



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303

January 24, 2014

Mr. David Vineyard
Vice President
Southern Nuclear Operating Company, Inc.
Edwin I. Hatch Nuclear Plant
11028 Hatch Parkway North
Baxley, GA 31513

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT – NRC POST-APPROVAL SITE
INSPECTION FOR LICENSE RENEWAL, INSPECTION REPORT
05000321/2013007 AND 05000366/2013007

Dear Mr. Vineyard:

On December 13, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed a Post-Approval Site Inspection for License Renewal at your Edwin I. Hatch Nuclear Plant, Units 1 and 2 in accordance with NRC Inspection Procedure 71003. The enclosed report documents the inspection results, which were discussed on December 13, 2013, with Mr. David Vineyard, Site Vice President, and other members of the Hatch management staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, and interviewed plant personnel.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. This violation is being treated as Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region 2; (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) the NRC Senior Resident Inspector at the Hatch Nuclear Plant.

The inspectors also identified a number of observations associated with the implementation of certain aging management activities. The inspectors determined that the overall implementation of aging management programs and time-limited aging analyses was consistent with the license renewal commitments, the Updated Final Safety Analysis Report supplement for license renewal, and the conditions in the renewed operating license. The inspectors also determined that structures, systems, and components within the scope of 10 CFR 54.37(b) were adequately identified and evaluated. The inspectors determined that commitment changes not affecting the UFSAR were evaluated in accordance with the applicable requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response (if any), will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

Sincerely,

RA

Steven J. Vias, Chief
Engineering Branch 3
Division of Reactor Safety

Docket Nos.: 50-321, 50-366
License Nos.: DPR-57, NPF-5

Enclosures: Inspection Report 05000321/2013007, 05000366/2013007
w/Attachment: Supplemental Information

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Sincerely,

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Steven J. Vias, Chief
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Division of Reactor Safety

Docket Nos.: 50-321, 50-366
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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 05000321, 05000366

License Nos.: DPR-57, NPF-5

Report Nos.: 05000321/2013007, 05000366/2013007

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Edwin I. Hatch Nuclear Plant, Units 1 and 2

Location: Baxley, Georgia 31513

Dates: November 4 – December 13, 2013

Inspectors: R. Williams Jr., Senior Reactor Inspector, Team Lead
L. Lake, Senior Reactor Inspector
B. Collins, Reactor Inspector
M. Coursey, Reactor Inspector
S. Min, Materials Engineer, Office of Nuclear Reactor Regulation

Approved by: Steven J. Vias, Chief
Engineering Branch 3
Division of Reactor Safety

SUMMARY

IR 05000321, -366/2013007; 11/04/2013 – 12/13/2013; Edwin I. Hatch Nuclear Plant, Units 1, and 2; Post Approval Site Inspection for License Renewal.

The report covers a team inspection conducted by four regional inspectors and a materials engineer from the Office of Nuclear Reactor Regulation in accordance with NRC Manual Chapter 2515 and NRC Inspection Procedure 71003. There is one NRC-identified Severity Level IV violation identified and documented in this report. The inspectors also identified a number of observations associated with the implementation of certain aging management activities.

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 Edwin I. Hatch Nuclear Plant, Units 1 and 2. Based on the review of program documents and activities completed at the time of this inspection, the inspectors determined that the licensee had established the majority of required programs to manage aging effects of in-scope structures, systems, and components in order to maintain their function(s) through the period of extended operation (PEO) of the two units. For the established AMPs and TLAAs, the inspectors determined that the licensee completed all planned aging management activities due prior to entering the period of extended operation of Units 1 and 2, with some exceptions. While most commitment items remained open in the corrective action program, the inspectors determined that essentially all the required aging management activities such as inspections, procedure revisions, and evaluations were performed as described in the commitments.

The inspectors determined that the licensee took appropriate actions to assure that “newly identified” structures, systems, and components within the scope of 10 CFR 54.37(b) were identified and evaluated for management of aging effects. With the exception of the one Severity Level IV violation identified for the failure to update the Updated Final Safety Analysis Report (UFSAR), the inspectors did not identify inconsistencies between the aging management program description in the UFSAR supplement for license renewal, as revised, and the aging management activities been implemented. The inspectors also determined that commitment changes not affecting the UFSAR were evaluated in accordance with the applicable requirements.

The significance of inspection findings are indicated by their color (i.e. greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, “Significance Determination Process” (SDP) dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, “Components Within The Cross-Cutting Areas” dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC’s Enforcement Policy dated July 9, 2013. The NRC’s program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 4.

Cornerstone: Barrier Integrity

SL IV. The inspectors identified an NRC-identified Severity Level IV non-cited violation (NCV) of 10 CFR 50.71(e) for the licensee’s failure to update the UFSAR following the

change in methodology used to calculate reactor vessel neutron fluence. Specifically, the licensee did not completely update the UFSAR to reflect the change in fluence calculation methodology from the General Electric methodology to the Radiation Analysis Modeling Application (RAMA) methodology described in BWRVIP-114-A, "BWR Vessel and Internals Project, RAMA Fluence Methodology Theory Manual." The licensee entered this issue into their corrective action program as condition report (CR) 744853.

The inspectors determined that the failure to update the UFSAR as required by 10 CFR 50.71(e) was a performance deficiency. The performance deficiency was greater than minor because the failure to provide complete licensing and design basis information in the UFSAR could result in either the licensee making an inappropriate licensing interpretation or the NRC making an inappropriate regulatory decision based on incomplete information in the UFSAR. This performance deficiency was dispositioned using the traditional enforcement process because failing to update a UFSAR had the potential to adversely impact the NRC's ability to perform its regulatory function. The performance deficiency was characterized as a Severity Level IV violation in accordance with the NRC Enforcement Policy (dated July 9, 2013), Section 6.1.d.3. Since this issue was dispositioned using traditional enforcement, there was no cross-cutting aspect associated with this violation (Section 40A5.3).

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 (AMPs) and Time-Limited Aging Analyses (TLAAs)

a. Inspection Scope

The inspectors reviewed a sample of regulatory commitments, AMPs, and TLAAs associated with the renewed operating license for Edwin I. Hatch Nuclear Plant, Units 1 and 2 issued in January, 2002. This inspection took place prior to the period of extended operation for Units 1 and 2, which will begin on August 7, 2014 and June 13, 2018, respectively. The inspectors reviewed license renewal commitment books, developed by the licensee, which contained implementing documents, plant drawings, completed work orders, self-assessments and other program –related documentation. Additionally, the inspectors conducted interviews with licensee staff. The above actions were completed 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 license renewal commitments described in NRC Memorandum dated March 6, 2007 (hereinafter referred as “NRC Memorandum” which is available in ADAMS via Accession Number ML070640041), and (c) implement the AMPs and TLAAs as described in the NRC safety evaluation report and the license renewal supplement to the 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 period of extended operation or in accordance with an established implementation schedule consistent with the license renewal application (LRA), the NRC safety evaluation report, and the UFSAR supplement. The licensee was tracking the completion of regulatory commitments for license renewal through their corrective action program, via individual entries into the software program Maximo for each commitment.

The AMPs/TLAAs and commitment items selected for the inspection sample are summarized below based on their description in the NRC safety evaluation report supplement issued in December 2001 (ADAMS Accession Numbers ML020020160, ML020020291 and ML020020301), the UFSAR supplement for license renewal, as revised, submitted with the LRA and the NRC Memorandum. The specific inspection activities conducted for each commitment, AMP, and TLAA are also described below. Specific documents reviewed for each commitment are listed in the report attachment.

Reactor Water Chemistry Control (UFSAR Section 18.2.1):

The reactor water chemistry controls program mitigated the aging effects on component surfaces that were exposed to reactor water as the process fluid. The UFSAR supplement stated that the program was a mitigating activity designed to manage loss of material and cracking by controlling fluid purity and composition below system-specific limits. Control of reactor water chemistry was based on the guidance and standards provided within in Electric Power Research Institute (EPRI) TR-1016579 (BWRVIP-190) and/or latest approved industry guidance.

The inspectors reviewed the licensing basis, administrative and implementing procedures and program health reports to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss how the program was implemented and to verify that program acceptance criteria were consistent with the EPRI guidelines. The inspectors also reviewed chemistry sampling results to verify that were performed in accordance with the program implementing procedures.

Closed Cooling Water Chemistry Control (UFSAR Section 18.2.2):

The Closed Cooling Water Chemistry Control program was designed to be implemented in accordance with the EPRI Closed Cooling Water Chemistry Guidelines (TR-107396). The UFSAR supplement stated that the program was a mitigating activity designed to manage loss of material by controlling fluid purity and composition, and that this was accomplished by following the guidance provided within the EPRI TR-107396. The program included preventive measures to minimize corrosion and inspection to monitor the effects of corrosion on components within the applicable systems.

The inspectors reviewed the licensing basis, 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 safety evaluation report. The inspectors interviewed licensee personnel to discuss the program methodology to verify that the program effectively implemented the guidelines of EPRI TR-107396.

Diesel Fuel Oil Testing Program (UFSAR Section 18.2.3):

The Diesel Fuel Oil Testing program was designed to ensure that the program would implement appropriate sampling activities and that acceptance criteria would be identified in plant Technical Specifications and would follow American Society for Testing and Materials (ASTM) standards. The UFSAR supplement stated that the program was a mitigating activity designed to manage loss of material by monitoring fuel oil content for water and other contaminants. The program applied to the emergency diesel generator fuel oil storage tanks, the emergency diesel generator fuel oil day tanks, and the associated transfer piping and components. It also covered fire pump diesel fuel oil storage tanks and the associated piping and components.

The inspectors reviewed the licensing basis, 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 safety evaluation report. The inspectors interviewed licensee personnel to discuss the program methodology to verify that the program effectively implemented the appropriate acceptance criteria as described in plant Technical Specifications.

Plant Service Water and Residual Heat Removal (RHR) Service Water Chemistry Control (UFSAR Section 18.2.4):

The Plant Service Water and RHR Service Water Chemistry Control program controlled chlorination and bromination activities. The UFSAR supplement stated that the program was intended to reduce loss of material, loss of heat exchanger performance, and flow blockage (fouling) with service water system components through a biocide application program based on the requirements of Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," regarding chlorination of service water systems and incorporated industry guidance, vendor recommendations, and plant

specific experience. The plant national pollutant discharge elimination system (NPDES) permit required periodic monitoring of plant effluent to the Altamaha River for residual oxidant.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures incorporated requirements as described in the program basis documents. The inspectors also reviewed a sample of inspection results and NPDES reports to verify that were performed in accordance with the program implementing procedures or submitted on a frequency in accordance with their permit, respectively.

