



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
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LISLE, IL 60532-4352

December 22, 2009

Mr. Charles G. Pardee  
Senior Vice President, Exelon Generation Company, LLC  
President and Chief Nuclear Officer (CNO), Exelon Nuclear  
4300 Winfield Road  
Warrenville IL 60555

**SUBJECT: DRESDEN NUCLEAR POWER STATION, UNIT 2  
NRC POST-APPROVAL SITE INSPECTION FOR LICENSE RENEWAL  
INSPECTION REPORT 05000237/2009007**

Dear Mr. Pardee:

On November 18, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed a Post-Approval Site Inspection for License Renewal at your Dresden Nuclear Power Station, Unit 2. The enclosed report documents the inspection findings, which were discussed on November 18, 2009, with Mr. T. Hanley and other members of your staff.

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

Based on the results of this inspection, three NRC-identified findings of very low safety-significance were identified. One finding involved a violation of NRC requirements. However, because of its very low safety-significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a Non-Cited Violations (NCV) in accordance with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Dresden Nuclear Power Station. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Dresden Nuclear Power Station. The information that you provide will be considered in accordance with Inspection Manual Chapter 0305.

C. Pardee

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

Sincerely,

/RA/

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

Docket Nos. 50-237  
License Nos. DPR-19

Enclosure: Inspection Report 05000237/2009007  
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-237

License Nos: DPR-19

Report No: 05000237/2009007

Licensee: Exelon Generation Company

Facility: Dresden Nuclear Power Station, Unit 2

Location: Morris, IL

Dates: October 5, 2009 – November 18, 2009

Inspectors: S. Sheldon, Senior Reactor Engineer (Lead)  
A. Senior Reactor Engineer  
M. Holmberg, Senior Reactor Engineer  
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Approved by: A. M. Stone, Chief  
Engineering Branch 2  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000237/2009007; 10/05/2009 – 11/18/2009; Dresden Nuclear Power Station, Unit 2; Post Approval Site Inspection for License Renewal

The report covers a team inspection conducted by region-based engineering inspectors. The inspectors concluded that commitments, license conditions, and regulatory requirements associated with the issuance of the renewed operating license were being met.

Three Green findings were identified by the inspectors. One finding was considered a Non-Cited Violation (NCV) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified and Self-Revealed Findings

#### **Cornerstone: Mitigating Systems**

- Green. A finding of very low safety-significance (Green) was identified by the inspectors for the licensee's failure to adequately evaluate and address an aging effect identified by the ventilation system one-time inspection program in accordance with the license renewal Program Basis Document B.1.23C. The licensee entered this issue into the corrective action program, and initiated periodic inspections to manage the aging effect.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Specifically, failure to address the aging effect would not provide assurance that the intended function of in-scope ventilation systems would be maintained consistent with the current licensing basis through the period of extended operation. This finding is of very low safety-significance (Green) because it did not result in a loss of operability, did not represent an actual loss of safety function, and is not potentially risk-significant due to external events. The cause of this finding is related to the cross-cutting aspect in the area of Human Performance, Work Practices, because the licensee did not ensure proper supervisory and management oversight of work activities, such that nuclear safety is supported. Specifically, supervisory expectations for follow-up were not adequately conveyed prior to the completion of the program. (H.4(c)) (Section 4OA5.1)

- Green. A finding of very low safety-significance (Green) and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to accurately translate the design bases for the Standby Liquid Control (SBLC) tank into specifications, drawings, procedures, and instructions. Specifically, the SBLC tank wall thickness used in a design basis calculation was incorrect. The licensee initiated IR 983037 to address deficiencies in the calculation.

The finding was determined to be more than minor because the finding was associated with the mitigating systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the design basis calculations did not demonstrate that the tank will remain available following design basis seismic events. This finding is of very low safety-significance (Green) because it did not result in a loss of operability. The inspectors did not identify a cross-cutting aspect associated with this finding as it was not indicative of current performance. (Section 4OA5.1)

- Green. A finding of very low safety-significance was identified by the inspectors for the licensee's failure to implement a program in accordance with the license renewal program basis Document B.1.33. Specifically, the licensee failed to develop and implement a program to perform visual inspections of the accessible non-environmentally-qualified electrical connections located in adverse localized environments. The licensee subsequently entered the issue into their corrective action program as AR00977284 to re-perform the inspection and revise documentations as required. The finding was not associated with violation of regulatory requirements.

The finding was determined to be more than minor because, if left uncorrected, the finding would become a more safety-significant concern. The failure to perform a visual inspection of the subject connections did not assure that the intended functions of these connections would be maintained consistent with the current licensing basis through the extended period of operation. The finding was of very low safety-significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." This finding has a cross-cutting aspect in the area of Human Performance for the resources component because implementing procedures did not include sufficient guidance defining the parameters of the program. H.2(c) (Section 4OA5.1)

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Other Activities

##### .1 Post-Approval Site Inspection for License Renewal (Phases 1 and 2) – IP 71003

###### a. Inspection Scope

###### (1) Review of Newly Identified SSCs

The inspectors discussed the identification of new systems structures and components, under the purview of 10 CFR 54.37(b), with the licensee's license renewal staff. The licensee personnel indicated that no components had been identified that should have been within the scope of its license renewal program due to discovering components in the plant that were not accurately reflected in the database used to originally generate the application for a renewed license. The licensee staff reviewed modifications implemented since the renewed license was approved and determined there were no newly identified SSCs. The inspectors did not identify any deficiencies.

The inspectors contacted the Office of Nuclear Reactor Regulation, Division of License Renewal (NRR/DLR) staff for information on any generic NRC communications naming newly identified systems, structures, and components. The Office of Nuclear Reactor Regulation Division of License Renewal NRR/DLR staff advised the inspectors that the NRC has not specified additional newly identified systems, structures, and components that the licensee must evaluate and include as applicable in its next Updated Final Safety Analysis Report (UFSAR) update in accordance with §54.37(b).

###### (2) Review of Updated Final Safety Analysis Report (UFSAR) and Commitment Item Change Process

As part of reviewing the Aging Management Programs (AMPs) associated with the commitments, the inspectors reviewed the UFSAR descriptions to confirm the implemented programs were consistent with the UFSAR descriptions. No disparities were noted.

The inspectors reviewed the licensee's procedures to ensure that Commitment Item revisions would follow the guidance in NEI 99-04, Guidelines for Managing NRC Commitment Item Changes, including the elimination of commitments, and would properly evaluate, report, and approve changes to license renewal commitments listed in the UFSAR in accordance with 10 CFR 50.59. The inspectors also reviewed the licensee's Commitment Item tracking program to evaluate its effectiveness.

With respect to implementation, the inspectors reviewed changes associated with each commitment. No disparities were identified as detailed below.

(3) Review of Commitments

The inspectors reviewed supporting documents including completed surveillance records, conducted interviews, performed visual inspection of structures and components including those not accessible during power operation, and observed the activities described below to verify the licensee completed the necessary actions to comply with the license conditions that are a part of the renewed operating license. The inspectors verified the licensee implemented the Aging Management Programs and time-limited aging analyses (TLAA) included in NUREG-1796, "Safety Evaluation Report (SER) Related to the License Renewal of the Dresden Nuclear Power Station, Units 2 and 3 and Quad Cities Nuclear Power Station, Units 1 and 2", in accordance with Title 10 of the Code of Federal Regulations (CFR) Part 54, "Requirements for the Renewal of Operating Licenses for Nuclear Power Plants." The inspectors verified a selected sample of corrective actions taken as a consequence of the license renewal inspection.

When changes to these commitments were identified, the inspectors reviewed the Commitment Item Change Evaluation Form (CCEF) to verify the licensee followed the guidance in NEI 99-04 for the license renewal Commitment Item change process, including the elimination of commitments, and properly evaluated, reported, and approved where necessary, changes to license renewal commitments listed in the UFSAR in accordance with 10 CFR 50.59. The inspectors also reviewed the licensee's Commitment Item tracking program to evaluate its effectiveness.

The inspectors reviewed the commitments listed below which are referenced to Appendix A of the SER. Specific documents reviewed are listed in the enclosure.

1. Item 1, ASME Code, Section XI Inservice Inspection, Subsections IWB, IWC, and IWD

Commitment Item 1 specified that the existing ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Aging Management Program is part of the Inservice Inspection (ISI) Program. It provides identification of signs of degradation, and establishment of corrective actions for condition monitoring of reactor coolant pressure retaining piping and components within the scope of license renewal. The inspections will be implemented in accordance with 10 CFR 50.55(a). Also Dresden will implement the Boiling Water Reactor (BWR) guidance of BWRVIP-74, "BWR Reactor Pressure Vessel Inspection, and Flaw Evaluation Guidelines." Risk Informed Inservice Inspection will be implemented in lieu of ASME Section XI requirements for portions of Class 1 and Class 2 Systems. NRC staff accepted Dresden's clarification in the NRC Request for additional information (RAI) B.1.1(d) related to ASME Section XI, Subsection IWB and IWC program requirements and the alternative risk-informed Inservice inspection Programs for Class 1 and 2 piping.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, non-destructive examination (NDE) records, and related condition reports (CRs); and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the licensee incorporated the Risk Informed ISI Program for Class 1 and 2 Systems in accordance with the clarifications described in request for additional information. (RAI)B.1.1(d).

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 1.

