of Corrective Action Program AR codes for trending AMP effectiveness (11/6/2015)
- AR 02089511 – Description of AMP's interconnection in license renewal basis documents (11/6/2015)
- AR 02089936 – Inconsistency with procedure 1800022, Fire Protection Plan (11/9/2015)
- AR 02089999 – Description of program enhancement in FAC Program implementing procedures (11/10/2015)
- AR 02092685 – NRC walkdown results for valve V15175 (11/19/2015)
- AR 02092710 – Assessment of external corrosion through the Flow Accelerated Corrosion Program (11/19/2015)
- AR 02092719 – NRC walkdown results for valve LCV-15-2B (11/19/2015)
- AR 02092731 – NRC walkdown results for valve V15220 (11/19/2015)
- AR 02092769 – NRC walkdown results Unit 1 yard (11/20/2015)

- AR 02092770 – NRC walkdown results for condensate system (11/20/2015)
- AR 02093621 – NRC walkdown results for CCW heat exchanger 1B, (11/24/2015)
- AR 02093804 – NRC walkdown results for CCW heat exchanger 1A, (11/25/2015)
- AR 02093823 – NRC walkdown results for ultimate heat sink dam (11/25/2015)
- AR 02098199 – Corrective Action Program guidance for unexpected adverse conditions that affect the EQ of components (12/17/2015)

.2 Newly Identified Structures, Systems, and Components

a. Inspection Scope

The inspectors discussed the evaluation of newly identified SSCs with the licensee to verify compliance with the provisions of 10 CFR 54.37(b). The inspectors reviewed a licensee evaluation (AR 02035394) performed to determine whether newly identified SSCs existed. Where applicable, the inspectors verified that aging management review was performed for any newly identified SSC in accordance with 10 CFR 54.37(b).

b. Findings and Observations

No findings were identified. On the basis of the sample selected for review, the inspectors determined that the licensee took appropriate actions to ensure newly identified SSCs were identified and evaluated for management of aging affects. The inspection team did not identify any new SSCs that were subject to the provisions of 10 CFR 54.37(b) during the independent review of commitments and AMPs described in Section 4OA5.1.a of this report.

.3 Description of Aging Management Programs in the UFSAR Supplement

a. Inspection Scope

As part of the review of implementation activities for the selected AMPs and TLAAs described in Section 4OA5.1.a of this report, the inspectors reviewed the corresponding UFSAR sections to verify that the program descriptions were consistent with the LRA, and the corresponding section of the NRC SER. The inspectors reviewed three versions of the UFSAR supplement for license renewal as follows:

- The inspectors reviewed the UFSAR supplement submitted with the LRA, as revised, to identify the program attributes and future inspection activities that were originally relied upon for the approval of the renewed operating license.

- The inspectors reviewed the revision of the UFSAR submitted to the NRC, pursuant to the requirements in 10 CFR 50.71(e)(4), following the issuance of the renewed operating license (i.e., Amendment 20, dated April 2004) to verify that the UFSAR supplement for license renewal was included with the UFSAR as required by the condition of the renewed operating license.

- The inspectors reviewed the latest revision of the UFSAR supplement for license renewal (i.e., Amendment 27, dated April 2015) to verify that the program attributes and inspection activities were consistent with the AMPs as originally approved by the NRC, and subsequent revisions performed under the provisions of 10 CFR 50.59.

The inspectors also verified that newly identified SSCs, if any, were included in the UFSAR supplement.

b. Findings and Observations

No findings were identified. The inspectors determined that the UFSAR supplement, as revised, was incorporated into the UFSAR. Additionally, the inspectors determined that there were no significant discrepancies between the UFSAR supplement description and the AMPs/TLAAs being implemented.

The inspectors identified some observations associated with the description of AMPs and TLAAs in the UFSAR. These observations, briefly described below, involved issues of minor significance that were entered in the CAP as ARs for evaluation and resolution. Therefore, these observations are not subject to enforcement action in accordance with the NRC Enforcement Policy.

