UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

November 12, 2009

Mr. David A. Heacock
President and Chief Nuclear Officer
Dominion Energy Kewaunee, Inc.
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: KEWAUNEE POWER STATION NRC LICENSE RENEWAL SCOPING, SCREENING, AND AGING MANAGEMENT INSPECTION REPORT 05000305/2009007

Dear Mr. Heacock:

On September 30, 2009, the U. S. Nuclear Regulatory Commission (NRC) completed a License Renewal inspection at your Kewaunee Power Station. The enclosed report documents the inspection results, which were discussed on September 30, 2009, with members of your staff in an exit meeting open for public observation at the Kewaunee Municipal Building.

The purpose of this inspection was to examine activities that support the application for renewed licenses for Kewaunee Power Station. The inspection addressed the processes of scoping and screening plant equipment to select equipment subject to an aging management review, and development and implementation of aging management programs to support a period of extended operation. As part of the inspection, the NRC examined procedures and representative records, interviewed personnel, and visually examined accessible portions of various systems, structures, or components, to verify license renewal boundaries, and to observe any effects of equipment aging. The visual examination of systems, structures, and components also included some areas not normally accessible, including inside containment and manholes.

The inspection concluded that the scoping, screening, and aging management license renewal activities, were generally conducted as described in the Kewaunee Power Station License Renewal Application and, as supplemented through your responses to requests for additional information from the NRC. The inspection also concluded that documentation supporting the application was generally in an auditable and retrievable form. Existing aging management programs were determined to be functioning adequately and, when all the programs are implemented as described in your License Renewal Application, there is reasonable assurance that the intended functions of vital plant systems, structures, and components will be maintained through the period of extended operation.

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

Sincerely,

/RA/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-305
License No. DPR-43

Enclosure: Inspection Report 05000305/20009007
w/Attachments: Supplemental Information and Exit Meeting Presentation Slides

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-305
License No:	DPR-43
Report No:	05000305/2009007
Licensee:	Dominion Energy Kewaunee, Inc.
Facility:	Kewaunee Power Station
Location:	Kewaunee, WI
Dates:	August 17 through September 30, 2009
Inspectors:	B. Jose, Senior Engineering Inspector (Lead) C. Tilton, Senior Engineering Inspector (Lead) J. Neurauter, Senior Engineering Inspector S. Sheldon, Senior Engineering Inspector T. Bilik, Engineering Inspector M. Jones, Engineering Inspector
Observer:	D. Betancourt Roldán, Engineering Inspector
Approved by:	Ann Marie Stone, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

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SUMMARY OF FINDINGS

IR 05000305/2009007; 08/17/2009 – 09/30/2009; Kewaunee Power Station; License Renewal Inspection

This inspection of the applicant's license renewal scoping, screening, and aging management processes was performed by six regional office inspectors. The team used NRC Manual Chapter 2516 and NRC Inspection Procedure 71002 as guidance for performing this inspection. No "findings" as defined in NRC Manual Chapter 0612 were identified.

The team concluded that, in general, the applicant performed its license renewal scoping, screening, and aging management review in accordance with the Kewaunee Power Station License Renewal Application and that no inspection impediments existed to granting the license extension.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

No findings of significance were identified

B. Licensee-Identified Violations

No findings of significance were identified.

REPORT DETAILS

1. INSPECTION SCOPE

This inspection was conducted by NRC Region III inspectors. The inspection was performed in accordance with NRC Manual Chapter 2516 and NRC Inspection Procedure (IP) 71002, "License Renewal Inspection," dated February 18, 2005.

This inspection looked at both the applicant's scoping and screening methodology and aging management programs, as described in the license renewal application (LRA), submitted to the NRC on August 14, 2008.

The inspectors also reviewed the five regulated events specified for inclusion in 10 CFR 54.4(a)(3) including Fire Protection (FP), Environmental Qualification (EQ), Pressurized Thermal Shock (PTS), Station Blackout (SBO), and Anticipated Transient Without Scram (ATWS). The inspectors' review of license renewal (LR) boundary drawings, the application, the scoping/screening reports, and the USAR concluded that the applicant had performed scoping and screening for the five regulated events in accordance with the methodology described in the LRA and the rule.

The Attachments to this report list the applicant personnel contacted, the documents reviewed, and the acronyms used.

2. VISUAL OBSERVATION OF PLANT EQUIPMENT

During this inspection, the inspectors performed walkdown inspections of portions of many of the plant systems, structures, and components (SSCs). The walkdowns were intended to determine the acceptability of the scoping boundaries, to observe the current condition of the SSCs, and to assess the likelihood that a proposed aging management program would successfully manage any aging effects. Specific comments on the walkdown results are presented in the sections below.

Portions of the following systems were walked down:

- Auxiliary Building Ventilation;
- Chemical and Volume Control System;
- Bleed Steam;
- Component Cooling Water System;
- Feed Water;
- Fire Protection;
- Main Steam and Steam Dump;
- Liquid Waste Processing and Discharge System;
- Spent Fuel Pool Cooling; and

- Station and Instrument Air System.

The following structures were walked down:

- Turbine Building Crane;
- Turbine Building (portions);
- Auxiliary Building (portions); and
- Block Walls (selected walls).

3. REVIEW OF SCOPING AND SCREENING METHODOLOGY

In order to assess the applicant's scoping and screening methodology, the inspection concentrated on those non-safety-related systems whose failure could prevent safety-related SSCs from accomplishing a safety function, in accordance with 10 CFR 54.4(a)(2). To verify that non-safety-related SSCs were correctly captured within or omitted from the scope of license renewal (LR), the inspectors reviewed LR documents, interviewed personnel, and walked down the selected SSCs.

.1 Auxiliary Building Ventilation System

The Auxiliary Building Ventilation (ABV) system is an auxiliary system that consists of three ventilation systems: Auxiliary Building Special Ventilation (ASV), Auxiliary Building Air Conditioning (AAC) and the Auxiliary Building Ventilation (ACA) systems. These systems are collectively designed to maintain space temperatures within acceptable limits during both normal and post accident operations, to protect personnel and safety-related equipment from the effects of High Energy Line Breaks (HELB), and to protect station personnel and the public from the effects of airborne radiation during fuel handling operations and during accident mitigation activities. All the components of the ASV system are considered safety-related. The AAC system is considered a non-safety-related system except for the ASV/Steam Exclusion Zone dampers and some components that fall under the regulated events criteria (fire dampers). Finally, the ACA system consists of safety-related (safeguards Fan Coil Units and Spent Fuel), regulated event components, and non-safety-related components. The safety-related components of the system are the ASV/Steam Exclusion Zone dampers, the safeguard Fan Coil Units and the Spent Fuel Pool Sweep Sub-System Exhaust Fans and Filter Assemblies.

All the safety-related components of the ASV, AAC and ACA systems described above are within the scope of LR based on the criteria of 10 CFR 54.4(a)(1). Portions are in scope as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criteria of 10 CFR 54.4(a)(2). Portions of the ABV system support Fire Protection, High Energy Line Break and Station Blackout event requirements based on the criteria of 10 CFR 54.4(a)(3) and were included within the scope of LR. However, some portions of the ABV system were excluded because they did not perform a safety-related function, were not required for a regulated event and did not potentially impact the safety function of another system.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening reports and the USAR, and interviewed personnel responsible for the system.

The inspectors also performed system walkdowns of accessible portions of the ABV system. During the walkdowns, the inspectors identified some minor discrepancies between the drawings and the actual physical installation of several dampers. These dampers were not located where the drawings indicated their location. The inspectors informed the applicant of the discrepancies and the applicant took adequate corrective actions to correct the drawings. These discrepancies have no impact in the adequacy of the scoping and screening methodology for the ABV system. The inspectors concluded that the applicant had performed scoping and screening for the ABV system in accordance with the methodology described in the LRA and the rule.

.2 Chemical Volume and Control System

The CVCS is an auxiliary system that provides for boric acid injection, chemical additions for corrosion control, reactor coolant cleanup, and degasification, reactor coolant makeup, reprocessing of water letdown from the Reactor Coolant (RC) System and reactor coolant pump seal water injections. The CVCS also provides auxiliary pressurizer spray if normal pressurizer spray is not available. The CVCS includes the Boron Recycle and Reactor Make-up sub-systems.

The CVCS is within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(1). Portions are in scope as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criterion of 10 CFR 54.4(a)(2). Portions of the CVCS support Fire Protection and Station Blackout event requirements based on the criterion of 10 CFR 54.4(a)(3). The majority of the CVCS was considered in-scope for LR. The only portions out-of-scope were the resin fill tank and its associated parts due to it being a portable unit that is stored far from safety-related components and some valves and associated piping to the C-111 nitrogen compressor, although the in-scope portion of the boundary between these sections contained the required anchors.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening reports and the USAR, and interviewed personnel responsible for the system. The inspectors also performed system walkdowns of accessible portions of the CVCS. The inspectors concluded that the applicant had performed scoping and screening for the CVCS in accordance with the methodology described in the LRA and the rule.

.3 Bleed Steam

The Bleed Steam System provides high pressure turbine exhaust and extraction steam to the high and low pressure feed water heaters to improve overall plant efficiency and remove moisture from the turbine. The systems consists of piping from the turbine extraction and exhaust points to the feed water heaters and vent paths from the moisture separator reheaters, heater drain tank, and feed water heaters. The moisture separator repeaters are included in the scope of the Bleed Steam System.

The Bleed Steam System is in the scope of license renewal since the system has intended functions that meet the criteria stated in 10 CFR 54.4(a). The Bleed Steam System meets 10 CFR 54.4(a)(2) because the system contains non-safety-related components that are spatially oriented such that their failure could prevent the satisfactory accomplishment of a safety-related function associated with a safety-related system, structure, or component. The evaluation boundary for the Bleed Steam System components subject to aging

management review includes non-safety-related components with a spatial orientation near a safety-related system, structure, or component located in the Turbine Building.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening reports, and the USAR, and interviewed personnel responsible for the system. The inspectors also performed system walkdowns of accessible portions of the Bleed Steam System. The inspectors concluded that the applicant had performed scoping and screening for the Bleed Steam System in accordance with the methodology described in the LRA and the rule.

.4 Component Cooling Water

The Component Cooling Water (CCW) system is the intermediate system between the Reactor Coolant (RC) and Service Water (SW) system. The primary functions of the CCW system are to remove and reject heat from the Reactor Coolant system, to the SW system, during plant operation and post-accident via the CC heat exchangers (HXs). The systems that rely on the CCW system for cooling include the Residual Heat Removal (RHR) system, Safety Injection (SI) system, and the Internal Core Spray (ICS) system, each having their own start signals based on the sequence of events during normal operation and following the onset of an accident. The CCW system consists of two CC Pumps, two CC HXs, a CC surge tank, and the associated piping, valves, and instrumentation.

The CCW system is within the scope of LR based on the criterion of 10 CFR 54.4(a)(1). Portions are in scope as non-safety-related affecting safety-related components for structural integrity and/or spatial interaction based on the criterion of 10 CFR 54.4(a)(2). Portions of the CCW system support Fire Protection and Station Blackout event requirements based on the criterion of 10 CFR 54.4(a)(3). The majority of the CCW system was considered in-scope of LR. Although, the Radioactive Waste Evaporator was no longer in-service, portions of it were identified as in scope for spatial interaction because the system contained pressurized manual valves. The remaining out of scope sections of the system were not in scope because no spatial concerns existed as no safety-related equipment was in the vicinity and the lines would remain depressurized.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening reports and the USAR, and interviewed personnel responsible for the system. The inspectors also performed system walkdowns of accessible portions of the CCW system, including the boundary with portions of the system not in-scope. The inspectors identified that there were several continuation points on the LR boundary drawings that contained incorrect information, however, these had been previously identified and addressed in the response to an earlier 'Request for Additional Information.' In addition, while onsite, the applicant's LR team identified additional valves in the Radioactive Waste Evaporator Package that were labeled on drawing LRXK-100-131 as being in-scope, but were out of scope on more detailed system drawings, LRXK-100-37 and LRXK-100-38. The applicant wrote a 'Document Modification Request' to resolve the identified drawing discrepancies and labeling issues. Based on this information, the inspectors concluded that the applicant had performed scoping and screening for the CCW system in accordance with the methodology described in the LRA and the rule.

.5 Feed Water

The purpose of the Feed Water (FW) system is to provide reheated FW from the condenser to the steam generator, where heat is then transferred from the Reactor Coolant, inside the steam generator tubes, to the shell side FW. The FW is converted to steam from the heat removed from the Reactor Coolant, which provides the motive force used to turn the turbine, which turns the generator to create energy.