## 2. Item 2, Water Chemistry

Commitment Item 2 specified that the existing water chemistry program was credited for license renewal and that the program would be enhanced prior to the period of extended operation.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, chemistry results, and related CRs; and interviewed the responsible plant personnel regarding these documents. The inspectors verified that enhancements for increased sampling to verify corrective actions were in place. Additionally, the licensee implemented a Commitment Item change to incorporate requirements from the latest Electric Power Research Institute (EPRI) technical report (TR) 103515, "BWR Water Chemistry Guidelines," Revision 2.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 2.

## 3. Item 3, Reactor Head Closure Studs

Commitment Item 3 specified that the existing Reactor Head Closure Studs Aging Management Program provided for condition monitoring and preventive activities to manage stud cracking. The program is implemented through station procedures based on the examination and inspection requirements specified in ASME Section XI, Table IWB-2500-1 and preventive measures described in Regulatory Guide 1.65, "Materials and Inspection for Reactor Vessel Closure Studs." The reactor head studs at Dresden are not metal plated and have had manganese phosphate coatings applied. The program is consistent with the ten elements of Aging Management Program XI.M3, "Reactor Head Closure Studs" specified in NUREG-1801.

There are two exceptions taken to recommendations identified in NUREG 1801; 1) Instead of surface examinations as required in table IWB-2500-1 of ASME Section XI, Dresden will utilize a VT-1 visual inspection, as approved in relief request CR-13 and 2) instead of volumetric examination with conventional UT, reactor head closure studs are examined by end shot UT, as approved by relief request CR-12.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, NDE examination records, and related CRs; and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the requirements in CR relief requests CR12 and 13 have been incorporated into the ISI program.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 3.

## 4. Item 4, BWR Vessel ID Attachment Welds

Commitment Item 4 specified that the existing BWR Vessel Attachment Welds Aging Management Program activities incorporated the inspection and evaluation

recommendations of BWRVIP-48, "Vessel 10 Attachment Weld Inspection and Evaluation Guidelines," as well as the water chemistry recommendations of EPRI TR-103515-R2, "BWR Water Chemistry Guidelines." The program is implemented through station procedures that provide for mitigation of cracking through water chemistry and monitoring for cracking through in vessel examinations. The inspections are implemented through station procedures that are part of the Inservice Inspection program and incorporate the requirements of ASME Section XI. The program is consistent with the ten elements of Aging Management Program XI.M4, "BWR Vessel 10 Attachment Welds," specified in NUREG-1801 with the following exceptions. NUREG-1801 indicates that water chemistry control is in accordance with BWRVIP-29, "BWR Water Chemistry Guidelines" and references the 1993 Revision of EPRI TR-103515, "BWR Water Chemistry Guidelines." The Dresden water chemistry programs are based on EPRI TR-103515-R2, which is the 2000 Revision.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, NDE examination records, and interviewed the responsible plant personnel regarding these documents. The inspectors verified the implementation of the recommendations of report GE-NE-523-A71-0594-A, Revision 1, which was approved by the NRC staff.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 4.

#### 5. Item 5, BWR Feedwater Nozzle

Commitments 5 specified that the existing BWR Feedwater Nozzle program was credited for license renewal and would be enhanced prior to the period of extended operation.

This program implemented enhanced inservice inspection in accordance with the ASME Code for the feed water nozzles.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, NDE examination records, and related CRs; and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the licensee implement the recommendations of report GE-NE-523-A71-0594-A, Revision 1, which was approved by the NRC staff.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 5.

#### 6. Item 6, Control Rod Drive Return Line Nozzle

Commitment Item 6 specified that the existing BWR Control Rod Drive Return Line Nozzle inspection program was credited for license renewal.

This program implemented enhanced inservice inspection in accordance with the ASME Code for the control rod drive return line nozzles.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, NDE examination records, and related CRs; and interviewed the responsible plant personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 6.

#### 7. Item 7, BWR Stress Corrosion Cracking (SCC)

Commitment Item 7 specified that the existing BWR SCC Program was credited for license renewal. The BWR SCC Program is credited for managing the aging affects of crack initiation and growth, loss of fracture toughness, and loss of material in susceptible components.

The licensee implemented a Commitment Item change to reflect the current program basis document EPRI Topical Report 1012621, BWRVIP-75-A, BWR Vessel and Internals Project Technical Basis for Revisions to Generic Letter 88-01 Inspection Schedules (NUREG -0313)).

The inspectors reviewed the licensing basis, program basis document, implementing procedures, weld examination records, and related ARs; and interviewed the responsible plant personnel regarding these documents. The inspectors also observed nondestructive examination of two reactor recirculation system welds (Elbow-to-Pipe Weld -PD1A-D14, and Tee-to-Valve Weld- PS2-Tee/202-4B), to determine if the licensee was effectively implementing this program.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 7.

#### 8. Item 8, BWR Penetrations

Commitment Item 8 specified that the existing BWR reactor vessel penetration inspection program was credited for license renewal.

This program implemented inspection and flaw evaluation in conformance with BWRVIP-27 and BWRVIP-49.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, NDE examination records, and related CRs; and interviewed the responsible plant personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 8.

#### 9. Item 9, BWR Vessel Internals

Commitment Item 9 specified that the ASME inservice inspection program inspections are enhanced with inspections consistent with BWRVIP-48. The BWR Vessel internals Aging Management Program mitigates the effect of stress corrosion cracking, intergranular stress corrosion cracking (IGSCC), and irradiation assisted stress corrosion cracking in reactor pressure vessels internals through water chemistry activities that are

implemented through station procedures and are consistent with the guidelines of EPRI TR-103515-R2, BWR Water Chemistry Guidelines, 2000 Revision. The program also manages cracking of reactor of reactor pressure vessel internals through condition monitoring activities that consist of examinations and the BWRVIP guidelines, as well as the requirements of ASME Section XI. The program has also been enhanced by NRC approved BWRVIP Steam Dryer Inspection and Evaluation Guidelines.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, NDE examination records; and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the implementation of the enhancements for reactor vessel top guide have been incorporated into station procedures.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 9.

10. Item 10, Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS)

Commitment Item 10 specified that a new Aging Management Program was to be implemented for thermal aging and neutron irradiation embrittlement of CASS reactor internal components within the scope of license renewal, to ensure the integrity of the CASS components exposed to the high temperature and neutron fluence present in the reactor environment. This program includes a specific evaluation of the loss of fracture toughness. For those components where the loss of fracture toughness may affect function of the component, an enhanced VT-1 inspection will be conducted for those components where flaws have been detected. These inspections will be in accordance with BWRVIP-03, and will be performed as part of the ISI program.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the inspection requirements are incorporated in the ISI program and station procedures.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 10.

11. Item 11, Flow Accelerated Corrosion (FAC)

Commitment Item 11 specified that the existing FAC Program was credited for license renewal with enhancements to include portions of the main steam and the reactor vessel head vent systems prior to the period of extended operation. The FAC Program is credited for predicting, detecting, and monitoring for loss of material by wall thinning in piping, fittings, and valve bodies due to FAC.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, pipe examination records, and related ARs; and interviewed the responsible plant personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 11.

## 12. Item 12, Bolting Integrity

Commitment Item 12 specified that the existing bolting integrity program was credited for license renewal and that the program would be enhanced prior to the period of extended operation.

The Bolting Integrity Program was an existing program that consisted of the preventive and condition monitoring of pressure retaining bolted joints for piping and components for age-related degradation to discover and correct conditions that could lead to a loss of intended function. The activities consisted of visual inspections for degradation and leakage that were implemented through various station procedures, preventive maintenance and routine observation activities.

The inspectors reviewed the licensing basis, the Bolting Integrity Program basis documentation, related Commitment Item change documentation, implementing procedures, planned and completed work orders, related corrective action documents, and interviewed responsible program personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 12.

## 13. Item 13, Open-Cycle Cooling Water Program

Commitment Item 13 specified that the existing open-cycle cooling program was credited for license renewal and that the program would be enhanced, prior to the period of extended operation, to include periodic inspections of additional heat exchangers and sub-components, external surfaces of various submerged pumps, components in the high humidity/moisture environments of the pump vaults and piping, and strainer internals in the component cooling service water (CCSW) supply line to the main control room heating, ventilation and air conditioning (HVAC) system.

The program provides for the management of loss of material, cracking, flow blockage and the buildup of deposit aging effects in components and exposed, both internally and externally, to raw cooling water.

The inspectors reviewed the licensing basis, program basis document, planned and completed work orders, issue reports and inspection procedures. The inspectors verified that the licensee has implemented an Aging Management Program that drives the identification of adverse conditions experienced by heat exchangers and subcomponents, external surfaces of submerged pumps, and components in high humidity/moisture environments of pump vaults and piping. The inspectors also verified that the licensee performed appropriate evaluations commensurate with safety-significance to ensure aging mechanisms are managed throughout the period of extended operation.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 13.

## 14. Item 14, Closed-Cycle Cooling Water Chemistry

Commitment Item 14 specified that the existing closed-cycle cooling water chemistry program was credited for license renewal and that the program would be enhanced prior to the period of extended operation to be consistent with EPRI guidance.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, chemistry results, and related CRs; and interviewed the responsible plant personnel regarding these documents. The licensee implemented a Commitment Item change to incorporate requirements from the latest EPRI guidance document, EPRI TR-1007820, Closed Cooling Water Chemistry Guideline, Revision 1. The inspectors verified that this change was appropriate.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 14.

