December 3, 2004

Mr. David A. Christian, Sr. Vice President
and Chief Nuclear Officer
Dominion Resources
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION UNIT 2 AND UNIT 3 - LICENSE RENEWAL APPLICATION INSPECTION REPORT NOS. 05000336/2004010, 05000423/2004010

Dear Mr. Christian:

On October 1, 2004, the NRC completed the second inspection of your application for license renewal for your Millstone Power Station Unit 2 and Unit 3. The enclosed report documents the inspection findings, which were discussed on October 20, 2004, with members of your staff in an exit meeting open for public observation at the Waterford, CT, Town Hall.

The purpose of this inspection was to examine the plant activities and documents that supported the application for a renewed license of Millstone Power Station Units 2 and 3. The inspection consisted of an examination of selected procedures, representative records, walkdowns of available areas, and interviews with plant personnel regarding the proposed methods by which the effects of aging during the extended period of operation will be managed by Dominion staff for selected systems, structures, and components previously subject to an aging management review. For a sample of plant systems, inspectors performed visual examinations of accessible portions of the systems to directly observe system aging as described in the application for a renewed license.

The inspection team concluded that the aging management portion of the license renewal activities were conducted as described in the License Renewal Application and that documentation supporting the application was in an auditable and retrievable form. The inspection results supported a conclusion that the proposed activities will reasonably manage the effects of aging in the systems structures, and components identified in your application.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Raymond K. Lorson, Chief
Materials and Structural Engineering Branch
Division of Reactor Safety

Docket Nos: 50-336, 50-423
License Nos: DPR-65, NPF-49

Enclosure: Inspection Report Nos. 05000336/2004010 and 05000423/2004010
w/Attachment: Supplemental Information

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REGION I

Docket Nos:	50-336, 50-423
License Nos:	DPR-65, NPF-49
Report No:	05000336/2004010 and 05000423/2004010
Licensee:	Dominion Resources
Facility:	Millstone Power Station, Unit 2 and Unit 3
Location:	P. O. Box 128 Waterford, CT 06385
Dates:	September 13 - 17, 2004 September 27 - October 1, 2004
Inspectors:	Michael C. Modes, Senior Reactor Inspector (Team Leader) Suresh K. Chaudhary, Senior Reactor Inspector Thomas F. Burns, Reactor Inspector Timothy D. O'Hara, Reactor Inspector Thomas P. Sicola, Reactor Inspector
Approved by:	Raymond K. Lorson, Chief Materials and Structural Evaluation Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000336/2004-010, 05000423/2004-010; 09/13/2004 - 09/17/2004, and 09/27/2004 - 10/01/2004, Millstone Power Station, Unit 2 and Unit 3; Inspection of the proposed aging management procedures for the Millstone Units 2 and 3 application for renewed license.

This inspection of License Renewal activities was performed by five regional office engineering inspectors. The inspection was conducted in accordance with NRC Manual Chapter 2516 and NRC Inspection Procedure 71002. This inspection did not identify any “findings” as defined in NRC Manual Chapter 0612. The overall conclusion of this inspection was that the proposed license renewal aging management procedures conformed to the method described in the application for a renewed license and were in compliance with the requirements of 10 CFR 54.

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Other

a. License Renewal

(1) Inspection Scope

This inspection was conducted by NRC Region I inspectors to verify that documentation, procedures, guidance, and personnel, appropriately supported the license renewal application. This inspection reviewed the proposed procedures for managing the effects of aging in the systems, components, and structures determined, previously, to be within the scope of license renewal and for which an aging effect applied. The team selected a sample of aging management programs to verify the adequacy of the applicant's documentation and implementation activities. The selected aging management programs were reviewed to determine whether the proposed aging management implementing process would adequately manage the effects of aging for the system. The inspectors reviewed supporting documentation and interviewed applicant personnel to confirm the accuracy of the license renewal application conclusions. For a sample of plant systems and structures, inspectors performed visual examinations of accessible portions of the systems to observe aging effects.