The non-safety-related portion of the FW system, that is in scope per 10 CFR 54.4 (a)(2), includes the piping downstream of the FW pumps up to the Motor Operated Valve (MOV) outside the containment. All inline heaters, piping, and valves are included except for the Air Operated Valves (AOVs) and MOVs immediately outside the containment. The piping downstream of the MOV to the steam generator, including the MOV and AOV previously described, are included in scope per 10 CFR 54.4(a)(1) and (3). Portions of the FW system support the Auxiliary Feed Water.

The inspectors reviewed LR boundary drawings, program design basis documentation, interviewed the system program owner, and performed a system walkdown of the accessible areas of the system. The inspectors concluded that the applicant appropriately performed scoping and screening in accordance with the methodology described in the LRA and the rule.

.6 Fire Protection System

The fire protection (FP) system at Kewaunee includes the diverse design and operational features intended to prevent and mitigate the effects of fires. Systems and structures that support either fire protection design or safe shutdown following a fire are considered within the scope of license renewal.

Several FP system SSCs are within the scope of License Renewal because they perform a safety-related function in accordance with 10 CFR 54.4(a) (1). Other non-safety-related SSCs, whose failure could affect safety-related SSCs, are in-scope in accordance with 10 CFR 54.4(a) (2). In addition, some SSCs are considered in-scope due to the regulated event of Fire Protection, in accordance with 10 CFR 54.4(a) (3).

The inspectors examined the scoping boundary diagrams which show the evaluation boundaries for the portions of the FP system, that the applicant concluded are within the scope of license renewal. The inspectors also reviewed system function listing of components contained in the FP system, conducted field walkdowns and performed staff interviews with FP system and LR engineers. The inspectors identified no concerns with the fire protection equipment highlighted as being in LR scope on the boundary drawings.

.7 Main Steam and Steam Dump

The Main Steam and Steam Dump System transports saturated steam from the steam generators to the turbine for conversion of thermal energy to mechanical energy. The Main Steam and Steam Dump System, transports steam from the steam generators through main steam isolation valves to the turbine stop and control valves. A flow nozzle inside the Reactor Containment Vessel, immediately downstream from the steam generator outlets, is used to measure steam flow rate for control, indication, and protection systems. The steam dump portion of the system provides an artificial steam load by dumping steam to the

condenser and/or atmosphere. The Main Steam and Steam Dump System provide overpressure protection and pressure control for the steam generators and the main steam headers. In the event the main condenser is unavailable, heat removal can also be accomplished by dumping steam to atmosphere with the atmospheric dump valves.

The Main Steam and Steam Dump System is in scope of license renewal since the system has intended functions that meet the criteria stated in 10 CFR 54.4(a). The Main Steam and Steam Dump Systems meet criteria 10 CFR 54.4(a) (1), 10 CFR 54.4(a) (2), and 10 CFR 54.4(a)(3) for scoping. The evaluation boundary for the Main Steam and Steam Dump System components subject to aging management review includes the steam lines from the steam generators to the main turbine and moisture separator reheaters in the Turbine Building. Piping, including drain lines, valves, steam traps, safety valves, and relief valves are within the evaluation boundary. Lines tap off upstream of the main steam isolation valves to supply steam to the auxiliary feed water pump turbine, which is located in the Class I portion of the Turbine Building. The evaluation boundary includes components that are relied upon to provide structural seismic support. Included in the evaluation boundary are non-safety-related components with a spatial orientation near a safety-related system, structure, or component located in the Auxiliary Building or Turbine Building.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening reports and the USAR, and interviewed personnel responsible for the system. The inspectors also performed system walkdowns of accessible portions of the Main Steam and Steam Dump System. The inspectors concluded that the applicant had performed scoping and screening for the Main Steam and Steam Dump System, in accordance with the methodology described in the LRA and the rule.

.8 Liquid Waste Processing and Discharge System

The purpose of the Liquid Waste Processing and Discharge System is to collect radioactive waste produced during operation and process the waste as required allowing discharge to be within the limits established by applicable regulatory guidelines. Liquid waste is processed by filtration, demineralization, and/or dilution as appropriate. Liquids are routinely discharged to the Auxiliary Building standpipe through a radiation detector and automatic control valves, which automatically close on an elevated radiation signal.

The Liquid Waste Processing and Discharge System is within the scope of LR based on the criterion of 10 CFR 54.4(a) (1). Portions of the system are in scope based on non-safety-related system affecting safety-related systems criterion under the requirements of 10 CFR 54.4(a) (2). Portions of the system are in scope based the requirements of 10 CFR 54.4(a) (3) for EQ components. The in-scope portion of the Liquid Waste Processing and Discharge System includes the majority of the pressure boundary piping, valves and components, as well as the sludge interceptor, waste holdup, de-aerated drains, laundry and hot shower, reactor coolant drains, waste condensate, and the Auxiliary Building sump tanks.

The inspectors reviewed the LR boundary drawings, the application, and the USAR, and interviewed personnel responsible for the system. The inspectors also performed a walkdown of the accessible areas of the Liquid Waste Processing and Discharge System, including the structural supports credited for connected piping not within scope of license renewal. The inspectors concluded that the applicant had performed scoping and screening

for the Liquid Waste Processing and Discharge System, in accordance with the methodology described in the LRA and the rule.

.9 Spent Fuel Pool Cooling System

The Spent Fuel Pool Cooling System is designed to remove decay heat from fuel stored in the spent fuel pool, such that the temperature of the spent fuel pool is maintained within design temperature limits. The spent fuel pool pumps draw water from the pool, circulate it through filters and a heat exchanger, and then returns the cooled water to the spent fuel pool. Alternate cooling of the spent fuel pool can be provided by a residual heat removal heat exchanger. Additionally, connections to the Service Water System are provided that allow emergency makeup water to the spent fuel pool. The Spent Fuel Pool Cooling System also provides water cleanup capability following refueling. The Spent Fuel Pool Cooling System consists of pumps, heat exchangers, filters, demineralizers, refueling water purification pumps, and associated piping and valves.

The Spent Fuel Pool Cooling System is within the scope of LR based on the criterion of 10 CFR 54.4(a) (1). Portions of the system are in scope based on non-safety-related system affecting safety-related systems criterion under the requirements of 10 CFR 54.4(a)(2). The in-scope portion of the Spent Fuel Pool Cooling System components includes the spent fuel pool pumps, refueling water purification pump, spent fuel pool heat exchanger, spent fuel pool filters, demineralizer, pre- and post-filters, and associated piping and valves.

The inspectors reviewed the LR boundary drawings, the application, the scoping/screening reports and the USAR. The inspectors also interviewed personnel responsible for the system, and performed a field walkdown of the accessible portions of the Spent Fuel Pool Cooling System. The inspectors concluded that the applicant had performed scoping and screening for the Spent Fuel Pool Cooling System, in accordance with the methodology described in the LRA and the rule.

.10 Station and Instrument Air System

The Station and Instrument Air (SA) system is an auxiliary system that is designed to provide a continuous supply of oil-free, dry, instrument air as required. The SA system includes the backup accumulators and compressed air sub-systems that provide backup air for the reactor coolant system power-operated relief valves (PORVs), the turbine driven auxiliary feed water pump steam admission control valves, the cooling water system strainer backwash valves and safeguards chilled water sub-system components.

The SA system is within the scope of LR based on the criterion of 10 CFR 54.4(a) (1). Portions of the SA system support the requirements of the regulated events of Environmental Qualification, Fire Protection and Station Blackout based on the criterion of 10 CFR 54.4(a) (3). The in-scope portion of the SA system starts at the compressors and includes the interconnected pipe and valves to provide a pressure boundary for the system to support continued operation of components that require air to continue operation. Also included are the accumulators and compressed air supply sub-systems that support safety-related equipment.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening reports and the USAR, and interviewed personnel responsible for the system.

The inspectors also performed system walkdowns of accessible portions of the station and instrument air systems. The inspectors concluded that the applicant had performed scoping and screening for the station and instrument air system in accordance with the methodology described in the LRA and the rule.

4. REVIEW OF AGING MANAGEMENT PROGRAMS

The inspectors assessed the adequacy of current implementation of existing aging management programs (AMPs) credited in the applicant's LRA. This included verification that current AMPs would ensure that aging effects would be managed so that there was reasonable assurance that an SSC's intended function would be maintained throughout the period of extended operation. For those programs indicated by the applicant as being consistent with NUREG 1801, "Generic Aging Lessons Learned (GALL) Report," the inspectors confirmed that the applicant's program included the GALL attributes. For those programs which the applicant indicated were new or being enhanced, the inspectors confirmed that commitments existed and were sufficient to support future implementation. For those programs where the applicant indicated that they intended to take exception to the GALL, the inspectors reviewed the exceptions against the GALL recommendations and evaluated the acceptability of the applicant's proposal.

The inspection also consisted of walkdowns of selected in-scope SSCs to assess how plant equipment was being maintained under the current operating license and to visually observe examples of non-safety-related equipment determined to be in scope due to their proximity to safety-related equipment and their potential for failure due to aging effects.

The inspectors identified a common concern regarding the applicant's consideration of external operating experience. Specifically, inspectors' review of specific aging management programs identified, that the applicant typically identified only examples of internal operating experience from their corrective action program to demonstrate additional operating experience is factored into the aging management program to ensure program effectiveness. The inspectors interviewed the applicant's Station Operating Experience Coordinator, reviewed applicable procedures related to operating experience, reviewed the most recent KPS Operating Experience Screening Board Meeting notes, and reviewed the Station Operating Experience Coordinator's computerized tracking of operating experience to assure that external operating experience is being identified, reviewed for applicability, and, if applicable, evaluated and tracked. As a result, the inspectors concluded that there was reasonable assurance that external operating experience will be factored into the aging management programs to ensure program effectiveness.

.1 ASME Section XI In-Service Inspection, Sub-Sections IWB, IWC, IWD (B.2.1.2)

The American Society of Mechanical Engineers Boiler and Pressure Vessel (B&PV) Code, (the ASME Code), Section XI, In-Service Inspection (ISI), Sub-Sections IWB, IWC, and IWD Program are existing programs that are generally consistent with NUREG 1801, Section XI.M.1, "ASME Section XI In-Service Inspection, Sub-Sections IWB, IWC, and IWD." The Kewaunee Power Station (KPS) ISI Program Plan for the fourth 10-year inspection interval effective from June 16, 2004 through June 16, 2014, approved per 10 CFR 50.55a, is based on the 1998 ASME Section XI B&PV Code, through 2000 Addenda. The program provides for condition monitoring of Class 1, 2, and 3 pressure-retaining components, their welded integral attachments, and bolting. The Program manages the aging effects of change in dimensions, cracking, loss of fracture toughness, loss of material, and loss of

preload for the ASME Class 1, 2, and 3 piping, including piping less than four inches nominal pipe size, and components fabricated of nickel alloys, stainless steel, and steel. In addition, the Program manages the aging effect of cracking for the steel reactor coolant pump motor flywheels. The NRC approved the use of risk informed in-service inspection (RI-ISI) in a safety evaluation documented in an NRC letter dated September 23, 2005. Class 1 and 2 welds in piping are inspected in accordance with the RI-ISI Program as described in the Electrical Power Research Institute (EPRI), Topical Report TR-112657, Revision B-A, "Revised Risk Informed In-Service Inspection Evaluation Procedure."

The inspectors reviewed the applicable aging management program basis document, applicable procedures; the latest ISI program plan approved by the Office of Nuclear Reactor Regulation, the latest ISI baseline inspection report, and conducted a general review of the ISI Program with the responsible applicant personnel. The inspectors also searched the applicant's corrective action program records for degraded Code components to determine plant specific aging effects and to assess the program's effectiveness at detecting and monitoring for age related degradation. Based upon these reviews, the inspectors did not identify any issues adversely affecting the applicant's AMP. Additionally, the inspectors did not identify any additional exceptions from the Section X1.M.1 Program. Therefore, the inspectors concluded that the applicant's AMP should continue to assure the ASME Code pressure boundary function consistent with the current licensing basis for the period of extended operation.