15. Item 15, Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems

Commitment Item 15 specified that the existing inspection of overhead heavy load and light load (related to refueling) handling systems program was credited for license renewal and that the program would be enhanced prior to the period of extended operation.

The existing program provided for visual inspections of overhead heavy load and light load (related to refueling) handling systems. The program, which was implemented through station procedures, managed loss of material of bridge and trolley structural components for systems within the scope of 10 CFR 54.4 and other load handling systems within the scope of license renewal.

The inspectors reviewed the licensing basis, the Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems Program basis documentation, implementing procedures, planned and completed work orders, related corrective action documents, and interviewed responsible program personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 15.

16. Item 16, Compressed Air Monitoring

Commitment Item 16 specified that the existing compressed air monitoring program was credited for license renewal and that the program would be enhanced prior to the period of extended operation.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, scheduled and completed work orders, and EPRI TR-108147. The inspectors noted that the UFSAR supplement section contained an AR with a change request to remove incorrect wording related to piping blowdown, without providing the necessary clarification as provided by the enhancements listed in SER Section 3.0.3.8. The licensee addressed inspectors' concern and revised the Change Request to correct the wording to refer to tank blowdown, instead of deleting the incorrect wording.

Based on review of the timeliness and adequacy of the licensee's actions the inspectors determined that the licensee met Commitment Item 16.

17. Item 17, BWR Reactor Water Cleanup System

Commitment Item 17 specifies that the existing program is credited for license renewal and is consistent with the NUREG-1801 "Generic Aging Lessons Learned (GALL)."

The inspectors reviewed the licensing basis, program basis document, and work orders. The licensee has replaced all in-scope portions of the reactor water cleanup (RWCU) system piping with IGSCC resistant piping, therefore, the licensee has met the intent of the GALL, and no additional inspection activity is necessary for IGSCC in accordance with NRC GL 88-01.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 17.

18. Item 18, Fire Protection

Commitment Item 18 specified that the licensee would enhance the existing fire protection program as follows:

- Provide specific guidance to check fire doors for wear and holes in skin that could affect intended function during weekly tours.
- Inspection of external surfaces of the Halon system and carbon dioxide system.
- Periodic capacity tests of the isolation condenser makeup pumps.
- Specific fuel supply leak inspection criteria for fire pumps and isolation condenser makeup pumps during testing.
- Inspection frequencies for fire doors and spill barriers will be provided.
- Perform a visual inspection (VT-1 or equivalent) on a 10 percent sample population of each type of fire seal on a refueling outage frequency. Expand the sample population by 10 percent if any of the inspected seals are found to have abnormal degradation that could prevent the seal from performing its intended function.

The inspectors reviewed the licensing basis, program basis document, and existing implementing procedures. The inspectors verified that the above enhancements were incorporated into the existing program documents and implementing procedures. The inspectors identified that procedures DFPS 4175-02 and DFPS 4175-03, for fire stop surveillances, did not contain a requirement for the users/inspector to have a fire protection qualifications. The licensee entered this issue into their corrective action program as AR982928. The inspectors performed walkdown visual examinations of isolation condenser makeup pumps diesel fuel supply systems, which were found satisfactory.

Based on the review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 18.

19. Item 19, Fire Water System

Commitment Item 19 specified that the existing fire water system program was credited for license renewal and that the program would include several enhancements prior to the period of extended operation.

The fire water system program provides for inspection and testing of fire water system piping and components.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, chemistry results, and related CRs; and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the licensee conducted periodic non-intrusive wall thickness measurements of selected portions of the fire water system, established periodic inspections on the external surfaces of submerged fire pumps, outdoor fire hydrants, and outdoor transformer deluge system components, and established periodic maintenance tasks to sample sprinklers in accordance with National Fire Protection Association (NFPA) 25, "Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems."

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 19.

20. Item 20, Above-ground Carbon Steel Tanks

Commitment Item 20 specified that the existing above-ground carbon steel tanks program was credited for license renewal and that the program would be enhanced prior to the period of extended operation.

The enhancements included periodic system engineer walkdowns on the nitrogen storage tanks utilizing stand alone procedures, periodic internal/external inspections of the aluminum storage tanks, and periodic UT thickness inspections of the tank bottoms.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, scheduled and completed work orders, related action requests, engineering changes and evaluations. The inspectors verified that the licensee has implemented procedure changes to address the documentation of inspection results by system engineers. In addition, the inspectors verified that the licensee has implemented procedures to address internal/external inspections as well as UT at frequencies in accordance with the UFSAR.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 20.

21. Item 21, Fuel Oil Chemistry

Commitment Item 21 specified that the existing fuel oil chemistry program was credited for license renewal and that the program would be enhanced prior to the period of extended operation.

This chemistry program was to be enhanced to include inspection of the fuel oil tank interiors for corrosion during regularly scheduled tank cleanings which included periodic UT at predetermined locations.

The inspectors reviewed the licensing basis, program basis document, scheduled and completed work orders, and implementing procedures. The inspectors verified that the licensee has implemented a program that evaluates the material condition and bottom thickness of the fuel oil storage tanks to ensure aging effects are effectively managed. The inspectors reviewed work orders and procedures implemented to ensure the licensee initiated evaluations at an appropriate threshold, commensurate with the programs requirements. The inspectors also reviewed Operating Experience to ensure the licensee was screening appropriately in addition to performing evaluations when necessary.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 21.

## 22. Item 22, Reactor Vessel Surveillance

Commitment Item 22 specified that the existing reactor vessel surveillance Aging Management Program was credited for license renewal and that the program would be enhanced prior to the period of extended operation. The program is implemented through station procedures that conform to the requirements of 10 CFR Part 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements." Neutron embrittlement is predicted utilizing chemistry tables and Position 1.3 limitations as described in Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials."

The inspectors reviewed the licensing basis, program basis documents, implementing procedures and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the licensee incorporated the testing requirements for reactor vessel test capsules have been incorporated into station programs and procedures.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 22.

## 23. Item 23, One-Time Inspection

Commitment Item 23 specified that the licensee perform one-time inspections of selected plant equipment to verify that current plant Aging Management Programs are effective in managing the effects of aging prior to the period of extended operation.

The one-time inspection program provides for examinations of representative materials in environments that are not expected to experience aging effects in order to verify that this is the case.

The licensee had established separate one-time inspection programs covering the specific commitments listed in the SER. The inspectors reviewed the licensing basis, each program basis document, implementing procedures, inspection results, and related CRs; and interviewed the responsible plant personnel regarding these documents.

The inspectors verified that the licensee had documented the results of the one-time inspections, and with two exceptions, had followed up appropriately when aging effects were identified.

One finding was identified related to failure to adequately evaluate and address an aging effect identified by the ventilation system one-time inspection program. This finding is discussed in Section 4OA5.1.b. A separate NCV was identified by the inspectors related to the one-time inspection of SBLC tank thickness measurements. While the licensee had followed up the results by implementing periodic inspections, which was appropriate for managing aging effects, the licensee failed to fully evaluate the operability of the SBLC tank. This NCV is also discussed in Section 4OA5.1.b.

The inspectors determined that the licensee had performed a substantial portion of the inspections, and the remaining inspections, required by this commitment, were scheduled to be completed prior to the period of extended operation.

#### 24. Item 24, Selective Leaching of Materials

Commitment Item 24 specified one-time visual inspection of a sample of materials susceptible to selective leaching of materials prior to the period of extended operation.

The Selective Leaching of Materials Program was a new program to determine if loss of material due to selective leaching was occurring at the licensee's plant. The scope of the visual inspection sample included susceptible components that were exposed to chemically treated water, demineralized water, raw water and ground water, and moist ventilation and gas environments.

The inspectors reviewed the licensing basis, the Selective Leaching of Materials Program basis documentation, completed work orders, and interviewed responsible program personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 24.

#### 25. Item 25, Buried Piping and Tanks Inspection

Commitment Item 25 specified an enhancement to complete one-time inspections prior to the period of extended operation. The Buried Piping and Tanks Inspection Program was an existing program that provided preventive and condition monitoring measures to manage loss of material, due to either corrosion of ferrous piping and tanks or aggressive chemical attack of asbestos concrete piping, from external environments for buried piping and tanks.

The inspectors reviewed the licensing basis, the Buried Piping and Tanks Inspection Program basis documentation, implementing procedures, completed work orders, related corrective action documents, planned re-inspection of buried diesel fuel tanks, and interviewed responsible program personnel regarding these documents. The inspectors noted that the licensee had incorporated operating experience into the buried piping and tanks program.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 25.

26. Item 26, ASME Code, Section XI, Subsection IWE

Commitments 26 specified that the existing ASME Code, Section XI, Subsection IWE program was credited for license renewal and would be enhanced prior to the period of extended operation.

This program implemented inservice inspection in accordance with the ASME Code, Section XI, Subsection IWE for the containment structure.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, examination records, and related CRs; and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the licensee implement the latest edition and addenda of the code, and the program was be updated in accordance with 10 CFR 50.55(a). The inspectors verified that additional inspections of the Dresden Unit 3 (the lead unit) containment shell for corrosion had been scheduled in accordance with this commitment. The inspectors also observed portions of the inspections in the Unit 2 drywell during D2R21.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 26.

