



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

January 20, 2010

Mr. Christopher R. Costanzo
Vice President
NextEra Energy Duane Arnold, LLC
3277 DAEC Road
Palo, IA 52324-9785

**SUBJECT: DUANE ARNOLD ENERGY CENTER NRC LICENSE RENEWAL SCOPING,
SCREENING, AND AGING MANAGEMENT INSPECTION REPORT
05000331/2009010(DRS)**

Dear Mr. Costanzo:

On December 16, 2009, the NRC completed an inspection regarding your application for license renewal for the Duane Arnold Energy Center. The enclosed report documents the inspection results, which were discussed on December 16, 2009, with members of your staff in an exit meeting open for public observation at the Hiawatha Community Center in Hiawatha, Iowa.

The purpose of this inspection was an examination of activities that support the application for a renewed license for Duane Arnold Energy Center. 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 inspection concluded that the scoping, screening, and aging management license renewal activities were generally conducted as described in the license renewal application, as supplemented through your responses to requests for additional information from the NRC. The inspection also concluded that documentation supporting the application is 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.

C. Costanzo

-2-

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and any response you provide will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) 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/

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

Docket No. 50-331
License No. DPR-49

Enclosure: Inspection Report 05000331/2009010(DRS)
W/Attachments 1 and 2: Supplemental Information and Exit Meeting
Presentation Slides

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-331

License No: DPR-49

Report No: 05000331/2009010

Applicant: NextEra Energy Duane Arnold, LLC

Facility: Duane Arnold Energy Center

Location: Palo, IA

Dates: November 2 through December 16, 2009

Inspectors: B. Jose, Senior Engineering Inspector (Lead)
T. Bilik, Senior Engineering Inspector
D. Betancourt, Engineering Inspector
S. Chaudhary, Senior Engineering Inspector (R-I)
B. Harris, License Renewal Project Manager, NRR
C. Brown, Engineering Inspector

Observer: M. Benson, General Engineer, NSPDP

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

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS	1
REPORT DETAILS.....	2
1. INSPECTION SCOPE	2
2. VISUAL OBSERVATION OF PLANT EQUIPMENT	2
3. REVIEW OF SCOPING AND SCREENING METHODOLOGY	3
.1 Condensate and Feedwater	3
.2 General Service Water System:	4
.3 Plant Ventilation Systems:	4
.4 Containment Hardened Wet Well Vent	5
.5 Fuel Pool Cooling and Cleanup	6
.6 Area Radiation Monitoring, Reactor Building Kaman Radiation Monitoring, and Turbine Building Kaman Radiation Monitoring	6
.7 Instrument and Service Air Systems.....	7
.8 Liquid and Solid Radwaste	8
.9 Fire Protection System	8
4. REVIEW OF AGING MANAGEMENT PROGRAMS	9
.1 ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD (B.3.3).....	9
.2 ASME Section XI Inservice Inspection, Subsection IWE (B.3.4)	10
.3 ASME Section XI Inservice Inspection, Subsection IWF	10
.4 External Surfaces Monitoring Program (B.3.21)	11
.5 Bolting Integrity (B.3.6)	12
.6 Buried Piping and Tanks Inspection (B.3.7)	13
.7 Metal Enclosed Bus Program (B.3.31)	13
.8 BWR Stress Corrosion Cracking (B.3.12).....	14
.9 BWR Vessel Inner Diameter Attachment Welds (B.3.13).....	14
.10 BWR Vessel Internals (B.3.14).....	15
.11 Closed-Cycle Cooling Water System (B.3.15).....	16
.12 Compressed Air Monitoring (B.3.16)	17
.13 Electrical Cables and Connections (B.3.17)	17
.14 Electrical Cables and Connections Used in Instrument Circuits	18
(B.3.18).....	18
.15 Fire Protection (B.3.22)	19
.16 Fire Water System (B.3.23)	20
.17 Flow-Accelerated Corrosion (B.3.24).....	20
.18 Fuel Oil Chemistry (B.3.25)	21
.19 Inaccessible Medium-Voltage Cables Program (B.3.27)	22
.20 Inspection of Overhead Heavy and Light Load Handling Systems (B.3.29).....	23

Cont.
Table of Contents

.21	Electrical Penetration Assemblies (B.3.20).....	23
.22	Open-Cycle Cooling Water System (B.3.33)	24
.23	Water Chemistry Program (B.3.39)	25
.24	Reactor Head Closure Studs Program (B.3.34).....	25
.25	Lubricating Oil Analysis (B.3.30).....	26
.26	Selective Leaching of Materials (B.3.36)	26
.27	Structures Monitoring Program (B.3.37).....	27
.28	Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (B.3.38).....	28
.29	Environmental Qualifications (B.4.1)	29
.30	Metal Fatigue of the Reactor Coolant Pressure Boundary (B.4.2).....	29
5. EXIT MEETING SUMMARY		30
ATTACHMENT 1		
SUPPLEMENTAL INFORMATION		1
KEY POINTS OF CONTACT		1
LIST OF DOCUMENTS REVIEWED		2
LIST OF ACRONYMS USED.....		10
ATTACHEMENT 2		
DUANE ARNOLD EXIT MEETING PRESENTATION SLIDES.....		1

SUMMARY OF FINDINGS

IR 05000331/2009010(DRS); NextEra Energy Duane Arnold, LLC; on 11/2/2009 - 12/16/2009; Duane Arnold Energy Center; License Renewal Inspection Program, Scoping, Screening, and Aging Management Programs.

This inspection of the applicant's license renewal aging management review was performed by five regional office inspectors and one staff member from the NRC's office of Nuclear Reactor Regulation. 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 their license renewal scoping, screening, and aging management review in accordance with the Duane Arnold license renewal application. No impediments to the applicant receiving an extended operating license were identified.

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 four NRC Region III inspectors, one NRC Region I inspector and the license renewal project manager from the Office of Nuclear Reactor Regulation (NRR). The inspection was performed in accordance with NRC Manual Chapter 2516 and NRC Inspection Procedure 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 September 30, 2008.

The inspectors also reviewed the four regulated events specified for inclusion in 10 CFR 54.4(a)(3) including Fire Protection (FP), Environmental Qualification (EQ), 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 four regulated events in accordance with the methodology described in the LRA and the rule.

Attachment 1 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), including some SSCs which were outside the scope of license renewal (LR). 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:

- Condensate and Feedwater Systems;
- Area Radiation Monitor System;
- Service Air System;
- Fire Protection System;
- Fuel Pool Cooling and Cleanup System;
- Plant Ventilation System;
- General Service Water System;
- Instrument Air System;
- Liquid and Solid Radwaste Systems;
- Reactor Building Radiation Monitor System;

- River Screen House Ventilation;
- Reactor Building Ventilation;
- Turbine Building Ventilation;
- Diesel Generator Building Ventilation; and
- Electrical Penetrations.

The following structures were walked down:

- Block Walls;
- Buried Cable Manholes;
- Electrical Penetrations;
- Emergency Diesel Generator Rooms;
- Exterior Equipment Foundations;
- Intake Structure Interior Area;
- Overhead Cranes;
- Non-Segregated Bus Duct;
- Pipe Supports;
- Plant Power, Control and Instrumentation Cable Installations;
- Turbine Building;
- Substation; and
- 4.16 kV Switchgear Rooms.

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). The inspection specifically focused on the SSCs, or portions of SSCs, which the applicant had determined to be outside the scope of license renewal. To verify that non-safety-related SSCs were correctly captured within or omitted from the scope of license renewal, the inspectors reviewed LR documents, interviewed personnel, and walked down the selected SSCs.

.1 Condensate and Feedwater

The condensate and feedwater (CFW) system is primarily a non-safety-related system, which supplies condensate from the main condenser to the reactor vessel at an elevated temperature and pressure. The CFW system includes the condensate demineralizer, the reactor feedwater pump seal, and the zinc injection passivation subsystems. Some components in the CFW system are within the scope of LR because they perform a safety-related function, in accordance with 10 CFR 54.4(a)(1). Some components are within scope

because their failure could affect the capability of safety-related components to perform their safety function, in accordance with 10 CFR 54.4(a)(2). In addition, some components are within scope because they support station blackout, in accordance with 10 CFR 54.4(a)(3).

The inspectors reviewed the LR boundary drawings, the application, and the updated safety analysis report (USAR), and interviewed personnel responsible for the program. The inspectors also performed system walkdowns of accessible portions of the condensate and feedwater systems. The inspectors concluded that the applicant had performed scoping and screening for the condensate and feedwater systems in accordance with the methodology described in the LRA and the rule.

.2 General Service Water System

The General Service Water System provides water to meet cooling requirements of the Reactor Building Closed Cooling Water and equipment in the turbine building. General Service Water is supplied from circulating water system pit. Three General Service Water pumps located in the service water system Pump-House take suction from the same wet-pit as the circulating water pumps.

Normally, two pumps are operating with the third pump in standby. The pumps discharge to a common header for distribution to plant equipment. The outlets of the plant equipment is combined and returned to the circulating water wet-pit after being cooled by passage through the cooling towers.

General Service Water provides cooling to the following equipment: iso-phase bus duct cooler, generator hydrogen coolers, stator winding liquid coolers, condensate pump motor coolers, exciter air cooler, turbine lube oil coolers, oil and motor coolers for reactor feed pumps, electro-hydraulic control system coolers, recirculation pump motor-generator set coolers, reactor building closed cooling water heat exchangers, chlorination system, circulating water pump motor coolers, and the steam tunnel cooling units.

The inspectors reviewed the LR boundary drawings, the application, and the updated safety analysis report (USAR), and interviewed personnel responsible for the program. The inspectors also performed system walkdowns of accessible portions of the general service water system. The inspectors concluded that the applicant had performed scoping and screening for the General Service Water System in accordance with the methodology described in the LRA and the rule.

.3 Plant Ventilation Systems

The plant ventilation systems consist of the standby diesel generator rooms heating, ventilation, and air conditioning; the intake structure heating, ventilation, and air conditioning; the pump house heating, ventilation, and air conditioning system; the Radwaste building heating, ventilation, and air conditioning; and the turbine building heating, ventilation, and air conditioning. These systems are collectively designed to control air temperature to support equipment located in the buildings and to allow smoke and heat ventilation in the event of a fire.