(2) Findings

Flow-Accelerated Corrosion Program

The Flow-Accelerated Corrosion Program is an existing program that is credited with managing the flow-induced corrosion aging effects in high energy, high flow systems in both Millstone Unit 2 and Unit 3. The aging effects are managed by comparing measured pipe wall thickness values to predicted values based on the period of operation. Additionally, visual inspections are to be performed and documented during system repair activities to assess the condition of system piping. The Flow-Accelerated Corrosion monitoring records for the Unit 2 feedwater system and the Unit 3 steam generator blowdown systems were examined to determine the program's effectiveness.

The inspectors noted that Millstone has replaced numerous system components due to detected system wear before the component has failed. Additionally, numerous examples were provided where components were replaced with components of improved wear resistance. The Flow-Accelerated Corrosion Program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, which included industry operating experience and historical reviews, to determine the aging effects associated with flow-accelerated corrosion. The applicant provided adequate guidance to ensure that aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation

Battery Rack Inspection Program

The Battery Rack Inspection program is an existing program supplemented with proposed future enhancements, credited to manage the aging effects of battery rack structures. The aging effects are managed by documented, periodic visual inspections of the battery rack structures and supports. The implementing work orders for the existing battery rack inspections were reviewed to assess the battery rack inspection activities and to ensure that inspections had been performed and documented. Inspections of the following battery racks were reviewed: DB2-201B, DB1-201A, BAT-1, BAT-2, BAT-3, BAT-5, DB3-201D, BAT-A, and BAT-4. There were no open condition reports documenting any non-conformances of the battery racks. The licensee had a program to monitor and evaluate industry operating experience for applicability to the battery racks at Millstone.

The inspectors noted that Millstone had developed a program to monitor the structural capability of the essential battery racks and to effectively manage the observed aging effects. The Battery Rack Inspection program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the battery rack aging effects. The applicant provided adequate guidance to ensure that the aging effects would be appropriately managed. Thus, there was reasonable assurance that the effects of aging would be adequately managed and the intended function of the systems, structures, and components would be maintained through the period of extended operation.

Fire Protection Program

The Fire Protection program is an existing program, with exceptions, that is credited with managing the aging effects of the fire protection systems. The aging effects are managed by inspections, tests and engineering evaluations to ensure that the capability of the Fire Protection systems would be maintained. The program documents were reviewed to determine the effectiveness of the program.

The inspectors noted that Millstone had a comprehensive program to manage the effects of aging in fire seal barriers which involved visual inspections followed by immediate remediation upon discovery of seal degradation. The Fire Protection program requirements, as contained in the Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine fire protection system aging effects. The applicant provided adequate guidance to ensure the aging effects of fire protection systems would be appropriately managed. Thus, there was reasonable assurance that the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation

Electrical Cables and Connectors Not Subject To 10 CFR 50.49 Environmental Qualification Requirements

The Electrical Cables and Connectors Not Subject To 10 CFR 50.49 Environmental Qualification Requirements program is a new program created for license renewal which is credited with managing aging effects in cables and connectors not subject to 10 CFR 50.49 Environmental Qualification requirements. The aging effects will be managed by collecting physical data on the effected equipment and by performing engineering evaluations of the aging effects on the equipment.

At the time of the inspection, the applicant had not completed any of the actions identified in the program. Therefore, the inspectors were unable to assess the effectiveness of the implementation of this program. The inspectors concluded that, if effectively implemented as described in the program description documents, the aging effects of electrical cables and connectors not subject to 10 CFR 50.49 Environmental Qualification would be adequately managed.

The inspectors noted that the applicant planned to conduct evaluations, which included industry experience and historical reviews, to determine the aging effects of electrical cables and connectors not subject to 10 CFR 50.49 Environmental Qualification Requirements. The applicant's intended program may provide adequate guidance to ensure aging effects would be appropriately managed. If completed effectively, then there would be reasonable assurance that the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Reactor Vessel Surveillance Program

The Reactor Vessel Surveillance program is an existing program credited with managing reactor vessel material aging effects due to neutron embrittlement. The aging effects are managed by testing of irradiated reactor vessel material specimens

after known periods of exposure to neutron fluence. The results of previous test capsule examinations were reviewed to determine the effectiveness of the program.