.2 ASME Section XI In-Service Inspection, Sub-Section IWE (B2.1.3)

The ASME Section XI, Sub-Section IWE aging management program is an existing program, which provides for condition monitoring of Class MC metal pressure boundary surfaces and welds, penetrations, integral attachments and their welds, moisture barriers, and pressure retaining bolted connections. The program is implemented in accordance with the requirements 10 CFR 50.55a and ASME Section XI, Sub-Section IWE, 2001 Edition through the 2003 Addenda, for the current inspection interval. The IWE Program monitors for aging effects by performing visual examinations of the Class MC components and their related items, and augmented examinations of surface likely to experience accelerated degradation. Visual or volumetric examinations, as applicable, are performed on components that require them. Leak testing is also periodically performed to detect leakage from the pressure-retaining Class MC components. This program credits the implementation of the 10 CFR Part 50, Appendix J Program, Option B, to detect leakage from pressure-retaining Class MC Components. The ASME Section XI, Sub-Section IWE supports this program by providing the additional implementation of a Reactor Containment Vessel In-Service inspection program, including a general visual inspection.

The inspectors reviewed procedures, latest ISI program plan approved by the Office of Nuclear Regulatory Regulation, and interviewed the ISI program manager.

The inspectors concluded that the ISI program was in place, had been implemented, was an on-going program subject to NRC review, and included the elements identified in the LRA. As it is a currently required program subject to periodic review and inspection, there is reasonable assurance that adequate inspections required by ASME will be performed through the period of extended operation.

.3 ASME Section XI In-Service Inspection, Sub-Section IWF (B2.1.4)

The ASME Section XI, Sub-Section IWF aging management program is an existing program. Visual testing (VT-3) examinations are performed for Class 1, Class 2, and Class 3 component steel supports and hangers within the scope of license renewal for loss of material and loss of mechanical function aging effects. The technical information and documentation requirements to ensure complete and accurate VT-3 visual examinations are defined and are applicable to the examinations of the Section XI, Sub-Section IWF supports. The program provides guidance for the evaluation of indications recorded during performance of the In-Service inspections.

The applicant's current ISI program is implemented through procedures, which provide for visual examination in accordance with the requirements of ASME Section XI, Sub-Section IWF 1998 Edition, through 2000 Addenda, for the current inspection interval, as approved by 10 CFR 50.55(a). The technical information and documentation requirements to ensure complete and accurate VT-3 visual examinations are defined and are applicable to the examinations of the Section XI, Sub-Section IWF supports.

The inspectors reviewed procedures, interviewed the ISI program manager, and concluded that the ASME Section XI, Sub-Section IWF aging management was in place, had been implemented, and included the elements identified in the LRA. The inspectors further concluded that the program was set up to ensure that the aging effects will be appropriately assessed and managed, and there was reasonable assurance that the intended functions of the SSCs will be maintained through the period of extended operation.

.4 Bolting Integrity Program (B2.1.5)

The Bolting Integrity Program is an existing program, which when enhanced, will be consistent with NUREG-1801, Section XI.M18, "Bolting Integrity." The Program manages the aging effects that include cracking, loss of material, and loss of preload for bolting and fasteners. The Bolting Integrity Program includes both ASME and non-ASME pressure retaining closure bolting and ASME component support bolting. The program relies on recommendations for a comprehensive bolting integrity program as delineated in NUREG-1339 and industry recommendations delineated in the Electric Power Research Institute (EPRI) NP-5769 with exceptions noted in NUREG-1339. The program will be enhanced to further incorporate applicable EPRI and industry bolting guidance including proper joint assembly, torque values, gasket types, use of lubricants, and other bolting fundamentals. The program is supported by the ASME Section XI In-Service Inspection, Sub-Sections IWB, IWC, and IWD Program, the Boric Acid Corrosion Program, the External Services Monitoring Program, the Work Control Process Program, and the ASME Section XI, Sub-Section IWF Program.

The inspectors reviewed program documentation, aging management review documents, applicable procedures related to bolting, corrective action documents related to pressure retaining and component support bolting, interviewed personnel responsible for the program, and confirmed that the applicant had commitments in place to enhance the program prior to the period of extended operation.

The inspectors concluded that the Bolting Integrity Program, with enhancements per Commitment No. 3 of LC000216 and tracked by LA001045 to be incorporated prior to the period of extended operation, will effectively manage aging effects, and will provide

reasonable assurance that bolting integrity will continue to be monitored such that pressure retaining and component support bolting will perform their intended function for the period of extended operation.

.5 Boric Acid Corrosion Program (B2.1.6)

The Boric Acid Corrosion Program is an existing program comparable to NUREG-1801, Section XI.M10, and "Boric Acid Corrosion." The Boric Acid Corrosion Program manages the aging effect of loss of material for the aluminum, copper alloys, electrical conductor material, and steel for the in-scope systems, structures, and components that are subject to borated water leakage. This program performs visual inspections to identify boric acid leakage. The scope of the program includes those systems and components, which are potential sources of borated water leakage. It also includes requirements for ensuring that the in-scope systems, structures, and components susceptible to boric acid corrosion are properly monitored and that loss of material due to boric acid is consistently identified, documented, evaluated, trended, and effectively repaired. This program provides the systematic measures for ensuring that corrosion caused by leaking borated water does not lead to degradation of the systems or components from which the boric acid leaked or the adjacent structures and components.

The inspectors reviewed Boric Acid Corrosion aging management program related documentation, condition reports, existing procedures, and implementing documents. The inspectors also conducted plant visual inspections to assess the condition of structures, systems, and components in relation to boric acid leaks and visible corrosion. The boric acid program owner was interviewed to confirm the proper continuation of the existing program. In addition, the inspectors verified that the applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects specified in the LRA are consistent with current industry practice.

The inspectors concluded that the Boric Acid Corrosion Program, in general, effectively manages aging effects. The continued implementation of the Boric Acid Corrosion Program will provide reasonable assurance that the aging effects will be managed so that components that could be affected by boric acid corrosion are identified and will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.6 Buried Piping and Tanks Inspection Program (B2.1.7)

The Buried Piping and Tanks Inspection Program is an existing program, which when enhanced, will be consistent with NUREG-1801, Section XI.M34, "Buried Piping and Tanks Inspection." The Program manages the aging effects on the external surfaces of carbon steel and cast iron components that are buried in sand or soil. As a preventive measure, buried pipes and tanks are coated or wrapped to prevent or mitigate corrosion. The existing program will be enhanced to perform opportunistic and deliberate inspections of the in-scope buried components for loss of material due to corrosion. The program supports the Fire Protection Program, and the program is supported by the Open-Cycle Cooling Water Systems Program and the Selective Leaching Program.

The inspectors reviewed program documentation, aging management review documents, applicable documents specifying the coatings, procedures, and corrective action documents, operating experience related to external degradation of buried pipe, interviewed personnel

responsible for the program, and confirmed that the applicant had commitments in place to enhance the program prior to the period of extended operation. The applicant replaced the underground potable water line due to degradation. The applicant inspected a portion of the underground firewater header that was similar in design and construction to the underground potable water line. The inspectors reviewed the report by ductile iron expert that included soil analysis and that concluded the underground firewater piping was adequate for continued use.

The inspectors identified a concern related to existing Dominion Fleet Procedure ER-AA-AMP-102, "Buried Piping Inspections." Paragraph 3.6.3 of ER-AA-AMP-102 specifies an engineering evaluation be performed for a measured wall thickness less than 75 percent of nominal wall thickness. The inspectors were concerned that piping degradation below 87.5 percent nominal wall thickness could potentially be non-conforming to the design basis analysis. The applicant produced a new fleet procedure intended to replace ER-AA-AMP-102 that would correct the concern; however, procedure ER-AA-BPM-101, "Buried Piping Monitoring Program," was still in draft status. The applicant initiated CR347074, determined that the Dominion Nuclear Fleet had not utilized the potentially non-conservative acceptance limit, and placed adequate restrictions on the use of ER-AA-AMP-102 acceptance limits.

The inspectors concluded that the Buried Piping and Tanks Inspection Program with enhancements per Commitment No. 4 of LC000216 and tracked by LA001046 to be incorporated prior to the period of extended operation, will effectively manage aging effects, and will provide reasonable assurance that the buried piping and tanks will continue to perform their intended function for the period of extended operation.

.7 Closed-Cycle Cooling Water System Program (B2.1.8)

The Closed-Cycle Cooling Water (CCCW) System is an existing program, which will be generally comparable to NUREG-1801, Section XI.M21, and "Closed Cycle Cooling Water System." The applicant identified some exceptions, and no enhancements, to the GALL to align with the GALL Program. The Program manages the aging effects of cracking, loss of material and reduction of heat transfer in the piping, heat exchangers, and other components in the Component Cooling System, the Emergency Diesel Generator cooling water sub-systems, and the Control Room Air Conditioning System.

The inspectors reviewed LR program basis documentation, aging management review documents, historical chemistry parameter trends, corrective action documents, and existing procedures and surveillances. The inspectors also interviewed the CCCW program owner, interviewed the component cooling water system engineer, and conducted walkdowns to assess the condition of CCCW systems within the plant. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects specified in the LRA are consistent with current industry practice.

The applicant is taking five exceptions to the GALL with respect to the CCCW System Program. The first exception involves the applicant's deviation from the use of corrosion inhibitors in the Control Room Air Conditioning System as recommended by NUREG-1801, Section XI.M21. The applicant stated that the system is filled with softened potable water. Also, since SW system is the back up safety-related source of cooling water for the Control Room Air Conditioning System, corrosion inhibitors if used, will be released to the environment. In lieu of the use of corrosion inhibitors, the applicant periodically samples the

water in the system to ensure system integrity is being maintained. The inspectors concluded that with continued chemistry program sampling, and visual inspections performed under the work control process program, the system would continue to perform its intended safety function.

The second exception involves the use of a different revision of an EPRI Guideline that is proposed in the NUREG-1801, Section XI.21. The applicant's CCCW System Program is implemented using EPRI 1007820 "Closed Cooling Water Chemistry Guideline, Revision 1," instead of EPRI 107396, since EPRI-1007820 is a later Revision of EPRI 107396. The applicant stated that the revision that is currently being used is more conservative than the earlier revision based on the more prescriptive guidance, as well as the more conservative monitoring approach provided. The inspectors concluded that with the procedural modifications made, the applicant will continue to effectively monitor and control CCCW System Chemistry, and that the intent of NUREG-1801, Section XI.21 will continue to be met.

The third exception involves the lack of differential pressure monitoring on the component cooling heat exchangers as recommended by NUREG-1801. For this system, the applicant relies on corrosion inhibitors, frequent chemistry sampling, periodic thermal performance testing, and heat exchanger eddy current testing to provide verification that chemistry controls are preventing gross degradation. Additionally, the licensee monitors inlet and outlet shell side temperatures for any increase in the differential as indirect indication of performance changes, due to degradation, in the heat exchangers. The inspectors concluded that the applicant has provided reasonable assurance that the current programs used to monitor system health of the component cooling heat exchangers, will provide indication similar to what would be provided if differential pressure were monitored as recommended by NUREG-1801, XI.M21; thereby, ensuring that the system will continue to perform its intended safety function.

The fourth exception involves the lack of thermal performance testing on heat exchangers in the component cooling system cooling loop that are part of other systems or the emergency generator cooling water subsystem heat exchangers and lube oil coolers. The applicant stated that the combination of chemistry control, visual inspection, and nondestructive examinations will provide adequate assurance that the heat transfer capability of the heat exchanger will be maintained consistent with the current licensing basis. The inspectors concluded that because the applicant continuously monitors component cooling water system parameters that allow the verification of the system's condition in addition to the visual inspections performed as part of the Work Control Process Program, the applicant will continue to meet the intent of NUREG-1801 for the Closed Cycle Cooling Water System. Similarly, the inspectors concluded that because the applicant has established monitoring programs to verify EDG cooling water sub-system condition, as well as Chemistry controls and maintenance practices that maintain the quality of the system, in accordance with NUREG-1801, to demonstrate system operability and to confirm the effectiveness of the CCCW water system, the applicant has met the intent of the GALL report.

The fifth exception involves the lack of performance monitoring for air handling units and pumps in the Control Room Air Conditioning System as recommended in NUREG-1801, Section XI.M21. For this system the applicant is relying on monitoring, maintenance, and inspections, in addition to the availability of the safety-related alternate cooling mode to provide assurance that the system will perform its intended function, instead of the thermal performance testing. The inspectors concluded that the maintenance, inspection, and the

continuous system monitoring with associated control room alarm for system performance will meet the intent of NUREG-1801.