Finally, the plant ventilation systems consist of safety-related, regulated event components, and non-safety-related components.

All the safety-related components of the system 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 system support Fire Protection, Anticipated Transient Without Scram, 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 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 system. During the reviews, the inspectors identified some minor discrepancies between the drawings and the scoping of the fire dampers in several portions of building ventilation systems. These dampers were shown on the drawings as in-scope but the particular system descriptions stated that the whole portion was out-of-scope. The inspectors informed the applicant of the discrepancies and the applicant initiated CAP071075 to correct the drawings. During a plant walkdown, the inspectors noted that the return air dampers in the intake structure were not listed as in-scope and that they were in poor material condition. The licensee committed to adding the return air dampers to the scope in CAP071072. These discrepancies have no impact in the adequacy of the scoping and screening methodology for the plant ventilation system. The inspectors concluded that the applicant had performed scoping and screening for the plant ventilation system in accordance with the methodology described in the LRA and the rule.

.4 Containment Hardened Wet Well Vent

The containment hardened wet well vent system is a non-safety-related system which the applicant considered outside the scope of license renewal due to it being designed to operate during beyond design basis scenarios. The purpose of the system is to protect and preserve containment integrity that may be threatened due to over-pressurization during events that are beyond design basis. It achieves this by venting primary containment when the primary containment pressure limit is threatened by directly venting to the off gas stack bypassing the standby gas treatment system. The use of the system is controlled by emergency operating procedures.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening reports, and the USAR, and interviewed personnel responsible for the program. During the review of the LR boundary drawings the inspectors identified a discrepancy between the application (Table 2.2-2) and the LR boundary drawings, in that, even though the system was not in-scope, certain components of the system were in-scope due to them being part of the

containment atmosphere control system. The inspectors discussed this issue with the applicant and the applicant initiated CAP 071075 to provide clarification to the license renewal application. Based on this clarification, the inspectors concluded that the applicant had performed scoping and screening for the instrument and service air system in accordance with the methodology described in the LRA and the rule.

.5 Fuel Pool Cooling and Cleanup

The purpose of the fuel pool cooling and cleanup (FPCC) system is to remove decay heat generated by spent fuel and to maintain fuel pool water purity and clarity. Components in the fuel pool cooling and cleanup system are non-safety-related and their failure could affect the capability of safety-related SSC (fuel pool) to perform its safety function; therefore, they are in-scope in accordance with 10 CFR 54.4(a)(2). Also, the fuel pool cooling system contains a component (V34-0001), which is the valve isolating the system from the suction of the Residual Heat Removal Pumps. This valve is credited to be required for Appendix R safe shutdown of the plant. Therefore, valve V34-0001 is in-scope in accordance with 10 CFR 54.4(a)(3).

The inspectors reviewed the LR boundary drawings, the scoping and screening report, the application, and the USAR, and interviewed personnel responsible for the program. The inspectors also performed system walkdowns of accessible portions of the fuel pool cooling and cleanup system. During the review of the scoping and screening report, the inspectors noted that the description of intended function of the component V34-0001 in Attachment 1, Section 6 was not accurate. The applicant had inadvertently omitted the Appendix R Safe Shutdown function. Also, in Attachment 1, Section 1, the applicant had inadvertently inserted a sentence to the effect that there were no 10 CFR 54.4 Criterion (a)(3) events that credit the FPCC components. The applicant subsequently agreed to revise the scoping and screening report to correct the above mistakes and initiated CAP 071401. The inspectors concluded that the applicant had performed scoping and screening for the fuel pool cooling and cleanup system in accordance with the methodology described in the LRA and the rule.

.6 Area Radiation Monitoring, Reactor Building Kaman Radiation Monitoring, and Turbine Building Kaman Radiation Monitoring Systems

These radiation monitoring systems were listed as not-in-scope. However, the inspectors concluded that the systems should have been in-scope based on the stated purpose for the reactor building and turbine building monitors: "Provide a clear indication whenever abnormal amounts of radioactivity exist in the reactor building main exhaust stacks and initiates control action to prevent release to the environs." Interviews with licensee personnel revealed that the purpose was really to alert licensee personnel to take controlling actions in the event of high radiation readings as the radiation monitors had no actual control function. The licensee committed to clarifying the description in the LRA in CAP071060. The inspectors concluded that the applicant had performed scoping and screening for

these radiation monitors in accordance with the methodology described in the LRA and the rule.

.7 Instrument and Service Air Systems

Instrument and service air systems are not safety-related. Instrument and service air is provided by one of four non-safety motor-driven, oil-free compressors located in the air compressor building. Each compressor discharges through an integral after-cooler into a common discharge header and then into either or both of two air receivers.

The instrument air system includes the breathing air system and provides the plant with a continuous supply of oil-free compressed air. The instrument air portion of the system passes through an air dryer and filter, and supplies dried compressed air for most of the pneumatic instruments and controls in the plant. Also the instrument air system normally supplies some safety-related equipment, but in the event of a total failure of the system, the safety-related air system can supply air to support the operation of safety-related equipment. The breathing air system consists of six man stations located throughout the power block and is cross-tied to the instrument air system. Interactions of the system with safety related systems are kept to a minimum.

Service air is supplied directly from the receivers to the service air components. The service air system is automatically isolated from the instrument air system on low header pressure. The service air system does not supply any safety-related equipment and total failure of the service air system, therefore, need not be considered in the Safety Evaluation.

Components in the instrument air system whose failure could affect the capability of safety related components to perform their safety function, are in-scope for license renewal as required by 10 CFR 54.4 a(2). In addition, some structures and components are in-scope due to primary containment isolation as required by 10 CFR 54.4 a(1). The remainder of the system was excluded because it was considered not to perform a safety-related function, not to potentially impact the function of another safety system, and not provide a function related to one of the regulated events.

The inspectors identified that while the service air system was not included in the license renewal scope, part of the system was identified in the service air system drawing as being within scope. The licensee agreed add clarification to the LRA to identify that service air components with an isolation function are in scope but are evaluated as part of the instrument air system.

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

.8 Liquid and Solid Radwaste

The system includes non-safety-related SSCs whose failure could prevent satisfactory accomplishment of a safety-related function due to spatial proximity. Since the failure of some non-safety-related components could affect the capability of safety-related components to perform their safety function, those components were brought into scope in accordance with 10 CFR 54.4(a)(2). The solid radwaste system (SRS) includes the liquid radwaste system (LRS) and the evaporator. The system processes wet and dry solid radwaste. The wet solid wastes are spent demineralizer resins and filter sludge. The dry solid radwaste consist of miscellaneous radioactive and contaminated solid wastes.

The liquid radwaste system collects, monitors, processes, stores, and disposes of radioactive liquid wastes. The liquid radwaste system is divided into several subsystems so that liquid wastes from various sources can be kept segregated and processed separately. The liquid radwaste is classified, collected, and treated as high purity, low purity, chemical detergent, sludge, or spent resins. The liquid radwaste system provides for filtration and demineralization of both waste collector (high purity) and floor drain (low purity) effluents. Radioactive liquids are recycled within the plant to the extent practicable. An evaporator provides treatment capability for those waste liquids whose chemical composition is such that demineralization is not possible.

The inspectors reviewed the LR boundary drawings, the application, the scoping and screening output report, and the USAR. The inspectors also performed system walkdowns of accessible portions of the liquid and solid radwaste systems, with an emphasis on the boundaries where the applicant determined the systems would no longer be in-scope for license renewal. Additionally, the inspectors interviewed personnel responsible for the systems and familiar with the LR process.

The inspectors concluded that the applicant had performed scoping and screening for the liquid and solid radwaste systems in accordance with the methodology described in the LRA and the rule.

.9 Fire Protection System

The fire protection system contains components credited in the current licensing basis under 10 CFR 50.48 and is one of the systems looked in license renewal under 10 CFR54.4 a(3) for regulated events. The system includes an underground fire loop header, distribution piping, one diesel driven pump and one motor driven pump with system pressure maintained by a fire jockey pump. Also, the system contains fire hose stations, sprinkler, deluge and preaction systems to cover specific and area hazards and an automatic total flooding low-pressure carbon dioxide system that protects the cable spreading room, among others. Water for the system is normally being provided from circulating water pits. The majority of the system is in-scope under 10 CFR54.4 a(3), but portions of this system were considered out of scope for license renewal since they were not credited for safe shutdown of the plant in case of a fire. Some components of

this system are in scope under 10CFR54.4 a(2) due to non-safety related SSCs interfacing with safety related equipment.

The inspectors reviewed the USAR, the scoping and screening output report and LR boundary drawings of the system. The inspectors also walked down accessible portions of the system and held discussions with applicant personnel. During the review, the inspectors identified some minor drawing discrepancies with two fire dampers in the TSC ventilation system that appeared in scope on one drawing BECH-M175-LR, but not on another BECH-M151-LR. The applicant was informed of the discrepancies and the drawings were updated. Based on the review, the inspectors concluded that the applicant had performed scoping and screening for the fire protection 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 LR program. 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 Report 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 Report, the inspectors reviewed the exceptions against the GALL Report 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.

.1 ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD (B.3.3)

The American Society of Mechanical Engineers Boiler and Pressure Vessel Code (the ASME Code) Section XI, Inservice Inspection (ISI), subsections IWB, IWC, and IWD programs are existing programs that are generally consistent with NUREG 1801, Section XI.M.1, "ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD." The DAEC ISI Program Plan for the fourth 10-year inspection interval effective from November 1, 2006 through February 21, 2104 approved per 10 CFR 50.55a is based on the 2001 ASME Section XI B&PV Code, through 2003 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 4 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 inservice inspection (RI-ISI) in a safety evaluation documented in an NRC letter dated January 31, 2007. In 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 Inservice Inspection Evaluation Procedure."

The inspectors reviewed the applicable aging management program basis documents; 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. Based upon these reviews, the inspectors did not identify any issues adversely affecting the applicant's AMP. Additionally, the inspectors did not identify any 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 Inservice Inspection, Subsection IWE (B.3.4)

The DAEC ASME Section XI, Subsection IWE aging management program is an existing program. The program manages the aging effects of corrosion, cracking, wear, physical displacements, loose or missing parts, debris, wear, erosion, or loss of integrity at bolted or welded connections. The components managed by the program include the drywell, the suppression chamber (torus), and the connecting piping (vent headers), their supports, and pressure retaining bolting. The airlocks and hatches are included with the drywell and suppression chamber. Seals and gaskets are managed by the applicant's 10 CFR Part 50 Appendix J Program.