Fuel Pool Chemistry Control (UFSAR Section 18.2.5):

The Fuel Pool Chemistry Control program monitored the chemistry parameters for the spent fuel pool and would take corrective actions if the parameters exceeded the acceptance criteria of EPRI water chemistry guidelines. The UFSAR supplement stated that the chemistry control activities for the fuel pool were intended to mitigate aging in the fuel pool liner and associated components by controlling fluid purity and composition. The UFSAR supplement also stated that the acceptance criteria contained in plant procedures are based upon EPRI water chemistry guidelines or other updated industry guidance as applicable.

The inspectors reviewed the commitment book, administrative and implementing procedures, and fuel pool chemistry charts to verify that the program was developed as described in the LRA, corresponding section of NRC safety evaluation report for license renewal, and licensee commitments. The inspectors also interviewed licensee personnel to discuss the implementation of the program. As part of the discussion, the inspectors confirmed that the acceptance criteria of the fuel pool chemistry parameters (i.e., conductivity, chloride, sulfur, and total organic carbon) in the implementing procedures were consistent with the 2008 version of EPRI BWR Water Chemistry Guidelines (EPRI TR 1016579) as referenced in NUREG-1801, "Generic Aging Lessons Learned (GALL) Report", Revision 2. In addition, the inspectors noted that the fuel pool chemistry charts, as contained in the commitment book of this program, confirmed that the monitored chemistry parameters from 2009 to 2013 were within the acceptance criteria.

Demineralized Water and Condensate Storage Tank Chemistry Control (UFSAR Section 18.2.6):

The Demineralized Water and Condensate Storage Tank Chemistry Control program monitored the chemistry parameters for the demineralized water storage tank and condensate storage tank and would take corrective actions if the parameters exceeded the acceptance criteria of EPRI water chemistry guidelines. The UFSAR supplement stated that the chemistry control activities for the Demineralized Water and Condensate Storage Tanks were intended to mitigate aging by monitoring fluid purity and composition in the makeup water to multiple systems. The inspectors reviewed the commitment book, administrative and implementing procedures, and water chemistry charts to verify that the program was developed as described in the LRA, corresponding section of NRC safety evaluation report for license renewal, and licensee's commitments. The inspectors also interviewed licensee personnel to discuss the

implementation of the program. As part of the discussion, the inspectors confirmed that the acceptance criteria of the demineralized water tank and condensate storage tank chemistry parameters (i.e., conductivity, chloride, sulfur, silica, and total organic carbon) in the implementing procedures were consistent with the 2008 version of EPRI TR 1016579 as referenced in NUREG-1801, Revision 2. In addition, the inspectors noted that the water chemistry charts for the demineralized storage tank and condensate storage tank, as contained in the commitment book of this program, confirmed that the monitored chemistry parameters from 2009 to 2013 were within the acceptance criteria.

Inservice Inspection Program (UFSAR Section 18.2.9):

The UFSAR supplement stated that the inservice inspection (ISI) program was a condition monitoring program that provided for the implementation of the American Society of Mechanical Engineers (ASME) Section XI Code in accordance with the provisions of 10 CFR 50.55a. The ISI program also included augmented examinations required to satisfy commitments made by the licensee.

The inspectors reviewed the licensing basis, 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 safety evaluation report. The inspectors interviewed licensee personnel to discuss the program methodology to verify that the program was implemented as described in the UFSAR.

Overhead Crane and Refueling Platform Inspections (UFSAR Section 18.2.10):

The UFSAR supplement stated that the Overhead Crane and Refueling Platform Inspections program ensured that the overhead crane and refueling platform are capable of safely handling loads. The aging management review for passive structural elements identified one aging effect, loss of material due to corrosion, as requiring management. This program also satisfies the requirements of the Unit 1 Technical Requirements Manual, which requires surveillance testing of the 5-ton hoist and the crane/hoist used for handling fuel assemblies or control rods.

The inspectors reviewed the licensing basis, administrative and implementing procedures and program health reports to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss how the program was implemented for both units. The inspectors also reviewed a sample of inspection results that were performed in accordance with the program implementing procedures.

Torque Activities (UFSAR Section 18.2.11):

The UFSAR supplement stated that the Torque Activities program mitigated the loss of preload through use of proper torque techniques. Plant procedures provided specific instructions for maximizing the effectiveness of torque activities. Torque activities were based on the guidance of EPRI NP-57695. This EPRI document was been endorsed, in part, by the NRC in NUREG-1339, "Resolution of Generic Safety Issue 29: Bolting Degradation or Failure in Nuclear Power Plants." Other codes and standards considered during development of the torquing procedure were ASME, Section VIII13, Div. 1, App. 2; ASME, Section II14, ASTM Standards15, Section 15, Volume 15.08; and ASME B31.116.

The inspectors reviewed the licensing basis and administrative and implementing procedures to verify that the program was developed as described in the LRA and the

corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the selection process of components within the scope of the program and verified that program procedures included components as described in the LRA. The inspectors also reviewed a sample of work orders and inspections to verify that the examination and evaluation of results were performed in accordance with the program implementing procedures.

Component Cyclic or Transient Limit Program (UFSAR Section 18.2.12):

The Component Cyclic or Transient Limit program specified that the program would calculate and update cumulative usage factors (CUFs) for each unit at least once per operating cycle as described in Section 3.1.12 of the NRC safety evaluation report for license renewal. The program would monitor environmentally-assisted fatigue including the locations identified in NUREG CR-6260 and would initiate corrective actions if CUFs were projected to exceed the ASME Code limit. Additionally, the program would include CUF formulas to monitor three bounding ASME Class 1 piping locations, which were not previously considered as potential pipe break locations, and confirm that the CUFs for these locations remained less than 1.0. The UFSAR supplement stated that the program was designed to track cyclic and transient occurrences to ensure that reactor coolant pressure boundary components and torus would remain within the ASME Code Section III fatigue limits, including the effects of a reactor water environment.

The inspectors reviewed the commitment book, administrative and implementing procedures, and self-assessments to verify that the program was developed as described in the LRA, corresponding section of NRC safety evaluation report for license renewal, and licensee's commitments. The inspectors also reviewed the CUF calculation results of Units 1 and 2 for 2011 and 2012 and interviewed licensee personnel to confirm the implementation of the program.

Plant Service Water and RHR Service Water Inspection Program (UFSAR Section 18.2.13):

The Plant Service Water and RHR Service Water Inspection program was credited with managing, in part, aging effects for a variety of carbon steel, stainless steel, copper alloy, and gray cast iron components that were exposed to a raw water or buried environment. The program was intended to meet the requirements of GL 89-13 and its supplements. The UFSAR supplement stated that the program monitored loss of material, loss of heat exchanger performance, flow blockage (fouling) and cracking (of RHR heat exchanger tubes) for applicable piping with volumetric and visual inspections. The inspection frequencies were determined by the trends in wall thickness reduction or flow area reduction. Heat exchangers were inspected visually or by performance testing and cleaned as required. The service water inspection program also monitored underwater/wetted surfaces of the intake suction pit for the plant service water pumps (including the standby diesel generator service water pump), the residual heat removal service water pumps and the traveling water screens located at the intake structure.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures incorporated requirements as described in the program basis documents. The inspectors also reviewed a sample

of inspection results that were performed in accordance with the program implementing procedures.

Primary Containment Leakage Rate Testing Program (UFSAR Section 18.2.14):

The UFSAR supplement stated that the Primary Containment Leakage Rate Testing (PCLRT) program satisfied the leakage-rate test requirements of 10 CFR 50, Appendix J. The Hatch PCLRT program implemented Option B of Appendix J which identified the performance-based requirements and criteria for preoperational and subsequent periodic leakage-rate testing. There were three performance-based leakage test requirements including the Type A test (also known as an integrated leak rate test (ILRT)), and the Type B and Type C tests (also known as local leak rate tests (LLRT)). These tests ensured the integrity of the overall containment system as a barrier to fission product release following a postulated accident.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures included requirements as described in the LRA.

Boiling Water Reactor Vessel and Internals Program (UFSAR Section 18.2.15):

The UFSAR supplement stated that the Boiling Water Reactor Pressure Vessel and Internals Inspection program (BWRVIP) developed inspection and evaluation reports for the reactor pressure vessel (RPV) and reactor internal components and submitted them to the NRC for review and approval. These reports address both the current term and the extended term of operation. Additionally, these reports specifically addressed the RPV components and reactor internals relative to the requirements of 10 CFR 54. The BWRVIP criteria documented in the final NRC safety evaluations regarding these inspections and evaluation reports were used, except where a specific exception had been identified to the NRC. For the RPV and reactor internals, applicable ASME Section XI ISI requirements and applicable augmented inspection requirements mandated by NRC correspondence, such as NUREG 0619, were considered within BWRVIP inspection and evaluation reports and were addressed by BWRVIP inspection requirements.

The inspectors reviewed the licensing basis, administrative and implementing procedures and program health reports to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the health of the program and schedule of inspections throughout the PEO. The inspectors verified that the inspections performed were in accordance with the implementing procedures and that the program met industry and fleet guidelines.

Wetted Cable Activities (UFSAR Section 18.2.16):

The UFSAR supplement stated that the Wetted Cable Activities program monitored insulated cable outside of containment, in portions of systems that were within the scope of license renewal. The program scope included the 4 kilo-volts power cables and transformer feeder cables within the scope of license renewal that ran through conduits that junction in below grade pull boxes located outside. The program routinely monitored for water in the applicable pull boxes, and drained accumulated water when

necessary, thereby preventing or mitigating loss of insulation resistance that might otherwise occur if the cables were left immersed. The program also provided for testing of cables to measure cable insulation resistance.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures included requirements as described in the LRA. The inspectors also performed a walkdown of a sample of pull boxes within the scope of the program.

The inspectors identified one observation associated with the acceptance criteria used in measuring pull box water levels. This observation is discussed in further details in section 4OA5.1.b(1) of this report.

Reactor Pressure Vessel Monitoring Program (UFSAR Section 18.2.17):

The Reactor Pressure Vessel Monitoring program specified that prior to the period of extended operation the licensee would implement the BWRVIP Integrated Surveillance Program (ISP) for reactor vessels as approved by the NRC staff. The UFSAR supplement stated that the BWRVIP was developing an ISP for all domestic operating BWRs in accordance with 10 CFR Part 50 Appendix H and the ISP would be provided to the NRC by the BWRVIP for review and approval.