The inspectors concluded that the CCCW system program, with exceptions will effectively manage the applicable aging effects. Continued implementation of the CCCW system program will provide reasonable assurance that the aging effects will be managed so that the CCCW system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.8 Compressed Air Monitoring Program (B2.1.9)

The Compressed Air Monitoring Program is an existing program that will be enhanced to be consistent with NUREG-1801, Chapter XI, Program XI.M24, "Compressed Air Monitoring." The Compressed Air Monitoring Program manages the effects of corrosion and the presence of unacceptable levels of contaminants for the Station and Instrument Air System. The program includes periodic air sampling, inspections, and component functional testing. Additionally preventative maintenance is performed at regular intervals to assure system components operate reliably, thereby assuring that quality air is supplied to plant equipment.

The inspectors reviewed the applicable program basis documentation, interviewed the responsible system engineer, conducted a system walkdown, and reviewed corrective action documentation related to Compressed Air Systems, reviewed applicable procedures, commitments and implementing documents, and confirmed that the applicant had the necessary commitments in place to enhance the program prior to the start of the period of extended operation. The inspectors searched the applicant's corrective action database for relevant condition reports.

The inspectors identified two areas where the applicant intended to take exception to the GALL that were not noted in the application. The first was in the scope element as the applicant did not intend to check air quality at several locations in the system. The second was in monitoring and trending as the applicant did not intend to explicitly trend air quality sampling results. The applicant agreed to amend the application to call out these two exceptions and provide justification supporting the exceptions.

The inspectors concluded that the Compressed Air Monitoring Program will effectively manage aging effects. With the enhancements to be incorporated prior to the period of extended operation, continued implementation of the Compressed Air Monitoring Program will provide reasonable assurance that the aging effects will be managed so that the compressed air systems will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

.9 External Surfaces Monitoring Program (B2.1.10)

The External Surfaces Monitoring Program is an existing program which, with the proposed enhancements, will be comparable to NUREG-1801, Section XI.M36, and "External Surfaces Monitoring." The Program manages aging effects by performing visual inspections of external surfaces for evidence of degradation such as corrosion, cracking or leakage. This program is implemented largely through operator and system engineer walkdowns.

The inspectors reviewed aging management program documentation, condition reports, and existing procedures. The inspectors interviewed the program owner and discussed the requirements with operators and system engineers during walkdowns.

The inspectors identified that the walkdown requirements lacked specific requirements for site personnel to focus on identifying aging effects. In response, the applicant agreed to enhance the program to include specific requirements. The inspectors also identified that the walkdown checklists did not include an attribute of corrosion on uncoated surfaces. In response, the applicant agreed to revise the procedures to include corrosion on uncoated surfaces. The walkdown checklists did not have retention requirements, which would document that the inspections had been completed, and the applicant agreed to strengthen program documentation requirements to allow for subsequent retrieval and audit.

The inspectors concluded that, with the additional enhancements to be incorporated prior to the period of extended operation, and with training as noted in the application, continued implementation of the External Surfaces Monitoring Program will provide reasonable assurance that the aging effects will be managed so that applicable systems will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

.10 Fire Protection and Fire Water System Programs (B2.1.11)

The fire protection program is an existing program which, with the proposed enhancements and one exception, will be comparable to Section XI.M26, “Fire Protection,” of the GALL Report. The fire water system program is an existing program, which with the proposed enhancements will be comparable to the program described in Section XI.M27, “Fire Water System,” of the GALL Report.

The fire protection program includes fire barrier visual inspections, motor driven fire pump tests, and periodic maintenance, testing, and inspections of water-based fire protection systems. Periodic testing of the fire pumps is performed to ensure that an adequate flow of fire water is supplied. Fire barrier inspections consists of periodic visual inspection of fire barrier penetration seals, fire dampers, fire barrier walls, ceilings and floors; and periodic visual inspection and functional tests of fire-rated doors. The fire protection program also includes periodic inspection and testing of the Halon/Carbon Dioxide fire suppression systems. The fire water system consists of water-based fire protection systems that include components that are periodically inspected and tested, in accordance with the applicable National Fire Protection Association codes and standards and plant procedures. These include sprinkler system inspections, pipe wall thickness testing, hydrant inspections, flushes, flow tests, and fire main flushes.

The inspectors reviewed fire protection program documentation, condition reports, aging management review documents, existing procedures, required enhancements, commitments and implementing documents, and confirmed that the licensee had three commitments in place to enhance the program prior to the start of the period of extended operation. These commitments are identified in Appendix A, Table A6.0-1 License Renewal Commitments, Items 8–10 of the application. The inspectors also noted that the one exception related to the testing frequency of Halon and Carbon Dioxide fire suppression systems was adequately justified. The inspectors also conducted plant visual inspections to assess the condition of fire protection and water system equipment, interviewed the fire protection program system and design engineers to confirm the continuation of the existing

program. In addition, the inspectors verified that the applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects and the exceptions to NUREG 1801 specified in the LRA are consistent with current industry practice.

The inspectors concluded that the fire protection and fire water system programs in general, effectively manage aging effects. With the enhancements to be incorporated prior to the period of extended operation, continued implementation of the fire protection and fire water system programs will provide reasonable assurance that the aging effects will be managed so that the fire protection and fire water system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.11 Flow-Accelerated Corrosion Program (B2.1.12)

The Flow-Accelerated Corrosion (FAC) Program is an existing program based on the Electric Power Research Institute (EPRI) Guidelines in NSAC-202L-R3 for certain components containing high-energy. The FAC Program is credited in the LRA as an aging management program, which assures the structural integrity of all steel (carbon and low-alloy) lines containing high-energy fluids (two phase as well as single phase) is maintained. This is accomplished through the use of procedures and administrative controls, to predict, detect, and monitor wall thinning on the internal surfaces of all the susceptible piping. The program also covers components such as valve bodies that retain pressure, as well as others, and is credited with replacing affected piping prior to failure. In many cases FAC resistant materials are used for replacements.

The program uses the CHECWORKS Program to predict component wall thinning and NSAC-202L-R3 to satisfy criteria specified in 10 CFR Part 50, Appendix B, for development of procedures and control of special processes. CHECKWORKS is a predictive computer program that uses past inspection data to predict wear rates. Susceptible piping and components that are unsuitable for CHECWORKS modeling are qualitatively evaluated, prioritized, and ranked on susceptibility and consequence of failure.

The inspectors questioned whether the software QA classification of the CHECWORKS Program used in the FAC Program was appropriate. It was the inspectors' contention that, if the software was used for safety-related applications and was solely used to make operability decisions, then the licensee should have screened and classified the software as Level 2, rather than Level 3, as directed by the guidance provided in the licensee's document DNAP-0306, "Software Quality Assurance Program," Revision 1, Attachment 1, Question 6C.

During a discussion with the FAC program owner and other applicant personnel, it was conveyed to the inspectors that CHECKWORKS is used only as a supplement to the engineering evaluations used to predict component wear rate/pipe wall thickness. It was also conveyed that the inputs are imported directly from actual UT data; the output (predicted wear rate) is also confirmed by UT measurements. The applicant further indicated that the software is not solely relied up on to permit continued operation of components, nor is it used to select components for future inspections to verify wear rate. Operability determinations, and the selection of components for inspections, are arrived at by engineering analysis and not by the output of CHECWORKS. It should also be noted

that the applicant reported that the software is tightly controlled regardless of its classification (password protected; only trained personnel are permitted to use).

Following the discussion with the applicant, the inspectors reviewed several examples of engineering evaluations detailed during the discussion. Based on the applicant's description of how the software is employed and the review of the engineering evaluations, the inspectors concurred with the applicant's position that the CHECWORKS software has been appropriately classified as Level 3.

The inspectors reviewed station procedures, performed a walkdown of some of the systems, and interviewed the FAC coordinator. The inspectors concluded that the FAC Program was in place, had been implemented, and included the systems and components identified in the LRA, and should manage aging effects as defined in the LRA. Adequate guidance had been provided to reasonably ensure that aging effects will be appropriately managed.

.12 Fuel Oil Tank Inspections (B2.1.15)

The Fuel Oil Tank Inspection Program is an existing program which, when enhanced, will be consistent with NUREG 1801, Section XI.M30, "Fuel Oil Chemistry." The Fuel Oil Tank Inspection Program manages the aging effect of loss of material for steel, internal to the underground 1A and 1B emergency diesel generator and the underground Technical Support Center diesel generator fuel oil storage tanks. The program includes periodic draining, cleaning, and inspection of the tanks, in addition to ultrasonic testing to ensure that tank thicknesses meets vendor requirements, thereby assuring that quality fuel is supplied to the diesel generators.

The fuel oil tank inspection program acts with the fuel oil chemistry program to verify the quality and acceptability of fuel oil chemistry that is provided to equipment, so that any harmful effects, due to improper chemistry, are quickly identified and resolved.

The inspectors reviewed license renewal program basis documents, aging management review documents, program health reports, existing procedures and surveillances, corrective action program documents, and the required enhancement. The inspectors also interviewed the responsible program owner and conducted walkdowns of the emergency diesel generator, day tanks, and associated piping and components.

The inspectors concluded that the fuel oil tank inspection program effectively manages aging effects. With the enhancement to be incorporated prior to the period of extended operation continued implementation of the of the fuel oil tank inspection program will provide reasonable assurance that the aging effects will be managed so that the fuel oil storage tanks continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.13 Inspection of Overhead Heavy Load and Refueling Handling Systems Program (B2.1.16)

The Inspection of Overhead Heavy Load and Refueling Handling Systems Program is an existing program, which when enhanced, will be consistent with NUREG-1801, Section XI.M23, "Inspection of Overhead Heavy Load, and Light Load (Related to Refueling) Handling Systems." The Program manages aging effects of general corrosion on rails and other structural components of heavy load handling, components within the scope of NUREG-0612, and the light load handling components related to refueling activities. The

program provides for periodic visual inspection of the components. The program is primarily concerned with structural components that make up the bridge and trolley. The existing program will be enhanced to clarify the requirements of visual inspection of structural members including structural bolting for the in-scope cranes and associated equipment.

The inspectors reviewed the applicable license renewal program basis documentation, existing overhead crane inspection procedures, and verified the commitment in the application to enhance the program prior to the period of extended operation. The inspectors also interviewed personnel responsible for the program that included inspection of the turbine building crane, reviewed the recent inspection report for the turbine building crane, and reviewed condition reports to verify identified crane structural concerns are being addressed through the applicant's corrective action program.

The inspectors concluded that the overhead load handling systems inspection program with enhancements per Commitment No. 12 of LC000216 and tracked by LA001054 to be incorporated prior to the period of extended operation, will effectively manage aging effects, and will provide reasonable assurance that the structural components of the overhead load handling systems will continue to perform their intended function for the period of extended operation.

.14 Lubricating Oil Analysis Program (B2.1.17)

The Lubricating Oil Analysis Program is an existing program that is consistent with NUREG 1801, Section XI.M39, and "Lubricating Oil Analysis Program." The Lube Oil Analysis Program maintains contaminants (primarily water and particulates) within acceptable limits for lubricating and hydraulic oil systems, thereby preserving an environment that is not conducive to loss of material, cracking, or heat transfer degradation. Under the Lube Oil Analysis Program, oil-testing activities include sampling, analysis, and trending of lubricating oils for detrimental contaminants such as water, particulates, and metals to provide early indication of adverse wear conditions in lube and hydraulic oil environments.

The inspectors reviewed the lube oil analysis program documentation, corrective action documents, aging management review documents, existing procedures, and implementing documents. The inspectors also conducted interviews with the lube oil analysis program owner and engineers.

The inspectors concluded that the lube oil analysis program effectively manages aging effects. Continued implementation of the lube oil analysis program will provide reasonable assurance that the aging effects will be managed so that the program provides early indication of degrading conditions to ensure equipment remains capable of performing its intended function consistent with the current licensing basis for the period of extended operation.

.15 Metal-Enclosed Bus Program (B2.1.18)

The Metal-Enclosed Bus (MEB) Program is an existing program that is consistent with the recommendations of NUREG-1801, Section XI.E4, and "Metal-Enclosed Bus." The Metal-Enclosed Bus Program is a condition monitoring program that inspects representative samples of the non-segregated 4160V phase bus between station offsite source auxiliary transformers and plant buses in scope of License Renewal. Internal visual inspection is

performed to observe signs of aging of the bus insulation materials (such as cracking, discoloration, and embrittlement), signs of loose connections by inspecting insulation surface for anomalies, and signs of moisture and debris intrusion. The Program manages the reduction of insulation resistance, aging effect on insulation components, loose connections, and corrosion from moisture/debris intrusion in non-segregated bus ducts. The interior visual inspection will be conducted once prior to the period of extended operation and once every five years thereafter. The Structures Monitoring Program will manage the aging effects associated with the metal-enclosed bus enclosure assemblies (steel and elastomers).