The inspectors noted that Millstone has initiated corrective actions related to vessel embrittlement on two previous occasions and there was an existing methodology for evaluation of operating experience from other plants to better manage the aging effects on the reactor vessels at Millstone Unit 2 and Unit 3. The Reactor Vessel Surveillance program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects managed by the Reactor Vessel Surveillance Program. The applicant provided adequate guidance to ensure that the aging effects would be appropriately managed. Thus, there was reasonable assurance that the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Boraflex Monitoring Program

The Boraflex Monitoring Program is an existing program supplemented with enhancements and credited with managing the breakdown and erosion aging effects in the Boraflex material used in the spent fuel pool poison boxes. While Boraflex is used in both the Unit 2 and Unit 3 spent fuel pools, the applicant only credits the use of Boraflex to maintain sub-criticality in regions A and B. The aging effects are managed by periodic water chemistry sampling of the spent fuel pool and destructive testing of the poison boxes. These activities were reviewed to determine the effectiveness of the program. Spent fuel pool Boraflex monitoring and assessments EN-21054, NFE-12, M2-EV-03-0035, and NE-08-F-125 were reviewed to determine whether the testing and monitoring activities were consistent with the aging management requirements. The inspectors reviewed Netco Correspondence NET-172-01 and Holtel Report HI-961503 to verify that the Millstone test results were consistent with the acceptance standards.

The inspectors noted that Millstone regularly samples spent fuel pool water for silica concentration and performs trending analysis of the results to identify degradation of the poison box Boraflex material. Blackness testing is periodically performed on poison boxes removed from the spent fuel pool. As Boraflex is irradiated, the contraction of the material causes gaps seen as blackness in the material, resulting in the potential for reduced neutron attenuation in the poison material. The licensee maintained written and visual records of the blackness testing performed on the poison boxes. The gaps identified due to the radiation-induced shrinkage of the Boraflex material, were all well within the threshold of the acceptability criteria. The Boraflex Monitoring Program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects managed by Boraflex Monitoring Program. The applicant provided adequate guidance to ensure that the aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Work Controls Process Program

The Work Controls Process Program is an existing program, supplemented with enhancements, credited with managing the aging effects of the system components, commodities and adjacent piping and structures within the scope of License Renewal through condition monitoring. The aging effects are managed by using opportunities provided by preventative and corrective maintenance activities to perform inspections of normally inaccessible components. Additionally, these activities provide opportunities to collect fluid samples for further analysis of conditions that could be related to an aging effect. The process utilizes the corrective action program to evaluate additional inspection requirements based on the extent of condition of identified problems. The work controls process is computerized to maintain maintenance and performance records of components to support engineering evaluations. Examples of process implementation included:

- Identified aging of pipe supports in the charging system and performed extent of condition analysis and corrective maintenance on system supports (CR-01-06459).

- Preventative maintenance on a valve in the service water system identified wall thinning on adjacent piping. An engineering evaluation and extent of condition was performed which resulted in the subsequent replacement of the piping during the next outage (CR 01-06227).

- Engineering evaluation of fire pumps following a surveillance test showed a downward trend in performance associated with corrosion in the pump suction piping. The degraded piping was replaced (M1-99-0179).

The inspectors noted that Millstone has performed engineering analyses and inspections based on observations of degraded conditions obtained during maintenance and test activities. Additionally, Millstone implemented procedure MP-24-ENG-GDL01 revision 04, “System Engineering Performance Monitoring and Trending,” to analyze and trend performance data (vibration monitoring, chemistry trending, etc) to assess system performance. This systematic assessment and trending is intended to prevent and mitigate system aging. The Work Controls Process Program requirements, as contained in Millstone procedures, were consistent with the applicant’s license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects managed by the Work Controls Process. The applicant provided adequate guidance to ensure aging effects would be appropriately managed. Thus, there was reasonable assurance that the effects of aging would be adequately managed and the intended function of the System, structures, and components would be maintained through the period of extended operation.