The program performs inspections using the primary ISI method as specified in IWE; visual examination (general visual, VT-3, VT-1). Limited volumetric examination and surface examination may also be necessary in some instances. The IWE specifies acceptance criteria, corrective actions, and expansion of the inspection scope when degradation exceeding the acceptance criteria is found.

The inspectors reviewed the 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 Inservice Inspection, Subsection IWF

The ASME Section XI, Subsection IWF aging management program is an existing program. Visual testing (VT-3) examinations are performed for Class 1, 2, and 3 component steel supports and hangers, and MC component

supports, within the scope of license renewal for loss of material and loss of mechanical function aging effects. The examinations determine the general mechanical and structural condition of components and their supports by verifying parameters such as clearances, settings, and physical displacement, and to detect discontinuities and imperfections, such as loss of integrity of bolted or welded connections, loose or missing parts, debris, corrosion, wear, or erosion. Although MC component supports are not inspected as part of the ASME Section XI ISI program, they are inspected as part of the Augmented Inspection Program which meets the same requirements. Criteria for acceptance and corrective action are in accordance with ASME Section XI, Subsection IWF. The program provides guidance for the evaluation of indications recorded during performance of the inservice inspections.

The current applicant ISI program is implemented through procedures, which provide for visual examination in accordance with the requirements of ASME Section XI, subsection IWF 2001 Edition, through 2003 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, Subsection IWF supports.

The inspectors reviewed the program basis documents, NRC inspection report findings, interviewed the ISI program manager, and concluded that the ASME Section XI, Subsection IWF aging management was in place, had been implemented, and included the elements identified in the LRA. The inspectors further concluded that the program will ensure the aging effects will be appropriately assessed and managed and that there is reasonable assurance that the intended function of the SSCs will be maintained through the period of extended operation.

.4 External Surfaces Monitoring Program (B.3.21)

The external surfaces monitoring program will be based on an existing program which, requires the system engineers to walk their assigned systems down and monitor the condition of the external surfaces. The program will manage aging effects by performing visual inspections of external surfaces for evidence of degradation such as corrosion, cracking or leakage. With the proposed enhancements, the program will be comparable to NUREG-1801, Section XI.M36, and “External Surfaces Monitoring.”

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

The inspectors noted that specific requirements for surface conditions or checklists had not been developed. 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 inspectors also noted that the walkdown checklists would need 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 for trending. Additionally, the inspectors inquired how the licensee was planning to manage the time and access to monitor external surfaces that are not normally accessible during plant operation. In response, the licensee generated CAP071267, "Resource Planning and Scheduling for External Surface Monitoring."

The inspectors concluded that, with the additional enhancements to be incorporated before the period of extended operation, and with training as noted in the application, the external surfaces monitoring program should 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.

.5 Bolting Integrity (B.3.6)

The bolting integrity program is an existing program, which complies with the recommendations of NUREG-1801, Section XI.M18, "Bolting Integrity," with some exceptions. The program manages the aging effects associated with bolting in the scope of LR through periodic inspection, material selection, thread lubricant control, assembly and torque requirements, and repair and replacement requirements. These activities are based on the applicable requirements of ASME Section XI and plant operating experience and includes consideration of the guidance contained in NUREG-1339, "Resolution of Generic Safety Issue 29: Bolting Degradation or Failure in Nuclear Power Plants," EPRI documents NP-5769, "Degradation and Failure of Bolting in Nuclear Power Plants," TR-104213, "Bolted Joint Maintenance and Application Guide," and NP-5067, Volumes 1 and 2, "Good Bolting Practices." The program also credits other aging management programs for inspection of installed bolts; some of these programs require enhancement to include such inspections.

The inspectors reviewed LR program basis documentation, aging management review documents, and existing plant procedures. Additionally, the inspectors performed a detailed walkdown of accessible areas of the plant to visually assess the general condition of bolting in structural, mechanical and pipe joint applications, and the adequacy of current maintenance and bolting practices of the applicant to assure bolting integrity. The inspectors noted that the Bolting Integrity Program takes credit from several other inspection and monitoring programs to collect data and evaluation of the aging effects in the bolting program. However, the procedure for Structural Monitoring did not provide guidance for specific actions/inspections to address bolting integrity program. The applicant agreed to add a note to address the inspection of bolting materials and fasteners in Section 3.1.2 of the Structural Monitoring Program.

The inspectors concluded that the bolting integrity program effectively manages aging effects. Continued implementation of the bolting integrity program will provide reasonable assurance that the aging effects will be managed so that

bolted components and structures within the scope of the program 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 (B.3.7)

The buried piping and tanks inspection program is a new program that will be comparable to NUREG-1801, Section XI.M34, "Buried Piping and Tanks Inspection." The program manages the aging effects for buried piping and tanks in-scope for license renewal. Preventive measures consist of preventive coatings and/or wraps on buried components. Condition monitoring consists of opportunistic inspections of buried components. If no opportunistic inspection occurs, the program requires a focused inspection at least once every 10 years, including inspections that must occur 10 years prior to and subsequent to the beginning of the period of extended operation.

The inspectors reviewed the applicable LR program basis documentation and existing procedures related to the program. The inspectors interviewed the buried piping and tanks inspection program owner.

The inspectors identified that the current plant procedure did not include the requirement to perform an inspection of pipe that has been excavated (i.e., an opportunistic inspection), as required by the AMP. The applicant initiated CAP 071401 to revise the procedure to include this requirement.

The inspectors concluded that the buried piping and tanks inspection program will adequately manage aging effects. Implementation of the buried piping and tanks inspection program will provide reasonable assurance that the aging effects will be managed so that in-scope buried components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.7 Metal Enclosed Bus Program (B.3.31)

The metal enclosed bus program is a new program consisting of existing maintenance activities. Although the maintenance activities were established for maintenance rule purposes, they will be credited with reasonable assurance for managing the aging effects of metal enclosed buses. This AMP will demonstrate, for in scope non-segregated bus duct, that the aging effects caused by ingress of moisture or contaminants (dust debris), insulation degradation and bolt relaxation will be adequately managed to provide reasonable assurance that the non-segregated bus ducts will perform their intended function, consistent with the current licensing basis, during the period of extended operation.

The inspectors reviewed aging management program related documentation, preventive maintenance (PM), and LR procedures and activities, and confirmed that the applicant's program is consistent with NUREG 1801, XI.E4 (the GALL) with one exception. The GALL Report recommends a five-year frequency for visual inspections when no thermographic inspections are performed. The applicant performs the inspections on a 6-year frequency, as part of a major

inspection of the associated transformer. The results of the inspections that have been performed ever since the bus bar insulation has been replaced plant wide have not identified any degradation. Therefore the inspectors concluded that performing visual inspections on a six-year frequency provides reasonable assurance that the metal enclosed buses will be maintained consistent with the current licensing basis for the period of extended operation. The inspectors also verified that the applicant performed adequate historic reviews of plant specific and industry experience to determine aging effects.

The inspectors concluded that the bus duct inspection program, when implemented as described, will effectively manage aging effects, since it will incorporate proven monitoring and testing 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.

.8 BWR Stress Corrosion Cracking (B.3.12)

The BWR penetrations program is an existing program that is consistent with NUREG 1801, Section XI.M.7, "BWR Stress Corrosion Cracking." This program provides for condition monitoring of pressure boundary material susceptible to stress corrosion cracking.

The inspectors reviewed program documentation, aging management review documents, and existing procedures. The inspectors also interviewed the program owner and searched the applicant's corrective action program records for issues related to stress corrosion cracking 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. The inspectors also verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects. During the review the inspectors questioned whether the applicant had performed an external operating experience review since the program basis document was silent in this regard. After discussions with the applicant the inspector gained reasonable assurance that external operating experience had been reviewed. The applicant committed to revise the LRA in order to accurately reflect this.

The inspectors concluded that the Stress Corrosion Cracking program effectively manages aging effects. Continued implementation of the Stress Corrosion Cracking program will provide reasonable assurance that the aging effects will be managed for the period of extended operation

.9 BWR Vessel Inner Diameter Attachment Welds (B.3.13)

The DAEC BWR Vessel Inner Diameter (ID) Attachment Weld Program is an existing program that is consistent with NUREG 1801, Section XI.M.4, "BWR ID Attachment Welds." The program manages the aging effects of cracking due to

stress corrosion cracking (SCC), including intergranular stress corrosion cracking (IGSCC). The DAEC BWR Vessel ID Attachment Weld Program incorporates the guidelines of BWRVIP-48-A, BWR Vessel, and Internals Project Vessel ID Attachment Weld Inspection and Flaw Evaluation Guidelines, which is the NRC staff approved version of BWRVIP-48. The ASME Section XI, Inservice Inspection Program is implemented in accordance with the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," ASME Section XI, 2001 Edition through the 2003 Addenda. The DAEC Water Chemistry Program is consistent with NUREG-1801, XI.M2. The NUREG-1801, Water Chemistry Program, XI.M2 allows use of later revisions of BWRVIPs. The DAEC Water Chemistry Program implements the guidelines of BWRVIP-130: BWR Vessel and Internals Project BWR Water Chemistry Guidelines – 2004 Revision and, therefore, is consistent with NUREG-1801, XI.M2. The program is updated periodically as required by 10 CFR 50.55a and later issues of BWRVIPs.

The inspectors reviewed the program basis document, the LRA, and interviewed the program owner. The inspectors identified that the applicant's basis document was silent on the review of external operating experience. The inspectors also identified an inconsistency regarding water chemistry. The applicant agreed to add clarification with regard to both issues and initiated CAP07401. The applicant also agreed to remove an ambiguous reference to "applicable VIPs" in the corrective actions section of the document and to provide consistency in the basis document with regard to a reference to BWRVIP-48 Vice BWRVIP-48-A. These last two issues were also captured in CAP07401.