27. Item 27, ASME Code, Section XI, Subsection IWF

Commitment Item 27 ASME Code Section XI, Subsection IWF Component Support Program specified that the existing American Society of Mechanical Engineers (ASME) Code Section XI, Subsection IWF Component Support Program was credited for license renewal with enhancement to include inspection of Code Class MC supports.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, examination records, and related ARs; and interviewed the responsible plant personnel regarding these documents. The inspectors also observed the licensee perform an underwater visual examination of torus column supports and reviewed the containment shear lug support examinations to determine if the licensee was effectively implementing this program.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 27.

28. Item 28, Appendix J of 10 CFR Part 50,

Commitment Item 28 specifies the existing 10 CFR Part 50, Appendix J Aging Management Program was credited for license renewal. The program provides for aging management of pressure boundary degradation due to loss of material in the primary containment and various systems penetrating primary containment. The program also manages changes in material properties of gaskets, "O" rings, and packing materials for the primary containment pressure boundary access points. Containment leak rate tests are performed to assure that leakage through the primary containment and systems and components penetrating primary containment does not exceed allowable leakage limits

specified in the Technical Specifications. The program includes an exception to NUREG 1801 for two-ply design bellows that can not be tested to satisfy the requirements of Appendix J. Testing is in accordance with NRC approved alternate test until bellows are replaced.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the requirements for testing two-ply bellows have been incorporated into station programs and procedures.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 28.

#### 29. Item 29, Masonry Wall Program

Commitment Item 29 specified that the existing masonry wall program was credited for license renewal and would be enhanced prior to the period of extended operation. The Masonry Wall Program, which is part of the Structures Monitoring Program, was based on guidance provided in I. E. Bulletin 80-11, "Masonry Wall Design," and Information Notice 87-67, "Lessons Learned from Regional Inspections of Licensee Actions in Response to I. E. Bulletin 80-11," and was implemented through station procedures. The program provided for inspections of masonry walls for cracking.

The inspectors reviewed the licensing basis, the program basis documentation, implementing procedures, a masonry wall program assessment report, and interviewed responsible masonry wall program personnel to confirm that visual inspection of masonry walls was ongoing and would be implemented into the period of extended operation. The inspectors verified that the enhancements specified in the SER were incorporated into the program.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 29.

#### 30. Item 30, Structures Monitoring Program

Commitment Item 30 specified that the existing structures monitoring program was credited for license renewal and would be enhanced prior to the period of extended operation.

The structures monitoring program was an existing program that provided for aging management of various structures and external surfaces of mechanical components within the scope of license renewal. The program, which was developed for structures monitoring under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," was based on the guidance in Regulatory Guide 1.160 Revision 2, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and Nuclear Management and Resources Council (NUMARC) 93-01 Revision 2, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and implemented through procedures.

The inspectors reviewed the licensing basis, the program basis documentation, implementing procedures, a Structures Monitoring Program assessment report, planned and completed work orders, related corrective action documents, and interviewed responsible program personnel regarding these documents. The inspectors verified that the enhancements specified in the SER were incorporated into the program. The inspectors also witnessed the licensee's visual inspection of the Unit 2 Turbine Building CCSW Vault Room using procedure ER-MW-450, "Structures Monitoring," checklists.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 30.

31. Item 31, Regulatory Guide (RG) 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants

Commitment Item 31 specified that the existing RG 1.127, "Inspection of Water-Control Structures Associated with Nuclear Power Plants," program was credited for license renewal and would be enhanced prior to the period of extended operation.

The RG 1.127, "Inspection of Water-Control Structures Associated with Nuclear Power Plants," Program was part of the Structures Monitoring Program and consisted of procedures that provided for condition monitoring of structural steel elements, concrete, and earthen structures within the scope of license renewal. The program provided for aging management of concrete, structural steel elements, and earthen structures exposed to raw water and aging management of concrete not exposed to raw water, and is based on RG 1.127, Revision 1.

The inspectors reviewed the licensing basis, program basis documentation, implementing procedures, planned and completed work orders, related corrective action documents, and interviewed responsible Structures Monitoring Program personnel regarding these documents. The inspectors verified that the enhancements specified in the SER were incorporated into the program. The inspectors also observed video records of underwater examinations of the Dresden Unit 2 outfall structure.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 31.

32. Item 32, Protective Coating Monitoring and Maintenance Program

Commitment Item 32 specified enhancements to the Protective Coating Monitoring and Maintenance Program to be implemented prior to the period of extended operation.

The Protective Coating Monitoring and Maintenance Program was an existing program that provided for aging management of Service Level I coatings inside primary containment. Service Level I coatings were used in areas where the coating failure could adversely affect the operation of post-accident fluid systems and thereby impair safe shutdown. The program provided for visual inspections to identify any condition that adversely affects the ability of the coating film to function as intended.

The inspectors reviewed the licensing basis, the Protective Coating Monitoring and Maintenance Program basis documentation, implementing procedures, planned and completed work orders, related corrective action documents, and interviewed

responsible program personnel regarding these documents. The inspectors also observed portions of the inspections in the Unit 2 drywell and video records of torus inspections conducted during D2R21.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 32.

33. Item 33, Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements

Commitment Item 33 specified that licensee would develop a program that is consistent with NUREG-1801 AMP XI.E1 for electrical cables and connections installed in adverse localized environments not subject to 10 CFR 50.49 environmental qualification requirements.

The licensee developed a program to visually inspect all accessible electrical cables and connections installed in adverse localized environments for signs of accelerated age-related degradation. Additional inspections, repairs, or replacements are to be initiated as appropriate.

The inspectors reviewed licensing basis, the program basis documentation, implementing procedures and records of walkdowns for determining adverse localized environments and visual inspections for cables. The inspectors also reviewed corrective actions, which addressed and identified cable issues and their associated corrective actions (i.e., IR 841546, which identified cracked/missing jacketing, recommended repair). The inspector performed walkdown visual examinations of cables in several adverse environmental areas in the plant.

Based on review of the licensee's program and the walkdown, the inspector identified a finding for the licensee failure to develop and implement a program to perform visual inspections of the accessible non-EQ electrical connections located in adverse localized environments. This finding is discussed in Section 4OA5.1.b.

Based on the licensee's actions to correct the issues identified by the inspectors, the inspectors determined that the licensee met Commitment Item 33.

34. Item 34, Metal Fatigue of Reactor Coolant Pressure Boundary

Commitment Item 34 specified an enhancement to use the EPRI-licensed FatiguePro® cycle counting and fatigue usage factor tracking computer program, to provide for calculation of stress cycles and fatigue usage factors from operating cycles, automated counting of fatigue stress cycles, and automated calculation and tracking of fatigue cumulative usage factors prior to the period of extended operation.

The Metal Fatigue of Reactor Coolant Pressure Boundary Program was an existing program that ensured the design fatigue usage factor limit will not be exceeded during the period of extended operation. The enhanced program calculates and tracks cumulative usage factors for bounding locations in the reactor coolant pressure boundary (reactor pressure vessel and Class I piping), containment torus, torus vents, and torus attached piping and penetrations. The program also tracks isolation condenser fatigue stress cycles.

The inspectors reviewed the licensing basis, Metal Fatigue and Reactor Coolant Pressure Boundary Program basis documentation, enhancement implementing procedures, related corrective action documents, and interviewed responsible program personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 34.

### 35. Item 35, Environmental Qualification (EQ) of Electrical Components

Commitment Item 35 specified that the licensee was to maintain the existing environmental qualification program of the electrical components for the period of extended operation.

Program activities establish, demonstrate and document the level of qualification, qualified configuration, maintenance, surveillance and replacement requirements necessary to meet 10 CFR 50.49.

The inspectors reviewed the licensing basis, program basis document, and various existing EQ Binders. The inspectors also reviewed the self-assessment report completed August 21, 2009, and corrective actions resulting from the assessment.

Based on the review of the timeliness and adequacy of the licensee's actions and assessment for the program, the inspectors determined that the licensee met Commitment Item 35.

### 36. Item 36, Boraflex Monitoring

The Boraflex Monitoring program is not applicable to Dresden Unit 2.

Dresden uses Boral as a neutron absorber material in the spent fuel pool, and has an existing Boral monitoring program specified in its UFSAR Section 9.1.2.3.1. The inspectors discussed recent operating experience with the licensee and determine that the licensee has actions to review recent operating experience both at a site and corporate level for potential changes to the current surveillance program.

### 37. Item 37, Electrical Cables Not Subject to 10 CFR 50.49 Environmental Requirements Used in Instrument Circuits

Commitment Item 37 specified that the licensee was to develop a program to manage aging of cables in sensitive instrumentation circuits with low level signals in the Nuclear Instrumentation Systems and Radiation Monitoring Systems.

The program specified a review of calibration and surveillance results, and cable testing for cable aging degradation before the period of extended operation and every 10 years thereafter. The program is applied to the cables of the Nuclear Instrumentation Systems which included source range monitors (SRMs), intermediate range monitors (IRMs), local power range monitors, and Radiation Monitoring Systems, which included drywell high range radiation monitors, main steam line radiation monitors, and the steam jet air ejector radiation monitors.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, planned and completed work orders and related corrective actions. The inspectors verified that evaluation No. 376940 and work orders were completed satisfactorily. The inspectors identified that the licensee did not have an action item to perform the 10-year review for the SRM and IRM cables during the period of extended operation. The licensee entered this issue into their corrective action as AR981789 and initiated a service request 64664 to perform the review.