Inaccessible Medium-Voltage Cables not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program

The Inaccessible Medium-Voltage Cables not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program that was created for license renewal to mitigate the degradation of cables due to submergence. Position paper MP-LR-3904/4904 identified the potential for water treeing in cabling, and identified cables that were inaccessible and susceptible to submergence. The aging effects will be managed by regularly scheduled de-watering and inspection of underground medium voltage cable ways. The inspections verify that no cables are submerged and also check for indications (waterlines, marks, etc) of past submergence. Either indication would result in an increased frequency of de-watering the affected space. Should any indications of cable submergence be identified, an engineering evaluation would be conducted. Tests for insulation breakdown or 'treeing' would be conducted in accordance with Electric Power Research Institute Technical Report 103834-P1-2, "Effects of Moisture on the Life of Power Plant Cables."

The inspectors concluded that the Inaccessible Medium-Voltage Cables not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program adequately meets the requirements and intentions of aging management. The applicant provided adequate guidance to ensure that the aging effects would be appropriately managed. Thus, there was reasonable assurance that the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Service Water System (Open Cycle) Program

The Service Water System (Open Cycle) Program is an existing program credited with managing the maintenance of protective coatings and piping as well as the prevention of excess biofouling associated with the open cycle service water system. The aging effects are managed by surveillance and control techniques required by NRC Generic Letter 89-13 to manage the effects of material loss and fouling. The inspectors reviewed service water cooled heat exchanger inspection forms (EN-31084), inspection and test results of lined service water piping and components (C-EN-112), eddy current test results, piping wall thickness tests and visual inspection reports to determine the effectiveness of the program.

The inspectors noted that Millstone has performed testing on the system to check for fouling and system degradation. Likewise, freshwater lay-up procedures and chemical injection systems are in place to minimize biofouling during periods of operation or shutdown. Inspectors conducted walkdowns of intake structures for both Units 2 and 3, and performed visual inspections of associated piping and heat exchangers. The Service Water System (Open Cycle) Program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as, industry experience and historical reviews to determine aging effects managed by the Service Water System (Open Cycle) program. The applicant provided adequate guidance to ensure aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Infrequently Accessed Areas Program

The Infrequently Accessed Areas Program is a new program created for license renewal which is credited with managing areas that contain in-scope equipment or structural components subject to aging effects. These areas are isolated from normally accessible areas by physical boundaries or are inaccessible during operation due to adverse environmental conditions (high radiation, temperature, etc). The aging effects are managed by infrequent visual inspection and subsequent engineering evaluations of the inspection findings. The auxiliary building heat exchanger room, auxiliary building demineralizer alley (inside cubicles) and the emergency diesel generator cubicles were all visually inspected to determine the effectiveness of the program.

The inspectors noted that the areas delineated by the Infrequently Accessed Areas program were reasonably inaccessible during plant operations, and the material conditions of the areas inspected showed little evidence of either component aging or conditions which would cause the system, structures, and components in the area to be subject to significant aging effects. The Infrequently Accessed Areas Program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects managed by the Infrequently Accessed Areas Program. The applicant provided adequate guidance to ensure aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Closed-Cycle Cooling Water Systems

The Closed-Cycle Cooling Water program is an existing program supplemented with enhancements which is credited with managing aging effects in closed-cycle cooling water systems such as the emergency diesel generator jacket water and component

cooling water systems. The aging effects are managed through control of chemistry to minimize corrosion rates. Routine surveillance testing, performance monitoring, and chemistry sampling are used to evaluate the effectiveness of the chemistry control program. Although not completed at the time of the inspection, the applicant also planned to conduct baseline inspections of the closed-cooling water side on a number of heat exchangers to verify the adequacy of the program.

The inspectors reviewed the chemistry program requirements for selected closed-cycle cooling water systems contained within the scope of the program. The inspectors reviewed corrective action program documents to verify that there were no adverse trends in performance of these systems that would be attributable to aging. Additionally, the inspectors conducted a walk-down of selected Unit 2 and 3 closed-cycle cooling water systems to ensure that any age-related degradation had been identified and was being appropriately dispositioned. The inspectors determined that the Closed-Cycle Cooling Water program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal. No deficiencies were identified that would indicate the program would not be effective in mitigating the effects of aging during the period of extended operation.