Based upon these reviews and actions to be taken, the inspectors did not identify any issues adversely affecting the applicant's AMP. Therefore, the applicant's AMP should continue to perform its intended function and maintain the integrity of the vessel ID Attachment welds consistent with the current licensing basis for the period of extended operation.

.10 BWR Vessel Internals (B.3.14)

The DAEC BWR Vessel Internals Program is an existing program. The program manages the aging effects of Stress Corrosion Cracking (SCC), Intergranular Stress Corrosion Cracking (IGSCC), or Irradiated Stress Corrosion Cracking (ISCC). The BWR Vessel Internals Program incorporates the guidelines of the appropriate BWRVIP documents and ASME Section XI. The DAEC BWR Vessel Internals Program incorporates the guidelines of all applicable BWRVIPs including BWRVIP-139 for the stream dryer inspection. The DAEC Water Chemistry Program is consistent with the NUREG-1801 XI.M2, which allows the use of later revisions of BWRVIPs regarding water chemistry.

The ASME Section XI, Inservice Inspection Program is implemented in accordance with the ASME, Boiler and Pressure Vessel Code, Section XI, 2001 Edition through 2003 Addenda. The program is updated periodically as required by 10 CFR 50.55a and later issues of BWRVIPs.

As require by NUREG-1801, XI.M9, since the top guide at DAEC has exceeded a neutron fluence of $5E20$ prior to the period of extended operation, the program shall be enhanced to require an EVT-1 inspection of five percent (5 percent) of the top guide locations within six years after entering the period of extended operation. An additional 5 percent of the top guide locations will be inspected within twelve years after entering the period of extended operation. This is an enhancement to the DAEC program.

The inspectors reviewed the program basis document, the LRA, and interviewed the program owner. The inspectors identified that the applicant's basis document was silent on the review of external operating experience. The inspectors also identified an inconsistency regarding water chemistry. The applicant agreed to add clarification with regard to both issues and initiated CAP07401.

Based on the above enhancement being implemented, and the issues to be addressed by the licensee, the inspectors concluded that the applicant's AMP should perform its intended function to maintain the integrity of reactor vessel internals components consistent with the current licensing basis for the period of extended operation.

.11 Closed-Cycle Cooling Water System (B.3.15)

The closed-cycle cooling water (CCCW) system program is an existing program which will be comparable to NUREG-1801, Section XI.M21, "Closed-Cycle Cooling Water System." The CCCW system program manages aging effects in closed cycle cooling water systems that are not subject to significant sources of contamination, in which water chemistry is controlled and heat is not directly rejected to the ultimate heat sink. The program includes: (1) preventive measures to minimize corrosion; and (2) periodic system and component performance testing and inspection to monitor the effects of corrosion and confirm intended functions are met. However, the applicant identified one exception in that the program uses EPRI TR-107396, which is the latest revision of the EPRI guideline referenced in NUREG-1801, Section XI.M21. The applicant also identified one enhancement in that Procedure PCP 1.8 "Closed Cooling Water Chemistry Guidelines" will include a requirement for additional corrective actions if more than one "Control Parameter" is exceeded. At the time of this inspection this procedure change had already being institutionalized.

The inspectors reviewed LR program basis documentation, aging management review documents, historical chemistry parameter trends, corrective action documents, and existing procedures. The inspectors also interviewed the CCCW program owner, interviewed the reactor building closed 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 and that the exception to NUREG 1801 specified in the LRA is consistent with current industry practice.

The inspectors concluded that the CCCW system program effectively manages 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.

.12 Compressed Air Monitoring (B.3.16)

The compressed air monitoring program is an existing program, with no enhancements or exceptions, and is consistent with NUREG-1801, Section XI.M24, "Compressed Air Monitoring." The compressed air monitoring program consists of inspection, monitoring, and testing of the Control Building/Standby Gas Treatment (CB/SBGT) Instrument Air Compressors, the Instrument Air Compressors and the Standby Service Air Compressor to provide reasonable assurance that they will perform their intended function for the period of extended operation.

The inspectors reviewed program documentation, aging management review documents, historical chemistry parameter trends, and existing procedures. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects. During the review the inspectors questioned whether the Air Starting System for the diesel generators should be included under the Compressed Air Monitoring program instead of the Internal Surfaces Program as has been proposed by the applicant. Through discussions with the applicant, the inspectors noted that this issue has already been dealt within a request for additional information (RAI- 3.3.2.1X-1, ML092940591). This issue will be evaluated by NRR when the applicant responds to the request for additional information.

The inspectors concluded that the compressed air monitoring program effectively manages aging effects. Continued implementation of the compressed air monitoring program will provide reasonable assurance that the aging effects will be managed so that the primary and secondary system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.13 Electrical Cables and Connections (B.3.17)

The insulated electrical cables and connections program is a new program that the applicant will implement before 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 (EQ) 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 before 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.

.14 Electrical Cables and Connections Used in Instrument Circuits (B.3.18)

The Non-EQ instrumentation circuits subject to sensitive, high-voltage, low-level signals program is a new program that the applicant will implement before the period of extended operation. The program is a new program consisting of existing maintenance activities that were established to meet the maintenance rule. When implemented, the program 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 10 years and the first test to be completed before 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 before the expiration of the current license. Since the program is a new program, there is no programmatic operating experience; however, operating experience exists that indicates that time-domain reflectometry of instrumentation cables has proven effective at identifying degraded cables.

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 before 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. No enhancements or exceptions were identified for this 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.

.15 Fire Protection (B.3.22)

The fire protection (FP) program is an existing program which, with the proposed enhancements and exceptions will be comparable to Section XI.M26, "Fire Protection," of the GALL Report. The applicant has identified two exceptions and two enhancements to the GALL Report. The applicant's Fire Protection Program uses the Fire Penetration Seal Inspection Surveillance to perform a visual fire barrier scan of 35 percent of all fire barrier walls, ceilings and floors every 18 months with 100 percent inspected every 5 years. The GALL Report recommends that these inspections be performed once every refueling cycle. The applicant's Cardox System Operability Test procedure examines the signs of degradation of the carbon dioxide fire suppression system for the cable spreading room for corrosion, mechanical damage, or damage to dampers annually. The GALL Report recommends that these inspections be performed once every six months. The applicant's Fire Protection Program will be enhanced to include criteria for visual inspection of the fire barrier walls, ceilings, and floors and this enhancement is tracked under COM 32291. The applicant will also revise several implementing procedures for consistency with the GALL program and this enhancement is tracked under COM 32292. The exceptions and enhancements are detailed in the applicant's program basis document LRAP-M026, Revision 4.

The fire protection program is credited for detecting and managing age related degradation of FP system components and structures. The FP program includes fire barrier visual inspections, motor and diesel-driven fire pump tests and inspections. Periodic testing and inspection of the diesel driven fire pump is performed to ensure that an adequate flow of fire water is supplied and that there is no degradation of the diesel fuel supply lines. Fire barrier inspections will be performed, consisting 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 to ensure that their operability is maintained.

The inspectors reviewed fire protection aging management program related documentation, condition reports, self assessments, procedures, required enhancements, commitments and implementing documents and confirmed that the applicant had program enhancement commitments COMs 32291 and 32292 in place to enhance the program prior to the start of the period of extended operation. The inspectors interviewed applicant engineers to confirm the continuation of the existing program along with the implementation schedule of the required program enhancements. 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 conducted field walkdowns of the fire protection system and identified one case of insufficient thread engagement, one case of damaged fire proofing on structural steel and one case of paint chipping on diesel day tank associated with the diesel driven fire pump. The applicant initiated CAPs 071032, 071036 and 071054 to evaluate these issues.

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

.16 Fire Water System (B.3.23)

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 applicant will enhance the program by revising the Fire Hazards Analysis, Corrosion Monitoring Program manual and implementing procedures for consistency with the GALL program. These enhancements are detailed and tracked under COMs 32294, 32293 and 32295 respectively in the applicant's Program Basis Document LRAP-M027, Revision 3.

The fire water system program 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 activities include sprinkler system inspections, pipe wall thickness testing, hydrant inspections, fire main flushes, and flow tests.

The inspectors reviewed fire water system aging management program related documentation, condition reports, existing procedures, required enhancements and implementing documents and confirmed that the applicant had Program enhancement commitments COMs 32293, 32294 and 32295 in place to enhance the program prior to the start of the period of extended operation. The inspectors also conducted plant visual inspections to assess the condition of fire water system equipment, interviewed the fire water system engineer to confirm the continuation of the existing program along with the implementation schedule of the required program enhancements. 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 the GALL Report specified in the LRA are consistent with current industry practice.

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

.17 Flow-Accelerated Corrosion (B.3.24)

The flow-accelerated corrosion (FAC) aging management program is an existing program credited in the LRA as being consistent with NUREG-1801,

Section XI.M17, "Flow-Accelerated Corrosion." The ongoing program manages aging effects (loss of material) due to flow-accelerated corrosion (FAC) on the internal surfaces of carbon or low alloy steel piping, elbows, reducers, tees, expanders, and valve bodies, which contain high energy fluids (both single phase and two phase flow). The program determines susceptible locations, monitors, detects, and mitigates flow accelerated corrosion of susceptible components.

The program is based on the guidelines of NSAC-202L-R3. The program employs CHECWORKS as one input for use as a predictive tool. Included in the program are: (a) an analysis to determine FAC susceptible lines; (b) performance of limited baseline inspections; (c) follow-up inspections to confirm the predictions; and (d) repairing or replacing components, as necessary. The program includes: system susceptibility and long term strategy, program implementation and maintenance, inspection preparation, performance of inspections, acceptance criteria, repair and replacement criteria, expansion criteria, and reporting requirements.

The inspectors reviewed the applicable LR program basis documentation, interviewed the FAC program owner, and reviewed the determination of systems susceptible to FAC. The inspectors identified that the edition of the EPRI guideline document currently being used for the existing program did not match the basis document. The inspectors also noted that the FAC Program Basis Document (DAEC Detection of Aging Effects Section) stated in part that, components are inspected for wall thinning using visual techniques (VT), which is not an appropriate means for detecting wall thinning and is inconsistent with the GALL Report. The licensee has agreed to revise the basis document to reflect the use of the correct document revision, which may be considered an exception, and to delete the reference to VT. The licensee has also agreed to revise the FAC program basis document to clearly state that CHECKWORKS is a predictive tool but is not solely used to determine locations for inspections. These issues were captured in corrective action document CAP071401.