The inspectors reviewed program documentation, condition reports, aging management review documents and existing procedures, and confirmed that the applicant had a commitment in place to enhance the program prior to the start of the period of extended operation. The Metal Enclosed Bus (MEB) program will be enhanced to include augmented periodical visual inspections of the MEB internal surfaces, bus supports, bus insulation, taped joints, and boots for signs of degradation or aging. This commitment is identified in Appendix A, Table A6.0-1 License Renewal Commitments, Item 13 of the application.

The inspectors also interviewed the program owner and performed a walkdown to determine the general condition of the metal enclosed bus ducts. The inspectors verified that the applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that, continued implementation of the metal-enclosed bus program with the proposed enhancement will provide reasonable assurance that aging effects will be managed such that electrical commodities within the scope of this program will continue to perform their intended functions during the period of extended operation.

.16 Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements (B2.1.19)

The Non-Environmentally Qualified (Non-EQ) Insulated Cables and Connections Program is a new program that the applicant will implement prior to the period of extended operation. This program will be consistent with the program described in NUREG-1801, Section XI.E1, “Electrical Cables, and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements.” The Non-EQ insulated cables and connections program will apply to accessible insulated cables and connections installed in structures within the scope of license renewal and prone to adverse localized environments.

The inspectors reviewed program documentation, condition reports, and aging management review documents and confirmed that the applicant had a commitment in place to implement the program prior to the start of the period of extended operation. This commitment is identified in Appendix A, Table A6.0-1 License Renewal Commitments, Item 14 of the application. The inspectors also interviewed the Non-EQ insulated cables and connections program owner to determine how and when the testing and monitoring requirements for this aging management program will be developed and implemented. The inspectors verified that the applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the Non-EQ Insulated Cables and Connections Program, if implemented as described, will effectively manage aging effects, since it will incorporate

proven monitoring techniques, acceptance criteria, corrective actions, and administrative controls. Implementation of this program will provide reasonable assurance that the effects of aging will be managed such that components within the scope of the program will perform their intended functions consistent with the current licensing basis for the period of extended operation.

.17 Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements (B2.1.21)

The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program that the applicant will implement prior to the period of extended operation. The program, when implemented will be comparable to that described in NUREG-1801, Section XI.E3, and "Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements." This program applies to inaccessible (e.g., in conduit or direct -buried) medium-voltage cables within the scope of license renewal that are exposed to significant moisture simultaneously with applied voltage. Testing of the in-scope inaccessible medium-voltage cables exposed to significant moisture and significant voltage will be performed prior to the period of extended operation, and the tests will be repeated every ten years thereafter. The specific type of test to be performed will be determined prior to the initial test. Inspection of the in-scope manhole east of the tertiary auxiliary transformer for water collection will be performed prior to the period of extended operation, and the inspection will be repeated every two years thereafter.

The inspectors reviewed program documentation, condition reports, aging management review documents and existing procedures, and confirmed that the applicant had a commitment in place to implement the program prior to the start of the period of extended operation. This commitment is identified in Appendix A, Table A6.0-1 License Renewal Commitments, Item 16 of the application. The inspectors also interviewed the program owner to determine implementation of particular test procedures to be developed under the program. The inspectors performed a walkdown of two manholes containing 4.16 kV cables and splices and observed them to be free of water. The inspectors verified that the applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the Non-EQ Inaccessible Medium-Voltage Cable Program, when implemented as described, will effectively manage aging effects, since it will incorporate appropriate testing techniques. Implementation of this program will provide reasonable assurance that the effects of aging will be managed such that components within the scope of the program will perform their intended functions consistent with the current licensing basis for the period of extended operation.

.18 Non-EQ Instrumentation Circuits Subject to Sensitive, High-Voltage, Low-Level Signals (B2.1.22)

The Non-EQ Instrumentation Circuits Subject to Sensitive, High-Voltage, Low-Level Signals Program is a new program that the applicant will implement prior to the period of extended operation. The program, when implemented will be comparable to that described in NUREG-1801, Section XI.E2, "Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits." This program applies to nuclear instrumentation and radiation monitoring circuit cables within the scope of license renewal that are exposed to adverse localized

environments. This program includes a commitment to test nuclear instrumentation cables once every ten years and the first test to be completed prior to the period of extended operation to provide an indication of the condition of the conductor insulation. The specific type of test to be performed will be determined prior to the expiration of the current license. For radiation monitoring circuits, calibration records will be reviewed in order to detect aging degradation prior to the loss of the cable and connection's intended function.

The inspectors reviewed aging management program documentation, condition reports, and existing procedures, and confirmed that the applicant had a commitment in place to implement the program prior to the period of extended operation. The inspectors also interviewed the program owner to determine current practice and expected test procedures to be developed under the program. The inspectors concluded that the Non-EQ Instrumentation Circuits Subject to Sensitive, High-Voltage, Low-Level Signals Program, when implemented as described, will effectively manage aging effects, since it will incorporate appropriate testing techniques and reviews. Implementation of this program will provide reasonable assurance that the effects of aging will be managed, such that components within the scope of the program will perform their intended functions consistent with the current licensing basis for the period of extended operation.

.19 Open-Cycle Cooling Water System Program (B2.1.23)

The Open-Cycle Cooling Water (OCCW) System is an existing program, which, with enhancement, will generally be comparable to NUREG-1801, section XI.M20, "Open Cycle Cooling Water System." However, the applicant identified one exception to the GALL Program and the need to enhance the existing program to align with the GALL Program. The OCCW System Program manages the aging effects of loss of material and reduction in heat transfer of open-cycle cooling water system components in the Service Water system and in portions of the Circulating Water System. The program includes: (1) periodic sodium hypochlorite treatments, (2) routine flushing of the main flow path through the Service Water and Circulating Water System, during normal system operation; (3) flushing of the SW systems dead legs; (4) visual inspection, NDE, and thermal performance testing and eddy current testing; (5) visual inspection and cleaning of the SW system and the CW systems, with the SW system also subject to flushing.

The inspectors reviewed LR program basis documentation, aging management program documents, existing procedures and surveillances, and corrective action program documents. The inspectors also interviewed the applicable program owner and conducted walkdowns of the Circulating Water System and the Service Water System.

The applicant is taking one exception to the GALL with respect to the OCCW Program, which involves the lack of thermal performance testing on the: (1) Containment Fan Coil Units; and (2) Emergency Diesel Generator Cooling water subsystems heat exchangers. The applicant states that a combination of flow testing, visual inspection, cleaning and flushing, or non-destructive examinations will provide the required assurance that the heat transfer capability of the heat exchangers is being maintained consistent with the current licensing basis. The inspectors concluded that because the insufficient heat loads on the heat exchangers yield inconclusive data the licensee is justified in performing the alternative methods as identified in NUREG-1801, to provide assurance that the systems will continue to perform their intended functions.

The applicant stated that this program will be enhanced to perform underwater visual inspections of piping for corrosion and erosion when performing additional Circulating Water System Inspections. With the enhancement, the parameters monitored/inspected will be consistent with NUREG-1801.

The inspectors concluded that, with the enhancement to be incorporated prior to the period of extended operation, continued implementation of the OCCW System Program will provide reasonable assurance that the aging effects will be managed so that the OCCW System components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.20 Reactor Head Closure Studs Program (B2.1.26)

The Reactor Head Closure Studs Aging Management Program provides for condition monitoring and preventive measures to manage stud cracking due to stress corrosion cracking and loss of material due to wear. It is an existing program that provides for ASME Section XI inspections of reactor head closure studs and stud components, including nuts and washers, and for the threads in the reactor vessel flange. The program is implemented through station procedures based on the examination and inspection requirements of ASME Code, Section XI, Sub-Section IWB, and Table IWB 2500-1, Examination Category B-G-1.

The inspectors reviewed station procedures, interviewed the ISI program manager, and concluded that the applicant had provided adequate guidance to ensure the aging effects will be appropriately assessed and managed. There is reasonable assurance that the intended function of the closure studs will be maintained through the period of extended operation.

.21 Secondary Water Chemistry (B2.1.28)

The Secondary Water Chemistry Program is an existing program. It is consistent with the program described in NUREG 1801, Section XI.M2, and “Water Chemistry.” This Program manages the aging effects of cracking, loss of material, and reduction of heat transfer for copper alloys, nickel alloys, stainless steel, and steel components. Periodic monitoring and control of contaminants harmful to secondary plant equipment precludes the loss of materials and/or cracking. Additionally, sampling activities and analysis of select secondary equipment moderates the effects of general and pitting corrosion on systems important to plant safety.

The inspectors reviewed license renewal program basis documentation, corrective action documents, aging management review documents, and existing procedures. Additionally the inspectors interviewed the program owner, and performed a walkdown of accessible portions of secondary water systems piping and equipment.

The inspectors concluded that the Secondary Water Chemistry Program effectively manages the aging effects. Continued implementation of the secondary water chemistry program will provide reasonable assurance that the aging effects will be managed so that the secondary water chemistry system will continue to perform its intended safety function, consistent with the current licensing basis, for the period of extended operation.

.22 Structures Monitoring Program (B2.1.31)

The Structures Monitoring Program (SMP) is an existing program, which when enhanced, will be consistent with Section XI.S5, "Masonry Wall Program," Section XI.S6, "Structures Monitoring Program," and XI.S7, "RG 1.127, Inspection of Water-Control Structures associated with Nuclear Power Plants" of NUREG-1801. The existing program is part of the applicant's Maintenance Rule Program and implements industry guidance provided in NUMARC 93-01 endorsed by NRC Regulatory Guides 1.160 and 1.182. The SMP manages aging effects by performing periodic visual inspections to monitor the condition of structures and components to ensure that degraded conditions are identified, evaluated, and corrected as necessary, such that there is no loss of intended function. The existing program will be enhanced: (1) to clearly define structures; structural elements and miscellaneous commodities that are in-scope; 2) to monitor groundwater quality and verify that it remains non-aggressive to below grade concrete; and 3) to improve criteria for detection of aging effects for underwater visual inspections of in-scope structures. The program supports the Metal-Enclosed Bus Program and the Fire Protection Program.

The inspectors reviewed the applicable license renewal program basis documentation, existing structural monitoring inspection procedures, and confirmed that the applicant had commitments in place to enhance the program prior to the period of extended operation. The inspectors also interviewed the personnel responsible for the program, walked down portions of auxiliary and turbine buildings, reviewed the most recent structures monitoring inspection report and Maintenance Rule program health assessment report, and reviewed condition reports to verify that the identified structural concerns are being addressed through the applicant's corrective action program.

The inspectors concluded that the Structures Monitoring Program, including the enhancements per LR Commitment Nos. 22, 23, and 24 of LC000216 and tracked by LA001064, LA001065, and LA001066, to be incorporated prior to the period of extended operation, will effectively manage aging effects and provide reasonable assurance that the structural components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.23 Environmental Qualifications (EQ) of Electric Components (B3.1)

The Environmental Qualification of Electric Components Program is an existing program. It is consistent with the program described in NUREG-1801, Section X.E1, and "Environmental Qualification (EQ) of Electric Components." This Program manages component thermal, radiation, and cyclical aging through the use of aging evaluations based on 10 CFR 50.49(f) qualification methods. As required by 10 CFR 50.49, EQ components not qualified for the current license term are to be refurbished or replaced, or have their qualification extended prior to reaching the aging limits established in the evaluation. Aging evaluations for EQ components that specify a qualification of at least 40 years are considered time-limited aging analyses for license renewal.

The inspectors reviewed program documentation, condition reports, aging management review documents, and existing procedures to confirm that the applicant has been successful in effectively managing aging effects of EQ electric components. The inspectors also interviewed EQ Program owner to confirm that the applicant will continue to carry out the EQ Program for the duration of the extended operation. The inspectors verified that the

applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the applicant's existing EQ Program has been effective overall. The program has been subject to periodic internal and external assessments that facilitate continuous improvement. Continued implementation of this program provides reasonable assurance that components within the scope of the program will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

.24 Metal Fatigue of Reactor Coolant Pressure Boundary (B3.2)

The Metal Fatigue of Reactor Coolant Pressure Boundary Program is an existing program, which when enhanced, will be consistent with NUREG-1801, Section X.M1, and "Metal Fatigue of the Reactor Coolant Pressure Boundary." This program is a confirmatory program that monitors loading cycles due to thermal and pressure transients and cumulative usage for selected reactor coolant and other component locations. Metal fatigue analyses are considered to be time limited aging analyses (TLAA) under 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." The program provides an analytical basis for confirming that the actual number of cycles does not exceed the number of cycles used in the design analysis and that the cumulative usage factor will be maintained below the allowable limit, or that appropriate corrective actions are taken to maintain component cumulative usage factor below the allowable limit during the period of extended operation. The program will be enhanced to require routine assessments of cycle count and fatigue usage status for monitored locations to provide adequate margin to cycle count or fatigue usage limits.