The inspectors determined that Millstone has conducted adequate evaluations and appropriately utilized industry operating experience and historical trending to manage the aging effects in closed-cycle cooling water systems. The applicant provided adequate guidance to ensure that the aging effects would be appropriately managed. Thus, there was reasonable assurance that the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Buried Pipe Inspections

The Buried Pipe Inspection program is a new program created for license renewal which is credited with managing the aging effects of buried piping. The purpose of the program is to evaluate the condition of the coatings and wraps of buried piping as an indication of the condition of the underlying materials. The applicant planned to conduct confirmatory piping inspections by examining a representative sample of buried pipes constructed of various materials and with different types of coatings and wraps. The applicant also plans to perform inspections on sections of buried pipe when accessible during maintenance activities.

At the time of the inspection, the applicant had not completed any of the actions identified in the program. Therefore, the inspectors were unable to assess the effectiveness of the implementation of this program. The inspectors concluded that, if effectively implemented as described in the program description documents, the aging effects of buried pipes would be adequately managed.

The inspectors noted that the applicant planned to conduct evaluations, which included industry experience and historical reviews, to determine the aging effects of buried pipes. The applicant's intended program may provide adequate guidance to ensure

aging effects would be appropriately managed. If completed effectively, then there would be reasonable assurance that the effects of aging will be adequately managed and the intended function of the system, structures, and components will be maintained through the period of extended operation.

Primary Chemistry Control

The Primary Chemistry Control program is an existing program which is credited with managing aging effects associated with primary system piping degradation. The aging effects are managed by creating a chemical environment in which material degradation, such as cracking or wall thinning, is minimized. The applicant's primary chemistry control program mitigates aging effects through periodic chemical addition to maintain a non-corrosive environment in the primary systems. Routine monitoring of chemistry parameters in the primary systems is conducted to confirm the effectiveness of chemical additions and to identify adverse trends. If any of these parameters are outside their prescribed limits, corrective actions are taken in accordance with the applicant's corrective action program.

The inspectors reviewed the results of chemistry analyses conducted on both Millstone units and reviewed chemistry trending data. System health reports for the chemical and volume control system and the reactor coolant system and various corrective action documents were reviewed to verify that the applicant's primary chemistry control program was effective. The inspectors also verified that the applicant had taken appropriate corrective actions for conditions when primary chemistry parameters were out of specification. The Primary Chemistry Control program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations and used industry operating experience effectively in developing their primary chemistry control program. The applicant provided adequate guidance to ensure aging effects would be appropriately managed. Thus, there was reasonable assurance that the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Boric Acid Corrosion Control

The Boric Acid Corrosion Control program is an existing program credited with managing the aging effects associated with boric acid corrosion. This program is a condition monitoring program which manages aging effects by determining the principal locations where coolant leaks could degrade the pressure boundary through boric acid corrosion; conducting examinations that ensure that both the source and target of the potential leakage are identified; taking corrective actions to prevent recurrence,

including trending and the use of operating experience and industry recommendations; and performing engineering evaluations of boric acid leakage and related material degradation.

The inspectors reviewed the applicant's procedures for managing the effects of boric acid corrosion. The inspectors conducted a plant walkdown to verify that boric acid leakage was being appropriately identified and entered into the corrective action program. The inspectors also verified that the applicant conducts trending of boric acid leaks. A review of condition reports related to boric acid leakage or corrosion was conducted to confirm that the applicant's corrective actions have been appropriate. Reports from recent boric acid containment inspections were reviewed to determine if the applicant's program has been effective at mitigating the effects of boric acid leakage. The Boric Acid Corrosion Control program, as contained in Millstone procedures, was consistent with the applicant's license renewal submittal.

The inspectors determined that the applicant had adequately developed and implemented the Boric Acid Corrosion Control program. Industry operating experience, trending, and component monitoring were being effectively used to mitigate the effects of aging. The applicant provided adequate guidance to ensure that aging effects would be appropriately managed. Therefore, there was reasonable assurance that the effects of aging would be adequately managed and that the intended functions of the system, structures, and components would be maintained through the period of extended operation.

Containment Inspection Program

The Containment Inspection Program for both Units 1 and 2 is an existing program The aging effects are managed by the existing in-service inspection program prescribed by the ASME Boiler and Pressure Vessel Code. These containment inspections manage the aging effects of material property changes, cracking, loss of material, and any other structural anomaly developed due to age or service conditions. The program was consistent with the requirements contained in ASME Section XI, Subsections IWE and IWL, and 10 CFR 50.55a(b)(2).

