

August 7, 2009

Mr. Sam Belcher
Vice President Nine Mile Point
Nine Mile Point Nuclear Station, LLC
P.O. Box 63
Lycoming, NY 13093

SUBJECT: NINE MILE POINT NUCLEAR STATION - NRC LICENSE RENEWAL
COMMITMENTS INSPECTION REPORT 05000220/2009007

Dear Mr. Belcher:

On June 26, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Nine Mile Unit One plant. The enclosed inspection report documents the inspection results, which were discussed on June 26, 2009, with members of your staff.

The inspection examined license renewal commitment activities and compliance with the requirements of 10 CFR 54.37(b) for newly identified system, structures, and components. The inspection was conducted under your renewed 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, observed activities, and interviewed personnel. No cases were noted, in our review, when a commitment was not implemented

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

Sincerely,

/RA/

Richard J. Conte, Chief
Engineering Branch 1
Division of Reactor Safety

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Division of Reactor Safety

SUNSI Review Complete: MCM/RJC (Reviewer's Initials)

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S. Belcher

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Docket Nos: 50-220

License Nos: DPR-63

Enclosure: Inspection Report 05000220/2009007
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-220

License No.: DPR-63

Report No.: 05000220/2009007

Licensee: Nine Mile Point Nuclear Station, LLC (NMPNS)

Facility: Nine Mile Point Unit 1

Location: Oswego, NY

Dates: March 30 – April 3 (Outage), and June 8 -12, 22-26, 2009 (At Power)

Inspectorss: Michael Modes, Sr. Reactor Inspector
Glenn Meyer, Sr. Reactor Inspector
Suresh Chaudhary, Reactor Inspector
Samuel Cuadrado, NSPDP

Approved by: Richard J. Conte, Chief
Engineering Branch 1
Division of Reactor Safety

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SUMMARY OF FINDINGS

IR 05000220/2009007; March 30 – April 3, and June 8 -12, 22-26, 2009; Nine Mile Point Nuclear Station, Unit One, LLC (NMPNS); IP 71003 License Renewal Commitments Inspection.

The report covers a one week and two-week team inspection of the implementation of license renewal commitments, which was performed in accordance with NRC Manual Chapter 2516 and NRC Inspection Procedure 71003 by three region-based engineering inspectors and an Nuclear Safety Professional Development Program (NSPDP) candidate. The inspection team concluded that commitments, license conditions, and regulatory requirements associated with the issuance of the renewed operating license were implemented at Unit One of the Nine Mile Point Nuclear Station.

A. NRC-identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

None

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REPORT DETAILS

4OA5 Other Activities

License Renewal Commitment Inspection IP 71003

Constellation submitted an application for a renewed license (LRA) on May 27, 2004, which was granted on October 31, 2006. The NRC's safety evaluation report was issued on June 1, 2006, and contained a list of 16 Unit One specific commitments, and 23 commitments common to both units of Nine Mile Point.

The objective of this inspection is to review a sample of the implementation of commitments, aging management programs, and where appropriate the supporting information for time-limited aging analyses made as part of the renewed license application. This inspection also reviews revisions and changes to license renewal commitments made after the renewed license was issued and reviews the consistency of implemented aging management programs and scoping compared with the changes to the updated final safety analysis report (UFSAR).

Inspection Procedure 71003, "Post-Approval Site Inspection for License Renewal," and its guidance was the procedure used to achieve the above objectives. The selection of inspection samples was informed by the following priorities:

- Risk significance of the commitment
- Previous audits and inspections of the commitment area
- Extent of the commitment
- Coverage of the commitment within the baseline inspection program

a. Inspection Scope

The following commitments were reviewed:

Commitment 1 - Incorporate Appendix A1 into the Nine Mile Point Unit 1 (NMP1) UFSAR and Appendix A2 into the NMP2 UFSAR.

Appendix A1-UFSAR Supplement and Appendix A2-NMP2 UFSAR Supplement contained, as required by 10 CFR 54.21(d), a summary description of the Aging Management Program (AMP) activities and the Time Limited Aging Analyses (TLAAs) for the period of extended operation.

The inspectors reviewed Appendix A1 and Appendix A2 Supplements to assess the AMP activities and TLAAs to be incorporated into NMP1 UFSAR and NMP2 USAR. The inspectors reviewed the current NMP1 UFSAR (Revision 20) and current NMP2 USAR (Revision 18) to verify the incorporation of Appendix A1 and Appendix A2 into these documents. The inspectors confirmed that NMPNS has incorporated Appendix A1 and

Appendix A2 Supplements as Appendix C of NMP1 UFSAR Revision 20 and NMP2

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USAR Revision 18 respectively. In addition the inspectors confirmed Constellation incorporated Appendix A1 into NMP1 UFSAR and Appendix A2 in the NMP2 UFSAR

Commitment 3 - Apply for relief from reactor vessel circumferential weld inspections for the period of extended operation. Supporting analyses, procedural controls, and operator training will be completed prior to the period of extended operation to support and confirm that the reactor pressure vessel (RPV) circumferential weld failure probability remains acceptable for the period of extended operation.

On September 16, 2008, Constellation sent a request for relief from American Society of Mechanical Engineers Pressure and Vessel Code, (ASME Code) requirements to the NRC. This request included the supporting analysis and a discussion about how the over-pressurization is procedurally controlled. The inspectors discussed the fluence calculations used to project the end-of-extended-period levels with the responsible engineer. Because the NRC calculations are generic, a conservative bounding effective full power years (EFPY) of 64 is used. NMP1 is going to reach 46 EFPY at the end of 60 calendar years. The inspectors reviewed the operational procedures used to control cold over-pressurization of the reactor vessel. Because the facility had been operating with the same relief from examination of circumferential welds prior to the renewed license the operational procedures and training remained the same.

Using the Boiling Water Reactor – Vessel Internal Project (BWR-VIP) methodology the 46 EFPY probabilistic fracture failure was less than 1×10^{-7} with an over pressurization frequency of 1×10^{-3} per year giving a combined 2.5×10^{-12} per year for the full 60 calendar years of operation.

The inspectors confirmed Constellation applied for relief and completed supporting analysis, procedural controls, and operator training prior to the period of extended operation. RPV circumferential weld failure probability therefore remains acceptable for the period of extended operation.

Commitment 5 - For those locations where additional fatigue analysis is required to take advantage of the implicit margin, and to more accurately determine cumulative usage factor (CUF), the Electric Power Research Institute (EPRI) FatiguePro fatigue monitoring software will be implemented prior to the period of extended operation.

In Section B3.2 of its amended license renewal application (ALRA), NMP committed to implement the FatiguePro fatigue monitoring software into its existing Fatigue Monitoring Program (FMP). The implementation of FatiguePro software would enhance the calculation of CUFs and provide a basis to confirm components do not exceed an established number of cycles prior to the end of the period of extended operation. FatiguePro software enabled automated cycle counting and calculated CUFs via Cycle-Based Fatigue Monitoring or Stress-Based Fatigue methods. Fatigue Summary Report dated June 2, 2009, presented FatiguePro software results of current CUFs for 19 component locations. In addition, Condition Report CR-2009-003289 presented FatiguePro software results of CUFs for 8 component locations. Component locations included but were not limited to the followings: emergency condenser nozzle junction, RPV feedwater nozzle safe end, RPV core spray nozzle forging, RPV recirculation inlet

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and outlet nozzle and RPV bottom head. CUFs without considering environmental effects ranged from 0.00020 to 0.5445. The allowable CUF is 1.

The NRC confirmed the EPRI FatiguePro fatigue monitoring software was implemented prior to the period of extended operation in order to take advantage of implicit margin, and to more accurately determine CUFs.

Commitment 6 - For the critical reactor vessel component locations, shown in Tables 4.3-3 and 4.3-4 of the LRA, additional usage will be added to the baseline Cumulative Usage Factor using one of the methods described in Section 4.3 of the LRA.