The inspectors reviewed program documentation, condition reports, aging management review documents and existing procedures, interviewed a program subject matter expert, confirmed that fatigue monitoring program included fatigue sensitive locations for older vintage Westinghouse plants identified in NUREG/CR-6250, "Application of NUREG/CR-5999 Interim Fatigue Curves of Selected Nuclear Power Plant Components," reviewed a sample of fatigue monitoring analytical calculations to confirm that the evaluations included the period of extended operation and the effects of reactor water environment, if applicable, to confirm applicant has been successful in effectively managing aging effects of metal fatigue of reactor coolant pressure boundary components. The inspectors confirmed that the applicant had commitments in place to enhance the program prior to the period of extended operation. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects.

The inspectors identified a concern that fatigue monitoring of the reactor coolant hot leg sample heat exchanger was not included in the Metal Fatigue of Reactor Coolant Pressure Boundary Program. Technical Report KLR-1215, "Auxiliary Heat Exchangers TLAA," concluded that design cycles for reactor coolant hot leg sample heat exchanger would be exceeded prior to the end of extended operation. The applicant initiated follow-up action item (FAI) 113 to assure adequate fatigue monitoring for the reactor coolant hot leg sample heat exchanger.

The inspectors concluded that the Metal Fatigue of Reactor Coolant Pressure Boundary Program, including the enhancements per LR Commitment No. 28 of LC000216 and tracked by LA001070, to be incorporated prior to the period of extended operation, will effectively

manage time limited aging effects and provide reasonable assurance that the monitored components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

5. EXIT MEETING SUMMARY

The results of this inspection were discussed on September 30, 2009, with Mr. Scace, and other members of the Dominion Energy Kewaunee, Inc. staff in an exit meeting open for public observation at the Kewaunee Municipal Building. The applicant acknowledged the inspection results and presented no dissenting comments. The Exit Meeting Presentation Slides are included in this report, following the supplemental information Attachment.

The inspectors noted that proprietary documents were reviewed during the course of the inspection. The applicant confirmed that all such proprietary documents were returned or the copies destroyed and that the likely content of the report would not involve the proprietary material.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Applicants

Stephen Scace	Kewaunee Site Vice President
Mike Crist	Kewaunee Plant Manager
Michael Wilson	Kewaunee Director Safety and Licensing
Jack Dillich	Kewaunee Director Engineering
Paul Aitken	Dominion License Renewal Project Manager
Mark Ortmayer	Dominion License Renewal Kewaunee Site Lead
Ben Rodill	Dominion Mechanical Lead
Charlie Sorrell	Dominion Civil/Electrical Lead
Jeanne Ferris	Dominion Team Member
Stu Thickman	Dominion Team Member
Jack Gadzala	Kewaunee Licensing
Paul Thomas	Contractor, License Renewal Project

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened, Closed, and Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

LICENSE RENEWAL DOCUMENTS

License Renewal Application

Application for Renewed Operating License; Kewaunee Power Station; dated August 14, 2008

License Renewal Action Items (Written as a Result of the Inspection)

CR 345288; Possible Boric Acid Leak on Valve CC-809; dated August 18, 2009

CR 345402; Service Water Piping Exterior Corrosion Identified; dated August 19, 2009

CR 345412; Valve FW-5A Packing Leak; dated August 19, 2009

CR 345421; Loose Electrical Tape on CC Line in Letdown HX Room; dated August 19, 2009

CR 345442; Material Loss on End Bell Carbon Steel Flange on the Feed Pre-Heater for the Boric Acid Evaporator; dated August 19, 2009

CR 345552; Oil Residue on C-11B Valve; dated August 20, 2009

CR 345581; Spent Fuel Pool Leakage Detection Collection Barrels, Seismic Restraint Suggested; dated August 20, 2009

CR 345590; Evidence of Water on a SW Pipe with Evidence of Corrosion; dated August 20, 2009

CR 346675; Procedure Revision Required for ER-AP-BAC-102, BACC Evaluations; dated August 31, 2009

CR 346739; Service Water Rotating Strainer A1 Motor Support is Corroded; dated August 31, 2009

CR 346740; Service Water Rotating Strainer A2 Motor Support is Corroded; dated August 31, 2009

CR 346742; Service Water Rotating Strainer B1 Motor Support is Corroded; dated August 31, 2009

CR 346744; Service Water Rotating Strainer B2 Motor Support is Corroded; dated August 31, 2009

CR 346895; ER-AA-SYS-1002 Revisions for LR Program Consistency; dated September 1, 2009

CR 346897; ER-AA-SYS-1002 Revisions for LR program Documentation; dated September 1, 2009

CR 346909; Surface corrosion noted on SW piping; dated September 1, 2009

CR 347028; Boric acid leak at Swagelok fitting for flow XMTR 23055; dated September 2, 2009

CR 347033; Boric acid leak at Valve Stem for FPC-8; Dated September 2, 2009

CR 347061; Several leaks in the caustic additive area in Aux. Bldg. Basement; dated September 2, 2009

CR 347074; Question on Acceptance and Re-Inspection Criteria in ER-AA-AMP-102; dated September 2, 2009

CR 347088; NRC Identifies Lack of Finish Coatings on Condensate Piping Supports; dated September 2, 2009

CR 347186; Exceptions to NUREG-1801 not identified; dated September 3, 2009

CR 347323; Software Classification of FAC CHECWORKS Program; dated September 4, 2009

CR 347328; RT Testing of Large Bore Piping during FAC Inspections; dated September 4, 2009

CR345590; Rust on Pipe Upstream of SW-5039; August 20, 2009

CR345412; Minor packing leak on FW-5A; August 19, 2009

FAI 113; Provide Procedural Guidance for Tracking Primary Sample Thermal Transients in KLR 1302 Aging Management Program, Metal Fatigue of Reactor Coolant Pressure Boundary; dated September 2, 2009

LA001542; Track LC000343: License Renewal Commitment-USAR Supplement; dated September 2, 2009

<u>License Renewal Basis Documents</u>

KLR-1004; Regulated Event, 10 CFR 54.4(a)(3), Anticipated Transients without SCRAM (ATWS); Revision 1

KLR-1005; Regulated Event -10 CFR 54.4(a)(3) Pressurized Thermal Shock (PTS); Revision 1

KLR-1208; Crane Load Cycle TLAA; Revision 1

KLR-1212; SIA Report SIR-07-377-NPS: Fatigue Monitoring Summary Report for Kewaunee Power Station; Revision 0

KLR-1215; Auxiliary Heat Exchangers TLAA; Revision 0

KLR-1301; Environmental Qualification of Electric Components, Revision 0

KLR-1302; Metal Fatigue of Reactor Coolant Pressure Boundary; Revision 1

KLR-1303; Non-EQ Electrical cables and connections, Revision 2

KLR-1304; Non-EQ Instrumentation Circuits Subject to Sensitive, High-Voltage, Low-Level Signals; Revision 2

KLR-1305; Non-EQ Inaccessible Medium Voltage Chables; Revision 2

KLR-1306; Metal Enclosed Bus, Revision 2

KLR-1309; ASME Section XI In-Service Inspection, Sub-Sections IWB, IWC, and IWD; Revision 2

KLR-1311; Secondary Water Chemistry; Revision 2

KLR-1312; Reactor Head Closure Studs Aging Management Program and Reference Information; Revision 2

KLR-1313; Boric Acid Corrosion Program; Revision 2

KLR-1317; Flow-Accelerated Corrosion; Revision 1

KLR-1318; Bolting Integrity; Revision 1

KLR-1320; Open-Cycle Cooling Water System; Revision 2

KLR-1321; Closed-Cycle Cooling Water Systems; Revision 2

KLR-1323; Inspection of Overhead Heavy Load and Refueling Handling Systems; Revision 2

KLR-1324; Compressed Air Monitoring Aging Management Program; Revision 2

KLR-1325; Fire Protection; Revision 2

KLR-1326; Fuel Oil Tank Inspections; Revision 2

KLR-1327; Buried Piping and Tanks Inspection; Revision 2

KLR-1334; External Surface Monitoring Aging Management Program; Revision 2

KLR-1337; Lubricating Oil Analysis; Revision 2

KLR-1338; ASME Section XI, Sub-Section IWE; Revision 2

KLR-1339; ASME Section XI, Sub-Section IWF; Revision 2

KLR-1341; Structures Monitoring Program; Revision 2

<u>License Renewal Drawings</u>

LRXK-100-132; Waste Disposal, Revision 0

LRM-202-1; License Renewal Drawing Service Water System; Revision 0

LRM-202-2; License Renewal Drawing Service Water System; Revision 0

LRM-202-3; License Renewal Drawing Service Water System; Revision 0

LRM-203; License Renewal Drawing Main Aux. Steam and Steam Dump; Revision 0

LRM-205; License Renewal Drawing Feedwater System; Revision 0

LRM-206; License Renewal Drawing Bleed Steam and Heater Vents; Revision 0

LRM-207; License Renewal Drawing Heater and Moisture Separator Drain; Revision 0

LRM-208-1; License Renewal Drawing, Fire Protection System; Revision 0

LRM-208-2; License Renewal Drawing, Fire Protection System; Revision 0

LRM-208-3; License Renewal Drawing, Fire Protection System; Revision 0

LRM-210; License Renewal Drawing Turbine Oil Purification; Revision 0

LRM-211; License Renewal Drawing Turbine and Auxiliary Bldg. Traps and Drains; Revision 0

LRM-212; License Renewal Drawing Air Removal System; Revision 0

LRM-213-1; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-213-2; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-213-3; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-213-4; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-213-5; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-213-6; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-213-7; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-213-8; License Renewal Drawing, Station and Instrument Air System; Revision 0

LRM-218; Spent Fuel Pool; Revision 0

LRM-219; License Renewal Drawing Secondary Sample Systems; Revision 0

LRM-220; License Renewal Drawing Fuel Oil Systems; Revision 0

LRM-601; Turbine and Aux Building Vent; Revision 0

LRM-604; Aux Building Zone SV Vent and Air Conditioning; Revision 0

LRM-605-2; License Renewal Drawing Heating System; Revision 0

LRXK-100-19; License Renewal Drawing Component Cooling System; Revision 0

LRXK-100-35; Chemical Volume Control System; Revision 0

LRXK-100-36; Chemical Volume Control System; Revision 0

LRXK-100-37; Chemical Volume Control System; Revision 0

LRXK-100-38; Chemical Volume Control System; Revision 0

LRXK-100-829; License Renewal Drawing Radioactive Waste Evaporator; Revision 1

LRXK-101-16; License Renewal Drawing Piping Steam Drain and Gland Diagram; Revision 0

LRXK-101-17; License Renewal Drawing Piping Steam Drain and Gland Diagram; Revision 0

LRXK-101-17A; License Renewal Drawing Piping Steam Drain and Gland Diagram; Revision 0

LRXK-101-24-1; License Renewal Drawing Electro-Hydraulic Control and Lube System; Revision 0

LRXK-101-24-2; License Renewal Drawing Electro-Hydraulic Control and Lube System; Revision 0

LRXK-100-131; Waste Disposal; Revision 0

OPERM-547; License Renewal Drawing Service Water System Containment Cooling; Revision S

License Renewal Miscellaneous Documents

LA 001059; Tracking Item to Implement Cable Testing and Calibration Reviews; dated August 21, 2008

Serial No. 09-300; Kewaunee Power Station Response to Request for Additional Information Regarding the Review of the Kewaunee Power Station License Renewal Application – Scoping and Screening Methodology; May 28, 2009

CURRENT PLANT DOCUMENTS

Calculations

01Q0273-C-001; Evaluation of Gouges in Shell of Diesel Generator under Ground Fuel Oil Storage Tank; November 20, 2001

Corrective Action Documents

CA 020894; Develop Plan for Condition Assessment of Underground 12” Fire Protection Header; dated September 19, 2005