Based on the review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 37.

38. Item 38, Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Requirements

Commitment Item 38 specified that the licensee was to provide a new condition monitoring program in accordance with NUREG-1801, AMP XI.E3 to manage aging of five inaccessible medium voltage cables feeding the service water pumps.

The cables will be tested at least once every 10 years. The end of the crib house duct bank will be inspected annually to verify that the duct run is not plugged with debris.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, planned and completed work orders and related corrective actions. The inspectors verified that the five cables were satisfactory tested every two years per existing programs. The licensee's current procedures credited the Baker Testing, Meggering and Polarization Index Testing for detecting deterioration of insulation system due to wetting. The inspectors also verified that Action Tracking Item ATI 448077-68 was assigned for engineering to incorporate a new test method when it's available for non-shielded cables.

The inspectors also verified that visual inspection of the duct openings for each of the five cables were satisfactory completed on annual basis by the System Engineer. The inspector performed walkdown visual examinations of the duct opening in the crib house basement and no debris or blockage were noted. The licensee was noted to have action items in place to include all similar cables for maintenance rule systems in a corresponding program that would include periodic inspection of manholes and vaults. This action was based upon operating experience identified at other sites during license renewal activities.

Based on the review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 38.

39. Item 39, Corrective Action Program

Commitment Item 39 specified that the existing corrective action program was credited for license renewal.

The inspectors reviewed the licensing basis, implementing procedures, corrective action program results, and interviewed the responsible plant personnel regarding this program. The inspectors verified that the licensee was entering issues related to license renewal in the corrective action program. The inspectors observed that the licensee

made extensive use of the corrective action program to ensure that commitments were met prior to the period of extended operation as agreed during the license renewal process. The licensee also initiated condition reports for issues identified during the inspection.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 39.

#### 40. Item 40, Periodic Inspection of Non-EQ, Non-Segregated Electrical Bus Ducts

Commitment Item 40 specified that the licensee was to develop and implement a program to periodically inspect non-segregated bus ducts that connect the reserve auxiliary transformers (RATs) to 4160 V essential service (ESS), the non-segregated bus ducts that connect the Emergency Diesel Generators (EDGs) to the ESS buses, and the non-segregated bus ducts that connect ESS buses.”

The program included: (1) inspection of accessible normally energized non-segregated bus duct internal components such as insulation material, bus duct support pieces, gaskets, insulating boots, taped connections, and bus bar sleeves for material surface anomalies for a non-segregated bus duct that connects the RATs to the 4160 V ESS buses; (2) inspection of bus bar insulation material at the accessible bolted connections of the non-segregated bus duct that connects the RATs to the 4160 V ESS buses; and (3) inspection of 10 percent of the splice insulation material at the bolted connections (including all visible insulation in both directions beyond the location of the bolted connection splice insulation.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, planned and completed work orders and related corrective actions. The inspectors verified that all the above inspection activities were satisfactory completed with the exception of Work Order 757056 “D2/3 8-Year Cross-Tie Bus 24-1/34-1 Duct Internal Inspection” scheduled to be completed by December 7, 2009.

Based on the review of the timeliness and adequacy of the licensee’s actions, the inspectors determined that the licensee met Commitment Item 40.

#### 41. Item 41, Periodic Inspection of Ventilation System Elastomers

Commitment Item 41 specified that the existing periodic inspection of ventilation system elastomers was credited for license renewal and that the program would be enhanced prior to the period of extended operation.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, inspection results, and related CRs; and interviewed the responsible plant personnel regarding this program. The inspectors verified that the licensee was conducting periodic inspections of ventilation system elastomers, and that the licensee had enhanced the program as specified in the SER.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 41.

#### 42. Item 42, Periodic Testing of Drywell and Torus Spray Nozzles

Commitment Item 42 specified that the existing periodic testing of drywell and torus spray nozzles was credited for license renewal.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, test results, and related CRs; and interviewed the responsible plant personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 42.

#### 43. Item 43, Lubricating Oil Monitoring Activities

Commitment Item 43 specified that the existing lubricating oil monitoring program would be “enhanced to include components exposed to an environment of lubricating oil in the following systems: the high pressure coolant injection system, the emergency diesel generator and auxiliaries system, the station blackout system, the electro-hydraulic control system,” prior to the period of extended operation.

The inspectors reviewed licensing basis, program basis document, implementing procedures, scheduled and completed work orders, and applicable CA program documents. The inspectors verified that the licensee has enhanced the program to include the systems and subsystems listed in the Commitment Item in necessary documents to ensure that aging is managed through the period of extended operation.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 43.

#### 44. Item 44, Heat Exchanger Test and Inspection Activities

Commitment Item 44 specified that the licensee would “develop and implement an Aging Management Program for heat exchangers in scope of LR that are not tested or inspected by the open-cycle and closed-cycle cooling water system AMPs,” to be completed prior to the period of extended operation. Additionally the Commitment Item states “for the Dresden isolation condensers, the augmentation activities identified in NUREG-1801, lines IV.C1.4-a and IV.C1.4-b to manage loss of material and cracking will also be included in this Aging Management Program, and will provide for the following: (1) temperature and radioactivity monitoring of the shell side (cooling) water; (2) eddy current testing of the tubes; and (3) visual inspections of the channel head, tube sheets, and internal surfaces of the shell,” prior to the period of extended operation.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, scheduled and completed work orders, related action requests, Engineering Changes (EC) and Evaluations. The inspectors verified that the licensee has created and expanded the scope of inspection procedures, under this AMP to confirm that heat exchangers that are not tested or inspected by other AMPs remain operable, by verifying that unacceptable condition are not developing while managing aging effects. Additionally, the inspectors verified that the licensee has implemented proceduralized operational checks and periodic sampling that monitor temperature and radiation, respectively, for the isolation condensers. Inspectors also reviewed procedures that implement eddy current testing and visual inspections for the isolation condensers to ensure compliance with the licensing basis documents.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 44.

45. Item 45, Generator Stator Water Chemistry Activities

Commitment Item 45 specified that the licensee was to implement a plant specific, non-NUREG 1801, Generator Stator Water Chemistry activities program that manages aging by monitoring and controlling stator water chemistry per established procedures.

The inspectors reviewed the licensing basis, program basis document, and existing implementing procedures.

Based on the review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 45.

46. Item 46, Periodic Inspection of Plant Heating System

Commitment Item 46 specified that the licensee would develop and implement an Aging Management Program to inspect components in the plant heating system once before the end of the current operating term and periodically at intervals not to exceed once every 5 years during the period of extended operation.

The inspectors reviewed the licensing basis, program basis document, scheduled and completed work orders, and implementing procedures. The inspectors verified that the licensee has developed and implemented a program to verify the condition of the plant heating system will be maintained in accordance with the current licensing basis throughout the period of extended operation.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 46.

47. Item 47, Time-limited Aging Analysis (TLAA) - neutron Embrittlement of the Reactor Vessel and Internals

Commitment Item 47 specified that revised Pressure Temperature (P/T) limits will be prepared and submitted to the NRC for approval prior to the start of the extended period of operation using an approved fluence methodology. On October 17, 2005, License amendment No. 209 approved revised P/T limits. The amendments revise Technical Specification (TS) Section 3.4.9, "Reactor Coolant System Pressure and Temperature (P/T) Limits," by incorporating revisions to the P/T limit curves for 54 effective full power years (extending to the end of the renewed license). The ASME Code Case N-640 and N-588 are used for revising the P/T limits. The P/T limits will be managed using approved fluence calculations when there are changes in the power of core design in conjunction with surveillance capsule results from the BWRVIP integrated surveillance program.

The inspectors reviewed the licensing basis, program basis documents, implementing procedures, and interviewed the responsible plant personnel regarding these documents. The inspectors verified that the program requirements have been incorporated into station programs and procedures.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 47.

#### 48. Item 48, TLAA - Metal Fatigue

Commitment Item 48 specified commitments to the TLAA related to metal fatigue. Specifically, the Unit 2 jet pump riser braces were to be repaired or replaced prior to the period of extended operation. In addition, plant-specific calculations were to be performed for applicable locations identified in NUREG/CR-6260, "Application of NUREG/CR-5999 Interim Fatigue Curves to Selected Nuclear Power Plant Components," for older-vintage BWR plants, to assess potential effects of reactor coolant on component fatigue life prior to the period of extended operation.

The inspectors reviewed the licensing basis, TLAA Metal Fatigue Program basis documentation, Unit 2 jet pump riser repair documentation, calculations that assessed effects of reactor coolant on component fatigue life, related corrective action documents, and interviewed responsible program personnel regarding these documents.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 48.

#### 49. Item 49, TLAA -Environmental Qualification of Electrical Equipment

Commitment Item 49 specified a reanalysis will be applied to EQ components now qualified for the current operating term of 40 years. The EQ binders for components within the scope of 10 CFR 50.49 will be updated to include environmental conditions associated with Extended Power Uprate implementation together with an extended operating period of 60 years.

The inspectors reviewed several examples for EQ Binders for components within the scope of 10 CFR 50.49. The inspectors verified that these EQ Binders were updated to include environmental conditions associated with extended power uprate (EPU) implementation such as increased service temperatures and radiation level together with an extended operating period of 60 years. The inspectors also verified that where qualified life of 60 years could not be achieved, predefines to replace components before or at the end of the qualified life have been created.