Table 4.3-3 of NMP LRA listed RPV component locations to which NMP committed to add additional usage. The RPV component locations were the following: basin seal skirt weld, feedwater nozzles, recirculation inlet and outlet nozzles, core spray nozzle, core spray nozzle safe end, and bottom head. NMP used the Design Cycle Based Fatigue (CBF) and Stress Based fatigue (SBF) methods to determine CUF at the fatigue-critical locations listed in Table 4.3-3 of their LRA. Calculation No: S0.0-FATIGUEPRO01-031 confirms that NMP performed a stress analysis on a developed finite element model (FEM) for the RPV basin seal skirt weld in order to revise stress concentration factors and fatigue usage. Calculation No: S0.0-FATIGUEPRO01-031 presented the fatigue usage calculation for 60 and 80 years for the RPV basin seal skirt weld. Calculation No.: S0.0-FATIGUEPRO01-001 presented all except one component location (feedwater nozzles) listed in Table 4.3-3 of NMP LRA subjected to CBF monitoring and the development of the fatigue and transient tables necessary for the FatiguePro CBF module. Calculation No.: S0.0-FATIGUEPRO01-018 presented the FatiguePro SBF transfer function and relevant fatigue input developed for the feedwater nozzle locations. Condition Report CR-2009-003289 presented the CUF values for the following RPV component locations: feedwater nozzles, recirculation inlet and outlet nozzles, core spray nozzle, core spray nozzle safe end, and bottom head. In addition, NMP determined an applied environmental fatigue multiplier to the CUF of the component locations in Condition Report CR-2009-003289.

The inspectors confirmed critical reactor vessel component locations, shown in Tables 4.3-3 and 4.3-4 of the LRA, and additional usage was added to the baseline Cumulative Usage Factor using one of the methods described in Section 4.3 of the LRA.

Commitment 7 - Transients contributing to fatigue usage of the feedwater system (FWS) nozzles will be tracked by the FMP with additional usage added to the baseline Cumulative Usage Factor using the Stress Based fatigue method described in Section 4.3 of the LRA.

In its ALRA NMP stated that unless corrective actions were taken the calculated FWS nozzle CUFs could exceed their allowable value of 1.0 before the end of the period of extended operation. In order to confirm that the FWS nozzle allowable CUF is not exceeded NMP committed to use the more refined Stress Based Fatigue (SBF) fatigue analysis method to determine the FWS nozzle CUF. Report No.: SIR-04-170 describes the FMP FatiguePro SBF transfer function and relevant fatigue input developed as basis for the calculation of stresses and ultimate fatigue usage for the FWS nozzles. Condition

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Report CR-2009-003289 presented the maximum CUF value for the RPV feedwater nozzle being 0.5036. In addition, NMP determined an applied environmental fatigue multipliers (M) to the FWS nozzles CUF which resulted in the FWS nozzles exceeding the allowable CUF value of 1.

The inspectors confirmed transients contributing to fatigue usage of the FWS nozzles were tracked by the Fatigue Monitoring Program (FMP) with additional usage added to the baseline Cumulative Usage Factor using the Stress Based fatigue method described in Section 4.3 of the LRA.

Commitment 8 - Develop a baseline CUF for the specified portions of the following systems: (1) Feedwater / High Pressure Coolant Injection (2) Core Spray (3) Reactor Water Cleanup (piping inside the Reactor Coolant Pressure Boundary) and (4) Reactor Recirculation (and associated Shutdown Cooling Systems Lines). If the baseline CUF for a specified portion of a system exceeds 0.4, the limiting locations may require additional monitoring to demonstrate compliance over the period of extended operation.

The systems chosen for development of a baseline CUF were based on:

1. The location experiences high fatigue usage due to significant thermal transients.
2. The location experiences high fatigue usage due to structural or material discontinuities that result in high stress indices.
3. The location has been identified in NUREG/CR-6260.

The inspectors reviewed the relevant calculations, all of which were accepted by Constellation, LLC by the end of August 2006.

The inspectors confirmed Constellation developed a baseline cumulative usage factor for the specified portions of the stipulated systems and was prepared to implement additional monitoring to demonstrate compliance for the period of extended operation.

Commitment 10 - The Fatigue Monitoring Program will track transients specific to the Emergency Cooling System with additional usage added to the baseline CUF for the emergency condensers as described in Section 4.3 of the LRA.

The licensee implemented the FatiguePro program as the Fatigue Monitoring Program. For the Emergency Cooling System additional usage was added to the baseline Cumulative Usage Factor by the Design Cycle Based Fatigue Method. In this method, actual transients are paired with design basis transients, with the actual number of cycles substituted for the assumed number of cycles in the design calculation. Each transient is then assumed to be as severe as the one assumed in the design calculation.

The inspectors reviewed the fatigue calculation for the Emergency Cooling System and determined the Design Cycle Based Fatigue Method was applied by using the transient events documented in Table 2-3 of Report SIR-03-140, "Report on System Review and

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Recommendations for Transient and Fatigue Monitoring System at the Nine Mile Point Nuclear Station”, Rev 1. Some of the transients included were: pressure head removal and reinstallation, normal heat up, normal shutdown, and Emergency Condenser Initiation into the isolated loop.

The inspectors confirmed Constellation’s Fatigue Monitoring Program tracked transients specific to the Emergency Cooling System with additional usage added to the baseline Cumulative Usage Factor for the emergency condensers as described in Section 4.3 of the license renewal application.

Commitment 11 - Enhance the Fatigue Monitoring Program to (1) ensure that fatigue usage of the torus attached piping and other torus locations does not exceed the design limits, add electromatic relief valves (ERV) lifts as a transient to be counted by the Fatigue Monitoring Program and (2) add the two highest usage torus attached piping locations, the 12-inch core spray suction line for Core Spray Pump 111 that enters the torus at penetration XS-337 and the 3-inch containment spray line that enters the torus at penetration XS-326 as fatigue monitoring locations.

1. To ensure that fatigue usage of the torus attached piping and other torus locations does not exceed the design limits Constellation performed a series of calculations, for the six safety relief lines and the piping segments form six separate systems connecting through 36 separate penetrations. The safety relief valves at NMP1 are ERV. The inspectors reviewed the calculations. The inspectors confirmed, by review of the calculations, and discussion with the responsible engineer, that the ERV lifts were counted as a transient by the Fatigue Monitoring Program. Because ERV lifts were not routinely counted during the early years of operation a conservative estimate of the number was used.
2. The inspectors confirmed Constellation added the two highest usage torus attached piping locations, the 12-inch core spray suction line for Core Spray Pump 111 that enters the torus at penetration XS-337 and the 3-inch containment spray line that enters the torus at penetration XS-326 as fatigue monitoring locations.

The inspectors confirmed Constellation enhanced the Fatigue Monitoring program in conformance with the two conditions placed on commitment 11.

Commitment 12 - The RPV weld flaw evaluations will be revised to consider additional fatigue crack growth and the effects of additional irradiation embrittlement (for beltline materials) associated with operation for an additional 20 years (i.e., out to at least 46 EFPY) and submitted for NRC review and approval no later than 2 years prior to the period of extended operation. If the revised calculation shows the identified flaws cannot meet the applicable acceptance criteria, the indications will be reexamined in accordance with ASME Section XI requirements.

The reactor pressure vessel contains three flaws that required analytical acceptance under IWB-3600. There is a subsurface planar flaw, axially oriented, parallel to the

center-line of vessel belt-line weld RVWD-140. There is a subsurface planar flaw, circumferentially oriented, parallel to the center-line of the circumferential flange-to-vessel weld RVWD-099. There is a subsurface planar flaw in closure head meridional weld RVWD-005.

The closure head meridional weld was evaluated for fatigue using a limiting condition of 240 additional shut-downs/start-ups. Because it is unlikely NMP1 will exceed this number during the first period of extended operation, the NRC staff agreed the initial evaluation of the meridional weld flaw was valid for the first period of extended operation.

The inspectors reviewed the recalculation of RVWD140 and RVWD-099 transmitted to the NRC by letter dated August 22, 2007. RVWD140 is a belt-line weld subjected to radiation embrittlement. Because RVWD-099 is a flange-to-vessel weld radiation embrittlement is not considered. The calculations considered additional fatigue crack growth and the effects of additional irradiation embrittlement. Because Tech Spec Section 3.2.2/4.2.2 was approved by the NRC to change the "Minimum Reactor Vessel Temperature of Pressurization", in conformance with ASME Code Case N-640, "Alternative Reference Fracture Toughness for PT Curves", the flaw margins increased at 46 EFPY.

The inspectors confirmed Constellation revised the RPV weld flaw evaluations, considering additional fatigue crack growth and the effects of additional irradiation embrittlement (for beltline materials) associated with operation for an additional 20 years and submitted the analysis to the NRC for review and approval no later than 2 years prior to the period of extended operation.