In addition to the above, for Millstone Unit 2, the prestressed, post-tensioned concrete containment is assessed per the examination requirements of ASME Section XI, Subsection IWL, Examination Category L-B for un-bonded post-tensioning systems. Examination requirements similar to those specified in Subsection IWL are also identified in Technical Specifications in order to meet the requirements of Regulatory Guide 1.35. Appendix J Leakage Rate Testing is included as part of the In-service Inspection Program. The Containment Appendix J Leakage Rate Test Program implements Type A tests to measure the overall primary containment integrated leakage rate.

The inspectors reviewed the applicant's procedures for conducting containment inspections. The applicant conducts a general visual examination of all accessible surfaces of the containment as specified in the ASME Boiler and Pressure Vessel Code.

Detailed visual examinations are conducted if discrepancies are identified. Inspection reports were reviewed for each unit and corrective action documents were assessed for a sample of the deficiencies identified. The Containment Inservice Inspection program requirements, as contained in Millstone's procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects managed by an effective containment inspection program. The applicant provided adequate guidance to ensure that aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

General Condition Monitoring Program

The general condition monitoring program for both Units 1 and 2 is an existing program. The aging effects are managed by monitoring the effects of loss of material, cracking, and change of material properties on the external surfaces of components. The program is performed in accessible plant areas for components and structures including those within the scope of license renewal.

The general condition monitoring program involves visual inspections for evidence of age-related degradation. Multiple station groups including health physics technicians, systems engineers and plant equipment operators periodically walkdown accessible areas of the station to identify material problems. The inspectors noted that Millstone maintained documentation of these inspections corrective actions, as applicable. The inspectors performed a walkdown inspection to assess the condition of coatings, structural grouts and bolted connections, and the general appearance of structures and equipment for any obvious indications of degradation. The General Condition Monitoring Program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects managed by a good inspection and surveillance program. The applicant provided adequate guidance to ensure that aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Inspection Activities: Load Handling Cranes and Devices Program

The Load Handling Cranes and Devices program is an existing program. This program manages the aging effect of loss of material and other degradations for the load handling cranes and devices within the scope of license renewal. The in-scope load

handling cranes and devices are either safety-related or seismically designed to ensure that they will not adversely impact safety-related components during, or subsequent, to a seismic event. Load handling cranes and devices inspections address the overall condition of the crane or device, including checking the condition of the structural members (i.e., rails, girders, etc.) and fasteners on the crane or device, the runways along which the crane or device moves, and the base-plates and anchorages for the runways and monorails.

The system engineer's inspection reports, plant operators' observation logs, and reports of inspections and observations performed during outages of material and equipment were reviewed to determine the effectiveness of the program. The inspectors also reviewed the preventive maintenance schedule and corrective maintenance work orders for structural and bolted connections to verify the effectiveness of the program.

The inspectors noted that Millstone maintained sufficient documentation of the observations, inspections, and the corrective actions, as applicable to maintain the load handling cranes and lifting devices equipment and appurtenances. The inspection program requirements, including load tests, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects that would be managed by an effective inspection and test program. The applicant provided adequate guidance to ensure that aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Structures Monitoring Program

The Structures Monitoring Program is an existing program credited with managing aging effects in structures. The program manages the aging effects of cracking, loss of material, and change of material properties by the monitoring of structures and structural support systems that are in the scope of license renewal. The majority of these structures and structural support systems are monitored under 10 CFR 50.65. The aging effects are managed by inspecting large equipment supports, masonry walls and water-control structures identified as performing intended functions in accordance with 10 CFR 54.4. The Structures Monitoring Program evaluates the condition of the coatings as an indication of the condition of the underlying materials. The Structures Monitoring Program does not include the inspection of the supports specifically inspected per the in-service inspection program or the condition of hangers and supports incorporated into the General Condition Monitoring program.