Based on the examples reviewed and adequacy of the licensee's actions, the inspectors determined that the licensee met Commitment Item 49.

#### 50. Item 50, Plant-Specific TLAAs

Commitment Item 50 specified that two specific TLAAs would be updated prior to the period of extended operation.

The first specified that the licensee conduct a UT inspection of the Dresden Unit 3 (the lead unit) drywell steel plate remaining thickness at the sand pocket level and use the results to revise the associated corrosion calculation and validate that an acceptable wall thickness will remain to the end of the 60-year licensed operating period.

The inspectors reviewed the licensing basis, inspection results, and related CRs; and interviewed the responsible plant personnel regarding this program. The inspectors verified that the licensee conducted these inspections and that the results validated that an acceptable wall thickness will remain to the end of the 60-year licensed operating period.

The second TLAA specified that the licensee conduct a UT inspection of the ECCS suction strainer flange remaining thickness and use the results to revise the associated galvanic corrosion calculation and validate that an acceptable thickness will remain to the end of the 60-year licensed operating period.

The inspectors reviewed the licensing basis, inspection results, and related CRs; and interviewed the responsible plant personnel regarding this program. The inspectors observed the licensee conducted these inspections and verified that the results validated that an acceptable thickness is predicted to remain to the end of the 60-year licensed operating period.

Based on review of the timeliness and adequacy of the licensee actions, the inspectors determined that the licensee met Commitment Item 50.

#### 51. Item 51, BWR Operating Experience - EPU levels

Commitment Item 51 specified that the licensee perform an evaluation of operating experience at EPU levels to ensure that operating experience at EPU levels is properly addressed by the Aging Management Programs, and submit this evaluation to the NRC for review prior to entering the period of extended operation.

The inspectors verified that the licensee performed this evaluation and submitted it for NRC review on November 18, 2009.

#### AMP B.2.9, Periodic Inspection of Components Subject to Moist Air

This commitment, discussed in SER Section 3.0.3.18, specified that the licensee would manage the aging of components within the scope of the LR program through the performance of periodic UT inspections, visual (VT-3) inspections, and visual inspection of flexible hoses for age related degradation.

This program is a new program that manages the loss of material aging degradation of stainless steel, carbon steel, cast iron, aluminum, copper, and brass and bronze components. The licensee has created this program to ensure that aging degradation of components is inspected at a frequency that allows the identification of any degradation that may occur due to the components exposure to a moist air environment. If abnormal conditions are identified as a result of any of the program's UT or visual inspections, the licensee has committed to performing engineering evaluations to address the progression of the degradation and identifying appropriate corrective actions in accordance with the site controlled Quality Assurance Program.

The inspectors reviewed the licensing basis, program basis document, implementing procedures, scheduled and completed work orders, action requests, engineering changes and evaluations, and issue reports.

Based on review of the timeliness and adequacy of the licensee's actions, the inspectors determined that the licensee was meeting this commitment.

b. Findings and Observations

(1) Ventilation System One-Time Inspection Results

Introduction: A finding of very low safety-significance was identified by the inspectors for the failure to adequately evaluate and address an aging effect identified by the ventilation system one-time inspection program in accordance with the license renewal Program Basis Document B.1.23C.

Description: Corrosion was found in U2 reactor building vent duct during a one-time inspection. To determine extent of condition, the licensee inspected U3 reactor building vent duct and also found corrosion. In response to NRC questions, the licensee expanded the sample to include CR HVAC system and determined there was no corrosion, but based on two out of three positive results, and known degradation in the SBT system, the licensee determined that there was an aging effect that required management. Subsequently, the licensee entered this issue into the corrective action program as AR981836, and initiated periodic inspections to manage the aging effect identified during these one-time inspections.

Analysis: The inspectors determined that the failure to adequately evaluate and address an aging effect identified by the ventilation system one-time inspection program was contrary to the license renewal Program Basis Document B.1.23C and was a performance deficiency.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Specifically, failure to address the aging effect would not provide assurance that the intended function of in-scope ventilation systems would be maintained consistent with the current licensing basis through the period of extended operation. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the mitigating systems cornerstone. The inspectors determined that the finding was of very low safety-significance (Green) because the finding did not involve a design or qualification deficiency; there was no actual loss of safety-function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events.

This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because the licensee did not ensure supervisory and management oversight of work activities, such that nuclear safety is supported. Specifically, supervisory expectations for follow-up were not adequately conveyed prior to the completion of the program. H.4(c)

Enforcement: No violation of regulatory requirements occurred (FIN 5000237/2009007-01).

(2) Unit 2 Standby Liquid Control Tank Thickness Calculation Errors

Introduction: A finding of very low safety-significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to accurately translate the design bases for the Standby Liquid Control (SBLC) tank into specifications, drawings, procedures, and instructions.

Description: The program owner's assessment (evaluation) for one-time inspections on the SBLC tank determined that the measured thickness was less than the minimum specified thickness. ( $t_{\text{measured}} = 0.177 < t_{\text{min}} = 0.1775$ ) The minimum had been established based upon drawings showing the tank wall thickness as nominally 3/16" thick and standards specifying manufacturing tolerances on 3/16" plate material. The Aging Management Program was adjusted to include periodic monitoring of SBLC tank thickness, but a condition report was not initiated identifying this noncompliance, and the operability of the SBLC tank was therefore not addressed.

In response to NRC questions, the licensee initiated IR 981877, and during the evaluation identified that the design basis calculation for the Unit 2 SBLC tank (002316(CMED)) assumed a wall thickness of 0.25" whereas the tank actually has a nominal plate thickness of 0.1875". The licensee generated EC 377462 to support operability and identified that at a wall thickness of 0.170", the tank would remain operable. The licensee initiated IR 983037 to address deficiencies in the calculation.

Analysis: The inspectors determined that failure to accurately translate the design bases for the SBLC tank into specifications, drawings, procedures, and instructions was contrary to 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the mitigating systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the design basis calculations did not demonstrate that the tank will remain available following design basis seismic events.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the mitigating system cornerstone. The inspectors determined that the finding was of very low safety-significance (Green) because the licensee determined that the design deficiency did not result in a loss of operability.

The inspectors did not identify a cross-cutting aspect associated with this finding as it was not indicative of current performance.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, the licensee failed to accurately translate the design bases for the SBLC tank into specifications, drawings, procedures, and instructions. Specifically, the licensee assumed a wall thickness of 0.25" in the design basis calculation for the Unit 2 SBLC tank whereas the tank actually has a nominal plate thickness of 0.1875". Because this violation was of very low safety-significance and it was entered into the licensee's corrective action program as IR 983037, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 5000237/2009007-02).

(3) Failure to Inspect the Non-EQ Electrical Connections Subject to Localized Adverse Environment

Introduction: A finding of very low safety-significance was identified by the inspectors for the licensee's failure to implement a program in accordance with the license renewal program basis document B.1.33. Specifically, the licensee failed to develop and implement a program to perform visual inspections of the accessible non-EQ electrical connections located in adverse localized environments.

Description: Commitment Item No. 33 of Appendix A of Dresden's license renewal Safety Evaluation Report (SER) as documented in NUREG-1796 specified that licensee was to develop a program that is consistent with GALL AMP XI.E1 for electrical cables and connections installed in adverse localized environments not subject to 10 CFR 50.49 environmental qualification requirements.

To implement this commitment, Exelon Nuclear Corporate License Renewal Project Team developed procedure MA-AA-723-500 "Inspection of non-EQ Cables and Connections for Managing Adverse Localized Environment." The program required visual inspection, during a general area walkdown, of all accessible electrical cables and connections in preselected areas of the plant based on known high temperature/high radiation conditions. The inspection activities shall be performed at least once every 10 years, with the first inspection to be completed before the period of extended operation.

Dresden Nuclear Power Station completed an Aging Management Program Effectiveness Assessment report for the electrical cables/connections not subjected to EQ requirement (B.1.33). The report documented a summary of inspection activities and assessed the effectiveness of their implementation. The assessment report indicated that because the cable connections in the adverse localized environments were not accessible, Dresden Engineering determined that connections were not included in the walkdown. Justifications bases included that because the connections were located within local junction boxes, connection boxes at valve motors or taped connections at large motors. Opening enclosures would have been intrusive and not would meet the intent of "accessible" connections.

The inspectors accompanied the licensee personnel on a walkdown of several areas known as localized adverse environments areas and identified several connection boxes that were accessible for inspections (i.e., did not require plant modification or scaffolding). The inspectors questioned the licensee's bases for not performing the inspection of all accessible cable connections installed in localized adverse environments as required per Commitment Item No. 33 and the Dresden's SER for license renewal. Based on the results of the walkdown and consulting with the office of

NRR, the inspectors determined that the Dresden program was not in accordance with Aging Management Program contained in NUREG-1801 since the cable inspections conducted for the program did not include an inspection of connections (i.e., opening up accessible junction boxes and inspection connections for degradation).

The licensee entered this issue into their corrective action program as AR977284 "NRC-Identified Potential Finding with LR Cable Inspection," to perform the inspections of all accessible cable connections located in localized adverse environments and to revise affected documentations as required.