- AR 02089339 – Description of the Pipe Wall Thinning Inspection Program in the UFSAR supplement (11/6/2015)
- AR 02089502 – Description of AMPs interconnection in the UFSAR (11/6/2015)
- AR 02092209 – Description of the Environmental Qualification Program in the UFSAR supplement (11/18/2015)
- AR 02092646 – Description of the CASS Program in the UFSAR supplement (11/19/2015)

.4 Changes to License Renewal Commitments and the UFSAR Supplement for License Renewal

a. Inspection Scope

As part of the review of license renewal commitments, AMPs, and TLAAs described in section 4OA5.1.a of this report, the inspectors reviewed a sample of license renewal commitment change documents to verify that the licensee followed the guidance in Nuclear Energy Institute 99-04, “Guidelines for Managing NRC Commitment Changes,” for any change to the commitments, including their elimination. The inspectors verified that the licensee properly evaluated, reported, and approved where necessary, changes to license renewal commitments listed in the UFSAR in accordance with 10 CFR 50.59.

b. Findings and Observations

No findings were identified.

4OA6 Management Meetings

Exit Meeting Summary

On November 20, 2015, the inspectors presented the inspection results to Christopher Costanzo, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee

P. Atkinson, License Renewal Implementation Project Manager
L. Berry, Principal Nuclear Engineer, Licensing
B. DiVentura, License Renewal Implementation
D. Patel, License Renewal Implementation
S. Sharma, License Renewal Implementation

LIST OF REPORT ITEMS

Opened

05000335/2015010-001	URI	Implementation of Commitments and Aging Management Programs (Section 4OA5.1.b(1))

LIST OF DOCUMENTS REVIEWED

Commitment 1 – Condensate Storage Tank Cross-Connect Buried Piping Inspection
1-OSP-12.01, Flow Test of the Unit-2 to Unit-1 Condensate Storage Tank Cross-Tie, Rev. 10
AR 01905927-02-00, Perform Visual Inspection –Buried Pipe CST, 9/23/2013
AR 02036344, License Renewal Inspection Condensate Cross Tie C-8-95, 3/30/2015
EC-283842, Evaluation ENG-LRAM-01-023, CST Cross Connect Buried Pipe Inspection License Renewal Basis Document
PSL-ENG-SEMS-97-064, Engineering Evaluation for the Operation and Testing of the AFW Suction Cross Tie From Unit-2 to Unit-1, 6/19/1998
WO 40129353-01, EC2825599 Visual Exam of Buried U1/U2 Condensate Crosstie, 4/2/2015

Commitment 2 – Galvanic Corrosion Susceptibility Inspection Program
AR 02039224, To Document the Galvanic Corrosion Inspection Results and Perform Engineering Evaluation of the Results as Required by License Renewal Program ENG-LRAM-00-110
AR 02071667, 1B IAC Discharge Elbow Has Severe Internal Corrosion
AR 02073369, Document Inspection Results, Perform Engineering Evaluation
AR 2076003, Galvanic Cell Inspection CFC HVS-1A Motor HX Evaluation
Electric Power Research Institute Technical Report 3002000505, Pressurized Water Reactor Primary Water Chemistry Guidelines, Volume 1, Rev. 7
GIR 14-038, Strainer TGB FP Deluge VLV Station
GIR 15-001, EDG 1A2 Radiator and Tubing VT Exam
GIR 15-014, SR-14-8B CCW Galvanic VT
GIR 15-040, 1B Instrument Air
GIR 15-046, 1A AFW Elbow