CAP 002017; Auxiliary Building Fuel Handling Crane Inspection Concerns; dated June 7, 2001

CAP 004635; Install EPRI Fatigue Pro Transient Cycle Counting and Fatigue Monitoring System; dated September 21, 1998

CAP 009877; Leak in Underground Potable Water Line; dated April 12, 2002

CAP 012755; Loose Bolted Connection on Auxiliary Building Fuel Handling Crane, dated August 28, 2002

CAP 015099; Screen House East Wall Degradations – NEP 8.4 Structural Monitoring Inspection; dated March 6, 2003

CAP 015107; Column 1-A is Corroding at Its Base – NEP 8.4 Structural Monitoring Inspection; dated March 6, 2003

CAP 015281; Deteriorating Sealant Wall Joints, 1B Battery and AFW Rooms – NEP 8.4 Structural Monitoring Inspection; dated March 19, 2003

CAP 015907; Repair Required of 1A Component Cooling Water Heat Support; dated November 11, 2003

CAP 015907; Repair Required of 1A Component Cooling Water Heat Support; dated November 11, 2003

CAP 015975; Outer Face Cracking and Leaching, Containment Refueling Pool – NEP 8.4 Structural Monitoring Inspection; dated April 22, 2003

CAP 016012; Surface Rust on Containment Vessel; dated May 23, 2003

CAP 016012; Surface Rust on Containment Vessel; dated May 23, 2003

CAP 017813; Crack in the Wall in the Demin Room; dated August 25, 2003

CAP 018881; VT-3 Exam Unsatisfactory for U-Bolts on Hangers SW-H820 and SW-H939; dated May 25, 2005

CAP 018881; VT-3 Exam Unsatisfactory for U-Bolts on Hangers SW-H820 and SW-H939; dated May 25, 2005

CAP 020926; VT-3 Exam Unsatisfactory for U-Bolts on Hangers SW-H820 and SW-H939; dated May 25, 2005

CAP 020926; VT-3 Exam Unsatisfactory for U-Bolts on Hangers SW-H820 and SW-H939; dated May 25, 2005

CAP 023677; ISI Indications for Reactor Building Containment Vessel; dated October 29, 2004

Cap 023677; ISI Indications for Reactor Building Containment Vessel; dated October 29, 2004

CAP 025993; EQ related HELB Issues Identified As A Result Of The HELB EOC Walkdown; dated March 7, 2005

CAP 026070; SW-H224 – Nut Not Flush with Bolt End; dated March 5, 2005

CAP 027586; Pipe Thinning Code Calculations and Configuration Control; dated April 22, 2004

CAP 027586; Pipe Thinning Code Calculations and Configuration Control; dated April 22, 2004

CAP 027586; Radiography Determines Pitting Occurring in SW Supply to DG Hx's; dated May 25, 2005

CAP 027586; Radiography Determines Pitting Occurring in SW Supply to DG Hx's; dated May 25, 2005

CAP 028906; Inspection of Fire Water Header; dated August 19, 2005

CAP 031679; Over Flowing Causing Corrosion of Service Water Pump 1B1 Base Plate and Anchor Bolts; dated February 28, 2006

CAP 033475; Replacement of Flange Studs for 4" Flange Downstream of SW-300B; dated May 2, 2006

CAP 037353; Pipe Support MS-H136 Found with Loose Nuts on Concrete Anchor Bolts; dated September 18, 2006

CAP 037894; Stress Cracks Found During VT-3 Inspection of SW-1038B Nuts; dated October 2, 2006

CAP 041831; Delaminated/Spalled Shield Building Concrete at Elevation 664' of Auxiliary Building Room 403; dated February 16, 2007

CE 010638; Condition Evaluation, Loose Bolted Connection on Auxiliary Building Fuel Handling Crane, dated August 30, 2002

CE 016316; Condition Evaluation: Inspection of Fire Water Header; dated August 23, 2005

CR 018046; IWF Augmented Inspection Program; dated September 27, 2007

CR 018046; IWF Augmented Inspection Program; dated September 27, 2007

CR 021052; Error Likely Situations in Maintenance Procedures Concerning Torque Values; dated September 27, 2007

CR 021692; Active Leak at PS-1B; dated October 5, 2007

CR 021743; PS-1B Body-to-Bonnet Bolting Torque Values <30000 psi; dated October 5, 2007

CR 023335; Mechanical Maintenance Bolting Training Improved Craft Knowledge of Bolted Joint; dated October 25, 2007

CR 091864; Develop Cable testing PMs; dated February 27, 2008

CR 092315; Test Fitting Stretched on the Manifold for PT-479 (21098); dated March 4, 2008

CR 092315; Test Fitting Stretched on the Manifold for PT-479 (21098); dated March 4, 2008

CR 094248; Deficiencies and Recommended Corrective Actions Resulting from the Fire Protection Self assessment SAR-000452; dated April 1, 2008

CR 095254; Refueling Transfer Tube Penetration Number 18 Blank Flange; dated April 10, 2008

CR 097410; SI-303B Fastener Torque Documentation Discrepancy; dated May 1, 2008

CR 102562; Informal Self Assessment CR; dated June 30, 2008

CR 345431; Infrared Survey Indicates Elevated Temperatures On Pressurizer Heater Back-Up Group-D; dated August 19, 2009

MRE 003051; Maintenance Rule Evaluation: Delaminated/Spalled Shield Building Concrete at Elevation 664' of Auxiliary Building Room 403; dated February 21, 2007

Drawings

A-206; General Arrangement Reactor and Auxiliary Building Mezzanine Floor; Revision BZ

A-208; General Arrangement Reactor and Auxiliary Building; Revision BT

A-210; General Arrangement Reactor and Auxiliary Building Cross Section; Revision P

A-212; General Arrangement Miscellaneous Plans and Sections; Revision Y

S-529; Turbine and Administration Building Area, Miscellaneous Details; Revision E

Miscellaneous

KPS Operating Experience Screening Board Meeting; dated August 24, 2009

SIA Report IR-99-145; Cycle Counting Logic for the Automated Cycle Counting System for Kewaunee Power Station and Prairie Island Nuclear Generating Plant; dated November 7, 2007

K05559; Fluor Power Services Specification: Technical Support Center Fuel Oil Storage Tank; dated March 18, 1980

TS-147d (WPS); Pioneer Technical Specification: Diesel Generator Fuel Oil Tanks; dated October 1968

Ductile Iron Pipe Research Association Letter; Subject: Soil Analysis Report – Fire Line Inspection – Kewaunee, WI; dated August 31, 2007

Letter from D. C. Hintz to U. S. Nuclear Regulatory Commission, "Response to Generic Letter 88-14, 'Instrument Air Supply System Problems Affecting Safety- Related Equipment,'" dated May 26, 1989 (NRC-89-69)

Dominion Operating Experience Minute; dated September 2, 2009

Procedures

CHEM 43.001; Circulating Water Sodium Hypochlorite Injection; Revision 9

CHEM-41.003; Control of Steam Generator Chemistry During Periods of Cold Shutdown; October 7, 2004

CHEM-41.006; Secondary Chemistry Sample Locations and Sample Purging; February 19 2008

CHEM-41.007; Secondary Analytical Panel Alarm Setpoints; June 22 2004

CHEM-43.008; B Train Service Water Chemical Treatment; Revision C

CHEM-46.002; Component Cooling Chemistry and Sampling; Revision E

CY-AA-AUX-301; Closed Cooling Water Chemistry; Revision 0

CY-AP-SEC-200; Secondary System Chemistry

CY-KW-002-005; Laboratory Chemical Storage Inspection; Revision 0

CY-KW-041-001; Secondary Chemistry Sample Specifications; Revision 1

CY-KW-041-005; Secondary Hideout Return Sampling; Revision 0

CY-KW-041-013; Secondary Chemistry Sample Conditioning and Flow Control for Inline Analyzers; Revision 0

CY-KW-044-001; Chemistry Procedure; Revision 0

CY-KW-049-003; Control Room Air Conditioning Chiller System Sampling; Revision 0

ER-AA-AMP-102; Buried Piping Inspections; Revision 0

ER-AA-CII-102; ASME Section XI Containment In-Service Inspection (Metal/IWE) Program Fleet Implementation Requirements; Revision 0

ER-AA-FAC-1001; Flow-Accelerated Corrosion (FAC) Susceptibility Analysis and Modeling; Revision 0

ER-AA-FAC-1002; Flow-Accelerated Corrosion (FAC) Inspection and Evaluation Activities; Revision 1

ER-AA-ISI-100; Dominion Inservice Inspection Program; Revision 1

ER-AA-ISI-RI-100; Dominion Risk Informed Program; Revision 0

ER-AA-NDE-UT-805; Straight Beam Ultrasonic Examination of Studs and Bolts in Accordance with ASME Section XI, Appendix VIII; Revision 0

ER-AA-SYS-1002; System Engineering Walkdowns; Revision 1

ER-AA-SYS-1002p; System Engineering Walkdowns; Revision 1

ER-AA-SYS-1004; System Engineering Handbook; Revision 1

ER-AP-BAC-10; Boric Acid Corrosion Control Program; Revision 4

ER-AP-BAC-101; Boric Acid Corrosion Control Program (BACCP) Inspections; Revision 3

ER-AP-BAC-102; Boric Acid Corrosion Control Program (BACCP) Evaluations; Revision 3

ER-KW-BAC-101-1001; KPS Site Specific Boric Acid Corrosion Control Program (BACCP) Inspection and Evaluation Requirements; Revision 1

ES-0100; Specification for Fasteners – Mechanical, Electrical, Instrument and Structural Systems; Revision 1

ES-2001; Specification for Pipe and Fittings; Revision 5

ES-2002; Specification for Piping Material – Carbon Steel; Revision 4

ES-2003; Specification for Piping Design; Revision 16

ES-2011; Piping Material Turbine Oil Purification; Revision 2

ES-2017; Piping Material Cast Iron 4” and Over; Revision 2

ES-2022; Protective Coating for Steel Pipe; Revision 2

GIP-020A; Air Operated Valve Functional Test; Revision 3

GMP-113; Primary Manway Removal and Installation for Steam Generator; Revision 25

GMP-114; Secondary Manway Cover Removal and Installation for Steam Generator; Revision V

GMP-137; Brush/Tube Scrubber Cleaning Heat Exchanger Tubes and Inspection; Revision 12

GMP-207; General Repair and Replacement Program; Revision 19

GMP-211; General Bolting Procedure; Revision 17

GNP-01.24.04; Revision and Control of the IST Pump Performance Trends Data Base; Revision 3

GNP-01.32.01; Heat Exchanger Program Monitoring Program Evaluation Procedure; Revision 6

GNP-08.06.02; Containment Hot Shutdown Walkdown; Revision 4

MA-AA-1002; Leakage Management; Revision 4

MA-AA-101; Fleet Lifting and Material Handling; Revision 4

MA-AA-OCR-101; Overhead Cranes/Hoists; Revision 1

MA-KW-MPM-CRN-003; Annual Maintenance of Turbine Building Crane; Revision 0

MA-KW-MPM-CRN-004; Annual Maintenance of Reactor Building Polar Crane; Revision 0

MA-KW-MPM-CRN-007; Monthly Inspection of Auxiliary Building Fuel Handling Crane; Revision 1

MA-KW-MPM-CRN-009; Monthly Maintenance of Turbine Building Crane; Revision 0

MA-KW-MPM-CRN-010; Monthly Maintenance of Reactor Building Polar Crane; Revision 0

NAD-01.05; In-Service Inspection Program Implementation; Revision 11

NAD-01.52; Heat Exchanger Eddy Current Program; Revision B

NEP-08.04; Maintenance Rule Inspection Guideline for Buildings and Structures, Revision 3

NEP-14.13; Operating Experience Procedure; Revision 14

NEP-15.57; Tangential and Non-Code Radiographic Examination; Revision A

NID-01.05.02; Predictive Maintenance Oil Analysis Program; Revision C

NID-01.05.03; Predictive maintenance, Infrared Thermography Program; Revision 3

OP-AA-100; Conduct of Operations; Revision 6

OP-KW-OSP-CCI-002; Containment Inspection during Power Operation; Revision 0

PI-AA-100-1007; Operating Experience Program; Revision 2

PMP-01-01; Diesel Generator Start Up Air Compressor Inspection; Revision 23

PMP-01-08; Diesel Generator Start Up Air Compressor Relief and Check Valve

PMP-01-10; Station and Instrument Air System Air Dryer Inspection; Revision D

PMP-04-01; CW – Inlet Structure Inspection; Revision 13

PMP-04-01; Inlet Structure Inspection: Revision 13

PMP-04-14; Circulating Water Pump Suction Vault and Discharge Piping Zebra Mussel and Organic Macro fouling Inspection; Revision G