The inspectors reviewed the commitment book, administrative and implementing procedures and licensee's correspondence with the NRC staff regarding reactor vessel surveillance to verify that the program was implemented as described in the LRA, corresponding section of NRC safety evaluation report for license renewal, and licensee's commitment. The inspectors also interviewed licensee personnel to discuss the implementation of the program. During the inspection, the inspectors noted that the license amendment requests to incorporate the BWRVIP ISP into the licensee's current licensing basis were approved by the NRC staff in an NRC letter dated March 10, 2003. As described above, the inspectors confirmed that the licensee implemented the BWRVIP ISP for Units 1 and 2, consistent with the corresponding section of the NRC safety evaluation report for license renewal.

Diesel Generator Maintenance Activities (UFSAR Section 18.2.18):

The Diesel Generator Maintenance Activities program addressed the aging effects for the emergency diesel generator skid-mounted components within the jacket water cooling, lubricating oil, and scavenging air subsystems that were within the boundaries of the emergency diesel generator (EDG) skid. This program was designed to 1) implement preventive maintenance activities, inspections, sampling of glycol and lubricating oil, 2) establish appropriate acceptance criteria for the activities described previously, and 3) establish methodologies for trending and analysis during the period of extended operation. The UFSAR supplement stated that the program provided for the management of the aging effects of loss of material, loss of preload, cracking, and loss of heat exchanger performance for the EDG components that were within the scope of license renewal.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, and license renewal drawings to verify that the program

was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the program methodology to verify that the program would effectively manage the aging mechanisms described in the UFSAR.

The inspectors identified two observations associated with the implementation of this program, which are discussed in further details in section 4OA5.1.b.(2) and 4OA5.1.b.(3) of this report.

Fire Protection Activities (UFSAR Section 18.3.1 and Commitment No. 1 in NRC Memorandum):

The Fire Protection Activities program included both the Fire Protection and the Fire Water systems. The activities within the program were comprised of inspections, condition monitoring and performance monitoring. The commitment associated with the fire protection activities program specified that prior to the PEO, the fire protection activities program would be enhanced to include periodic inspection of water suppression system strainers for flow blockage and loss of material. Additionally, the licensee committed to: (a) surveillance and inspection of fire protection systems and components in accordance with Appendix B of the licensee's Fire Hazards Analysis, (b) periodic visual inspections of CO₂ storage tanks to ensure adequate pressure and level, insulation conditions, and pressure boundary integrity, (c) periodic start-up testing of each fire pump, and (d) inspections of sprinkler heads after 50 years of service and subsequent inspections at 10-year intervals thereafter. The UFSAR supplement stated that the fire protection activities program included condition monitoring and performance monitoring activities to manage loss of material, cracking, flow blockage, and change in material properties for fire-suppression systems and fire-rated components.

The inspectors reviewed the commitment books, administrative and implementing procedures, and self-assessments to verify that the program was developed as described in the LRA, corresponding section of NRC safety evaluation report for license renewal, and licensee's commitments. The inspectors also interviewed licensee personnel to discuss the implementation of the program. As part of the discussion, the inspectors confirmed that the implementing procedures included inspections of sprinkler heads after 50 years of service and subsequent inspections at 10-year intervals thereafter as described in the commitments. The inspectors also reviewed a sample of completed inspections and tests for Units 1 and 2 and confirmed that these inspections and tests were performed in accordance with the implementing procedures and commitments.

Flow-Accelerated Corrosion Program (UFSAR Section 18.3.2 and Commitment No. 2 in NRC Memorandum):

The Flow-Accelerated Corrosion (FAC) program managed aging effects (loss of material) due to FAC on the internal surfaces of carbon steel piping and vessels, elbows, reducers, expanders, and valve bodies which contain high energy fluids (both single phase and two phase). The commitment associated with the FAC program specified that prior to the PEO, the existing program would be enhanced to include certain components that were within the scope of license renewal, but did not meet all of the FAC criteria listed in NSAC-202L, "EPRI Recommendations for an Effective Flow-Accelerated Corrosion Program" and are therefore excluded from the plant predictive FAC model. The UFSAR supplement stated that the program was a condition monitoring program designed to monitor pipe component wear in those systems that have been determined to be susceptible to FAC-related loss of material.

The inspectors reviewed the licensing basis, 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 safety evaluation report. The inspectors interviewed licensee personnel to discuss the selection process of components within the scope of license renewal that were not screened by existing FAC methodology and verified that program procedures included these components as described in the commitment. The inspectors also reviewed a sample of non-destructive examinations of various steam line components to verify that the examination and evaluation of results were performed in accordance with the program implementing procedures.

Protective Coatings Program (UFSAR Section 18.3.3 and Commitment No. 3 in NRC Memorandum):

The UFSAR supplement stated that the Protective Coatings program (PCP) provided a means of preventing or minimizing loss of material that would otherwise result from contact of the base material with a corrosive environment. The PCP was a mitigation and condition monitoring program designed to provide base metal aging management through surface application, maintenance, and inspection of protective coatings on selected components and structures. The commitment associated with the PCP specified that prior the PEO, the program would be expanded to include external surfaces of carbon steel commodities in-scope for license renewal that were exposed to inside, outside, submerged and buried environments as made accessible. Additionally, the PCP would be revised to require periodic inspections of in-scope components to ensure that they were properly coated and free of significant age-related degradation.

The inspectors reviewed the licensing basis, administrative and implementing procedures, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the program elements of the PCP and affected systems. The inspectors also reviewed a sample of visual inspections of piping and work orders for planned work included within the program to verify that the examination and evaluation of results were performed in accordance with the program implementing procedures.

Equipment and Piping Insulation Monitoring Program (UFSAR Section 18.3.4 and Commitment No. 4 in NRC Memorandum):

The UFSAR supplement stated that the Equipment and Piping Insulation Monitoring program was a condition monitoring program designed to detect insulation damage through periodic inspection of specific passive component insulation. Visual examinations identify changes in material properties of the insulation. The commitment associated with the Equipment and Piping Insulation Monitoring program specified that prior the PEO, the program would be expanded to include in-scope portions of the inside equipment and piping insulation. Additionally, insulation would be periodically examined for general deterioration including holes, tears, compaction, and material separation, wetting, and missing insulation.

For outside insulation and jackets, inspections were performed prior to the PEO and once per year thereafter. Insulation in outdoor areas was inspected yearly by cold weather checks which included insulation that was in the license renewal scope, as well as insulation that is not within the scope. For inside insulation and jackets, the repetitive tasks for in-scope insulation inspections were performed prior to PEO and at least once every 10 years thereafter.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures included requirements as described in the commitment. The inspectors also performed a walkdown of the auxiliary building and observed the general condition of insulation.

Structural Monitoring Program (UFSAR Section 18.3.5 and Commitment No. 5 in NRC Memorandum):

The UFSAR supplement stated that the Structural Monitoring program (SMP) provided a condition monitoring and appraisal process for structures and components within the scope of the license renewal. The SMP contained eight commitments. These commitments were designed to focus on the following aspects of license renewal: 1) implementing the existing SMP, 2) expanding the scope of the existing SMP to components within the scope of license renewal that were not previously included in the program, 3) enhancing the existing acceptance criteria for inspections such that aging mechanisms for each component would be appropriately managed, and 4) adding a flow test performed as described in Technical Specification Surveillance Requirement (3.6.4.1.4).

The inspectors reviewed the licensing basis, 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 safety evaluation report. The inspectors interviewed licensee personnel to discuss the administrative and implementing procedures to verify that these documents effectively implemented all eight of the commitments. The inspectors also reviewed a sample of non-destructive examinations of various structural components to verify that the examination and evaluation of results were performed in accordance with the program implementing procedures.

Galvanic Susceptibility Inspections (UFSAR Section 18.4.1 and Commitment No. 6 in NRC Memorandum):

The UFSAR supplement stated that the Galvanic Susceptibility Inspections program was a one-time inspection program designed to demonstrate the effective management of galvanic corrosion of components within the scope of license renewal. The inspections were applicable to Plant Hatch systems and components as defined in the Plant Hatch LRA, and as modified by docketed Southern Nuclear Operating Company correspondence with the NRC staff. The commitment associated with the galvanic susceptibility inspection program specified that prior to the PEO, the program would provide for condition monitoring via one-time inspections that would provide objective evidence that galvanic susceptibility was being managed for specific components within the scope of license renewal.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures included requirements as described in the commitment. The inspectors also performed a walkdown of the electrical penetration and cable spreading rooms and observed the general condition of components in the scope of the program.

Treated Water Systems Piping Inspections (UFSAR Section 18.4.2 and Commitment No. 7 in NRC Memorandum):

The UFSAR supplement stated that the Treated Water Systems Piping Inspections program was used to verify the effectiveness of the plant chemistry program for managing the effects of aging in stagnant or low-flow portions of piping, or occluded areas of components, exposed to a treated water environment. The commitment associated with the Treated Water Systems Piping Inspections program specified that prior to the PEO, condition monitoring via one-time inspections would be performed to provide objective evidence that the existing chemistry control program was managing aging in piping that was not examined under another inspection program. Additionally, the program stated that: 1) one-time inspections would be performed on a sample population of carbon and stainless steel piping in treated water systems, 2) inspection locations would be based on engineering judgment and would include the most susceptible areas to aging-related degradation, 3) if components did not meet the acceptance criteria defined in the implementing procedures, they would be evaluated, repaired or replaced, 4) periodic monitoring and trending of degradation for inspection locations would be established provided that the one-time inspection results indicate a concern that components may not be able to perform their intended functions, 5) cracks identified via visual examination would be further inspected via volumetric examinations and 6) inspections may utilize an examination method similar to the VT-1 examination described in ASME Boiler and Pressure Vessel Code Section XI.

The inspectors reviewed the commitment book, administrative and implementing procedures, and self-assessments to verify that the program was developed as described in the LRA, corresponding section of NRC safety evaluation report for license renewal, and licensee's commitments. The inspectors also interviewed licensee personnel to discuss the implementation of the program. During the discussion, the inspectors noted that the implementing procedures specified a representative sample size of 20 percent of the population (defined as components having the same material,

environment, and aging effect) or a maximum of 25 components, consistent with the guidance for one-time inspections described in GALL Report, Revision 2. In addition, the inspectors reviewed a sample of completed inspection results and confirmed that these inspections were performed in accordance with the implementing procedures and commitments.