Commitment 14 – Enhance the Open Cycle Cooling Water System (OCCWS) Program to (1) Ensure that the applicable commitments made for GL 89-13, and the requirements in NUREG-1801, Section XI.M20 are captured in the implementing documents for GL 89-13; (2) Incorporate into the OCCWS program, the requirements of the NUREG-1801, Section XI.M20 that are more conservative than the GL 89-13 commitments; and (3) Revise the preventive maintenance and heat transfer performance test procedures to incorporate specific inspection criteria, corrective actions, and frequencies.

1. As identified by the licensee, seventeen documents are used to implement the GL 89-13 program. The inspectors reviewed a sample of these for inclusion of commitments made for GL 89-13 and NUREG 1801, Section XI.M20, as noted in the "Open-Cycle Cooling Water System License Renewal Aging Management Program Basis Document" to provide a reasonable assurance that the commitment was met. Sampled procedures included:
 - a. ECPN-N1-SWP-001, "Nine Mile Point Unit 1 Erosion/Corrosion Program Piping Review Plan Service Water Systems" - additional UT thickness samples were added for examination from System 93 (Containment Spray Cooling Water).

- b. N1-MPM-070-409, "RBCLC Water Heat Exchangers 70-13R, 70-14R, 70-15R" – requirements were added to perform heat exchanger inspections per GAP-HSC-02 and S-TDP-REL-0102.
 - c. N1-MPM-080-410, "CNT-SP Heat Exchangers PM" – requirements were added to perform heat exchanger inspections per GAP-HSC-02 and S-TDP-REL-0102.
 - d. N1-MPM-070-412, "Diesel Generator Cooling Water Heat Exchanger and Temperature Control Valve Maintenance" – requirements were added to perform heat exchanger inspections per GAP-HSC-02 and S-TDP-REL-0102.
 - e. N1-MPM-074-022, "CW Traveling Screen PM" – added a step to perform aging management inspections on the spray nozzle header, accessible screens, internal structural steel, external structural steel, splash shield and splash housing per GAP-HSC-02.
2. Requirements of NUREG-1801, Section XI.M20 determined to be more conservative than GL 89-13 are listed here:
- a. Inclusion of eddy current examinations; the inspectors reviewed NMPNS-HX-001 and verified eddy current examinations were added for RBCLC HTX-70-13R, -14R, and -15R.
 - b. Inspection of underwater components in N1-MPM-074-018; the inspectors reviewed N1-MPM-074-018 and verified aging management inspections are to be performed on underwater components of the circulating water gates.
 - c. Performance of emergency diesel generator cooling water quarterly testing; the inspectors reviewed N1-ST-Q25 for adequacy.
 - d. Performance of emergency diesel generator (EDG) 102 and 103 operability tests; the inspectors reviewed N1-ST-M4A for adequacy.
 - e. Inclusion of Containment Spray raw water piping in the Service Water Erosion/Corrosion Program; the inspectors reviewed ECPN-N1-SWP-001 and verified the licensee added additional samples from the Containment Spray Cooling Water system.
 - f. Incorporation of GAP-HSC-02 was verified for inclusion into the OCCWS Program.
3. The OCCWS Program contains 10 preventative maintenance procedures. The inspectors reviewed a sample of the procedures was reviewed to verify incorporation of specific inspection criteria, corrective actions and frequencies. N1-MMP-072-117, "Maintenance of Emergency Service Water Pumps," and N1-MMP-093-116, "Containment Spray Raw Water Pump Maintenance," were reviewed by the inspectors to verify inclusion of aging management inspections per GAP-HSC-02.

The inspectors confirmed Constellation enhanced the Open Cycle Cooling Water System (OCCWS) Program as stipulated in Commitment 14.

Commitment 15 - Enhance the Closed Cycle Cooling Water System (CCCWS) Program to (1) Expand periodic chemistry checks of the systems consistent with the guidelines of EPRI TR-107396; (2) Implement a program to use corrosion inhibitors in the Reactor Building Closed Loop (RBCLC) Cooling Systems and Control Room heating ventilation and air conditioning (HVAC) System in accordance with the guidelines given in EPRI TR-107396; (3) Direct periodic inspections to monitor for loss of material in the piping of the CCCWS; (4) Implement a corrosion monitoring program for larger bore CCCWS piping not subject to inspection under another program; (5) Establish the frequencies to inspect of degradation of components in CCCWS, including heat exchanger tube wall thinning; (6) Perform a heat removal capability test for the Control Room HVAC System at least every 5 years; (7) Establish periodic monitoring, trending, and evaluation of performance parameters for the RBCL Cooling and Control Room HVAC; (8) Provide the controls and sampling necessary to maintain water chemistry parameters in CCCWS within the guidelines of EPRI Report TR 107396 and; (9) Ensure acceptance criteria are specified in the implementing procedures for the applicable indications of degradation.

- (1) The three systems within the CCCWS scoped in the license renewal application (LRA) are Reactor Building Closed Loop Cooling (RBCLC) System, Control Room HVAC, and Standby Diesel Generator Protection System. The inspectors reviewed S-CTP-V666, "Auxiliary System Chemistry," and confirmed the chemistry sampling requirements for these three systems matched those stated in EPRI TR-107396, "Closed Cooling Water Chemistry Guideline," Revision 0.
- (2) The commitment task to implement the use of corrosion inhibitors was changed by the licensee. It was concluded that no corrosion inhibitors would be added to either the RBCL Cooling System or the Control Room HVAC System, but an oxygen removal skid would be installed to assist in maintaining the pure water chemistry requirements of the RBCLC. The inspectors verified the commitment change followed the process outlined in NEI 99-04, "Guidelines for Managing NRC Commitments." The inspectors also verified procedure N1-OP-65, "Portable Oxygen Removal Skid," Rev.2 was available and approved for use.
- (3) The inspectors verified direct periodic inspections were incorporated into the following maintenance procedures: N1-MPM-029-126, N1-MPM-079-412, N1-MPM-096-604, N1-MPM-201-004, N1-MMP-032-100, N1-MMP-033-229, N1-MMP-070-122, N1-MMP-070-240, N1-MMP-210-118, N1-MMP-GEN-866, N1-MMP-051-108, and N1-MPM-GEN-242.
- (4) The inspectors verified large bore CCCWS piping, both inside and outside the drywell, was incorporated into a corrosion inspection program contained in the CCCWS Aging Management Program. The licensee completed baseline ultrasonic inspection (UT) of applicable large bore piping in March, 2009.

- (5) The licensee added eddy current testing (ECT) of tubing and UT of heat exchanger (HX) shells to NMPNS-HX-001, "Generic Letter 89-13 Heat Exchanger Program Plan," and to NMPNS-HX-002, "Balance of Plant Heat Exchanger Program Plan." The additional GL 89-13 inspections included the RBCLC HTX-70-13R, -14R and -15R HXs; EDG Jacket Water HTX-79-03, -04, -05, and -06 HXs; and Containment Spray HTX-80-13, -14, -33, and -34 HXs. The additional BOP inspections included the Feedwater Pump Oil Cooler HTX-29-02, and -03 HXs; Shutdown Cooling HTX-38-129, -132, and -135 HXs; Spent Fuel Pool HTX-54-04, -05 HXs; TBCLC HTX-71-10R HXs; and Control Room Chillers HTX-210.1-119 & -120 HXs.
- (6) The inspectors reviewed N1-TTP-CRAC-001 which documented completion of a heat removal capacity test for the Unit 1 HVAC, performed on 9/12/2008. This test was conducted to standards similar to the Technical Specification required testing conducted on the Unit 2 control room chillers. The test is scheduled for completion again on 9/11/2013. Monitoring and trending of chemistry parameters for the RBCLC Cooling and Control Room HVAC is done per S-CTP-V666. The inspectors reviewed the Performance Monitoring Plans for RBCLC and Control Room HVAC to verify periodic monitoring, trending and evaluation of water chemistry parameters for those systems had been established.
- (7) Control and sampling of chemistry parameters for both the RBCLC System and Control Room HVAC are established in S-CTP-V666, and are based on the guidelines of EPRI TR-107396, Rev 0, Table 5-1 for demineralized water. Sampling for RBCLC and CR HVAC is completed monthly. Control of RBCLC parameters is maintained via oxygen injection, oxygen removal via skid, or side stream demineralizer. Control of control room HVAC parameters is accomplished via a "feed and bleed" process with make up water. Emergency Diesel Jacket Cooling Water system chemistry parameters are maintained within vendor specifications vice EPRI TR-107396, and the inspectors reviewed the technical justification. Control and sampling are performed per N1-CTP-Q550, and control is maintained per the N1-CTP-V551 procedure.
- (8) Acceptance criteria for applicable forms of degradation are specified in the following procedures, as reviewed by the inspectors: RBCLC and CR HVAC: S-CTP-V666; EDG Jacket Cooling Water chemistry: N1-CTP-Q550 and N1-CTP-V551; Corrosion identified during aging management inspections: GAP-HSC-02; Heat removal capabilities: N1-ST-M4A&B, N1-TTP-CRAC-001 and N1-TTP-033; Piping Wall Thickness: NMP1-AMP-CCCWS and NMPNS-SBI-001; Heat Exchanger Tube Thickness Calculations: NMPNS-HX-001, NMPNS-HX-02, and NMP1-AMP-CCCWS; Heat Exchanger shell thickness: NMPNS-HX-001, NMPNS-HX-02, and NMP1-AMP-CCCWS.