The inspectors concluded that the FAC program was in place, had been implemented, was an ongoing program subject to NRC review, and generally included the elements identified in the LRA. As it is a current program subject to periodic NRC review and inspection, there is reasonable assurance that adequate inspections required by the program will be performed through the period of extended operation once the above issues have been addressed.

.18 Fuel Oil Chemistry (B.3.25)

The fuel oil chemistry program is an existing program that, with enhancements and exceptions, will be consistent with NUREG-1801, Section XI.M30, "Fuel Oil Chemistry." The fuel oil chemistry program mitigates and manages aging effects on the internal surfaces of diesel fuel oil storage tanks and associated components in systems that contain diesel fuel oil. The program includes: a) surveillance and monitoring procedures for maintaining diesel fuel oil quality by controlling contaminants in accordance with applicable ASTM Standards; b) periodic draining of water from diesel fuel oil tanks, if water is present; c) periodic or conditional visual inspection of internal surfaces or wall thickness

measurements from external surfaces of diesel fuel oil tanks; and d) one-time inspections of a representative sample of components in systems that contain diesel fuel oil.

The inspectors reviewed LR program basis documentation, aging management review documents, and existing procedures. The inspectors also interviewed the program owner and conducted walkdowns of the emergency diesel generator day tanks. The inspectors confirmed that the applicant had commitments in place to enhance the program before starting the period of extended operation. The inspectors verified that the applicant performed adequate historic reviews of plant specific and industry operating experience to determine aging effects. The inspectors confirmed that the exception to the GALL to not require addition of biocides, stabilizers, and corrosion inhibitors was acceptable based on plant history and on the continuing requirement to sample the fuel oil and evaluate abnormal test results.

The inspectors concluded that the fuel oil chemistry program effectively manages aging effects. Provided the enhancements are incorporated as specified by the applicant's application, continued implementation of the fuel chemistry program will provide reasonable assurance that the aging effects will be managed so that the fuel oil system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.19 Inaccessible Medium-Voltage Cables Program (B.3.27)

The Non-EQ Inaccessible Medium-Voltage Cables Program is a new program that the applicant will implement before the period of extended operation. The program, when implemented will be comparable to that described in NUREG-1801, Section XI.E3, "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 before the period of extended operation, and the tests will be repeated every 10 years thereafter. The installed cables were unshielded, which precludes any in-place testing with the exception of meggering the insulation for a resistance reading. In 2011, the licensee intends to pull a section of buried cable for examination for moisture damage. Further cable replacement will be dependent on the test results. The current program of inspecting manholes for water intrusion and ensuring sump pump operation will continue.

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 before the start of the period of extended operation. This commitment is identified in LRAP-E003, "Inaccessible Medium Voltage (2kV to 34.5kV) Cable Aging Management Program Basis Document. 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 based on the results of the examinations of the cables pulled in 2011. 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.

.20 Inspection of Overhead Heavy and Light Load Handling Systems (B.3.29)

The inspection of overhead heavy load and light load (related to refueling) handling systems program is an existing program which, when enhanced, will be comparable to NUREG-1801, Section XI.M23, "Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems." However, the applicant also identified an exception to the GALL program. The purpose of overhead heavy load and light load (related to refueling) handling systems program is to identify component aging effects prior to loss of intended function. The program manages aging effects of the structural components for the cranes, heavy loads, rigging (reactor handling equipment) systems, and structures. Crane rails and structural components are visually inspected for indications of degradation, such as corrosion, wear, or cracks.

The inspectors reviewed the applicable LR program basis documentation, existing overhead crane inspection procedures, and confirmed that the applicant had commitments in place to enhance the program to specify a five-year inspection frequency for the fuel preparation machines prior to the start of the period of extended operation. The inspectors also interviewed the crane program owner and maintenance personnel that perform overhead crane structural inspections, reviewed documentation associated with "engineered lifts," 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 inspection of overhead heavy load and light load handling systems program effectively manages aging effects. With the enhancement to be incorporated prior to the period of extended operation, continued implementation of the inspection of overhead heavy load and light load (related to refueling) handling systems program will provide reasonable assurance that the aging effects will be managed so that the monitored structural components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.21 Electrical Penetration Assemblies (B.3.20)

The electrical penetration assemblies (EPAs) program is a new site specific program consisting of existing maintenance activities. The program manages aging effects by inspecting the electrical penetrations periodically. The aging management program is identical to the required maintenance activities for the EPAs within the scope of the environmental qualification program. The periodic inspections monitor and verify the integrity of the pressurized, dry nitrogen environment in the EPAs by checking nitrogen pressure and maintaining it

between 30 and 50 psig. The inspectors noted that the applicant had experienced two failures in the past, due to moisture related aging mechanisms. Both of these failures resulted from not following maintenance instructions provided by the vendor. The applicant has not had any EPA failures since the periodic inspections were started.

The inspectors reviewed aging management program documentation, condition reports, and existing procedures, and confirmed that the applicant had commitment, COM 32269, in place to implement the program before 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. No enhancements or exceptions were identified for this program as this is a site specific program.

The inspectors concluded that the Electrical Penetration Assemblies program, when 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.

.22 Open-Cycle Cooling Water System (B.3.33)

The Open-Cycle Cooling Water (OCCW) System Program is an existing program, which is consistent with NUREG-1801, Section XI.M20, "Open-Cycle Cooling Water System." The open-cycle cooling water system program ensures that the effects of aging on the raw water service water systems will be managed for the period of extended operation. This program manages the aging effects of metallic components in water systems exposed to raw, untreated water. These aging effects are due to corrosion, erosion, and biofouling in systems, structures, and components serviced by the OCCW system. The program includes: a) surveillance and control of biofouling; b) tests to verify heat transfer; and c) routine inspection and maintenance. The program identified one exemption to NUREG-1801, in that there is no monitoring of the protective coatings of piping since the pipes installed are not coated.

The inspectors reviewed program documentation, aging management review documents, corrective actions documents, and existing procedures. The inspectors also interviewed the program owners, interviewed the service water system engineer, and conducted walkdowns to assess the condition of the service water system. The inspectors verified that the applicant performed adequate historic reviews of plant specific and industry operating experience to determine aging effects.

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

.23 Water Chemistry Program (B.3.39)

The water chemistry program is an existing program that is consistent with NUREG-1801, Section XI.M2, "Water Chemistry" with no exemptions or enhancements. The plant chemistry program mitigates the aging effects on component surfaces that are exposed to water as the process fluid. Chemistry programs are used to control water chemistry for impurities (e.g., chloride and sulfate) that accelerate corrosion or crack initiation and growth and that cause heat transfer degradation due to fouling in select heat exchangers.

The inspectors reviewed program documentation, aging management review documents, historical chemistry parameter trends, corrective actions documents, and existing procedures. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects.

During the review of the program basis document, the inspectors identified that the applicant did not address how increased sampling is used to verify the effectiveness of actions taken in the case to correct abnormal chemical conditions or how they were assuring sample integrity as stated by NUREG 1801. Through review of applicable procedures and discussions with the applicant the inspectors gained reasonable assurance that increased sampling and sample integrity were already addressed by current procedures. Also, there was a question as to how the applicant will monitor hydrogen peroxide as stated in NUREG 1801. The applicant provided further justification in that they will use electrochemical potential, which measures the oxidizing power of oxygen and hydrogen peroxide, to monitor hydrogen peroxide. The applicant committed to revise the LRA and supporting documents to accurately reflect the facts discussed above.

The inspectors concluded that the water chemistry program effectively manages aging effects. Continued implementation of the water chemistry program will provide reasonable assurance that the aging effects will be managed so that the primary and secondary system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.24 Reactor Head Closure Studs Program (B.3.34)

The reactor head closure studs aging management program is an existing program credited in the LRA which is comparable to NUREG-1801, Section XI.M3, "Reactor Head Closure Studs." The scope of the ongoing program is part of the ASME Section XI Inservice Inspection Program. The program incorporates ASME Section XI, 2001 Edition through 2003 Addenda, Subsection IWB, IWB Table 2500-1. In accordance with 10 CFR 50.55a, the applicant will use the ASME Code Edition in effect 12 months prior to the start of the period of extended operation inspection interval. Preventative measures to mitigate cracking have been taken in accordance with Regulatory Guide (RG) 1.65, "Materials and Inspections for Reactor Vessel Closure Studs."

The inspectors reviewed the applicable LR program basis documentation, the LRA, and interviewed the reactor head closure studs program owner. The inspectors identified that the applicant's basis document was silent on the review of external operating experience. The applicant agreed to add clarification and captured this issue in corrective action document CAP07401. The inspectors also noted that the basis document was inconsistent with the GALL Report with regard to repair/replacement requirements. The issue will require further discussion with NRR to determine whether the issue should be considered an exception. The licensee has agreed to address this issue in corrective action document CAP071401.

The inspectors concluded that the inspection of the reactor head closure studs was part of the ISI, ASME Section XI Program, that the program had been implemented, was an ongoing program subject to NRC review, and included the elements identified in the LRA. As it is a currently required program subject to periodic NRC review and inspection, that once the issues identified by the inspectors have been addressed, there is reasonable assurance that adequate inspections required by ASME and the NRC will be performed through the period of extended operation.

.25 Lubricating Oil Analysis (B.3.30)

The Lubricating Oil Analysis Program is an existing program that will be consistent, with no exceptions, to NUREG-1801 XI, M39, "Lubricating Oil Analysis Program." The program includes surveillance and monitoring procedures for maintaining lubricating oils within established limits. The program maintains oil contaminants (primarily water and particulates) within limits to preserve the operating environment. Oil testing activities include periodic sampling, analysis, and trending of results.

The inspectors reviewed LR program basis documentation, aging management review documents, and existing procedures. The inspectors also interviewed the program owner. The inspectors verified that the applicant performed adequate historic reviews of plant specific experience to determine aging effects. The inspectors confirmed that there were no exceptions or enhancements necessary to meet the GALL Report.