PMP-25-09; Control Room Air Conditioning Mechanical Inspection and Maintenance; Revision 6

PMP-53-01; Fuel Handling Spent Fuel Pool Bridge and Hoist Maintenance; Revision 8

PMP-57-05; C – Filler Room Hoist Maintenance; Revision E

PMP-57-06; C – Boric Acid Concentrates Filter, Electrical Shop, and Decontamination Room Hoist Mechanical Maintenance; Revision G

PMP-57-08; C – Containment Pedestal Crane Mechanical Maintenance; Revision M

PMP-57-12; C – Reactor Vessel Stud Tensioner Hoist Maintenance and Manipulator Crane Monorail Hoist; Revision F

RF-04.05; Reactor Pressure Vessel Stud Installation and Tensioning; Revision 11

Risk-Informed In-Service Inspection Program Plan Kewaunee Nuclear Power Plant; Revision 1

RP-AA-222; Radiation Protection; Revision 0

SP-31-340A; Component Cooling Heat Exchanger 1A Performance Monitoring; August 1, 2006

SP-55-085; Ten Year In-Service Inspection Requirements; Revision 15

SP-55-226; Surveillance Procedure, Transient or Operational Cycles; dated January 8, 2009

SP-55-318; Reactor Building Containment Vessel Ten Year In-Service Inspection Requirements; Revision 4

SP-55-324; Pressure Testing of Repair or Replacement Activities for ASME Boiler and Pressure Vessel Code Section XI; Revision 7

Surveillances

ER-KW-BAC-101-1001; KPS Site Specific Boric Acid Corrosion Control Program (BACCP) Inspection and Evaluation Requirements – Attachment 1, Components Requiring Cleaning Only; July 20, 2009

ER-KW-BAC-101-1001; KPS Site Specific Boric Acid Corrosion Control Program (BACCP) Inspection and Evaluation Requirements – Attachment 2, Periodic Cleaning Prior to Performing Maintenance; July 8, 2009

MA-KW-EPM-EHV-036, RAT Non-segregated Bus 1 through 6 Electrical Maintenance; Revision 2

MA-KW-MPM-FP-032; Annual Inspection and Alarm Test Of Cable Spreading Area Sprinkler System, Revision 0

PMP-08-033; Fire Protection Penetration Fire Barrier Inspection; Revision 14

SP-08-081; Fire Pump Test; Revision 35

SP-55-226; Transient or Operational Cycles; dated December 2, 2006

Self-Assessments

KPS-SA-07-19; Quality Review of EQ Program EQERs, dated April 24, 2007

SAR000419; Informal Self-Assessment Report, KPS Lifting and Rigging Program; dated June 30, 2008

SAR-000452; Triennial Fire Protection Preparation Assessment; dated April 1, 2008

SAR000469; Program Health Assessment, Maintenance Rule 10 CFR 50.65(a)(3); Revision 0

SAR-000550; EQ Program Recovery Assessment; dated October 15, 2008

Work Orders

Assessment Report 06-011K: FAC Program Assessment Kewaunee Power Station; March 2, 2006

KW07-013348; Install New Auxiliary Building Roof; dated November 26, 2008

KW07-013350; Provide Support for Installation of New Auxiliary Building Roof; dated November 26, 2008

KW100270078; PM57-011: Inspect/Lube Crane G-1, X-6, X-8, X-16 (5 percent Grace), dated October 6, 2008

KW100270835; PM10-664: Inspect/Clean Tank; October 26, 2007

KW100277888; PM10-052: D/G Fuel Oil Storage Tank 'B', Insp. and Clean; October 26, 2007

KW100278366; PM10-050: D/G Fuel Oil Storage Tank 'A', Insp. and Clean; October 26, 2007

Petrocon AQI/PCR Division; Out-of-Service Inspection Report; October 06, 2001

Petrocon PCR Division; Tank Cleaning and Inspection Report: TSC DFO Tank; July 2002

Kewaunee Power Station

NRC License Renewal Inspection

Exit Meeting

September 30, 2009

1

AGENDA

- Introductions
- License Renewal Process
- NRC Inspection Results
- Applicant Comments
- Closing Comments
- Public Questions

2

License Renewal Process

- Federal regulations (10 CFR Part 54) allow for renewal of operating licenses for an additional 20 year period
- Kewaunee submitted its application for renewed licenses on August 14, 2008
- Current license granted for 40 year period; it will expire on December 21, 2013
- If granted, the renewed licenses would expire in 2033
- Operations continue to be regulated under 10 CFR Part 50 during the extended period.

3

License Renewal Process

License Renewal Process includes

- Technical Review by Office of Nuclear Reactor Regulation (NRR)
  - Onsite Scoping and Aging Management Audit
  - Requests for Additional Information
  - Culminates in Safety Evaluation Report

4

License Renewal Process

- Process also includes onsite inspection by regional office (71002)
  - Focuses on implementation, material condition, and documentation
  - Emphasizes in-plant walk downs
  - Culminates in an inspection report

5

License Renewal Process

- If a renewed license is granted, there is another onsite inspection by the regional office (71003)
  - A portion is performed prior to the period of extended operation
  - Focuses on implementation of commitments and inspection results
  - Culminates in an inspection report

6

This is the 71002 Inspection

- Onsite inspection performed in accordance with NRC Inspection Procedure 71002
- Inspected scoping, screening and aging management programs
- Consisted of two weeks onsite between August 17 and September 4, 2009
- Inspection team consisted of six experienced inspectors plus an observer

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71002 Inspection

- Team reviewed electrical, mechanical and structural systems, structures and components
- Scoping and screening walkdowns
- Aging Management Program reviews
- Included a containment walkdown during hot shutdown on 9/26/2009

8

Scoping and Screening

- Reviewed systems to verify scoping and screening efforts were appropriate
  - Emphasized physical walk downs of the plant
  - Concentrated on auxiliary systems
- Systems
  - Auxiliary Building Ventilation;
  - Chemical and Volume Control System;
  - Bleed Steam;
  - Component Cooling Water System;
  - Feedwater;
  - Fire Protection;
  - Main Steam and Steam Dump;
  - Liquid Waste Processing and Discharge System;
  - Spent Fuel Pool Cooling; and
  - Station and Instrument Air System

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Scoping and Screening

- Conclusion:
  - Systems generally appeared appropriately scoped and screened
  - Some material condition issues identified that did not affect the results of this inspection
  - Scoping and screening acceptable for license renewal

10

Aging Management Programs

- Reviewed 22 aging management programs and 2 TLAAs
  - Performed plant walk downs if applicable
  - Reviewed implementing procedures
  - Reviewed current results and operating experience
  - Compared programs to the Generic Aging Lessons Learned (GALL) NUREG-1801

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Aging Management Programs

- B2.1.2 ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program
- B2.1.3 ASME Section XI, Subsection IWE Program
- B2.1.4 ASME Section XI, Subsection IWF Program
- B2.1.5 Bolting Integrity Program
- B2.1.6 Boric Acid Corrosion Program
- B2.1.7 Buried Piping and Tanks Inspection Program
- B2.1.8 Closed-Cycle Cooling Water System Program
- B2.1.9 Compressed Air Monitoring Program
- B.2.1.10 External Surfaces Monitoring Program

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Aging Management Programs

- B2.1.11 Fire Protection Program
- B2.1.12 Flow-Accelerated Corrosion Program
- B2.1.15 Fuel Oil Tank Inspections
- B2.1.16 Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems Program
- B2.1.17 Lubricating Oil Analysis Program
- B2.1.18 Metal-Enclosed Bus
- B2.1.19 Non-EQ Electrical Cables and Connections
- B2.1.21 Non-EQ Inaccessible Medium-Voltage Cables

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Aging Management Programs

- B2.1.22 Non-EQ Instrumentation Circuits Subject to Sensitive, High-Voltage, Low-Level Signals
- B2.1.23 Open-Cycle Cooling Water System Program
- B2.1.26 Reactor Head Closure Studs Program
- B2.1.28 Secondary Water Chemistry
- B.2.1.31 Structures Monitoring Program
- B.3.1 Environmental Qualification (EQ) of Electrical Components Program
- B.3.2 Metal Fatigue of Reactor Coolant Pressure Boundary Program

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Aging Management Programs

- Conclusion
  - Existing aging management programs were generally implemented as described in the application
  - Enhancements and exceptions appeared acceptable and were captured in commitment tracking database
  - Some minor inconsistencies identified which either required revision to the application or documentation in the corrective action program
  - Aging Management Programs appear to be adequate for the period of extended operation

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71002 Inspection Conclusion

- Kewaunee scoping, screening and aging management programs found sufficient for extended operation
- Region III does not see any inspection impediments to renewing the operating license
- This inspection will be documented in DRS inspection report 05000305/2009007

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Applicant Comments

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Closing Comments

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Kewaunee Current Status

Milestones	Schedule Date	Actual Date
Receive license renewal application (LRA)	08/14/08	08/14/08
Publish Federal Register Notice (FRN) - LRA availability	08/26/08	08/29/08
Publish FRN - acceptance/rejection and opportunity for hearing	10/01/08	10/01/08
Publish FRN – intent to conduct environmental scoping	10/08/08	10/09/08
Public Meeting – license renewal overview / environmental scoping meeting	10/22/08	10/22/08
Deadline for filing hearing requests and petitions for intervention	12/01/08	12/01/08
Environmental scoping period ends	12/09/08	12/08/08
Audit – Scoping & Screening Methodology	03/09/09	03/09/09
Audit – Environmental	05/26/09	05/26/09
Audit – Aging Management	06/08/09	06/08/09

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Kewaunee Current Status, contd.

Milestones	Schedule Date	Actual Date
Issue draft Supplemental Environmental Impact Statement SEIS	12/04/09	
U.S. EPA FRN Published - draft SEIS available for comments	12/11/09	
Public Meeting - draft SEIS meeting	01/13/10	
End of draft SEIS comment period	02/16/10	
Issue Safety Evaluation Report (SER) with open items	03/05/10	
Advisory Committee on Reactor Safeguards (ACRS) Subcommittee meeting	04/06/10	
Issue final SEIS	06/01/10	
U.S. EPA FRN Published - availability of final SEIS	06/11/10	
Issue final SER	08/06/10	
ACRS full committee meeting	09/09/10	
Decision - Director NRR (27 months)	11/10/10	

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Questions?

- For further information see the license renewal page on the NRC website at

http://www.nrc.gov/reactors/operating/licensing/renewal.html

- Or call our public affairs officials, Viktoria Mitlyng at 630-829-9662 or Prema Chandrathil, at 630-829-9663

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LIST OF ACRONYMS USED

AMP	Aging Management Program
AMR	Aging Management Report
AR	Action Request
ASME	American Society of Mechanical Engineers
ATWS	Anticipated Transient Without Scram
CAP	Corrective Action Program
CC	Component Cooling System
CCCW	Closed Cycle Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
EPRI	Electric Power Research Institute
EQ	Environmental Qualification
FAC	Flow Accelerated Corrosion
IEB	Inspection And Enforcement Bulletin
IEEE	Institute of Electrical & Electronic Engineers
IN	Information Notice
IP	Inspection Procedure
IR	Inspection Report
ISI	Inservice Inspection
LR	License Renewal
LRA	License Renewal Application
MWP	Masonry Wall Program
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
NUMARC	Nuclear Management and Resources Council
PBD	Program Basis Document
RC	Reactor Cooling System
SA	Station and Instrument Air System
SBO	Station Blackout
SF	Spent Fuel Pool Cooling System
SMP	Structures Monitoring Program
SSC	Systems, Structures, and Components
TLAA	Time Limited Aging Analysis
USAR	Updated Safety Analysis Report
VC	Chemical and Volume Control System
AAC	Auxiliary Building Air Conditioning
ABV	Auxiliary Building Ventilation System
ACA	Auxiliary Building Ventilation
ASV	Auxiliary Building Special Ventilation
CVCS	Chemical and Volume Control System
RC	Reactor Coolant
WO	Work Order
VT	Visual Testing

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Sincerely,

/RA/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-305
License No. DPR-43

Enclosure: Inspection Report 05000305/20009007
w/Attachments: Supplemental Information and Exit Meeting Presentation Slides

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