PMRQ-00032353-02, Draining and Performing a Full Hands Examination of the RWT Tank and Inspecting RWT Nozzles (Implemented via PSL-ENG-LRAM-00-096)
Procedure NDE 4.1, Component, Support & Inspection, Visual Examination VT-1 Welds/Bolting/Bushings/Washers, Rev. 14
Procedure NDE 5.18, Component, Support & Inspection, Ultrasonic Thickness Measurement, Rev. 8
Procedure NDE 5.28, Component, Support & Inspection, Digital Thickness Measurement, Rev. 1
PSL-ENG-LRAM-00-110, Aging Management Program Basis Document for Galvanic Corrosion Susceptibility Inspection Program, License Renewal Basis Document, Rev. 5
Specification (SPEC)-M-098, St. Lucie Units 1 and 2 Galvanic Corrosion Susceptibility Inspection Program, Rev. 0
UFSAR Change Request (UCR) 284730
WO 40166921, Component Cooling Water, Perform a Galvanic Couple Inspection on Line 1"-CC-225 at Valve SR-14-8B
WO 40281321, EDG Cooling Water, Perform a Galvanic Couple Inspection on Diesel Generator 1A2 Radiator and Radiator Tubes
WO 40299819, Fire Protection, Perform Galvanic Couple Inspection on Strainer SS1506 Basket and Housing
WO 40397319, Instrument Air, Perform a Galvanic Inspection on Pipe 6-IA-16 at SZ-18-B
WO 40398671, Auxiliary Feedwater, Perform a Galvanic Inspection on AFW Pipe BF-37 Elbow at Orifice SO-09-3

Commitment 3 – Pipe Wall Thinning Inspection Program
AR 01686617, License Renewal: Establish Re-inspection Interval, dated 3/5/2015
AR 02089339, License Renewal Phase II NRC 71003 Inspection Action Item, 11/6/2015
Computed Radiography Flow-Accelerated Corrosion Examination Sheet (Component: SO-09-3, AFW Recirc), dated 10/10/2008
Computed Radiography Flow-Accelerated Corrosion Examination Sheet (Component: SO-09-3, AFW Recirc), dated 9/26/2013
CSI-FAC-PSL-1-22D, Fall 2008 Refueling Outage Flow-Accelerated Corrosion Final Report, Rev. 0
CSI-FAC-PSL-1-25D, Fall 2013 Refueling Outage Flow-Accelerated Corrosion Final Report, Rev. 0
NDE 5.4, Component, Support & Inspection: Ultrasonic Examination of Austenitic Piping Welds, Rev. 19
NDE 6.3, Component, Support & Inspection: Radiographic Examination General Requirements, Rev. 1
PSL-ENG-LRAM-00-114, Pipe Wall Thinning Inspection Program License Renewal Basis Document, Rev. 5

Commitments 4 and 5 – Reactor Vessel Internals Inspection Program
ADM-17.29, Reactor Vessel Internals Aging Management Program, Rev. 3
CN-RIDA-09-4, St. Lucie Unit 1 EPU Evaluation of CSB Repair Plug Preload, Rev. 0
MRP-227-A, Materials Reliability Program, Pressurized Water Reactor Internals Inspection and Evaluation Guidelines, December, 2011
PSL-ENG-LRAM-15-002, Reactor Vessel Internals Inspection Program – License Renewal Basis Document, Rev. 8
TLAA, F-ME-C-009, Analysis of the Core Support Barrel Middle Cylinder for RSG, Siemens Core and Life Extension, Rev. 2
Unit-1, UFSAR 18.3.7.1 Core Support Barrel Fatigue Analysis, Amendment 22

Unit-1, UFSAR 18.3.7.2 Core Support Barrel Repair Plug Analysis, Amendment 22
Unit-1, UFSAR Section 18.1.4, Reactor Vessel internals Inspection Program Amendment 2

Commitments 6 and 7 – Small Bore Class 1 Piping Inspection
PSL-ENG-LRAM-00-117, Small Bore Class I Piping Inspection License Renewal Basis Document, Rev. 4
PSL-ENG-LRAM-14-001, St Lucie, Unit 1 ASME Code Class 1 Small-Bore Piping One Time Inspection Plan, Rev. 1
WO 40314340-01, U1 CH-146 ASME Section XI Destructive Exam, 4/12/2015
WO 40314342-01, U1 CH-147 ASME Section XI Destructive Exam, 4/6/2015
WO 40314344-01, U1 CH-148 ASME Section XI Destructive Exam, 4/3/2015
WO 40314346-01, SI-118 ASME Section XI Destructive Exam, 4/1/2015
WO 40314347-01, SI-125 ASME Section XI Destructive Exam, 4/4/2015
WO 40314351-01, Perform Volumetric Examination of Butt Weld CH148 FW21R, 3/25/2015
WO 40314354-01, Perform Volumetric Examination of Butt Weld RC141 FW-4, 3/29/2015
WO 40314355-01, SI-138 Volumetric Examination of Butt Weld at Reducer SW-2, 3/24/2015