The inspectors confirmed Constellation enhanced the Closed Cycle Cooling Water System (CCCWS) Program as stipulated by Commitment 15.

Commitment 17 – Revise applicable procedures related to the Crane Inspection Program to add specific direction for performance of corrosion inspections, with acceptance criteria, for certain hoist lifting assembly components.

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The inspectors reviewed the licensee's commitment tracking system for the basis of this commitment. The documents reviewed included the ALRA Appendix A, section A1.1.22, ALRA Appendix B, section B2.1.13 UFSAR, NRC staff safety evaluation report Section 3.0.3.2.10 (NUREG-1900, Vol. 2), and the LRA. The inspectors determined that the licensee had revised procedures related to the inspection of canes and lifting devices to include corrosion inspection, and had established acceptance criteria. The affected inspection procedures were reviewed to verify that they contained appropriate requirements.

The inspectors confirmed Constellation revised the applicable Crane Inspection Program procedures as stipulated in Commitment 17.

Commitment 18 - Enhance the Compressed Air Monitoring Program to (1) Develop new activities to manage the loss of material, stress corrosion cracking, and perform periodic system leak checks; (2) Expand the scope, periodicity, and inspection techniques to ensure that the aging of certain sub-components of the dryers and compressors (e.g., valves, heat exchangers) are managed; (3) Develop and implement activities to address the failure mechanism of stress corrosion cracking in unannealed red brass piping; (4) Establish activities that manage the aging of the internal surfaces of carbon steel piping and that require system leak checks to detect deterioration of the pressure boundaries; and (5) Expand the acceptance criteria to ensure that the aging of certain sub-components of the dryers and compressors (e.g., valves, heat exchangers) are managed.

The inspectors reviewed SER Section 3.0.3.2.11, which addressed this commitment. The inspectors reviewed the plant procedure used for system leak checks, the system checks completed on April 1, 2007, and March 28, 2009, and associated condition reports (items 1 and 4). The inspectors reviewed the air quality sampling and analysis procedure used to monitor for conditions affecting corrosion and cracking, multi-year trends of results, and an associated condition report (item 1). The inspectors reviewed four maintenance and inspection procedures associated with the air dryer and compressor sub-components and three completed inspection reports (items 2 and 5). The inspectors reviewed the project plan for replacement of unannealed red brass piping in the instrument air system, which was completed during this NRC inspection and replaced roughly 2700 ft. of piping (item 3). The inspectors determined that all aspects of this commitment had been adequately addressed in the revised procedures and piping replacements, and were being adequately implemented.

The inspectors confirmed Constellation enhanced the Compressed Air Monitoring Program as stipulated in Commitment 18.

Commitment 19 - Enhance the Fire Protection Program to (1) Incorporate periodic visual inspections of piping and fittings located in a non-water environment such as Halon and Carbon Dioxide fire suppression systems components, to detect evidence of corrosion and any system mechanical damage that could affect its intended function; (2) Expand the scope of periodic functional tests of the diesel-driven fire pump to include inspection of the engine exhaust system components to verify that loss of material is managed; (3)

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Perform an engineering evaluation to determine the plant specific inspection periodicity of fire doors; and (4) Revise Halon and Carbon Dioxide Functional test frequencies to semi-annual.

- (1) The inspectors reviewed N1-FST-FPG-C002, "Halon System Functional Test" and verified visual inspections checking for degradation of visual piping are scheduled to be performed every 1.5 years. The inspectors also reviewed N1-FMP-FPL-C001, "Low Pressure Carbon Dioxide System Functional Test" and verified visual checks for degradation are to be performed every two years on the Low Pressure Carbon Dioxide System.
- (2) The inspectors reviewed N1-PM-M9, "Monthly Operation of Fire Pumps" and verified inspections for blistering and general corrosion of the diesel exhaust are performed monthly.
- (3) The inspectors reviewed FPEE0-06-001, Fire Protection Evaluation, "Evaluation of Fire Door Inspection Frequencies," and verified the analysis was consistent with the guidance in EPRI/NMAC Report, "Fire Protection Equipment Surveillance Optimization and Surveillance Guide," TR#1006576, July 3002.
- (4) The licensee took exception to the six month inspection interval originally stated in the commitment, and has opted to retain the original 18 month interval. The inspectors reviewed the associated justification, and verified the licensee used the commitment change process as documented in NEI 99-04, "Guidelines for Managing NRC Commitments."

The inspectors confirmed Constellation enhanced the Fire Protection Program as stipulated in Commitment 19.

Commitment 21 - Enhance the Fuel Oil Chemistry Program to (1) Establish specifications to perform quarterly trending of water and sediment; (2) Provide guidelines for the appropriate use of biocides, corrosion inhibitors, and/or fuel stabilizers to maintain fuel oil quality; (3) Add specifications to periodically inspect the interior surfaces of the emergency diesel fuel oil storage tanks for evidence of significant degradation, including a specific requirement that the tank bottom thickness be determined by UT or other industry recognized methods; (4) Add specifications for quarterly trending of particulate contamination analysis results; (5) Ensure acceptance criteria are specified in the implementing procedures for the applicable indications of potential degradation; (6) Establish specifications for periodic opening of the diesel fire pump fuel oil day tank drain; and (7) Establish specifications to remove water, if found.

The inspectors reviewed SER Section 3.0.3.2.15, which addressed this commitment. The inspectors reviewed the five plant procedures, which had been revised in 2007, related to the enhancements of the Fuel Oil Chemistry Program and included specifications and guidance on periodic sampling, trending, inspection, and cleaning of fuel oil and fuel oil system components (items 1, 2, 4, 5, and 7). The inspectors also reviewed analytical results and trending for fuel oil samples taken on February 17 and May 14, 2009, and associated condition reports and corrective actions. The inspectors

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reviewed the inspection results for both fuel oil storage tanks completed on November 19 and December 10, 2008, an associated condition report, and work orders established for subsequent 10-year tank inspections (item 3). The inspectors reviewed the procedure for the monthly operation of the diesel fire pump (item 6 and 7). The inspectors determined that all aspects of this commitment had been adequately addressed in the revised procedures and were being adequately implemented.

The inspectors confirmed Constellation enhanced the Fuel Oil Chemistry program as stipulated in Commitment 21.

Commitment 22 - Enhance the Reactor Vessel Surveillance program to (1) Incorporate the requirements and elements of the Integrated Surveillance Program (ISP), as documented in BWRVIP-116 and approved by NRC, or an NRC approved plant-specific program into the Reactor Vessel Surveillance Program, and include a requirement that if NMPNS surveillance capsules are tested, the tested specimens will be stored in lieu of optional disposal. When the NRC issues a final safety evaluation report (SER) for BWRVIP-116, NMPNS will address any open items and complete the SER Action Items. Should BWRVIP-116 not be approved by the NRC, a plant specific reactor vessel surveillance program will be submitted to the NRC two years prior to commencement of the period of extended operation; and (2) Project analyses of upper shelf energy and pressure temperature limits to 60 years using methods prescribed by Regulatory Guide (RG) 1.99, Revision 2, and include the applicable bounds of the data, such as operating temperature and neutron fluency.