Gas Systems Component Inspections (UFSAR Section 18.4.3 and Commitment No. 8 in NRC Memorandum):

The UFSAR supplement stated that the Gas Systems Component Inspections program was a one-time inspection program that monitored external and internal surfaces of mechanical components exposed to air/gas environment and condensation based on system inspections and walkdowns. The commitment associated with the gas systems component inspections program specified that prior to the PEO, the program would provide for condition monitoring via one-time inspections designed to provide objective evidence that the aging effects due to internal gaseous environments were adequately managed. The program also specified that 1) it would inspect the locations in the in-scope gas-bearing components where liquid pooling, wet/dry cycling or thermal degradation is mostly likely to occur, 2) any unacceptable indications would be further evaluated and, if warranted, additional inspections will be performed, and 3) the inspections would utilize an examination method similar to VT-1 examination described in ASME Boiler and Pressure Vessel Code Section XI, or accessible components could be inspected using volumetric examination methods where possible and practical.

The inspectors reviewed the commitment book, administrative and implementing procedures, and self-assessments to verify that the program was developed as described in the LRA, corresponding section of NRC safety evaluation report for license renewal, and licensee's commitments. The inspectors also interviewed licensee personnel to determine whether volumetric examination methods were utilized to detect the aging effects of the components within the program scope. In addition, the inspectors reviewed a sample of completed inspection results and confirmed that these inspections were performed in accordance with the implementing procedures and commitments.

Condensate Storage Tank Inspection Program (UFSAR Section 18.4.4 and Commitment No. 9 in NRC Memorandum):

The UFSAR supplement stated that the Condensate Storage Tank (CST) Inspection program was a one-time condition monitoring inspection of the internal surfaces of each CST designed to provide objective evidence that no loss of material was occurring. The commitment associated with the CST Inspection program specified that prior to the PEO, these inspections would be intended to provide objective evidence that aging effects predicted for the condensate storage tank internal environments were adequately managed by programs credited for the renewal term. At the time of this inspection, the demineralized water chemistry program currently managed the corrosion effects for these tanks.

The inspectors reviewed the licensing basis, administrative and implementing procedures, and license renewal drawings to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the results of the CST inspections within the scope of the program and verified that program procedures and work orders included the tank inspections as described in the commitment. The inspectors also

reviewed a sample of examination results for Unit 1 to verify that the examination and evaluation of results were performed in accordance with the program implementing procedures.

Passive Component Inspection Activities (UFSAR Section 18.4.5 and Commitment No. 10 in NRC Memorandum):

The UFSAR supplement stated that the Passive Components Inspection Activities (PCIA) program were a set of on-going condition monitoring inspections designed to confirm that age-related degradation was not inhibiting the component functions of systems and components within the scope of license renewal. The PCIA program managed the aging effects of loss of material, cracking, and change in material properties. The commitment associated with the PCIA program specified that prior the PEO, the PCIA would be designed to collect, report and trend age-related data and the program would verify the effectiveness of preventive or mitigated programs/activities credited for aging management.

The inspectors reviewed the licensing basis, administrative and implementing procedures, and maintenance inspection scope to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the results of PCIA and what actions were performed to assure the continued integrity of systems. The inspectors also reviewed a sample of examination results to verify that the examination and evaluation of results were performed in accordance with the program implementing procedures.

RHR Heat Exchanger Augmented Inspection and Testing Program (UFSAR Section 18.4.6 and Commitment No. 11 in NRC Memorandum):

The UFSAR supplement stated that the RHR Heat Exchanger Augmented Inspection and Testing program was a condition monitoring program that managed aging of the RHR heat exchangers. The aging effects managed were loss of material, flow blockage, cracking, and loss of thermal performance. This program was intended to satisfy one of the requirements of GL 89-13 and implement guidance found in SAND 93-7070.UC-523, "Aging Management Guideline for Commercial Nuclear Power Plants - Heat Exchangers (DOE, July 1984)." The commitment associated with the RHR Heat Exchanger Augmented Inspection and Testing program specified that prior the PEO, the program would provide enhanced aging management of both the shell and tube sides of Unit 1 and 2 RHR heat exchangers and would be inspected visually and via eddy current on a regular basis. The program implemented visual inspections of each RHR heat exchanger channel, channel cover, tube sheet (channel side), tubes, and partition plate along with eddy current examinations of a sample of non-plugged RHR heat exchanger tube bundles. Leakage testing was also performed when heat exchanger tube leaks were suspected.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures incorporated requirements as described in the program basis documents. The inspectors also reviewed a sample of inspection results that were performed in accordance with the program implementing procedures.

Torus Submerged Components Inspection Program (UFSAR Section 18.4.7 and Commitment No. 12 in NRC Memorandum):

The UFSAR supplement stated that the Torus Submerged Components Inspection program (TSCIP) was a new condition monitoring program for accessible stainless steel and uncoated carbon steel components submerged in suppression pool water. The commitment associated with the TSCIP specified that prior the PEO, the TSCIP would provide a means for evaluating the effectiveness of suppression pool chemistry control in preventing loss of material and cracking in the components within the scope of license renewal. The TSCIP initially examined a sample set of 10% of the uncoated components within the scope of license renewal and located within the torus. This baseline examination would be performed on each unit prior to entering the PEO. The sample set also included inspection points above the suppression pool water level for the "splash zone" susceptible area. Results from those initial inspections were used to determine the scope and frequency of subsequent inspections, if required. Visual inspection techniques similar to that described for VT-1 in ASME Section XI, paragraph IWA-2210 were utilized to detect evidence of loss of material and cracking.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures included requirements as described in the commitment. In conjunction with the ISI-IWE Program, the Appendix J Program, and special examinations conducted to address specific industry issues, the TSCIP program provided reasonable assurance that aging of the torus will be effectively managed for the period of extended operation.

Insulated Cables and Connections Program (UFSAR Section 18.4.8):

The UFSAR supplement stated that the Insulated Cables and Connections program was a new program that managed the aging of conductor insulation material and included accessible and inaccessible insulated cables within the scope of license renewal that were installed in adverse localized equipment environments which could be subject to applicable aging effects from heat, radiation, or moisture. This program did not include cables and connections that were in the environmental qualification program. The program addressed cables and connections whose configuration was such that most cables and connections installed in adverse localized environments were accessible. All cables and connections from accessible areas in the adverse localized environments were inspected. If an unacceptable condition or situation was identified for a cable or connection in the inspection, a determination was made as to whether the same condition or situation is applicable to other inaccessible cables or connections.

For inaccessible cables, the following factors were considered for sample testing at least once every 10 years: application (high, medium and low voltage), circuit loading, and location (high temperature, high humidity, vibration, etc.). If an unacceptable condition or situation was identified in the selected sample, a determination was made as to whether the same condition or situation is applicable to other cables and connections not tested. Based on the results of the sample inspections, the sample set may be expanded to include additional components. Because cable connections including splices (butt or bolted), crimp-type ring lugs, connectors, terminal blocks, and involving insulating material and metallic parts have stressors that may not be sufficiently detected

by visual inspection, thermography, contact resistance testing, tan-delta testing, or other appropriate testing was performed to ensure the integrity of the cable connections.

The inspectors reviewed the licensing basis, program basis documents, administrative and implementing procedures, license renewal drawings, and self-assessments to verify that the program was developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss the scope of the program and verified that program procedures included requirements as described in the commitment.

Time-Limited Aging Analysis: Calculation of the End-of-Life Charpy Upper-Shelf Energy Margin (UFSAR Section 18.5.1):

Section 4.6.1 of the LRA stated that General Electric (GE) was contracted to perform an update to the upper-shelf energy (USE) equivalent margins analysis. This analysis incorporated the effects of irradiation for 54 effective full-power years (EFPY) and determined that the generic materials considered will maintain the margins for USE required by 10 CFR 50 Appendix G. Additionally, GE updated generic analyses with respect to applicability for the Plant Hatch license renewal term and that for 54 EFPY, the critical materials would also retain sufficient margin to satisfy Appendix G requirements.

The inspectors reviewed the GE analyses and interviewed licensee staff to verify that methodology used was appropriate to represent the aging of reactor vessel materials through the period of extended operation.

Time-Limited Aging Analysis: Calculation of the Reference Temperature for Nil-Ductility for Critical Core Region Vessel Materials (UFSAR Section 18.5.1):

Section 4.6.2 of the LRA stated that General Electric (GE) was contracted to reevaluate the reduction in fracture toughness of reactor vessel components due to neutron embrittlement. GE performed a specific analysis for Plant Hatch using the criteria defined in the generic analysis, which considered the effect of neutron embrittlement for the extended 60-year term by using 54 EFPY. The results of the analysis indicated that for Units 1 and 2, the adjusted reference temperature for nil-ductility will be less than 200°F, as required by 10 CFR 50 Appendix G.

The inspectors reviewed the GE analyses and interviewed licensee staff to verify that methodology used was appropriate to represent the aging of reactor vessel materials through the period of extended operation.

Time-Limited Aging Analysis: Environmental Equipment Qualification Calculations that Qualify Electrical Components for 40 Years (UFSAR Section 18.5.1):

The Plant Hatch 10 CFR 50.49 Environmental Qualification (EQ) Program has been identified as a TLAA for the purposes of license renewal. The TLAA aspect of EQ encompassed all long-lived equipment whether active or passive, and each equipment qualification file for a long-lived component documents a TLAA.

Prior to the expiration of the qualified life of a piece of EQ equipment, the Plant Hatch work management system generated a maintenance work order to alert plant personnel that the equipment was scheduled for replacement in the near future with the following available options: replace the existing component with an identical component, replace the equipment with different equipment which was already evaluated under the EQ

program, or replace the equipment with different equipment which was not currently evaluated under the EQ program (this requires an equipment review, a function review, and an EQ review). This required a reanalysis of the qualified life calculations to extend the qualified life. Conservatism may exist in parameters such as the assumed ambient temperature of the equipment, low activation energy, or in the application of the equipment. The reanalysis was documented in the EQ central file and follows the guidelines in EPRI TR-104873, "Methodologies and Procedures to Optimize Environmental Qualification Replacement Intervals." The inspectors verified that an EQ evaluation of components within the scope of the program and did not have an EQ evaluation performed, was performed and a list of Unit 1 and Unit 2 components requiring replacement prior to the PEO has been generated. The inspectors confirmed that the replacement of these components would be controlled by the Hatch work management system.