Analysis: The inspectors determined that the licensee's failure to develop and implement a program to perform visual inspections of the accessible non-EQ electrical connections located in adverse localized environments was contrary to program basis document B.1.33 and was a performance deficiency.

The performance deficiency was determined to be more than minor because if left uncorrected, the finding would become a more safety-significant concern. Specifically, the failure to perform a visual inspection of the subject connections did not assure that intended functions of these connections would be maintained consistent with the current licensing basis through the extended period of operation.

The inspectors screened the finding using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," Table 4a for the Mitigating Systems Cornerstone. The inspectors determined that the finding was of very low safety-significance (Green) because the finding did not involve a design or qualification deficiency; there was no actual loss of safety function, no single train loss of safety function for greater than the Technical Specifications allowed outage time, and no risk due to external events.

The finding has a cross-cutting aspect in the area of Human Performance for the Resources component because implementing procedures did not include sufficient guidance defining the parameters of the program. H.2(c)

Enforcement: No violation of regulatory requirements occurred. FIN 5000237/2009007-03)

#### (4) Potential Non-Conservative Fatigue Analysis

Introduction: As part of review of licensee Commitment Item 48, the inspectors identified an unresolved item (URI) related to a potential non-conservative analytical methodology concern described in NRC Regulatory Issue Summary (RIS) 2008-30, "Fatigue Analysis of Nuclear Power Plant Components." Specifically, in the licensee's fatigue analysis of the feedwater nozzle, only one value of stress was used for the evaluation of the actual plant transients.

Description: As part of the review of TLAA related to metal fatigue, the inspectors reviewed licensee calculations that assessed potential effects of reactor coolant on component fatigue life prior to the period of extended operation. During this review, the inspectors reviewed licensee corrective action documents related to their operating experience review of NRC RIS 2008-30 and noted the following:

- In AR 905504, “Potential Issue with FatiguePro Monitoring of Feedwater Nozzle,” originated April 9, 2009, the licensee identified that calculation EXLN-15Q-302, “Dresden and Quad Cities – Updated Analysis of Feedwater Nozzle,” used a single stress component in the analysis of fatigue. This corrective action document concluded there was sufficient margin in the cumulative usage factor that included extended power uprate at 60 years of plant operation (end of period of extended operation), and a confirmatory analysis was not required as RIS 2008-30 was issued past the Dresden LRA approval.
- In IR 958725, “LR B.1.34 AMP – FatiguePro Software Issues, originated August 28, 2009, the licensee noted that RIS 2008-30 requested recent licensee renewal applicants (close to December 2008) to perform confirmatory analyses that demonstrate the simplified analyses provide acceptable results. This corrective action document indicated that additional calculations would be completed to demonstrate conservatism or equivalence compared to a full six stress component evaluation.

The inspectors requested the licensee’s position regarding the need for a confirmatory analysis if a single stress component was used in their fatigue analyses. The detailed stress analysis requires consideration of six stress components, as discussed in ASME Code, Section III, Subsection NB, Subarticle NB-3200. RIS 2008-30 indicated that NRC staff has requested that recent license renewal applicants that have used this simplified methodology perform confirmatory analyses to demonstrate that the simplified analyses provide acceptable results. The licensee indicated that their position was no confirmatory analyses were required. The licensee documented further justification in their corrective action program:

- In AR 982528, “Resolution of the FatiguePro Related Issue (RIS 2008-30),” originated October 21, 2009, the licensee used the technical justification in Structural Integrity Associates (SIA) technical paper PVP2009-78136, “Dispelling the Myths Behind Regulatory Issue Summary 2008-30 (Nuclear Plant Component Fatigue Sensitivity Analyses)” that was written in response to RIS 2008-30 and published in the proceedings of the ASME 2009 Pressure Vessels and Piping Division Conference. This corrective action document concluded that the PVP2009-78136 paper provided a reasonable technical basis to support no further actions for plants that used the single stress component Green’s Function approach employed by FatiguePro Software, and concluded that no confirmatory analyses were necessary.

The inspectors reviewed an NRC supplemental Safety Evaluation Report related to the license renewal of the Vermont Yankee Nuclear Power Station (ADAMS ML091200162) dated May 21, 2009, that addressed the technical concern of using a single stress component in fatigue analysis determinations. The inspectors further discussed this design and licensing basis issue with NRC staff in the Office of Nuclear Reactor Regulation.

After further discussion with the licensee, the licensee initiated IR 983556, “NRC-Identified – RIS 2008-30 Applies to Dresden Fatigue Calculation,” dated October 23, 2009. The licensee indicated that confirmatory analyses would be performed that retained six stress components for all applicable calculations identified.

Pending NRC review of licensee confirmatory analyses, this item will be tracked as an unresolved item (URI 5000237/2009007-04).

c. Overall Conclusions

The inspectors did not identify any other substantive instances of incomplete license renewal commitments with respect to timeliness or adequacy. The licensee has implemented corrective actions for those findings detailed above; therefore, the inspectors concluded that commitments, license conditions, and regulatory requirements associated with the issuance of the renewed operating license were being met at the Dresden Nuclear Power Plant Unit 2.

4OA6 Management Meetings

.1 Exit Meeting Summary

On November 18, 2009, the inspectors presented the inspection results to the Site Vice-President, Mr. T. Hanley and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

An interim exit was conducted on October 23, 2009, where the inspectors presented the majority of Phase 2 inspection results to the Site Vice-President, Mr. T. Hanley, and other members of the licensee staff. The licensee acknowledged the issues presented.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

T. Hanley	Site Vice President
J. Sipek	Engineering Director
M. Marchionda	Regulatory Assurance Manager
T. Loch	Design Engineering Manager
A. Lintakas	Plant Engineering Manager
R. Stachniak	Plant Engineering Branch Manager
J. Griffin	Regulatory Assurance

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

#### Opened

5000237/2009007-01	FIN	Ventilation System One-Time Inspection Results (4OA5.1.b(1))
5000237/2009007-02	NCV	Unit 2 SBLC Tank Thickness Calculation Errors (4OA5.1.b(2))
5000237/2009007-03	FIN	Failure to Inspect the Non-EQ Electrical Connections Subject to Localized Adverse Environment (4OA5.1.b(3))
5000237/2009007-04	URI	Potential Non-Conservative Fatigue Analysis (4OA5.1.b(4))

#### Closed

5000237/2009007-01	FIN	Ventilation System One-Time Inspection Results (4OA5.1.b(1))
5000237/2009007-02	NCV	Unit 2 SBLC Tank Thickness Calculation Errors (4OA5.1.b(2))
5000237/2009007-03	FIN	Failure to Inspect the Non-EQ Electrical Connections Subject to Localized Adverse Environment (4OA5.1.b(3))

#### Discussed

None

## LIST OF DOCUMENTS REVIEWED

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

### Commitment Item 1

- DTS 0200-02; RPV In vessel Inspection Procedure; Revision 8
- DTS 0200-02; RPV In vessel Inspection Procedure; Revision 9
- ER-AA-330; Conduct of Inservice Inspection Activities; Revision 7
- ER-AA-330-001; Section XI Pressure Testing; Revision 8
- ER-AA-330-009; ASME Section XI Repair Replacement Program; Revision 5
- FASA No. ATI 721964; ASME Section XI Inservice Inspection Program; September 10, 2008

### Commitment Item 2

- CY-DR-110-200; Plant System Sampling; Revision 19
- CY-AB-120-110; Condensate and Feedwater Chemistry; Revision 12
- CY-AB-120-100; Reactor Water Chemistry; Revision 10
- CY-AB-120-310; Suppression Pool/Torus Chemistry; Revision 5
- CY-DR-120-210; Standby Liquid Control Chemistry; Revision 3
- AR942596; LR-Chemistry BWRVIP Commitment Item Requires Update; July 16, 2009
- 09-014; UFSAR Change for Water Chemistry; August 27, 2009
- 09-08; Commitment Item 101522.02 Change; September 10, 2009

### Commitment Item 3

- ER-AA-330-002; Inservice Inspection of Section XI welds and components; Revision 8
- ER-AA-330-009; ASME Section XI Repair/Replacement Program; Revision 5
- FASA No. ATI 721964; ASME Section XI Inservice Inspection Program; September 10, 2008

### Commitment Item 4

- BWRVIP-48-A; BWR Vessel and Internals Project Vessel ID Attachment Weld Inspection and Flaw Evaluation
- DTS 0200-02; RPV In-Vessel Visual Examination Procedure; Revision 10
- ER-AA-330-002; Inservice Inspection of Section XI welds and components; Revision 8
- ER-AA-330-009; ASME Section XI Repair/Replacement Program; Revision 5
- ER-AB-331, BWR RX Internals Management Program Activities.
- FASA No. 00738673-03; Dresden RPV and Internals Program 2008 Pre-INPO; June 2, 2008
- WO 00867720 – D2 24M/RFL TS RPV Internals Inspection

### Commitments 5, & 6

- 2R18-008; NDE Exam Summary 2/1/RPV SHELL/N9-1; October 22, 2003
- 2R18-015; NDE Exam Summary 2/1/RPV SHELL/N9-2; October 22, 2003
- 2R18-040; NDE Exam Summary 2/1/0308-3/N9-3; October 23, 2003
- 2R18-046; NDE Exam Summary 2/1/0308-3/3-10(B); October 22, 2003