The inspectors concluded that the lubricating oil program effectively manages aging effects. Provided the enhancements are incorporated as specified by the applicant's application, continued implementation of the lubricating oil analysis program will provide reasonable assurance that the aging effects will be managed so that the lubricating oil system components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.26 Selective Leaching of Materials (B.3.36)

The selective leaching of materials inspection activities is a new program which, when developed and implemented, will be consistent with Section XI.M33, "Selective Leaching of Materials," of the GALL Report. The program will consist

of one-time visual inspection and hardness measurement of selected components that are susceptible to selective leaching to determine whether loss of material due to selective leaching is occurring, and whether the process will affect the ability of the components to perform their intended function for a period of extended operation.

The inspectors reviewed the LR documentation, interviewed the selective leaching of materials program owner, and reviewed the applicant's commitment to develop and implement a selective leaching of materials inspection program before the start of the period of extended operation.

The inspectors identified that the applicant included a statement in the "Detection of Aging Effects" section of the "Selective Leaching Program Basis Document," which was not consistent with the GALL, which would require an enhancement or exception. The licensee agreed to resolve the issue under corrective action document CAP071076.

The inspectors concluded that, if the program is implemented as planned, incorporating inspector identified concerns, there should be reasonable assurance that aging effects will be managed so that components susceptible to selective leaching of materials will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.27 Structures Monitoring Program (B.3.37)

The structural monitoring program is an existing program which, when enhanced, will be comparable to NUREG-1801, Sections XI.S5, "Masonry Wall Program," XI.S6, "Structures Monitoring Program," and XI.S7, "RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants." The structural monitoring program manages aging effects to ensure that structures and components within its scope retain the ability to perform their intended function and is implemented through visual examination of the structures and components. The program is implemented as part of the structures monitoring performed under the provisions of the Maintenance Rule, 10 CFR 50.65, with additional inspections of the intake structure and diesel fuel oil transfer house. The program is based on guidance contained in RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and NUMARC 93-01, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The program, when enhanced, will include the monitoring and inspection parameters for structural components within the scope of license renewal.

The inspectors reviewed the applicable LR program basis documentation, existing structural monitoring inspection procedures, and confirmed that the applicant had commitments in place to enhance the program prior to the start of the period of extended operation. The inspectors also interviewed the structural monitoring program owner, performed walkdowns of selected structures, reviewed a maintenance rule program health status report, a periodic assessment report, a structural monitoring inspection report, and various

deficiency reports, condition reports, and external operating experience to verify identified structural concerns are being evaluated and corrected if necessary.

The inspectors identified that the procedures implementing periodic inspections do not include clear and concise acceptance criteria for use by different inspectors at different periods in time. For an inspection frequency of five to ten years and at different places, it is not practical to assure the same inspector performing the same examination. In such cases, a clearly defined qualitative and quantitative acceptance criteria included in the inspection procedure assures consistency of observation and evaluation of any emerging trend. The applicant initiated CAPs 071052 and 071401 to address these issues.

The inspectors concluded that the structural monitoring inspection program effectively manages aging effects. When enhanced as described in the application, continued implementation of the structural monitoring inspection program will provide reasonable assurance that the aging effects will be managed so that the monitored components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.28 Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (B.3.38)

The thermal aging and neutron irradiation embrittlement of cast austenitic stainless steel (CASS) program is an existing program that is consistent with NUREG 1801, Section XI.M.13, "Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel" with one exception as described in NRC audit and review report for plant aging management reviews and programs (ML052850461). The program provides for condition monitoring of the CASS components subject to thermal or irradiation induced embrittlement.

The inspectors reviewed LR program basis documents and searched the applicant's corrective action program records for issues related to CASS components to assess the program's effectiveness at detecting and monitoring for degraded CASS components. The applicant concluded that the CASS components (e.g., fuel support pieces) within the core which met the screening criteria for potentially being susceptible to neutron irradiation induced embrittlement did not require augmented inspections due to compressive loadings. The inspectors noted that this position was consistent with NUREG 1801 Section XI.M.13 recommendations.

The inspectors did not identify any issues adversely affecting the applicant's AMP. The inspectors also did not identify any additional exceptions from the Section XI.M.13 Program. Therefore, the applicant's AMP should continue to perform its intended function and maintain the integrity of CASS components consistent with the current licensing basis for the period of extended operation.

.29 Environmental Qualifications (B.4.1)

The Environmental Qualifications (EQ) Program is an existing ongoing program which 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 (TLAA) for license renewal. The EQ program ensures that these EQ components are maintained within the bounds of their qualification bases. The program is consistent with NUREG-1801, Section X.E1, "Environmental Qualification of Electric Components."

The inspectors reviewed aging management program related documentation, condition reports, self-assessments, and existing procedures to confirm that the applicant has been successful in effectively managing aging effects of EQ electric components. The inspectors also interviewed the 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 also 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 in managing aging effects. The program has been subject to periodic internal and external assessments that facilitate continuous improvement. With continued implementation and effective management, the EQ program will provide reasonable assurance that the aging effects will be managed so that the environmentally qualified plant components will continue to perform their intended function consistent with the current licensing basis for the period of extended operation.

.30 Metal Fatigue of the Reactor Coolant Pressure Boundary (B.4.2)

The fatigue monitoring program is an existing program which, when enhanced, will be comparable to Section X.M1, "Metal Fatigue of the Reactor Coolant Pressure Boundary," of the GALL Report. The fatigue monitoring program is a confirmatory program that monitors loading cycles due to thermal and pressure transients and cumulative fatigue usage for selected reactor coolant and other component locations. Metal fatigue analysis is considered a TLAA under license renewal. 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 is maintained below the allowable limit, or that appropriate corrective actions are taken to maintain component cumulative fatigue usage below the allowable limit during the period of extended operation. Enhancements include the incorporation of fatigue sensitive locations for older vintage GE plants identified in NUREG/CR-6260, "Application of NUREG/CR-5999 Interim Fatigue Curves of Selected Nuclear Power Plant Components," into the fatigue monitoring program implementing procedures. The metal fatigue program also includes consideration of irradiation assisted stress corrosion

cracking, loss of preload due to fatigue of the core plate hold-down bolts, and the effects of the reactor coolant environment on fatigue lives.

The inspectors reviewed the applicable LR program basis documentation for the fatigue monitoring program, as well as several calculation packages that support the conclusions found in the LRA. The inspectors also interviewed applicant's staff to assess their knowledge of fatigue management.

The inspectors concluded that the fatigue monitoring program effectively manages aging effects. When enhanced as described, continued implementation of this program will provide reasonable assurance that the aging effects will be managed so 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 December 16, 2009, with Mr. Kenneth Kleinheinz and other members of the applicant's staff in an exit meeting open for public observation at the Hiawatha Community Center in Hiawatha, Iowa. The applicant acknowledged the inspection results and presented no dissenting comments. The slides used during this meeting are provided in the supplemental information.

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

Applicant

K. Kleinheinz, Engineering Director
S. Catron, Licensing Manager
K. Putnam, License Renewal Project Manager
C. Bock, License Renewal Team
M. Fairchild, License Renewal Team
C. Rushworth, License Renewal Team
V. Holt, License Renewal Team
K. Chew, License Renewal Team
P. Hansen, Work Controls Manager

Nuclear Regulatory Commission

A. Stone, Chief, Engineering Branch 2
R. Baker, Resident Inspector
R. Orlikowski, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened, Closed and Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of applicant documents reviewed during the inspection, including documents prepared by others for the applicant. Inclusion of a document on this list does not imply that NRC inspectors reviewed the entire documents, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. In addition, inclusion of a document on this list does not imply NRC acceptance of the document, unless specifically stated in the body of the inspection report.

LICENSE RENEWAL DOCUMENTS

License Renewal Application

Duane Arnold Energy Center License Renewal Application as supplemented by Letter dated January 23, 2009

License Renewal Aging Management Program Basis Documents

LRAP-M026; "Fire Protection System"; Revision 4
LRAP-M027; "Fire Water System"; Revision 3
LRAP-E004; "Metal Enclosed Bus"; Revision 4
LRAP-XE01; "Environmental Qualification of Electrical Components"; Revision 3
LRAP-M001; ASME Section XI Inservice Inspection, Subsection IWB, IWC, and IWD; Revision 2
LRAP-S001; ASME Section XI Inservice Inspection, Subsection IWE; Revision 2
LRAP-S003; ASME Section XI Inservice Inspection, Subsection IWF; Revision 2
LRAP-M003; Reactor Head Closure Studs Program; Revision 2
LRAP-M004; BWR Vessel ID Attachment Welds; Revision 3
LRAP-M009; BWR Vessel Internals; Revision 2
LRAP-M033; Selective Leaching of Materials; Revision 3
LRAP-M017; Flow-Accelerated Corrosion; Revision 3
LRAP-S006; Revision 2; Structures Monitoring Program
LRAP -M023; Revision 2; Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling System
LRAP -M018; Revision 3; Bolting Integrity
LRAP-M002; Water Chemistry; Revision 3
LRAP-M007; Stress Corrosion Cracking; Revision 5
LRAP-M013; Thermal-Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS); Revision 2

LRAP-M020; Open Cooling Water System; Revision 3
LRAP-M021; Closed Cycle Cooling Water System; Revision 4
LRAP-M024; Compressed Air Monitoring; Revision 0;
LRAP-E001; Electrical Cables; Revision 3
LRAP-E002; Electrical Cables and Connections used in Instrumentation Circuits;
Revision 2
LRAP-E003; Inaccessible Medium-Voltage Cables; Revision 3
LRAP-E006; Electrical Connections; Revision 3
LRAP-E008; Electrical Penetration Assemblies; Revision 2
LRAP-M030; Fuel Oil Chemistry; Revision 3
LRAP-M036; External Surfaces Monitoring; Revision 3
LRAP-M039; Lubricating Oil Analysis; Revision 2