Time-Limited Aging Analysis: Equipment Qualification Report Evaluations (UFSAR Section 18.5.1.2):

Aging of electrical equipment falling within the scope of 10 CFR 50.49, that has less than a 60-year qualified life, are managed by the EQ Program. The EQ Program was described in section 7.16 and section 3.11 of the Unit 1 and 2 UFSARs, respectively. This section covered the part of the TLAA for which aging management of the program was performed (i.e., inspection and evaluation or repair/replacement) vice having analyses remain valid for the license renewal term or analyses that have been acceptably projected to the end of the renewal term.

The inspectors reviewed the licensing basis, administrative and implementing procedures, and periodicity of planned replacements for components to verify that the aging management activities were developed as described in the LRA and the corresponding NRC safety evaluation report. The inspectors interviewed licensee personnel to discuss what aging management methods will be used in the PEO. The inspectors also reviewed a sample of preventive maintenance items within the scope of the EQ program that would apply to components to be managed during the PEO to verify component aging will be effectively managed.

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 Edwin I. Hatch Nuclear Plant Units 1 and 2. The inspectors noted that due to the approximately four year span between the start of the PEO dates for Units 1 and 2, several programs for Unit 2 had yet to be developed at the time of this inspection; however, the implementation status of these programs and their implementation dates were being actively tracked in the licensee's corrective action program. Based on the review of program documents and activities completed at the time of this inspection, the inspectors determined that the licensee had established or was on track to establish the required AMPs and TLAA's to manage the aging effects of in-scope structures, systems, and components through the period of extended operation of the two units.

The inspectors noted that the status of the majority of the selected sample in the corrective action program was shown as completely implemented. This status meant that all the planned actions to meet the commitments were complete. While several programs contained outstanding implementation items (e.g. inspections due to be performed during the upcoming refueling outage), the inspectors verified that those items were properly scheduled to be implemented prior to the licensee entering the PEO for the respective Unit. Additionally, the inspectors identified three observations associated with the implementation of certain Aging Management Programs. These observations were determined to occur in AMPs whose deadline for full implementation was the start of the PEO; therefore, since the licensee entered these issues into their corrective action program providing reasonable assurance that they would be adequately addressed prior the PEO, they were treated as observations.

(1) Observation for the Wetted Cable Activities (UFSAR Section 18.2.16):

The NRC safety evaluation report identified an LRA statement that pull boxes found to contain water were required by procedure to be drained to 1-inch or less. The current implementing procedure contained a 3-inch acceptance level. Licensee evaluation TE 694410 identified that a license change was necessary to revise the license renewal requirements identified in the NRC safety evaluation report.

License Change Request 2013042 was processed and approved on November 14, 2013, which revised the LRA statement that pull boxes found to contain water be drained to 1-inch of water or less. The new acceptance criteria stated that the water level shall be maintained below the routed cables. Since the implementing procedure had been in use for a period of time prior to the approved license change request, the implementing procedure was not in agreement with the pull box water acceptance criteria identified in the LRA. The licensee entered this issue in the corrective action program for resolution as CR 755347.

(2) Observation for the Diesel Generator Maintenance Activities (UFSAR Section 18.2.18):

As described in section 18.2.18 of the UFSAR supplement for license renewal: "The DGMA are limited to the EDG components on the EDG skid." The inspectors identified that while license renewal scope diagrams included the appropriate components, there were no diagrams which illustrated the boundary between what was considered on the skid and what was not on the skid. This ambiguity represented a vulnerability in the methodology implemented by the licensee. That methodology – a combination of the UFSAR supplement, implementing procedures and boundary diagrams were designed to manage aging mechanisms for all components within the scope of license renewal. Therefore, a vulnerability in this methodology represented a possibility that aging mechanisms for some components might not be appropriately managed during the period of extended operation. The licensee captured this observation in the corrective action program as CR 744508 to evaluate and correct the issue prior to the period of extended operation.

- (3) Observation for the Diesel Generator Maintenance Activities (UFSAR Section 18.2.18): Section 3 of the License Renewal Application contained many tables, generically identified as “Six-Column Tables.” These tables identified the component/environment combination, the resultant aging mechanisms, and the Aging Management Program which was intended to manage that particular item. When the inspectors reviewed that process for the Diesel Generator Maintenance Activities, it was not clear how each item was being addressed within the many implementing procedures for these activities. The lack of clear ties between the aging mechanisms and Aging Management Program procedure steps was a vulnerability which might lead to the possibility that the aging mechanisms for some components might not be appropriately managed during the period of extended operation. The licensee captured this observation in the corrective action program as CR 744049, CR 744399 and CR 744315 to evaluate and address the issue prior to the period of extended operation.

.2 Newly Identified Structures, Systems, and Components

a. Inspection Scope

The inspectors discussed the evaluation of newly identified structures, systems, or components (SSCs) with the licensee’s staff to verify compliance with the provisions of 10 CFR 54.37(b). The inspectors reviewed licensee evaluations performed for two newly identified components within the scope of license renewal to verify that aging management review was performed in accordance with 10 CFR 54.37. The inspectors also reviewed a list of plant modifications performed from the time the LRA was submitted to the time the renewed operating license was issued to identify any potentially new SSCs that would have been subject to aging management review at the time the NRC was reviewing the LRA. Additionally, the inspectors reviewed a sample of licensee procedures to verify that adequate guidance was provided to ensure that SSCs with the scope of 10 CFR 54.37(b) were identified, evaluated, and reported.

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 assure “newly identified” SSCs were identified and evaluated for management of aging affects. Based on the review of licensee self-assessments, the inspectors determined that “newly identified” components had been identified that would have been subject to aging management during the preparation of the original LRA and subsequent revisions. These components were the plant service water seismic restraints. The inspectors determined that the licensee performed an aging management review of these structures consistent with the requirement in 10 CFR 54 and included them within the scope of existing aging management programs. The licensee also planned to update the UFSAR to include these newly identified SSCs. The inspection team did not identify any other new SSCs that were subject to the provisions of 10 CFR 54.37(b) during the independent review of commitments and aging management programs 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 safety evaluation report. 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 to verify that the UFSAR supplement for license renewal was included with the updated FSAR as required by the condition of the renewed operating license.
- The inspectors reviewed the latest revision of the UFSAR supplement for license renewal (Revision 31) 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 any changes caused by the inclusion of “newly identified” SSCs were included in the UFSAR supplement.

b. Findings and Observations

With the exception of the non-cited violation detailed below, the inspectors determined the UFSAR supplement submitted for license renewal, as revised, was incorporated into the UFSAR. Additionally, the inspectors determined that the UFSAR supplement description matched the AMPs and TLAAs being implemented. The inspectors also determined that changes, caused by the inclusion of “newly identified” SSCs, were scheduled to be included in the next revision of the UFSAR under 10 CFR 50.71(e).

(1) Failure to Update the UFSAR Following a Change in Neutron Fluence Calculation Methodology

Introduction: The inspectors identified an NRC-identified Severity Level IV Non-Cited Violation of 10 CFR 50.71(e) for the licensee’s failure to update the UFSAR following the change in methodology used to calculate reactor vessel neutron fluence. Specifically, the licensee did not completely update the UFSAR to reflect the change in fluence calculation methodology from the GE methodology to RAMA methodology described in BWRVIP-114-A.

Description: The inspectors noted that the NRC letter dated March 10, 2003 addressed the license amendments for the licensee’s incorporation of the BWRVIP Integrated Surveillance Program into the current licensing basis. The inspectors also noted that the NRC letter and associated safety evaluation identified the following commitment of the licensee, “SNC will begin using an RPV fluence methodology that meets RG 1.190 no

later than December 15, 2004.” The licensee changed its neutron fluence calculation methodology from the GE methodology, as described in the LRA, to the RAMA methodology as described in BWRVIP-114-A. This latest methodology was also used to support a licensee relief request (ISI-ALT-08) regarding examination of Hatch Unit 1 reactor vessel welds as approved in the staff’s letter dated December 6, 2007.

The inspectors determined that the latest UFSAR revision submitted to the NRC pursuant to 10 CFR 50.71(e) did not identify the RAMA methodology as the licensee’s fluence calculation methodology. Specifically, Appendix R of Hatch Unit 1 UFSAR Revision 28, “Reactor Vessel Material Surveillance Program,” did not include a specific reference to or discussion on the RAMA fluence calculation methodology which was incorporated into the licensee’s current licensing basis. The inspectors also noted that Chapter 4.1.4.4, “Neutron Fluence Calculations,” of Hatch Unit 2 UFSAR Revision 28 did not include specific references to the updated methodology. Additionally, the inspectors noted that Table 5.2-7, “Beltline ART Values,” of Hatch Unit 2 UFSAR Revision 28, which described adjusted reference temperature for Hatch Units 1 and 2, did not include the updated fluence calculation results based on the RAMA methodology. This UFSAR table only described the fluence values calculated using the previous GE methodology.

Analysis: The inspectors determined that the failure to update the UFSAR as required by 10 CFR 50.71(e) was a performance deficiency. The performance deficiency was more-than-minor because the failure to provide complete licensing and design basis information in the UFSAR could result in either the licensee making an inappropriate licensing interpretation or the NRC making an inappropriate regulatory decision based on incomplete information in the UFSAR. This performance deficiency was dispositioned using the traditional enforcement process because failing to update a UFSAR had the potential to adversely impact the NRC’s ability to perform its regulatory function. The performance deficiency was characterized as a Severity Level IV violation in accordance with the NRC Enforcement Policy (dated July 9, 2013), Section 6.1.d.3 as the lack of up-to-date information did not result in any unacceptable change to the facility or procedures. Since this issue was dispositioned using traditional enforcement, there was no cross-cutting aspect associated with this violation.

Enforcement: Title 10 CFR 50.71(e) requires in part, that licensees shall periodically update the Final Safety Analysis Report (FSAR), originally submitted as part of the application for the operating license, to assure that the information included in the report contains the latest information developed. The submittal shall include the effects of all changes made in the facility or procedures as described in the FSAR; all safety analyses and evaluations performed by the applicant or licensee either in support of approved license amendments or in support of conclusions that changes did not require a license amendment in accordance with § 50.59(c)(2); and all analyses of new safety issues performed by or on behalf of the applicant or licensee at Commission request. Contrary to the above, from December 2007 to the present the licensee failed to update the UFSAR to assure that the information included in the report contained the latest information derived from the change in reactor vessel neutron fluence calculation methodology used to support LRA commitments and licensee relief requests. The failure to update the UFSAR as required by 10 CFR 50.71(e) is characterized as a Severity Level IV violation. This violation was captured in the licensee’s corrective action program as CR 744853 and is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy: NCV

05000321, 366/2013007-01, Failure to Update the UFSAR Following a Change in Neutron Fluence Calculation Methodology.