Commitment 8 – Thermal Aging Embrittlement of CASS Program
ADM-17.36, Cast Austenitic Stainless Steel Aging Management Program, St. Lucie Plant, Rev. 0
NUREG 1801, Generic Aging Lessons Learned Report, Rev. 2
PSL-ENG-LRAM-01-022, Thermal Aging Embrittlement of CASS Program License Renewal Basis Document, Rev. 1
Report No. 1301079.401, Flaw Tolerance Evaluation of St Lucie Unit -1 and 2 CASS Components Task 2 Report, Saturated Fracture Toughness Determination, Rev. 0

Commitment 9 - Alloy 600 Inspection Program
1-OSP-01.06, Reactor Coolant System Leak Test, Rev. 5
2008-19326-SA Quick Hit, Quick Hit Self-Assessment of Alloy 600 Inspection Program
ADM-29.03, Boric Acid Corrosion Control Program, Rev. 12
AR 02089502, Review FSAR Chapter 18 for Inter-ties between AMPs, dated 11/6/2015
AR 02089511, Review All LRAMs Basis Documents to Determine Inter-ties of AMPs, dated 11/6/2015
ENG-CSI-A600, Alloy 600 Management Program, Rev. 2
ER-SR-107, Alloy 600 Management Program, Rev. 1
NDE 4.15, Component, Support & Inspection: Visual Examination ASME Section XI Code Case N-722-1 and N-729-1, Rev. 4
PSL-ENG-LRAM-00-111, Alloy 600 Inspection Program License Renewal Basis Document, Rev. 4

Commitment 10 - ASME Section XI Subsection IWB, IWC, IWD Inservice Inspection Program
PSL-1, 4th Interval ISI, Long term Schedule, Pressurizer Surge Line, Line 1-016, 11/18/2015
PSL1&2, ISI Program Health Report, 9/30/2015
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1-OSP-24.01, RAB Fluid Systems Periodic Leak Test, Rev. 19
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1-FME-15.01, Month Operability Test of the Diesel Generator Fire Protection System, Rev. 5
1-FME-15.02, 12 Month Operability Test of the Fire Protection Sprinkler System for the Unit 1 RAB, Rev. 5
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CN-CI-02-69, Westinghouse Evaluation of Fatigue Crack Growth Associated with Small Diameter Nozzles for St. Lucie 1 & 2, Rev. 0
CN-CI-02-71, Westinghouse Summary of Fatigue Crack Growth Evaluation Associated with Small-Diameter Nozzles in CEOG Plants, Rev. 2

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EC 284383, 10 CFR 50.59 Screening Form, Reactor Vessel Internals Inspection Program Document, Rev. 0
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PI-AA-104-1000, Corrective Action, Rev. 2
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ACRONYM LIST

AFW	Auxiliary Feedwater	ISI	Inservice Inspection
AMPs	Aging Management Program	LRA	License Renewal Application
AR	Action Request	NDEs	Non-destructive Examinations
ASME	American Society of Mechanical Engineers	NFPA	National Fire Protection Association
BACC	Boric Acid Corrosion Control		
BPVC	Boiler and Pressure Vessel Code	PEO	Period of Extended Operation
CAP	Corrective Action Program	PMID-RQs	Preventive Maintenance Requirements
CASS	Cast Austenitic Stainless Steel	SER	Safety Evaluation Report
CCW	Component Cooling Water	SFP	Spent Fuel Pool
CST	Condensate Storage Tank	SSCs	Systems, Structures, or Components
EPU	Extended Power Update	TLAAs	Time-limited Aging Analysis
EQ	Environmental Qualification	UFSAR	Updated Final Safety Analysis Report
FAC	Flow Accelerated Corrosion	URIs	Unresolved Items
GALL	Generic Aging Lessons Learned	WOs	Work Orders
HS	Heat Sink		
ICW	Intake Cooling Water		