License Renewal Aging Management Review Reports

LRAM-13.01; Fire Protection System; Revision 3
LRAM-EBUS; Metal Enclosed Bus; Revision 3
LRAM 30.03; A and B Safety-Related Air; Revision 2
LRAM 24.01; Stand By Diesel Generator System; Revision 3; LRAM-10.03, Plant
Ventilation System; Revision 3
LRAM-10.03; Plant Ventilation System; Revision 3
LRAM-30.00; Control Building HVAC; Revision 3
LRAM-34.00; Reactor Building HVAC; Revision 3
LRAM 99.01; Electric manhole Sumps; Revision 3
LRAM-ECON; Electrical Connections; Revision 3
LRAM-ECAB; Electrical Cables; Revision 3
LRAM-EEPA; Electrical Penetration Assemblies; Revision 2

License Renewal Drawings

BECH-M134-LR; Revision 0; Fuel Pool Cooling and Clean-up System P&ID
BECH-M130 (09)-LR; Service Air System; Revision 0
BECH-M109-LR; P&ID Condensate and Demineralized Water System; Revision 0
BECH-M138 (1)-LR; P&ID Equipment Radwaste System (closed); Revision 0
BECH-M138 (1A)-LR; P&ID Liquid Radwaste Treatment System; Revision 0

BECH-M139-LR; P&ID Floor Radwaste System (open); Revision 0
BECH-M140-LR; P&ID Radwaste Solids Handling System; Revision 0
BECH-M111-LR; General Service Water System; Revision 0
BECH-M173-LR; Stand By Filter Unit Control Building; Revision 0
BECH-M130 (3)-LR; Instrument and Service Air Compressor 1K001; Revision 0
BECH-M130 (9)-LR; Service Air System; Revision 0
BECH-M-143 (1)-LR; Containment Atmospheric Control System; Revision 1
BECH-M133 (1)-LR; Fire Protection Yard Loop; Revision 0
BECH-M133 (2)-LR; Fire Protection; Revision 0
BECH-M133 (3)-LR; Fire Protection Hose Stations; Revision 0
BECH-M133 (4)-LR; Fire Protection Deluge System; Revision 0
BECH-M133 (5)-LR; Fire Protection Sprinkler System; Revision 0
BECH-MHb1-LR; Air Conditioning System Control Building; Revision 0
BECH-M185-LR; Cardox System; Revision 1
BECH-M161-LR; I.D. Air Conditioning System Control Building; Revision 0
BECH-M151-LR; Control Building and TSC Air Flow Diagram; Revision 0
BECH-M155-LR; Admin Building Air Flow Diagram; Revision 0
BECH-M175-LR; Air Flow Diagram Pump House; Revision 0
BECH-M177-LR; Intake Structure TSC and Compressor Building Diagram; Revision 0

License Renewal Miscellaneous Documents

LRAP-68.00; Solid Radwaste Reference Materials; Revision 13
NUREG-1339; Resolution of Generic Safety Issue 29: Bolting Degradation or Failure in Nuclear Power Plants, Richard E. Johnson, U.S. Nuclear Regulatory Commission June 1990
TR-104213; Bolted Joint Maintenance and Applications Guide; EPRI (Final Report December 1995)
NP-5067; Volumes 1 and 2, Good Bolting Practices; EPRI (Volume 1, 1987 and Volume 2, February 1991)
NP-6316; Guidelines for Threaded-Fastener Application in Nuclear Power Plants; EPRI (August 1989)
Nuclear Regulatory Commission Regulatory Guide 1.127; Revision 1, "Inspection of Water Control Structures Associated with Nuclear Power Plants"
Nuclear Regulatory Commission Regulatory Guide 1.160; Revision 2, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"

NUMARC 93-01; Revision 2, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"

NUREG-1801 XI.S5; "Masonry Wall Program"

NUREG-1801 XI.S6; "Structures Monitoring Program"

NUREG-1801 XI.S7; "RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants"

ACP 1408.34; "Lifting and Rigging Program"

ANSI B30.2-2001; "Overhead and Gantry Cranes (Top Running Bridge, Sing Multiple Girder, Top Running Trolley Hoist)"

BECH-MRS-M023; "Technical Specification for Cranes for the Turbine and R Buildings"

CRANE-H046-01; "Harnischfeger Turbine Building Crane"

CRANE-H046-02; "Harnischfeger Reactor Building Crane and Ederer Trolley Inspections and Lubrication"

CRANE-G082-01; "Refueling Platform Bridge"

GMP-MECH-06; Section B, "Inspection, Tagging and Testing of General Usage"

LRAM-OHS; "Cranes and Hoists"

LRTR-TLAA; "Time Limited Aging Analysis"

Maintenance Rule Monitoring of Structures Program, Deficiency Item TB006

NUREG-1801 XI.M23; "Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems"

OTH015190; "TB Crane Over Capacity Picks"

PPT-Z11643; Reactor Building Crane Inspection

PPT-Z11645; Turbine Building Crane Inspection

PPT-Z19646; Turbine Building Crane Over Capacity Pick Inspection

NRC IE Bulletin No. 80-11; May 8, 1980

NRC Information Notice No. 87- 67; December 31, 1987; and the Licensee Review; October 31, 1991

License Renewal Scoping and Screening Reports

LRSP – 35.00; Fuel Pool Cooling and Cleanup System; Revision 4
LRSP-EAPC; Active/Passive Component Classification; Revision 1
LRSP-13.01; Fire Protection System; Revision 0
LRSP-68.00; Solid Radwaste System; Revision 4
LRSP-18.00; Instrument Air, Revision 5
LRSP-10.03; Intake Structure HVAC System; Revision 7
LRSP-30.00; Control Building HVAC System; Revision 6
LRSP-34-00; Reactor Building HVAC; Revision 6
LRSP-EE; Electrical and I&C Component Screening; Revision 2
LRSP-ITS; Intake Structure; Revision 4
LRSP-TBS; Turbine Building; Revision 4

License Renewal Technical Reports

LRTR – EOSP; Off-Site Power Restoration Paths; Revision 1
LRTR-MFP; Fire Protection; Revision 1
LRTR-EEQ; Environmental Qualification Scoping; Revision 2

CURRENT PLANT DOCUMENTS

Calculations

DAEC-20Q-302; Design Inputs and Methodology for ASME Code Fatigue Usage Analysis of Reactor Recirculation Outlet Nozzle; Revision 1
DAEC-20Q-303; Stress Analysis of Reactor Recirculation Outlet Nozzle; Revision 2
DAEC-20Q-304; ASME Code Fatigue Evaluation of Reactor Recirculation Outlet Nozzle; Revision 2
DAEC-20Q-307; ASME Code Fatigue Evaluation of Feedwater Nozzle; Revision 2
DAEC-20Q-308; Environmental Fatigue Evaluation of Selected NUREG/CR-6260 Components Based on Existing Analyses; Revision 1
DAEC-20Q-309; Recirculation Class 1 Piping Fatigue and EAF Analysis; Revision 1
DAEC-20Q-320; Fatigue Analysis of Core Spray Nozzle; Revision 1

Corrective Action Documents (CAPs) Initiated As a Result of the Inspection

CAP 071058; NRC Fuel Pool Cooling Walkdown Issues; dated November 5, 2009
CAP 071072; Intake Structure Ventilation Recirculation Dampers not included in LR Scope; dated November 5, 2009

CAP 071032; Diesel Fire Pump Gear Head Thread Engagement Issue; dated November 4, 2009

CAP 071036; Damaged Structural Steel Fire Proofing in Diesel Fire Pump Room; dated November 4, 2009

CAP 071054; External Paint of Diesel Fire Pump Day Tank is Blistered; dated November 5, 2009

CAP 071053; Extensive Surface Corrosion Identified on Various Equipment during NRC Walkdown; dated November 5, 2009

CAP 071052; Need to Establish a Trigger for Increased Inspection Frequency of Concrete Cracks; dated November 5, 2009

CAP 071051; Concrete Cracks Identified on Pump House Walls during NRC Walkdown; dated November 5, 2009

CAP 071060; Functional description of Kaman RADad Monitors Is Not Clear in LRA; dated November 5, 2009

CAP 071076; Selective Leaching Program Requires Additional Information on Mechanical Test; dated November 5, 2009

CAP 071075; LRA Table 2.2-2 For Mechanical Systems Not In Scope Needs Clarification To Reflect That Some Components Of These Systems Are In Scope; dated November 5, 2009

CAP 071258; Chipped Paint and Signs of Corrosion Found on Suction Piping to Jockey Fire Pump during NRC Walkdown; dated November 11, 2009

CAP 071267; Resource Planning and Scheduling for External Surface Monitoring; dated November 11, 2009

CAP 071401; NRC Regional Inspection "green sheet" Items; dated November 11, 2009

Procedures

Administrative Control Procedure ACP 1203.60; Revision 0; Masonry Wall analysis

Administrative Control Procedure ACP 1408.34; Revision 7; Lifting and Rigging Program

Abnormal Operating Procedure AOP 902, FLOOD

Maintenance Rule Program (MRP), Module 6; Revision 4; Monitoring of Structures Equipment – Specific Maintenance Procedure for Cranes, H046-01; H046-02; and G082-01

ER-AA-102; Buried Piping Program; Revision 0

ER-AA-102-1000; Buried Piping Examination Procedure; Revision 0

PCP 1.2, DAEC Chemistry Quality Assurance Program; Revision 33

PCP 1.8; Closed Cooling Water Systems Chemistry Guidelines; Revision 13

PCP 1.9; Water Chemistry Guidelines; Revision 46

PCP 2.1; Plant Chemistry Sampling Program Guidelines; Revision 18

PCP 9.2; Chemical Additions to Plant Systems; Revision 23
OP-017; Instrument Air System Blowdown and Air Dryer Swap; Revision 13
ACP 1208.5; GL-89-13 Heat Exchanger Performance and Trending; Revision 19
1C35A C-1; Turbine Building Kaman 1 and 2 Radiation Monitors Trouble; Revision 37
1C35A C-3; Reactor Building (Stack) KamanT3, 4, 5, 6, 7, and 8 [Hi] Radiation Trouble;
Revision 37
GMP-Test-60; SBDG Room HVAC Test; Revision 6
STP 3.8.1-09; SBDG Diesel Fuel Oil Test (Viscosity, Water/Sediment, and Particulate
Contamination); Revision 12
STP NS13B013; Diesel Fire Pump Fuel Test; Revision 4
STP 3.8.1-08C; SBDG Fuel Oil Test for 1T-34 and 1T-35 (Viscosity and
water/sediment); Revision 3
STP 3.8.1-03, Standby Diesel Generators Operability Test; Revision 18