.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 license renewal commitment change documents to verify the licensee followed the guidance in NEI 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.

The inspectors also reviewed the licensee's procedures for commitment revision to obtain reasonable assurance that future changes to regulatory commitments would follow the guidance in NEI 99-04, and would properly evaluate, report, and approve changes to license renewal commitments listed in the UFSAR in accordance with 10 CFR 50.59.

b. Findings and Observations

The renewed operating license for Edwin I. Hatch Nuclear Plant, Condition C.5, stated in part that the revised UFSAR supplement submitted with the LRA shall be included in the next scheduled update to the UFSAR required by 10 CFR 50.71(e)(4) following the issuance of the renewed operating license. Until that update is complete, the license condition allowed the licensee to make changes to the programs and activities described in the supplement without prior Commission approval, provided that Hatch evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section. On the basis of the sample selected for review, the inspectors determined that the licensee followed the established plant procedures to modify license renewal commitments, which referenced the guidance in NEI 99-04. Commitment changes were implemented against the guidance in NEI 99-04 and formal notification was submitted to the NRC where applicable. The inspectors also identified that the licensee made changes to the UFSAR supplement after the renewed license was issued, but prior to the next update required by 10 CFR 50.71(e)(4). The inspectors determined that the UFSAR changes were evaluated pursuant to the criteria set forth in 10 CFR 50.59.

4OA6 Management Meetings

Exit Meeting Summary

On December 13, 2013, the inspectors presented the inspection results to Mr. David Vineyard, 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: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Tipps, Site Licensing Supervisor
S. Beverly, Site Licensing Engineer
J. Duvall, Site License Renewal Program Owner
D. So, License Renewal Engineer
J. Hornbuckle, Engineering Programs
R. Wingex, License Renewal Engineer

LIST OF ITEMS OPENED, CLOSED, DISCUSSED AND UPDATED

Opened and Closed

05000321, -366/2013007-001	SL IV	Failure to Update the UFSAR Following a Change in Neutron Fluence Calculation Methodology (Section 4OA5.3.b(1))
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Closed

None

Discussed

None

Updated

None

LIST OF DOCUMENTS REVIEWED

Condition Reports Generated

CR 645063
CR 712427
CR 729065
CR 729084
CR 729088
CR 729119
CR 729703
CR 729706
CR 730097
CR 730160
CR 730637
CR 730663
CR 743774
CR 743906
CR 744215
CR 744315
CR 744853
CR 755347

Reactor Water Chemistry Control (UFSAR Section 18.2.1)

AMP-RWCC-CM, Reactor Water Chemistry Control Program, Ver. 1.0
NMP-CH-005, E. I. Hatch Nuclear Plant Chemistry Program, Ver. 4.0
NMP-CH-005-001, BWRVIP Mitigation Program, Ver. 1.0
NMP-CH-005-GL-01, E. I. Hatch Water Chemistry Strategic Plan, Ver. 5.0
NMP-ES-010, SNC BWR Vessel & Internals Program (HNP), Ver. 6.2

Closed Cooling Water Chemistry Control (UFSAR Section 18.2.2)

744435, CR: 2013 NRC License Renewal Observation
AMP-CCW-MITIG, Closed Cooling Water Chemistry, Ver. 1.0
NMP-CH-001, SNC Closed Cooling Water Program, Ver. 5.0

Diesel Fuel Oil Testing Program (UFSAR Section 18.2.3)

64CH-GCL-012-0, Water and Sediment Determination of Diesel Fuel, Ver. 1.8
64CH-GCL-025-0, Total Particulate Determination of Diesel Fuel, Ver. 2.0
64CH-SAM-002-0, Diesel Fuel Oil: Sampling and Analyses, Ver. 19
AMP-DFOT-CM, Diesel Fuel Oil Testing Program, Ver. 1.0
NMP-CH-005, E.I. Hatch Nuclear Plant Chemistry Program, Ver. 3.0

Plant Service Water and RHR Service Water Chemistry Control (UFSAR Section 18.2.4)

64CH-OPS-006-0, Plant Service Water and Circulating Water Treatment Systems, Ver. 61.0
64CH-SAM-031, Plant Service Water Sampling, Ver. 11.0
AMP-SWCC-CM, Plant Service Water and RHR Service Water Chemistry Control Program, Ver. 1.0
NMP-CH-005, E. I. Hatch Nuclear Plant Chemistry Program, Ver. 4.0
NMP-ES-036-001, Underground Pipe and Tanks Monitoring Program Implementation, Ver. 7.0

Fuel Pool Chemistry Control (UFSAR Section 18.2.5)

64CH-SAM-022-0, Fuel Pool Sampling and Analysis, Ver. 12.0
 AMP-FPCC-CM, Fuel Pool Chemistry Program, Ver. 1.0
 EPRI 1016579, BWR Water Chemistry Guidelines (2008 Revision)
 EPRI TR-103515, BWR Water Chemistry Guidelines, Revision 2 (2000 Revision)
 NMP-CH-004-001, Conduct of Operations Standards and Expectations for Chemistry, Ver. 5.0
 NMP-CH-005, E. I. Hatch Nuclear Plant Chemistry Program, Ver. 4.0
 NMP-CH-005-001, BWRVIP Mitigation Program, Ver. 1.0
 NMP-CH-005-GL01, E. I. Hatch Water Chemistry Strategic Plan, Ver. 5.0

Demineralized Water and Condensate Storage Tank Chemistry Control (UFSAR Section 18.2.6)

64CH-OPS-005-0, Water Treatment Plant Systems, Ver. 21.1
 64CH-SAM-026-0, Condensate Systems Sampling and Analysis, Ver. 13.2
 AMP-DWCC-CM, Demineralized Water and Condensate Storage Tank Chemistry Control, Ver. 1.0
 EPRI 1016579, BWR Water Chemistry Guidelines (2008 Revision)
 EPRI TR-103515, BWR Water Chemistry Guidelines, Revision 2 (2000 Revision)
 NMP-CH-004-001, Conduct of Operations Standards and Expectations for Chemistry, Ver. 5.0
 NMP-CH-005, E. I. Hatch Nuclear Plant Chemistry Program, Ver. 4.0
 NMP-CH-005-001, BWRVIP Mitigation Program, Ver. 1.0
 NMP-CH-005-GL01, E. I. Hatch Water Chemistry Strategic Plan, Ver. 5.0

Inservice Inspection Program (UFSAR Section 18.2.9)

AMP-ISI-CM, Inservice Inspection Program, Ver. 1.0
 NMP-ES-018, SNC Inservice Inspection Engineering Program, Ver. 8.0

Overhead Crane and Refueling Platform Inspections (UFSAR Section 18.2.10)

51GM-MLH-004-0, NUREG-0612 Heavy Load Movement, Ver. 21.9
 52IT-MLH-008-0, Overhead Hoist Inspection, Ver. 9.10
 52PM-F15-001-1, Refueling Platform System Preventive Maintenance, Ver. 13.0
 52SV-MLH-001-0, Overhead Crane Safety Inspection, Ver. 14.0
 AMP-OCRPI-CM, Overhead Crane and Refueling Platform Inspections, Ver. 1.0
 NMP-MA-007, SNC Rigging and Lifting Program, Version 6.0
 NMP-MA-007-002, SNC Rigging and Lifting Program Rigging Materials General Usage, Ver. 9.2
 NMP-MA-007-003, SNC Rigging and Lifting Program Rigging Hardware Inspection, Ver. 6.1
 NMP-MA-007-005, SNC Rigging and Lifting Program Cranes, Ver. 6.0
 System Health Report for Fuel Service Equipment for Q1 2013
 Work Order SNC 101707, Mechanical Overhead Crane Inspection on Rx. Building Overhead Crane, dated 2/25/12
 Work Order SNC 101760, Change Oil in Gear Boxes, General Inspection of Bridge and Grapple for Refueling Floor Crane, dated 2/20/2012

Torque Activities (UFSAR Section 18.2.11)

53GM-MME-015-1, Reactor Vessel Disassembly, Ver. 19.0
 AMP-TRQ-CM, Torque Activities Program, Ver. 1.0
 Work Order 1082613601, Reassemble Reactor Vessel, dated 3-12-10
 Work Order SNC 103431, Reassemble Reactor Vessel, dated 3/16/12
 Work Order SNC 318355, Hot Torque for 1E41-F001, dated 3-20-12
 Work Order SNC 395227, Check torque on inlet and outlet scram valves, dated 7/2/12

Component Cyclic or Transient Limit Program (UFSAR Section 18.2.12)

42EN-ENG-043-0, Component Cyclic or Transient Limit Program, Ver. 1.0
 42SV-SUV-029-01, Cumulative Fatigue Usage Factor Monitoring, Ver. 7.0
 42SV-SUV-029-02, Cumulative Fatigue Usage Factor Monitoring, Ver. 6.0
 AMP-CCTL-CM, Component Cyclic or Transient Limit Program, Ver. 1.0
 Calculation Package 1001182.301, Hatch Fen Development and Environmentally-Assisted Fatigue (EAF) Analyses, Revision 2, September 27, 2013
 CR 590637, Projected CFUF Values Require CR Documentation, February 15, 2013
 MRG-0009, Unit 1 CUF Calculation Results for 2011 and 2012 per Procedure 42SV-SUV-029-01, February 15, 2013
 MRG-0009, Unit 2 CUF Calculation Results for 2011 and 2012 per Procedure 42SV-SUV-029-02, July 1, 2013
 NMP-AD-008-F01 (Version 8.1), Applicability Determination: Changes to Component Cyclic or Transient Limit Program, October 29, 2013
 NMP-AD-009-F01 (Version 6.2), Licensing Document Change Request: Changes to Component Cyclic or Transient Limit Program, October 30, 2013
 NMP-ES-064, Fatigue Monitoring Program, Ver. 1.0
 NMP-ES-064-001, Thermal Fatigue Monitoring Instruction, Ver. 1.0
 NMP-ES-064-003, FatiguePro™ Instruction, Ver. 1.0
 Technical Evaluation 591450, Projected CFUF Values Require CR Documentation, February 17, 2013
 Technical Evaluation 629760, License Renewal Cyclic Program Notebook Formula Status, April 26, 2013

Plant Service Water and RHR Service Water Inspection Program (UFSAR Section 18.2.13)