- (1) On March 1, 2006 the NRC issued the SER for BWRVIP-116, "BWR Vessel and Internals Project Integrated Surveillance Program (ISP) Implementation for License Renewal." This SER found BWRVIP-116 acceptable with conditions, namely that neutron fluency calculations were performed in accordance with an NRC approved methodology. The inspectors reviewed NMP1-RPV-001, "Program Plan for Reactor Pressure Vessel Embrittlement Measurement Program," and verified the licensee is participating in the ISP and incorporated elements of BWRVIP-116. Nine Mile Unit 1 is listed as a Target Vessel, not as an ISP Host Plant in BWRVIP-116, and is therefore not expected to provide capsules for testing. Since BWRVIP-116 was approved by the NRC, the licensee has not submitted a plant specific surveillance program.
- (2) The inspectors reviewed ATI-05-034-001, "Calculation of P-T Operating Limit Curves for License Renewal for Nine Mile Points Units 1 and 2," for compliance of the analysis of Upper Shelf Energy (USE) and pressure/temperature limits with methods prescribed in RG 1.99, Revision 2, and projection to 60 years, with no noted discrepancies.

The inspectors confirmed Constellation enhanced the Reactor Vessel Surveillance program as stipulated in Commitment 22.

Commitment 23 - Develop and implement a One-Time Inspection Program, which also includes the attributes for a Selective Leaching of Materials Program.

The inspectors reviewed SER Sections 3.0.3.1.4 and 3.0.3.1.5 for the one-time inspection and selective leaching programs, corporate program procedures related to one-time inspections and inspection methodology, and interviewed the responsible personnel. The one-time inspection and selective leaching programs are discussed separately below; Constellation addressed the two programs under that same administrative procedures.

For both programs, in each material and environment group, Constellation produced an Inspection Scope Report (ISR) for inspection sample determinations and a Final One-Time Inspection Report (FOTR) for summarizing inspection results. The inspection sampling was based on an evaluation by component type within the material/environment group as to the more likely and less likely locations where degradation could occur. The samples were chosen from the locations determined to be more likely based on a 90%/90% confidence interval and could involve more than one location per component. The initial inspections were almost exclusively performed by visual examinations and primarily on valves. The licensee kept excellent photo records of the inspections. Some ultrasonic examinations were used for evaluations of degradations.

For the one-time inspections, Constellation established 13 material/environment groups, which were comprised of a total of over 7600 components, and inspected 98 components in the initial round of inspections. In the carbon and low-alloy steel in treated water group, two additional rounds of inspections occurred with 22 additional components being inspected. Some components merited periodic inspections and were transferred to the preventive maintenance program to accomplish the inspections.

The inspectors reviewed the one-time inspection result summary, all ISRs, all FOTRs, and all inspection results for the 13 material/environment groups within the one-time inspections. The inspectors reviewed six related condition reports and four unrelated condition reports, e.g., broken valve stem.

The inspectors identified a concern in the aluminum alloy material group. Constellation determined that all locations within the 34 components were less likely to exhibit corrosion and in accordance with their program concluded that no inspections were needed within that material group. NRC guidance at the time of the application and industry guidance supported the less likely determinations for corrosion in aluminum alloy material. The inspectors concluded that the sampling methodology that did not result in any inspections was inappropriate for the One-Time Inspection Program, given its objective of inspecting to confirm the absence of corrosion. Constellation stated that the outcome would be re-evaluated under Condition Report (CR) 2009-3331, and noted that possible options included performing some inspections in the aluminum alloy material group and justifying the removal of the aluminum alloy material group from the one-time inspection program. The inspectors stated that these options appeared to be more appropriate.

For the selective leaching inspections, Constellation established 4 material/environment groups, i.e., susceptible copper alloys and gray cast iron in treated and raw water, which were comprised of a total of over 340 components, and inspected 54 components.

Constellation concluded that there were no significant indications of selective leaching. Constellation sent a component for destructive evaluation, but the results showed that the component material was not susceptible to selective leaching, contrary to existing database information. Under CR 2009-3286, Constellation was re-evaluating the sampling for the copper alloy in raw water material/environment group given the reduction of 41 components and 12 inspections found to be not applicable for selective leaching.

The inspectors reviewed the selective leaching inspection result summary, all ISRs, all FOTRs, and all inspection results for the 4 material/environment groups within the selective leaching inspections. The inspectors reviewed seven related condition reports and two unrelated condition reports.

The NRC confirmed Constellation developed and implemented a One-Time Inspection Program, which included the attributes for a Selective Leaching of Materials Program.

Commitment 24 - Develop and implement a Buried Piping and Tank Inspection Program which includes a requirement that before entry into the period of extended operation, if an opportunistic inspection has not occurred, NMPNS will excavate NMP1 degradation susceptible areas to perform focused inspections within ten years, unless an opportunistic inspection occurred within this ten year period.

The inspectors reviewed the licensee's commitment tracking system and supporting documentation to assess the bases, and actions to meet this commitment. The documents reviewed included ALRA Appendices A & B, sections A1.1.6 and B2.2.22, NRC Staff SER section 3.0.3.1.0, UFSAR section C.1.6 Table C-1, and Buried Pipes and Tanks Program. The inspectors determined that the licensee had divided the commitment into two tasks, and had tracked these tasks for implementation. The inspectors reviewed the procedure to ascertain that these requirements had been incorporated into the applicable procedure. Additionally, the inspectors reviewed inspection results of Fire Detection and Protection System piping and components documented in the Attachment 'A' of the Procedure NER-1A-038.

The inspectors confirmed Constellation developed and implemented a Buried Piping and Tank Program which includes the requirements stipulated in Commitment 24.

Commitment 25 - An augmented VT-1 visual examination of the containment penetration bellows will be performed using enhanced techniques qualified for detecting SCC, per NUREG-1611, Table 2, Item 12.

NUREG-1611, Table 2, Item 12 provides guidance for the examination and aging management of License Renewal BWR containment structural steel and liner aging mechanism of stress corrosion cracking (SCC). NUREG-1611, Table 2, Item 12 recommends SCC to be managed by Examination Categories E-B & E-F of Subsection IWE, Appendix J to 10 CFR 50, and augmented VT-1 visual examinations of bellows bodies.

The inspectors reviewed Nine Mile Point Nuclear Station Non-Destructive Examination

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Procedure NDEP-VT-2.05 Revision 04, "ASME Section XI IWE/IWL Visual Examination". This procedure provide the overall requirements for visual examinations in accordance with ASME Section XI, Articles IWE and IWL. Procedure NDEP-VT-2.05 requires a General Visual Examination (VT-3) to determine the general mechanical and structural condition of containment surfaces. In addition, for those surface areas where degradation is identified NDEP-VT-2.05 require a Detailed Visual Examination (VT-1) to determine the extent of the condition. Work Authorization 08-05455-00 and 08-05455-02 authorized the IWE examinations of the torus and drywell as well as augmented VT-1 visual examinations of bellows in accordance with NDEP-VT-2.05 acceptance criteria per ASME XI 1998 during NMP1 refueling outage 20. The inspectors reviewed NMP IWE/General Visual Examination Report which summarizes the condition, as evaluated by procedure NDEP-VT-2.05/Rev. 04 ASME XI Visual Examination, of the following bellows: vacuum breaker bellows, vent lines bellows, main steam bellows, dry well penetration bellows, reactor building (RB) penetration bellows, and RB main steam bellows.

As a result of this examination, NMP documented the condition of those bellows with damage on CR 2009-001712, CR-2009-001905, and CR 2009-001912. Missing bellow shroud bolts, minor damage to bellows protective shrouds, penetrations bellows shroud damage, and a steel bellows arc strike were the conditions found during the IWE inspection. NMP took corrective action (CA) and concluded that the bellows will remain capable of performing its design function.

The inspectors confirmed Constellation an augmented VT-1 visual examination of the containment penetration bellows was performed using enhanced techniques qualified for detecting SCC, per NUREG-1611, Table 2, Item 12.

Commitment 26 - Enhance the Structures Monitoring Program to (1) Expand the program to include the following activities or components in the scope of License Renewal but not within the current scope of 10 CFR 50.65: (a) the steel electrical transmission towers required for the station black-out and recovery paths; (2) Expand the parameters monitored during structural inspections to include those relevant to aging effects identified for structural bolting; and (3) Implement regularly scheduled ground water monitoring to ensure that a benign environment is maintained.