The system engineer's observations documented in the system health reports, plant operators walkdown observation logs, and inspections and observation performed during outages of material and equipments were reviewed to determine the effectiveness of the program. The inspectors also visually verified by a walkdown

inspection of the state of coatings, structural concrete, grouts and bolted connections, and the general appearance of structures and equipments for any obvious indication of degradation. The inspectors noted that Millstone had sufficient documentation of the observations, inspections, and the corrective actions, if any, to assure that the integrity of structures and equipment was maintained. The Structural Monitoring Program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine aging effects managed by a good inspection and surveillance program. The applicant provided adequate guidance to ensure aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging would be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

Tank Inspection Program

The Tank Inspection Program is an existing program. The scope of the Millstone Tank Inspection Program includes all tanks requiring management as identified in the aging management review process. The Tank Inspection Program manages the aging effects of loss of material through periodic internal and external tank inspections. The program includes inspections of the sealant and caulking in and around the tank and the concrete foundation and evaluations to monitor the condition of coatings, linings, and structural elements, to prevent deterioration of the tanks to unacceptable levels. To mitigate or preclude loss of material, the external surfaces of above ground carbon steel tanks are painted or coated, consistent with industry standards.

For accessible locations, loss of material is detected by periodic visual inspections of the tank exteriors and internals. If potential degradation of the tank walls/bottoms is identified or is suspected, appropriate nondestructive evaluation methods are employed to determine the extent of degradation. For inaccessible locations, such as the external surfaces of tank bottoms, thickness measurements will be taken to ensure that significant degradation is not occurring. Though coatings, sealants, and caulks have been applied to the external and internal surfaces of tanks, no credit was taken for these coatings in the determination of the aging effects for the underlying materials. The Tank Inspection Program evaluates the condition of the coatings as an indication of the condition of the underlying materials.

The system engineer's observations documented in the system health reports, plant operators walkdown observation logs, and inspections and observation performed during outages of material and equipments were reviewed to determine the effectiveness of the program. The inspectors also visually verified by a walkdown inspection of the state of coatings, structural materials, grouts and sealants, caulks, and the general appearance of tanks and equipments for any obvious indication of degradation. The Tank Inspection Program requirements, as contained in Millstone procedures, were consistent with the applicant's license renewal submittal.

The inspectors concluded that the applicant had conducted adequate evaluations, as well as industry experience and historical reviews, to determine the aging effects managed by the tank inspection program. The applicant provided adequate guidance to ensure aging effects would be appropriately managed. Thus, there was reasonable assurance the effects of aging will be adequately managed and the intended function of the system, structures, and components would be maintained through the period of extended operation.

(3) Conclusion

The inspection team concluded that the proposed license renewal aging management programs and procedures conformed to the methods described in the application for a renewed license and were in compliance with the requirements of 10 CFR 54.

4OA6 Meetings, including Exit

The team presented the inspection results to Mr. Skip Jordan and other members of licensee management on October 20, 2004. Licensee management stated that none of the information reviewed by the inspectors was considered proprietary.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

Stephen E. Scace	Director of Nuclear Safety & Licensing, Millstone
Arnold (Skip) J. Jordan, Jr.	Director of Engineering, Millstone
William R. Watson, Jr.	Millstone Site License Renewal Supervisor
Paul C. Aitken	Dominion IPA License Renewal Supervisor

NRC Personnel

Wayne D. Lanning	Director, Division of Reactor Safety, Region I
Diane P. Screnci	Senior Public Affairs Officer, Region I
Johnny H. Eads	Project Manager, License Renewal and Environmental Impacts

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed

None

LIST OF DOCUMENTS REVIEWED

Aging Management Programs

Technical Report MP-LR-3702/MP-LR-4702, License Renewal Project Aging Management Program for Boric Acid Corrosion Control
Technical Report MP-LR-3726/MP-LR-4726, License Renewal Project Aging Management Program for Inservice Inspection: Containment Inspections
Technical Report MP-LR-3716/MP-LR-4716, License Renewal Project Aging Management Program for Closed-Cycle Cooling Water Systems, Revision 4
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CP 2802E, Chemical Additions and Calculations, Revision 003-05
CP 2802G, Sampling Closed Cooling Water Systems, Revision 001-01
CP 3802A, Primary Water Chemistry Control, Revision 006-02
CP 3802C, Balance of Plant Chemistry Control, Revision 004, 01
CP 3802L, Reactor Coolant System Lithium and Hydrazine Control, Revision 0
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LIST OF ACRONYMS USED

None