42EN-ENG-026-0, Service Water Systems Heat Exchanger Testing, Ver. 4.6
 42IT-QCX-008-0, One-Time Inspection of Jacketed Service Water System Piping Ext. Surfaces, Ver. 1.0
 42IT-QCX-009-0, One-Time Inspection for Selective Leaching, Ver. 2.0
 42IT-TET-012-1, Plant Service Water and RHR Service Water Piping Inspection Procedure, Ver. 2.10
 52-PM-MME-006-0, Intake Structure Pit Inspection/Diving Activities, Ver. 8.4
 AMP-SWI-CM, Plant Service Water and RHR Service Water Inspection Program, Ver. 1.0
 NMP-ES-069, Fleet Service Water Program, Ver. 1.0
 NMP-ES-069-001, Fleet Service Water Program Instructions, Ver. 1.0
 NMP-ES-077, Processing ASME Class 2 and 3 Pressure Boundary Integrity Challenges, Ver. 2.1
 TE724124, Track Completion of SNC528537

Primary Containment Leakage Rate Testing Program (UFSAR Section 18.2.14)

40AC-ENG-021-0 - Primary Containment Leak Rate Testing Program, Version 1.1
 42EN-INS-002-0 - Containment Leak Rate Testing Plan, Version 1.5
 42SV-T23-003-0 - Drywell Surfaces Visual Inspection, Version 1.5
 42SV-TET-001-0 - LLRT Testing Methodology, Version 6.0
 42SV-TET-001-1 - Primary Containment Type B and Type C Leak Rate Testing, Version 27
 42SV-TET-001-2 - Primary Containment Periodic Type B and Type C Leakage Tests, Version 33
 42SV-TET-003-1 - Primary Containment Integrated Leak Rate Test, Version 5.2
 42SV-TET-003-2 - Primary Containment Integrated Leak Rate Test, Version 7.3
 AMP-PCLRTP-CM, Primary Containment Leakage Rate Testing Program, Ver. 1.0
 NMP-ES-073 - Appendix J (ILRT/LLRT) Containment Leak Rate Testing Program Version 1.0

Boiling Water Reactor Vessel and Internals Program (UFSAR Section 18.2.15)

Indication Notification Form (INF) I12H1005, 1B11 IJ 3/4C and 1B11 IJ 7/8C RS-1 welds, dated 2/28/12
 INF-I12H1003, 1B11 IOB1A and 1B11 IO2A Feed Water End Pins @ 95 and 174 degree, dated 2/28/12
 IVI RPT-H1R25-12-171863, 1R25 In Vessel Visual Examination Report for Hatch Unit 1, dated 2/29/12
 NMP-ES-018-003, Outage Plan, Version 5.0
 Program Health Report for Hatch BWR Vessel and Internals Program, Second Quarter 2013
 TE 680251, Perform Jet Pump Trending/Monitoring, dated 6/17/2013
 TE 730338, Aging Management of In-Core Dry Tubes, dated 11/7/2013
 HL-6250, Letter: Request to Implement the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Integrated Surveillance Program, 08/09/2002
 NL-03-0101, Letter: Addendum to Request to Implement the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Integrated Surveillance Program, 01/08/2003
 NL-03-0338, Letter: Second Addendum to Request to Implement the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Integrated Surveillance Program, 02/06/2003
 NL-03-0884, Letter: RE: Issuance of Amendments (TAC Nos. MB6106 and MB6107), 03/10/2003
 AMP-RVI-CM, Boiling Water Reactor Vessel and Internals Program, Ver. 1.0

Wetted Cable Activities (UFSAR Section 18.2.16)

52IT-MEL-003-0 – High Potential and Megger Testing Electric Equipment and Cables, Ver. 4.0
 52PM-Y46-001-0 – Pull Box Debris Removal, Ver. 5.1
 AMP-WCA-CM, Wetted Cable Activities, Ver. 1.0
 CR 197647 – Safety Related Cables in Underground Pull Boxes Found submerged in Water
 LDCR 2013042 – Change Wetted Cables Aging Management Program in FSAR, Ver. 1.0
 NMP-ES-051 – Cable Monitoring Program, Ver. 4.1
 NMP-ES-051-002 – Tan Delta Testing, Ver. 5.1
 NMP-ES-051-004 – Pull Box Inspection Procedure, Ver. 1.0
 NMP-ES-051-GL01 – Cable Monitoring Program Scope, Ver. 2.2
 PM N1Y461 – Inspect Underground Pull Boxes

Reactor Pressure Vessel Monitoring Program (UFSAR Section 18.2.17)

SIR 00-037, Revised Pressure-Temperature Curves for Hatch, March 30, 2000
 AMP-RPV-CM, Reactor Pressure Vessel Materials Surveillance Program, Ver. 1.0
 Attachment 1 of NMP-GM-003-001 (Version 3.0), Focused Area Self-Assessment, May 6, 2013
 BWRVIP-114-A, RAMA Fluence Methodology Theory Manual, June 2009
 FSAR, Revision 28, September 2010
 NMP-ES-010, SNC BWR Vessel and Internals Program (HNP), Ver. 6.2
 NMP-ES-010-GL01, BWRVIP NMP RPV Integrated Surveillance Guideline, Ver. 5.0
 NRC letter to the Hatch Plant, Edwin I. Hatch Nuclear Plant, Units 1 and 2 RE: Issuance of Amendments (TAC NOS. MB6106 and MB 6109), March 10, 2003 (ADAMS Accession Number ML030690457)
 NRC letter to the Hatch Plant, Edwin I. Hatch Nuclear Plant, Unit No. 1 (Hatch 1), Safety Evaluation for Alternative ISI-ALT-08 (TAC NO. MD4704), December 6, 2007 (ADAMS Accession Number ML073130188)
 NRC Regulatory Guide 1.190, Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence, March 2001

SNC-FLU-001-R-001, Edwin I. Hatch Unit 1 Reactor Pressure Fluence Evaluation at End of Cycle 21 and 49.3 EFPY, Rev. 1
 SNC-HA1-002-R-001, Edwin I. Hatch Unit 1 Fluence Evaluation at End of Cycle 25 and 49.3 EFPY, Rev. 0

Diesel Generator Maintenance Activities (UFSAR Section 18.2.18)

34IT-R43-001-0, DG Air Start Check Valve Gross Leakage Test, Ver. 1.10
 34SV-R43-001-1, Diesel Generator 1A Monthly Test (Unit 1), Ver. 23.5
 34SV-R43-001-2, Diesel Generator 2A Monthly Test (Unit 2), Ver. 27.9
 42IT-TET-012-1, Plant Service Water and RHR Service Water Piping Inspection Procedure, Ver. 2.11
 52PM-R43-015-0, Diesel Generator Turbocharger and Heat Exchanger Inspection, Ver. 9.0
 CR 744049, 2013 NRC LRI Observation of DGMA Program
 CR 744399, Provide Definitive Evidence for Diesel Generator Maintenance Activities Program
 CR 744315, Aging Management Gap Broadness Review Requested
 AMP-DGMA-CM, Diesel Generator Maintenance Activities, Ver. 1.0

Fire Protection Activities (UFSAR Section 18.3.1 and Commitment No. 1 in NRC Memorandum)

34GO-OPS-031-1, Daily Outside Rounds, Ver. 21.22
 34SV-X43-001-1, Fire Pump Test, Ver. 1.20
 40AC-ENG-008-0, Fire Protection Program, Ver. 9.18
 42SV-FPX-006-0, Fire Damper Surveillance, Ver. 1.7
 42SV-FPX-019-1, Penetration Seal Surveillance, Ver. 3.5
 42SV-FPX-036-0, Annual Fire Pump Capacity Test, Ver. 3.2
 42SV-FPX-045-0, Deluge System Strainer Inspection and Cleaning, Ver. 0.7
 52SV-FPX-010-0, Low Pressure CO2 System Surveillance, Ver. 3.0
 52SV-FPX-047-0, Sprinkler Head Inspection, Ver. 1.1
 AMP-FPA-CM, Fire Protection Activities, Ver. 1.0
 Appendix B of Edwin I. Hatch Nuclear Plant Units 1 and 2 Fire Hazards Analysis, Fire Protection Equipment Operating and Surveillance Requirements, Rev. 31
 ENG-0149, Fire Damper Surveillance Results for Units 1 and 2, August 12, 2010
 ENG-0229, Monthly Fire Inspection Report Log for Units 1 and 2, November 8, 2006
 ENG-0509, Annual Fire Pump Capacity Test Results for Unit 1, August 8, 2011
 MGR-0001, Deluge System Strainer Inspection and Cleaning Results for Units 1 and 2, December 7, 2009
 OPS-1240, Outside Rounds for Technical Specifications and Fire Hazards Analysis Data for Unit 1, April 26, 2010
 PRO-0001, Rolling Fire Door Inspection Results for Diesel Generator Building, June 1, 2010
 System Health Report (1/1/2013 - 3/31/2013) for Hatch Unit 1 L43 - Fire Systems, October 24, 2013

Flow Accelerated Corrosion Program (UFSAR Section 18.3.2 and Commitment No. 2 in NRC Memorandum)

AMP-FAC-CM, Flow Accelerated Corrosion Program, Ver. 1.0
 ES-ESST-001, Piping Stress Analysis, Ver. 2.0
 NMP-ES-011-001, Flow-Accelerated Corrosion (FAC) Program Implementation, Ver. 9.0

Protective Coatings Program (UFSAR Section 18.3.3 and Commitment No. 3 in NRC Memorandum)

1L23 Surveillance Inspection for Drywell and Torus Coatings dated 03-19-12
 42IT-TET-011-0, Condenser Waterbox Inspection, Ver. 3.2

42SV-SUV-047-0, Venting Assembly and Suppression Chamber Surfaces Visual Inspection, Ver. 3.6

42SV-T23-003-0, Drywell Surfaces Visual Inspection, Ver. 1.7

45QC-MNT-001-0, Excavation and Earthwork Quality Control, Ver. 2.6

51GM-MNT-063-0, Excavation Activity Requirements, Ver. 4.0

52GM-MME-028-0, External Surface Coating of Underground Metallic Piping, Ver. 2.6

AMP-PCP-CM, Protective Coatings Program, Ver. 1.0

CR 586039, Exterior Torus Shell Coatings Inspection, dated 2/7/2013

CR 594142, structural steel coating repair, dated 2/21/2013

CR 596246, Assess coating on Unit 2 Circulating Water flumes, dated 02/25/2013

CR 676309, Coatings qualification documentation, dated 7/24/2013

NMP-ES-036, Underground Pipe and Tanks Monitoring Program, Ver. 10.0

NMP-ES-036-001, Attachment 3, Underground Piping and Tank Inspection dated 9-20-2012