The inspectors reviewed the licensee's commitment tracking system and other documents related to this commitment to determine the bases of this commitment, and the actions taken to meet the commitment. The documents included ALRA Appendix A, sections A1.1.23 and A1.1.34, Appendix B, sections B1.1.27 and B1.1.28, NRC Staff SER, section 3.0.3.2.21, UFSAR section C.1.33 and Table C-1, and the Procedure S-MRM-REL-0102, Rev. 05. The inspectors determined that the licensee had divided the commitment into three tasks, and had tracked these tasks for implementation. The inspectors reviewed the procedure to ascertain that these requirements had been incorporated into the applicable procedure. Additionally, the inspectors reviewed structural steel inspection checklist for transmission towers and laboratory analysis reports for groundwater to verify that these requirements had been implemented.

The inspectors confirmed Constellation enhanced the Structures and Monitoring Program as stipulated in Commitment 26.

Commitment 31 - Enhance the Non-Segregated Bus Inspection Program to (1) expand visual inspections of the bus ducts, their supports and insulation systems; (2) Create new provisions to perform as an alternative to either thermography or periodic low range resistance checks of a statistical sample of the bus ducts accessible bolted connections, a visual inspection for the connections that are covered with heat shrink tape, sleeving, insulating boots, etc; and (3) Define acceptance criteria for inspection of the bus ducts, their support and insulation systems, and the low range ohmic checks of connections.

- (1) The inspectors reviewed S-EPM-GEN-700, "Outdoor Transformer and Grounding Transformer Inspection PM," and noted it had been revised to include section 4.9 for visual inspection of Unit 1 4.16 kV Non-Segregated Bus Ducts from XF-T10, XF-101N, and XF-101S to their associated powerboard connections every six years. N1-EMP-GEN-296 contains an identical set of visual inspections required when XF-T10 is backfed. The inspectors verified baseline inspections of applicable bus ducting had been completed.
- (2) The inspectors reviewed S-EPM-GEN-700 was reviewed and verified that it contained visual inspection requirements for insulated bus connections in section 4.9 of the procedure. The inspectors also verified baseline visual inspections had been completed.
- (3) Acceptance criteria for inspections of bus ducting, support and insulation systems, and low range ohmic checks of connections were verified by the inspectors to have been established in S-EPM-GEN-700.

The inspectors confirmed Constellation enhanced the Non-Segregated Bus Inspection Program as stipulated in Commitment 31.

Commitment 33 - Enhance the Bolting Integrity Program to (1) The Structural Monitoring, Preventive Maintenance and System Walk-down Program will be enhanced to include requirements to inspect bolting for indication of loss of preload, cracking, and loss of material, as applicable; (2) Include in NMP administrative and implementing program documents references to the Bolting Integrity Program and industry guidance; and (3) Establish an augmented inspection program for high-strength (actual yield strength \geq 150 ksi) bolts. This augmented program will prescribe the examination requirements of Tables IWB-2500-1 and IWC-2500-1 of ASME Section SI for high-strength bolts in Class I and Class 2 component supports, respectively.

The inspectors reviewed the licensee's commitment tracking system and other documents related to this commitment to determine the bases of this commitment, and the actions taken to meet the commitment. The documents included ALRA Appendix A, section A1.1.38 and, Appendix B, section B1.1.36, NRC Staff SER, section 3.0.3.2.21, UFSAR section C.1.37 and Table C-1, Procedure S-MRM-REL-0102, Engineering Specification SDS-006, and NMP-AMP-BOLTING. The inspectors determined that the licensee had divided the commitment into three tasks, and had tracked these tasks for

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implementation. To verify the implementation of these requirements, the inspectors reviewed the bolting inspection results documented in Attachment B to the Nuclear Engineering Report 1NER-1S-050, Rev. 00 as Table 1- Bolting Review Results- Pipe Supports.

The inspectors confirmed Constellation enhanced the Bolting Integrity Program, The Structural Monitoring, Preventive Maintenance and System Walk-down Program as stipulated in Commitment 33.

Commitment 38 - An EVT-1 examination of the NMP1 feedwater sparger end bracket welds will be added to the BWR Vessel Internals Program. The inspection extent and frequency of the end bracket weld inspection will be the same as the ASME Section XI inspection of the feedwater sparger bracket vessel attachment welds

The licensee revised procedure NER-1M-080 to include the requirement to perform an EVT-1 examination of the feedwater sparger end bracket welds. The feedwater sparger end bracket welds had been inspected every fourth outage in compliance with the ASME Section XI requirements and the licensee's prior commitment to implement the guidance contained in NRC's NUREG-0619, "BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking: Resolution of Generic Technical Activity A-10 (Technical Report)" The licensee reviewed past inspection records to determine if prior examinations met the standards established for an EVT-1 examination. Five of the total eight end bracket welds were previously inspected to the VT-1 standard and did not contain evidence of cracking. The three remaining, indeterminate, welds were subsequently inspected during refueling outage 17. The inspection period was reduced to every refueling outage because the licensee determined a crack could deleteriously propagate in a four year period.

The inspectors confirmed Constellation added EVT-1 examination of the NMP1 feedwater sparger end bracket welds to the BWR Vessel Internals Program. The inspectors confirmed the inspection extent and frequency of the end bracket weld inspection was the same as the ASME Section XI inspection of the feedwater sparger bracket vessel attachment welds.

The inspectors confirmed Constellation added examination of the NMP1 feedwater sparger end bracket welds to the BWR Vessel Internals Program with the same extent and frequency as the ASME Section XI inspection of the feedwater sparger bracket vessel attachment welds.

Commitment 39 - The Masonry Wall Program (as managed by the Structural Monitoring Program) will be enhanced to provide guidance for inspecting NMP1 non-reinforced masonry walls that do not have bracing and are within scope of license renewal more frequently than the referenced masonry walls.

The inspectors reviewed the licensee's commitment tracking system and supporting documents to determine the bases, and to verify that the Masonry Program was adequately covered and managed by the Structural Monitoring Program. The documents included ALRA Appendix A, sections A1.1.23 and A1.1.34, Appendix B, sections B1.1.27

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and B1.1.28, NRC Staff SER, section 3.0.3.2.20, UFSAR section C.1.23 and Table C-1 Item 39, and the Procedure S-MRM-REL-0102, Rev. 05. The inspectors determined that the procedure implementing the Structural Monitoring Program had been revised to include specific references and identities of affected masonry walls to establish appropriate inspection frequencies. Additionally, to assess the adequacy and effectiveness of the masonry wall inspections under the Structural Monitoring Program, the inspectors reviewed the results of these inspections performed in the month of March and April of 2009. The inspections were adequate.

The inspectors confirmed the Masonry Wall Program (as managed by the Structural Monitoring Program) was enhanced to provide guidance for inspecting, with more frequency than the referenced masonry walls, NMP1 non-reinforced masonry walls that do not have bracing and are within scope of license renewal.

Commitment 41 - The NRC review of BWRVIP-76 is not yet complete. When the NRC review of BWRVIP-76 is complete, NMPNS will evaluate the NRC SER and complete SER Action Item, as appropriate.

The SER action item is an open item referenced in BWRVIP-18, and is related to the design of the Unit 1 Core Spray Components which make some welds inaccessible. These "hidden" welds were addressed in a revision of the site specific procedure used to inspect the Core Spray Annulus Piping and Sparger. Essentially a special ultrasonic delivery device is being designed based on a qualified technique. In the interim, an analysis was performed by the licensee to determine the fault tolerance of the piping and sparger. The licensee will accelerate the implementation of the specialized ultrasonic inspection if the analysis is challenged by the discovery of cracking in similar crevice locations in the vessel. These plans were predicated on the NRC reviewed and accepted BWR guidelines.

The procedure used to inspect miscellaneous non-safety related vessel internals was revised to incorporate BWRVIP-139 "Steam Dryer Inspection and Flaw Evaluation Guidelines."

The procedure used to inspect the lower plenum was revised to include reference to the baseline inspection, as stated in 3.2.2 of BWR-VIP-47-A "BWR Lower Plenum Inspection and Flaw Evaluation Guidelines". This requirement was stipulated in the December 1997 issue of the guideline and has been implemented by Nine Mile Point since that time.

The licensee revised the top guide inspection procedure NER-1M-081 was revised to change the reinspection scope and frequency of the grid beam to conform with BWRVIP-26A.