Reports

NDE-R005; Safety Evaluation of Relief Requests for the Fourth 10-Year
Interval of the Inservice Inspection Program - Duane Arnold
Energy Center (TAC NOS. MD2517, MD2518, MD2519, MD2521, MD2522,
MD2524); January 31, 2007
DGC-M114; Engineering Evaluation of Plant Structures/Systems for the Addition of Lead
Shielding; Revision 1
BWRVIP-75-A; BWR Vessel and Internals Project Technical Basis for Revisions to
Generic Letter 88-01 Inspection Schedules; October 2005
MRP Module 6; RFO Accessible and On Line Accessible Harsh Environment Inspection,
2001
MRP Module 6, ON Line Accessible 10 Years Inspection, RFO 20
Periodic Maintenance Effectiveness Review, Cycles 14 – 20,
Strategic Chemistry Plan; Revision 8;
Heat Exchanger Program; Revision 2;

Surveillances

STP NS13B015; Diesel Driven Fire Pump Periodic Pump Run; Revision 17
STP NS13B009; Diesel Driven Fire Pump Operability Tests and Fuel Oil Supply
Verification; Revision 31
STP NS13B010; Electric Driven Fire Pump Monthly Operability Tests; Revision 12
STP NS13B005; Electric Driven Fire Pump Full Flow Discharge Test for NFPA Trending;
Revision 17

STP NS13B004; Diesel Driven Fire Pump Full Flow Discharge Test for NFPA Trending;
Revision 23

System and Program Health and Status Reports

Fire Protection System Health Report for Period 2009-3; dated October 15, 2009

Environmental Qualification Health Report for Period 2009-3; dated September 4, 2009

Work Order Written as a Result of the Inspection

A 82126; The Outside Of The Electrical Box, In Which Cables From Breaker M Enter, Is Rusted And Needs Painting; dated November 4, 2009

A 94557; Remove Duct Tape Observed During Fuel Pool Walkdown

WR-A-94556; IK4 ESW Return Isolation Surface Corrosion; November 04, 2009

WR-A-94552; Potential Packing Leak in Deluge System 4; November, 04, 2009

WR-A-94553; Diesel Fire Pump Paint Coating Flaking; November 04, 2009

WR-A-94555; Potential Improper threading engagement; November 04, 2009

WR-A-94554; External Corrosion on Diesel Fire Pump Day Tank; November 04, 2009

Work Orders Reviewed During the Inspection

143320; Perform Inspection of Transformer 1x003 W/ Ns13c016 Dry or Wet Test; dated September 16, 2009

1122044; Perform Inspection of Start-up Transformer 1X003; dated November 14, 2002

1148214; Perform a Functional Check of 1G21 Room HVAC System IAW GMP-Test-60 SBDG HVAC Functional; dated August 19, 2009

1140916; Inspect, Lube, and IR Test the Supply Fan Motor; dated February 19, 2007

1123911; Air Balance EDSG Supply Fan; dated December 13, 2000

LIST OF ACRONYMS USED

ADAMS	Agency Wide Access Management System
AMP	Aging Management Program
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATWS	Anticipated Transient without Scram
BWR	Boiling Water Reactor
BWRVIP	Boiling Water Reactor Vessel Internals Project
CASS	Cast Austenitic Stainless Steel
CCCW	Closed Cycle Cooling Water
CFR	Code of Federal Regulations
CFW	Condensate and Feedwater Systems
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling Systems
EQ	Environmental Qualification
EVT	Enhanced Visual (Test) Examination
FAC	Flow Accelerated Corrosion
FP	Fire Protection
GALL	Generic Aging Lessons Learned
ID	Inside Diameter
ISG	Interim Staff Guidance
ISI	Inservice Inspection
ISP	Integrated Surveillance Program
LER	Licensee Event Report
LR	License Renewal
LRA	License Renewal Application
DAEC	DUANE ARNOLD ENERGY CENTER
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OCCW	Open Cycle Cooling Water
PARS	Publicly Available Records System
PM	Preventive Maintenance
RG	Regulatory Guide
SIL	Service Information Letter
SSC	System, Structure, or Component
TLAA	Time Limited Aging Analyses
USAR	Updated Safety Analysis Report
VT	Visual (Testing) Examination



DUANE ARNOLD ENERGY CENTER

NRC License Renewal Inspection
Exit Meeting
December 16, 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
- Duane Arnold submitted its application for renewed license on September 30, 2008
- Current license granted for 40 year period; it will expire on February 21, 2014
- If granted, the renewed license would expire in 2034
- Operations will 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 will be 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 exit for 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 November 2 and November 20, 2009
- Inspection team consisted of five experienced inspectors plus an observer

7



71002 Inspection

- Team reviewed electrical, mechanical and structural systems, structures and components
- Scoping and screening walkdowns
- Aging Management Program reviews

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
 - Instrument Air System;
 - Containment Hardened Wetwell Vent;
 - Condensate and Feedwater System;
 - Area Radiation Monitor System;
 - Fuel Pool Cooling and Cleanup System;
 - Fire Protection;
 - Plant Ventilation;
 - Liquid and Solid RadWaste;
 - General Service Water;
 - Service Air System; and
 - Reactor Building Radiation Monitor System

9



Scoping and Screening

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

10



Aging Management Programs

- Reviewed 28 aging management programs and 2 Time Limited Aging Analyses (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
 - Interviewed Program Owners and Other Applicant Staff

11



Aging Management Programs

- B.3.3 ASME Section XI In-service Inspection, Subsections IWB, IWC, and IWD Program
- B.3.4 ASME Section XI, Subsection IWE Program
- B.3.5 ASME Section XI, Subsection IWF Program
- B.3.6 Bolting Integrity Program
- B.3.7 Buried Piping and Tanks Inspection Program
- B.3.12 BWR Stress Corrosion Cracking
- B.3.13 BWR Vessel ID Attachment Welds

12



Aging Management Programs

- B.3.14 BWR Vessel Internals
- B.3.15 Closed-Cycle Cooling Water System
- B.3.16 Compressed Air Monitoring Program
- B.3.17 Electrical Cables and Connections
- B.3.18 Electrical Cables and Connections
Used in Instrument Circuits
- B.3.20 Electrical Penetration Assemblies
Program
- B.3.21 External Surfaces Monitoring
Program
- B.3.22 Fire Protection Program

13



Aging Management Programs

- B.3.23 Fire Water System
- B.3.24 Flow-Accelerated Corrosion Program
- B.3.25 Fuel Oil Chemistry
- B.3.27 Inaccessible Medium Voltage Cables
- B.3.29 Inspection of Overhead Heavy Load &
Light Load (Related to Refueling) Handling
Systems
- B.3.30 Lubricating Oil Analysis Program
- B.3.31 Metal Enclosed Bus Program
- B.3.33 Open-Cycle Cooling water System

14



Aging Management Programs

- B.3.34 Reactor Head Closure Studs Program
- B.3.36 Selective Leaching of Materials Program
- B.3.37 Structures Monitoring Program
- B.3.38 Thermal Aging & Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS)
- B.3.39 Water Chemistry Program
- B.4.1 Environmental Qualification Program
- B.4.2 Metal Fatigue of Reactor Coolant Pressure Boundary Program

15



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 and are captured in the corrective action program
 - Aging Management Programs appear to be adequate for the period of extended operation

16



71002 Inspection Conclusion

- Duane Arnold scoping, screening, and aging management programs found sufficient for extended operation
- NRC Region III does not see any inspection impediments to renewing the operating license
- This inspection will be documented in DRS inspection report 05000331/2009010

17



Applicant Comments

18



Closing Comments

19



Duane Arnold Current Status

Milestones	Schedule Date	Actual Date
Receive license renewal application (LRA)	10/01/08	10/01/08
Publish Federal Register Notice (FRN) - LRA availability	11/17/08	11/17/08
Publish FRN - acceptance/rejection and opportunity for hearing	02/17/09	02/17/09
Publish FRN - environmental scoping meeting	03/24/09	03/24/09
Deadline for filing hearing request and petition for intervention	04/20/09	04/20/09
Public Meeting License Renewal Overview and Environmental Scoping meeting	04/22/09	04/22/09
Environmental scoping period ends	05/25/09	05/25/09
Audit – Environmental	06/15/09	06/15/09
Audit – Scoping & Screening Audit Methodology	08/24/09	08/24/09
Audit – Aging Management Programs	08/10/09	08/10/09

20



Duane Arnold Current Status

Milestones	Schedule Date	Actual Date
Publish FRN - draft SEIS available for comments	01/29/10	
Public Meeting - draft SEIS meeting	03/03/10	
Issue safety evaluation report (SER) with open items	05/10/10	
End of draft SEIS comment period	04/14/10	
Advisory Committee on Reactor Safeguards (ACRS) Subcommittee meeting	05/20/10	
Issue final SER	08/23/10	
U.S. Environmental Protection Agency FRN Published - availability of final SEIS	10/15/10	
ACRS full committee meeting	10/12/10	
Decision – Director, Office of Nuclear Reactor Regulation (22 months if no hearing)	12/10/10	
Commission decision (30 months if hearing)	11/14/10	

21



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

22

C. Costanzo

-2-

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and any response you provide will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) 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/

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

Docket No. 50-331
License No. DPR-49

Enclosure: Inspection Report 05000331/2009010(DRS)
w/Attachment 1 and 2: Supplemental Information

cc w/encl: Distribution via ListServ

DISTRIBUTION:

Susan Bagley
RidsNrrDorLpl3-1 Resource
RidsNrrPMDuaneArnold Resource
RidsNrrDirslrib Resource
Cynthia Pederson
Steven Orth
Jared Heck
Allan Barker
Carole Ariano
Linda Linn
DRPIII
DRSIII
Patricia Buckley
Tammy Tomczak
[ROPreports Resource](#)

DOCUMENT NAME: G:\DRS\Work in Progress\Misc Boilers\con 4.doc

Publicly Available Non-Publicly Available Sensitive Non-Sensitive

To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl; "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII		RIII				
NAME	BJose:ls		AMStone				
DATE	01/14/10		01/20/10				

OFFICIAL RECORD COPY