NMP-MA-011, Nuclear Coatings Program, Ver. 4.2

NMP-MA-011-003, Surface Preparation and Inspection, Ver. 3.1

NMP-MA-011-005, Application and Inspection of Non-Safety Related Coatings, Ver. 6.0

NMP-MA-011-006, Procedure for Coating Condition Assessments, Ver. 6.0

NMP-MA-011-GL01, Guideline for Nuclear Coatings Program, Ver. 1.0

SNC Fleet Self Assessment for Coatings Program dated 5/13/2011

Work Order SNC 103898, Diesel Fuel Oil Storage Tank 1A Clean and Inspection, dated 10/22/2013

Work Order SNC 483716, Perform License Renewal Protective Coatings Program Walk-down, dated 8/30/13

Equipment and Piping Insulation Monitoring Program (UFSAR Section 18.3.4 and Commitment No. 4 in NRC Memorandum)

52GM-NMT-016-0 - Removal, Storage and Installation of Thermal Insulation, Ver. 2.6

52GM-NMT-018-0 - Removal, Storage and Installation of Reflective Insulation, Ver. 3.5

52GM-NMT-038-0 – Insulation Control, Monitoring and Inspection, Ver. 1.0

AG-MGR-68-0200N – Climbing on Plant Equipment, Ver. 2.0

AMP-EPIM-CM, Equipment and Piping Insulation Monitoring Program, Ver. 1

DI-OPS-36-0989 – Cold Weather Checks, Ver. 21.1

Structural Monitoring Program (UFSAR Section 18.3.5 and Commitment No. 5 in NRC Memorandum)

AMP-SMP-CM, Structural Monitoring Program, Ver. 1.0

NMP-ES-021, Structural Monitoring Program for the Maintenance Rule, Attachment E, Ver. 7.2

NMP-GM-019, Commitments Management, Ver. 2.2

NMP-GM-019-F03, Regulatory Commitment Revision Request Form (Generic), Ver. 1.0

Galvanic Susceptibility Inspections (UFSAR Section 18.4.1 and Commitment No. 6 in NRC Memorandum)

42IT-QCX-002 - Galvanic Susceptibility Procedure, Ver. 2.0

AMP-GSI-OTI, Galvanic Susceptibility Inspections, Ver. 1.0

SNC 105364 – RHR/CS Room Coolers

SNC 339429 – RHR Pump Seal Oil

SNC 529834 – Containment Cooler Temperature Element

TE 40250 – LRI Track Completion of GSIP Outage Inspections

TE 740229 – LRI GSIP Inspection Points

WO 1081794301 – PSW Pump Mini-Flow Lines

Treated Water Systems Piping Inspections (UFSAR Section 18.4.2 and Commitment No. 7 in NRC Memorandum)

42IT-PES-004-0, Treated Water Systems Piping Inspections Program, Ver. 4.0
 42IT-QCX-006-0, Treated Water Systems Piping Inspections Program: Visual Examination Procedure, Ver. 2.0
 AMP-TWSPI-OTI, Treated Water Systems Piping Program, Ver. 1.0
 NMP-ES-024-501, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds (Appendix VIII), Ver. 4.1
 Work Order SNC103597, License Renewal Implementation Inspection for Location 1C11F012 (Unit 1 scram discharge volume relief valve), January 16, 2012
 Work Order SNC107417, License Renewal Implementation Inspection for Location 1P73N067 (Unit 1 bottom head drain electrochemical corrosion potential sensor enclosure weld including NPS 4x2 reducer), February 23, 2012
 Work Order SNC108221, License Renewal Implementation Inspection for Location 1C41F033A (Unit 1 standby liquid control system outlet check valve and connecting piping), September 13, 2011

Gas Systems Component Inspections (UFSAR Section 18.4.3 and Commitment No. 8 in NRC Memorandum)

42IT-PES-003-0, Gas Systems Component Inspection Program, Ver. 2.0
 42IT-QCX-005-0, Gas Systems Components Inspection Program: General Examination Procedure, Ver. 2.0
 AMP-GSCI-OTI, Gas Systems Component Inspection Program, Ver. 2.0
 Attachment 3 of Procedure 42IT-QCX-005-0, Visual Inspection Records for Unit 1 Turbine Building Exhaust Fan Copper Flow Switch Tubing (location 1U41N010A), September 26, 2013
 Attachment 3 of Procedure 42IT-QCX-005-0, Visual Inspection Records for Unit 1 Turbine Building Exhaust Fan Housing and Ductwork (location 1U41C002A), September 26, 2013
 NMP-ES-024-501, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds (Appendix VIII), Version 4.1
 Work Order SNC107671, Ultrasonic Testing Examination of Unit 1 Liquid Nitrogen Storage Tank Jacket (location 1T48A001), December 20, 2011
 Work Order SNC371550, Ultrasonic Testing of Unit 1 Reactor Building Ventilation Duct (location 1T41FR044A), March 3, 2012

Condensate Storage Tank Inspection Program (UFSAR Section 18.4.4 and Commitment No. 9 in NRC Memorandum)

42IT-P11-001-0 Attachment 2, Condensate Storage Tank Examination Record, dated 2/27/13
 42IT-P11-001-0, Visual Examination Procedure for Condensate Storage tanks, Version 2.1
 AMP-CSTI-CM, Condensate Storage Tank Inspections, Ver. 1.0
 DWG 70-7240 Sheet 1 of 4, Unit 1 Condensate Storage Tank, dated 12-1-1970
 NMP-ES-24-201, Visual Examination (VT-1), Version 3.0

Passive Component Inspection Activities (UFSAR Section 18.4.5 and Commitment No. 10 in NRC Memorandum)

42IT-PES-001-0, Passive Components Inspection Activities Program, Ver. 4.1
 42IT-QCX-003-0, Visual Inspection Non-elastomeric Procedure, Ver. 2.2
 42IT-QCX-004-0, Elastomer Inspection Procedure, Ver. 1.2
 AMP-PCIA-CM, Passive Component Inspection Activities, Ver. 1.0
 Unit 1 PCIA INSPECTION SCOPE, dated 9/6/2012

RHR Heat Exchanger Augmented Inspection and Testing Program (UFSAR Section 18.4.6 and Commitment No. 11 in NRC Memorandum)

42IT-PES-005, RHR Heat Exchanger Augmented Inspection and Testing Program, Ver. 1.0
 52PM-E11-009-0, RHR Heat Exchanger Preventive Maintenance, Ver. 5.1
 52PM-MME-006-0, Intake Structure Pit Inspection and Diving Activities, Ver. 9.0
 AMP-RHRHX-CM, RHR Heat Exchanger Augmented Inspection and Testing Program, Ver. 1.0
 NMP-ES-012, Heat Exchanger Program, Ver. 7.0
 NMP-ES-012-GL01, Heat Exchanger Inspection, Testing and Condition Assessment, Ver. 2.0
 NMP-ES-012-GL02, Heat Exchanger Program Data Management Guideline, Ver. 2.1
 NMP-ES-012-GL04, Heat Exchanger Program Eddy Current Testing Strategic Plan for Plant Hatch, Ver 1.0
 NMP-ES-024-701, Eddy Current Testing Of Heat Exchanger Tubing, Ver. 3.0
 WO SNC104320 1A ECT 2014
 WO SNC399390 1A Shell Side 2014
 WO SNC486588 2A Shell Side 2017

Torus Submerged Components Inspection Program (UFSAR Section 18.4.7 and Commitment No. 12 in NRC Memorandum)

42IT-PES-002-0 - Torus Submerged Components Inspection Program Rev. 1
 42IT-QCX-007-0 - Torus Submerged Components Inspection Activities Rev. 1
 AI 2009204015 – Revise NMP-MA-011 to include recommended use of ASTM D 610.
 AI 2009209043 – Pitting on Torus Shell
 CR 2009102497 – Improve coatings program to provide guidance on inspection of torus coatings.
 NMP-ES-024-207 – General Visual Examination (IWE), Version 4.0
 AMP-TSCIP-CM, Torus Submerged Components Inspection Program, Ver. 1.0

Insulated Cables and Connections Program (UFSAR Section 18.4.8)

AMP-ICCP-CM, Insulated Cables and Connections Program, Ver. 1.0
 NMP-ES-051 Cable Monitoring Program, Version 4.1
 NMP-ES-051- GL01 Cable Monitoring Program Scope, Version 2.2
 NMP-ES-051-002 Tan Delta Testing, Version 5.1
 NMP-ES-051-003 Adverse Localized Equipment Environment Walkdown, Version 1.0
 NMP-ES-051-004 Pull Box Inspection Procedure, Version 1.0

Time-Limited Aging Analysis: Calculation of the End-of-Life Charpy Upper-Shelf Energy Margin (UFSAR Section 18.5.1)

GENE B11-00827-00-01, "Plant Hatch Units 1 and 2 Reactor Pressure Vessel Pressure/Temperature Limits License Renewal Evaluation," General Electric Company, March 1999
 EPRI TR-113596, "BWR Vessel and Internals Project BWR Reactor Pressure Vessel Inspection and Flaw Evaluation Guidelines," BWRVIP-74, September 1999

Time-Limited Aging Analysis: Calculation of the Reference Temperature for Nil-Ductility for Critical Core Region Vessel Materials (UFSAR Section 18.5.1)

GENE B11-00833-00-01, "Plant Hatch Reactor Pressure Vessel Aging Management Report," General Electric Company, November 1999 (GE Proprietary)
 EPRI TR-113596, "BWR Vessel and Internals Project BWR Reactor Pressure Vessel Inspection and Flaw Evaluation Guidelines," BWRVIP-74, September 1999

Time-Limited Aging Analysis: Environmental Equipment Qualification Calculations that Qualify Electrical Components for 40 Years (UFSAR Section 18.5.1)

SMH-89-052 – Determine Qualified Life for EQ Equipment in Drywell, Steam Chase and personnel Access, Ver. 10

SMH-90-002 – Determine area Temperature Impact on Common Electrical Equipment, Ver. 9

Time-Limited Aging Analysis: Equipment Qualification Report Evaluations (UFSAR Section 18.5.1.2)

List of EQ Components with Qualified Lives between 40 and 60 Years, dated 11/9/2012

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