On April 21, 2008 the BWRVIP committee responded to the NRC's request for additional information about BWRVIP-76: BWR Vessel and Internals Project, "BWR Core Shroud Inspection and Flaw Evaluation Guidelines." BWRVIP-76 combines the guidance from several BWRVIP technical reports and incorporates information from several NRC staff reviews and safety evaluations. By letter dated July 28, 2006, (ADAMS Accession No.

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ML062140594), the NRC staff issued the safety evaluation for BWRVIP-76. That safety evaluation did not cover the license renewal related Appendix K, which was originally submitted with the technical report.

With the exception of Appendix K of BWRVIP-76 the NRC has completed its review of BWRVIP-76. The inspectors confirmed that Constellation took appropriate actions to implement the guidance of BWRVIP-76 and comments contained in the NRC SE and completed the SER Action Item, (commitment), as appropriate.

10 CFR 54.37

After the renewed license is issued, the FSAR update required by 10 CF 50.71(e) must include any system, structures, and components newly identified that would have been subject to an aging management review or time-limited analysis in accordance with §54.21. The FSAR update must describe how the effects of aging are managed such that the intended function(s) in P 54.4(b) will be effectively maintained during the period of extended operation.

During a review of the License Renewal Database (CONRAD) compared with the Master Equipment List (MEL), and revised plant drawings, it was determined that over 5600 structures, systems, and components (SSC) had not received an aging management review under the original license renewal application. Using the screening and scoping methodology of the original license renewal application 222 of the SCCs required aging management and were newly identified as defined by 10 CFR 54.37(b). 179 of the SCCs were embraced by the current aging management process however, 43 of the SCCs were unique in some way. For example the license renewal application for the NMP1 Service Water System did not originally consider a cast stainless steel valve in raw water. The cast stainless steel valve was uniquely identified by the review process. A further review subsequently determined the components were already managed by an existing aging management program.

The inspectors reviewed the aging management review for a sample of newly identified components (VLV-71-353, VLV-100-467A).

The inspectors confirmed that Constellation took appropriate actions to assure newly identified structures, components, and systems were properly identified and evaluated for management for aging affects.

Review of UFSAR and Commitment Change Process

As part of reviewing the individual commitments a sample of associated UFSAR descriptions were reviewed to confirm the implemented programs were consistent with the UFSAR descriptions. The inspectors also discussed the procedures used to control UFSAR revisions and their affect on the license renewal commitment descriptions. The descriptions of the commitments in the UFSAR did not vary from the descriptions found in Appendix A of the NRC's SER.

The inspectors reviewed the licensee's procedures to ensure that commitment revisions

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would follow the guidance in NEI 99-04, "Guidelines for Managing NRC Commitment Changes", including the elimination of commitments, and would properly evaluate, report, and approve changes to license renewal commitments listed in the UFSAR in accordance with 10 CFR 50.59. The inspectors also reviewed the licensee's commitment tracking program to evaluate its effectiveness. The process was procedurally controlled and followed the guidance of NEI 99-04 and NRC Regulatory Issue Summary RIS 2000-17, "Managing Regulatory Commitments Made By Power Reactor Licensees to the NRC Staff, September 21, 2000".

Observation of Activities Related to License Renewal Commitment Inspection

During the week of March 30 to April 3, 2009, the inspectors observed the following activities:

1. Resistance Testing – The inspectors reviewed the licensee's management of non-EQ electrical cable metallic connections by observing the implementation of work order WO 07-10838-00 "Perform Connection Resistance Testing of Point 3 Red and Green lights are Dim and Flickering, Repair Indication, Perform System Lub", per Commitment #35.
2. Drywell Liner – The inspectors reviewed the disposition of the drywell corrosion issue based on readings taken during the current outage. The inspectors compared the disposition of the data against element 5 of NUREG 1800 Appendix A.1 (Branch Technical Position RLSB-1) para. A.1.2.3.5, "Monitoring and Trending":

"Monitoring and trending activities should provide predictability of the extent of degradation and thus effect timely corrective or mitigative actions. This should include an evaluation of the results against the acceptance criteria and a prediction regarding the rate of degradation in order to confirm that timing of the next scheduled inspection will occur before a loss of safety intended function."

Evaluation against the acceptance: The original design minimum wall thickness is being used although rigorous reanalysis of the Mk 1 drywell design, by the both a licensee and the NRC, indicates this value can be reduced to less than ½ that value for the limiting condition.

Prediction regarding rate of degradation: The original design and torus corrosion rates were applied when initially discovered in order to confirm the timing of the next inspection would occur prior to the loss of intended safety function. Subsequently baseline thickness readings were taken and recently taken readings were then used to develop a corrosion rate specific to the areas of concern.

Results: The correct and complete application of element 5 resulted in a corrosion rate that is not credible for a number of technical reasons which must

be technically justified in subsequent analysis. Although the results were questionable the licensee fully implemented the license renewal commitment.

3. Small Bore Piping – The inspectors observed the ultrasonic inspection of a small bore sampling line. The inspection was thorough and complete, including a complete calibration. The licensee fully implemented the commitment to inspect small bore piping.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On June 26, 2009, the NRC inspection team presented the inspection results to Mr. E. Larson and other members of his staff, who acknowledged the findings. The inspectors verified that none of the material examined during the inspection is considered proprietary in nature.

ATTACHMENT: SUPPLEMENTAL INFORMATION

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Yoe,	Plant General Manager
W. Byrne,	Manager, Nuclear Safety and Security
J. Krakuszeski,	Manager, Operations
F. Payne, Unit 1	General Supervisor Operations
T. Syrell, Director,	Licensing
P. Mazaferro	Acting Manager, Nuclear Engineering Services
M. Fallin	Constellation License Renewal

LIST OF DOCUMENTS REVIEWED

Basis Documents

LR-PBD-U1OCCW, "License Renewal Aging Management Program Basis Document Open-Cycle Cooling Water System", Rev 1.
GAP-HSC-02, "System Aging Inspection and Cleanliness Controls"
NMPNS-HX-01, "Generic Letter Heat Exchanger Program Plan"
S-TDP-REL-0102, "Service Water Heat Exchanger and Component Inspection Guide"
ECPN-N1-SWP-001, "Erosion/Corrosion Program Piping Review Plan for the Service Water System"
S-TDP-REL-0103, "GL 89-13 Service Water Problems Affecting Safety-Related Equipment Program Plan", Rev 00
NIP-REL-06 REVISION 04 Fatigue Monitoring Program
Fatigue Summary Report, June 2, 2009
Report No.: SIR-04-170, "Transfer Function and System Logic Report for the Transient and Fatigue Monitoring System for the NMP Unit 1 Nuclear Station Feedwater Nozzles"
Cycle Based Fatigue Development for RPV and Torus-Attached Piping Penetration Locations for NMP-1
Constellation Energy Group RPV Basin Seal Skirt Re-Evaluation
IWE DETAILED/ GENERAL VISUAL EXAMINATION REPORT
NMP Nuclear Station License Renewal Application Appendix A1-UFSAR Supplement
Corporate Engineering Program Change Notice PCN-1 2008-IWE-001

Calculations

Calculation S0.0-FATIGUEPRO01-004, "Cycle-Based Development for Emergency Condenser Locations"
Calculation S0.0-FATIGUEPRO01-017, "Cycle Counting and Cycle-Based Fatigue"
Calculation S0.0-FATIGUEPRO01-001, "Cycle-Based Development for RPV and Torus-Attached Piping Penetration Locations for NMP-1"

Calculation S0.0-FATIGUEPRO01-017, "Cycle Counting and Cycle-Based Fatigue Report for the Transient and Fatigue Monitoring System for NMP Unit 1".

Calculation S0.0-FATIGUE POR01-006 "Recirculation Water Clean Up (RWCU) Piping Fatigue Analysis"

Calculation S0.0-FATIGUE POR01-007 "Fatigue Evaluation for Feedwater Piping"

Calculation S0.0-FATIGUE POR01-008 "Recirculation Loop 15 and Attached Branch Piping Fatigue Analysis"

Calculation S0.0-FATIGUE POR01-009 "Core Spray Class 1 Piping Fatigue Analysis"

Calculation S0.0-FATIGUE POR01-016 "Shakedown Analysis of Limiting Location for Emergency Condenser Piping"

Calculation S0.0-FATIGUE POR01-017 "Cycle Counting and Cycle Based Fatigue Report for the Transient and Fatigue Monitoring System for NMP Unit 1"

Calculation S0VESSELM030, Rev 01, "Reconciliation of Previous RPV Flaw Evaluations for the License Renewal Period."

Procedures

Nine Mile Point Unit 1 Operating Procedure, N1-OP-43C, Rev 00400, "Plant Shutdown".

Nine Mile Point Unit 1, Surveillance Procedure, N1-ST-R30, Rev 00200, "Reactor Pressure Vessel And ASME Class 1 System Leakage Test"

Nine Mile Point Unit 1, Surveillance Procedure, N1-OP-43B, Rev 01100, "Normal Power Operations".

Nine Mile Point Nuclear Station Non-Destructive Examination Procedure NDEP-VT-2.05 Revision 04 ASME Section XI IWE/IWL Visual Examination (8/4/2005)

CNG-CM-6.01-1000, One-Time Inspection of Mechanical Systems Aging Management Program, Rev 1

CNG-FES-004, One-Time Inspection Methodology, Rev 0

N1-MPM-049-010, Main Condenser Preventive Maintenance, Rev 0

N1-ST-R20, Manual Exercising of ERV Line Vacuum Breakers, Rev 6

N1-CT-V502, Incoming Diesel Fuel Oil Sampling and Analysis, Rev 6

N1-CTP-M500, Monthly Diesel Fuel Oil Sampling and Analysis, Rev 3

N1-CSP-Q504, Quarterly Diesel Fuel Oil Sampling and Analysis, Rev 4

N1-PM-M9, Monthly Operation of Fire Pumps, Rev 2

N1-MPM-EGF-10Y001, Diesel Generator Fuel Oil Storage Tank Cleaning and Inspection, Rev 2

GAP-HSC-02, System Aging Inspections and Cleanliness Controls, Rev 18

N1-CSP-Q504, Quarterly Diesel Fuel Oil Sampling and Analysis, completed 2/17/09 & 5/14/09

N1-MPM-EGF-10Y001, Diesel Generator Fuel Oil Storage Tank Cleaning and Inspection, completed on 11/20/08 & 12/10/08 under Work Orders 07-15551-00 and 07-13328-00

N1-MPM-070-409, "RBCLC Water Heat Exchangers 70-13R, 70-14R, 70-15R"

N1-MPM-080-410, "CTN-SP Heat Exchangers PM"

N1-MPM-070-412, "Diesel Generator Cooling Water Heat Exchanger and Temperature Control Valve Maintenance"

N1-MPM-074-022, "CW Traveling Screen PM"

N1-MPM-074-018, "Circulating Water Gates and Hoists," Rev 4

N1-ST-Q25, "EDG Cooling Water Quarterly Test," Rev 12

N1-ST-M4A, "Emergency Diesel Generator 102 and PB 102 Operability Test," Rev 2

N1-ST-M4B, "Emergency Diesel Generator 103 and PB 103 Operability Test," Rev 2

N1-MMP-072-117, "Maintenance of Emergency Service Water Pumps," Rev 4

N1-MPM-094-020, Instrument Air Dryer DEH-94-168 and -169 Cleaning and Inspection, Rev 5
N1-MPM-094-604, Instrument Air Compressor PM CMPR-94-01 and -02, Rev 5
N1-MMP-GEN-407, Joy Air compressor Aftercooler Maintenance, Rev 4
GAP-HSC-02, System Aging Inspections and Cleanliness Controls, Rev 18
N1-CTP-SA921, Instrument Air Sampling and Analysis, Rev 0
S-TDP-REL-0101, System Walkdown Program, Rev 4
NMP-AMP-COMPRESSED AIR, Rev 0

Reports

NDE Report 1-6.05-08-0011, 11/19/08
NDE Report 1-6.05-08-0012, 12/10/08
Report for the Transient and Fatigue Monitoring System for NMP Unit 1”

Work Orders

WO 06-06603-00, R19 System walkdown for compressed air, completed 4/1/07
WO 08-06233-00, R20 System walkdown for compressed air, completed 3/28/09
Work Authorization WO NO: 08-05455-00 (date/time printed: 2/26/09)
Work Authorization WO NO: 08-05455-02 (date/time printed: 2/26/09)

Miscellaneous Documents

NCTS Commitment Tracking Record 5045582-00, Letter Submitted to NRC Requesting Relief. Letter September, 16, 2008 Constellation to NRC, “Extension of Permanent Relief from Inservice Inspection Requirements of 10 CFR 50.55a(g) for the Volumetric Examination of Reactor Pressure Vessel Shell Circumferential Welds for the License Renewed Period of Extended Operation.”

NCTS Commitment Tracking Record Task Information Sheet 504582-11
CNG-CM-6.01-1001 Revision 00001 "10 CFR 54.37 (b) Compliance and 10 CFR 54 Supporting Documentation Maintenance."

CNG-FES-013 Revision 0000, "10 CFR 54 Scoping and Integrated Plant Assessment Methodology and 10 CFR 54.37 Guidance."

NCTS Commitment Tracking Record 504582-15, Fatigue Monitoring Program Will Track
NER-1M-075, Revision 3, “In-vessel Core Spray Annulus Piping and Sparger inspection and Evaluation.”

NMP1-RVIP-003, Revision 02, “Reactor Vessel and Internals Inspection Plan and Schedule.”
NER-1M-080, Revision 03, “Miscellaneous Non-Safety Related Vessel Internals Inspection and Evaluation”

NER-1M-082, Revision 03, “BWR Lower Plenum Inspection and Evaluation (BWRVIP-47-A)”
NER -1M-081, Revision 2, “Top Guide Inspection and Evaluation (BWRVIP-26-A) and Core Plate (BWRVIP-25) Evaluation.”

NER-1M-053, Revision 4, “Core Shroud Repair Hardware In-vessel Re-Inspection and Evaluation.”

NER-10-022, Revision 4, “RFO-15 Core Shroud Inspection Summary Report and Post RFO15 Re-inspection Plans.”

NER-10-022, Revision 5, “RFO-15 Core Shroud Inspection Summary Report and Post RFO15 Re-inspection Plans.”

Condition Reports

2009-3092
2009-3289
2009-3348
2009-3286
2009-3346
2002-4481
2003-0915
2003-1052
2005-3148
2007-1876
2007-1969
2009-1482
2009-1495
2009-1510
2009-1556
2007-1719
2007-1720
2007-1738
2007-1892
2007-2109
2008-7331
2008-7871
2008-8770
2008-8899
2008-8216
2008-8258
2008-8272
2009-0278
2009-0279
2009-1700
2009-1880
2009-2028
2009-2058
2009-2973
2009-3031
2008-8680
2008-6662
2009-3059
2009-3289
2009-1712
2009-1905
2009-1368
2009-1912

LIST OF ACRONYMS

AMP	Aging Management Program
ALRA	Amended License Renewal Application
ASME	Code American Society of Mechanical Engineers Pressure and Vessel Code, application for a renewed license
LRA	Boiling Water Reactor – Vessel Internal Project
BWR-VIP	Closed Cycle Cooling Water System
CCCWS	Condition Report
CR	cumulative usage factor
CUF	Design Cycle Based Fatigue
CBF	Detailed Visual Examination
VT-1	effective full power years
EFPY	Electric Power Research Institute
EPRI	eddy current testing
ECT	electromatic relief valves
ERV	emergency diesel generator
EDG	environmental fatigue multipliers
M	Fatigue Monitoring Program
FMP	feedwater system
FWS	Final One-Time Inspection Report
FOTR	finite element model
FEM	General Visual Examination
VT-3	heating ventilation and air conditioning
HVAC	heat exchanger
HX	Integrated Surveillance Program
ISP	Inspection Scope Report
ISR	License Renewal Database
CONRAD	Master Equipment List
MEL	Nine Mile Point Unit 1
NMP1	Open Cycle Cooling Water System
OCCWS	reactor building
RB	Reactor Building Closed Loop
RBCL	Reactor Building Closed Loop Cooling
RBCLC	reactor pressure vessel
RG	Regulatory Guide
RPV	safety evaluation report
SER	Stress Based fatigue
SBF	structures, systems, and components
SSC	Time Limited Aging Analyses
TLAA	Updated Final Safety Analysis Report
UFSAR	ultrasonic inspection
UT	