- ER-AA-330-002; Inservice Inspection of Section XI Welds and Components; Revision 8
- ER-AA-330-009; ASME Section XI Repair/Replacement Program; Revision 5
- N4A-1; NDE Exam Summary 2/1/RPV SHELL/N4A-1; November 3, 2007
- N4A-Bore; NDE Exam Summary 2/1/RPV SHELL/N4A; November 3, 2007
- N4B-1; NDE Exam Summary 2/1/RPV SHELL/N4B-1; November 3, 2007
- N4B-Bore; NDE Exam Summary 2/1/RPV SHELL/N4B; November 3, 2007

Commitment Item 7

- AR 00992097; NRC-No Long Term Plan to Repair Cat F Welds; November 11, 2009
- AR 00957289; LR B.1.7 BWR SCC Issue; August 25, 2009
- Certification Record; Chad Olsen- Level II UT; October 28, 2007
- Certification Record; Troy Steinbauer- Level II UT; October 9, 2007
- Certification Record; Scott Ericson- Level III UT; October 6, 2007
- EPRI TR 113932; BWRVIP-75 BWR Vessel and Internals Project Technical Basis for Revision to GL 88-01 Inspection Schedules; October 1999
- EPRI TR 1012621; BWRVIP-75-a BWR Vessel and Internals Project Technical Basis for Revision to GL 88-01 Inspection Schedules; October 2005
- ER-AA-330-002; Inservice Inspection of Section XI Welds and Components, Revision 8
- ER-AA-330-009; ASME Section XI Repair/Replacement Program; Revision 5
- LSA-AA-107-1001; Attachment 1 UFSAR Change Request 9026; November 12, 2009
- NRC Letter (TAC No. MC1159); Dresden Nuclear Power Station Unit 2- Request for Approval of Flaw Evaluation for a Weld in the Reactor Recirculation System Loop B Suction Nozzle; March 25, 2004
- NUREG-0313; Technical Report on Material Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping; Revision 2

Commitment Item 8

- 07-327; VT-2 Exam Record; November 16, 2007
- ER-AA-330-002; Inservice Inspection of Section XI Welds and Components; Revision 8
- ER-AA-330-009; ASME Section XI Repair/Replacement Program; Revision 5
- ER-AB-331; BWR Internals Program Management; Revision 7
- IR 700789; Recordable Indications During D2R20 ASME Class 1 Leakage Test; November 17, 2007

Commitment Item 9

- BWRVIP-18-A; BWR Vessel and Internals Project BWR Core Spray Internals Inspection and Flaw Examination Guidelines.
- BWRVIP-25-A; BWR Vessel and Internals Project BWR Core Plate Inspection and Flaw Examination Guidelines.
- BWRVIP-26-A; BWR Vessel and Internals Project BWR Top Guide Inspection and Flaw Examination Guidelines.
- BWRVIP-38; BWR Vessel and Internals Project BWR Shroud Support Inspection and Flaw Examination Guidelines.
- BWRVIP-41; BWR Vessel and Internals Project BWR Jet Pump Assembly Inspection and Flaw Examination Guidelines.
- BWRVIP-47; BWR Vessel and Internals Project BWR Lower Plenum Inspection and Flaw Examination Guidelines.

- BWRVIP-76; BWR Vessel and Internals Project BWR Core Shroud Inspection and Flaw Examination Guidelines.
- DTS 0200-02; RPV In-Vessel Visual Examination Procedure; Revision 10
- ER-AB-331, BWR RX Internals Management Program Activities.
- FASA No. 00738673-03 – Dresden RPV and Internals Program 2008 Pre-INPO FASA.
- WO 00867720 – 01, D2 24M/RFL TS RPV Internals Inspection

Commitment Item 10

- DRE02.G03; ISI Program Plan Dresden Nuclear Power Station Units 2 and 3, Fourth Interval; Revision 6
- DTS 0200-02, Rev. 10, RPV In-vessel Inspection
- ER-AB-331-101; Evaluation for Thermal Aging/Neutron Embrittlement of Reactor Internals Components; Revision 1
- EC 376712; Engineering Evaluation For Thermal Aging/Neutron Embrittlement of Reactor Internals Components; August 26, 2009
- UFSAR Change Request No. 09-010 – Revisions to Appendix A, Sections A.1.9, A.1.12, A.1.23, A.1.25, A.1.27, and A.1.34.

Commitment Item 11

- AR 00991454; LR Reference Inaccurate Document Number; November 10, 2009
- AR 00991393; NRC – FAC Drawings not in EDMS; November 10, 2009
- AR 00918578; UFSAR Change Request for License Renewal; May 12, 2009
- EPRI Report 1011838; NSAC-202L-R3, Recommendations for an Effective Flow-Accelerated Corrosion Program; May 2006
- ER-AA-430; Conduct of Flow Accelerated Corrosion Activities; Revision 4
- ER-AA-1001; Guidelines for Flow Accelerated Corrosion Activities; Revision 4
- Dresden Unit 2 and Unit 3 FAC System Susceptibility Evaluation; December 18, 2006
- NUREG-1344; Erosion/Corrosion Induced Pipe Wall Thinning in US Nuclear Power Plants; April 1989
- Report 2MS12D, FAC Program UT Analysis Report; November 3, 2007
- Report 2MS07C, FAC Program UT Analysis Report; November 6, 2007

Commitment Item 12

- DMS 6600-02, Diesel Generator Mechanical Inspection and Preventive Maintenance,” Rev 33
- DMS 6600-04, SBO Diesel Generator Mechanical Inspection and Preventive Maintenance,” Revision 12
- ER-AA-330-001; Section XI Pressure Testing; Revision 9
- ER-AA-330-002; ISI of Section XI Welds and Components;
- PMRQ 00009662: U2 Core Spray System Noted U2 Keepfill Piping; October 31, 2008
- WO 00453816-01; MM Disassemble & Inspect Core Spray Min Flow Stop Check Valve; June 10, 2008
- WO 00736420-01; Inspect Rx Vessel Skirt-to-Ring Girder Bolting; January 7, 2008
- WO 01073312-01; January 28, 2008
- WO 01102402-01; April 29, 2008

Commitment Item 13

- AR 766627; Excessive Vibrations B Train CREVS RCU; April 23, 2008

- AR 884707; Degraded CCSW Piping Identified; February 24, 200
- AR 945577; Wkly RVW Of TBCCW/RBCCW Trends Not Documented Per Amp; July 24, 2009
- AR 959352; LR: Missed LR Commitment, DMP 3900-01; August 30, 2009
- EC 353764; Diesel Generator Cooling Water Pump Discharge Piping; February 14, 2005
- IR 959227; LR Discrepancies with OCCWS B.1.13d Amp; August 29, 2009
- IR 959426; LR: Change LR Response to ACIT 101522.20.03; August 30, 2009
- WO 1065522; CREVS Emergency Supply Valve Does Not Pass Flow (Div II); October 15, 2007
- WO 550269-01/2; Inspection And Cleaning Of CCW Vault Cooler Coil Fans And Filter U2; February 26, 2007
- WO 573565; D2 5y Com DGCW Pp Disch Reducer/Elbow UT Wall Thick Insp; January 6, 2005
- WO 589201-01/04; Component Cooling Service Water Pump Maintenance;
- WO 596705; One-Time Inspect Intake Ice Melt Line (License Renewal); June 11, 2007
- WO 694850-01/2; Inspection and Cleaning Of CCW Vault Cooler Coil Fans and Filter U3; April 11, 2008
- WO 853546; CREVS HVAC RCU Heads and Tube Sheets Degraded; September 15, 2008

#### Commitment Item 14

- AR 945577; Weekly Review of TBCCW/RBCCW Trends Not Documented per AMP; July 24, 2009
- CY-AA-120-400; Closed Cooling Water Chemistry; Revision 12
- CY-DR-120-400; Closed Cooling Water System Manipulations for Chemistry Needs; Revision 5
- CY-DR-120-410; DGJCW and HRSS Closed Cooling Water System Manipulations; Revision 3
- DOS 6600-01; Diesel Generator Surveillance Tests; Revision 110
- DOS 6620-03; Filling Or Draining Unit 2(3) SBO D/G Jacket Water System; Revision 3
- DOS 6620-07; SBO 2(3) Diesel Generator Surveillance Tests; Revision 27

#### Commitment Item 15

- AR 00924727; LR-Crane Procedure Do Not Contain All Licensing COM Annotations; May 28, 2009
- AR 00924731; LR-Refuel Bridge Procedure Does Not Contain All CM Annotations; May 28, 2009
- AR 00924746; LR-Crane Inspections Results Do Not Comply with AMP; May 28, 2009
- AR 00931534; LR-PMIDs Are Not Being Consistently Annotated for License Renewal; June 15, 2009
- AR 00931541; LR – ER-MW-450 Enhancements; June 15, 2009
- AR 00932544; License Renewal Crane/Hoist Inspections not Performed; June 15, 2009
- AR 00956233; LR IR 931544 Actions for Cranes Not Correct; August 21, 2009
- AR 00956237; LR IR 931544 for U2 Turbine Building Crane Not Correct; August 21, 2009
- ATI 101522.33.02 Raw Water and Buried Component Environment
- DMS 0800-01; Unit 2(3) Refueling Platform Gantry Crane Pre-Refueling Mechanical Inspection; Revision 09
- DMS 5800-05; Jib, Monorail, and Underhung Cranes without Integral Hoisting Mechanisms, Annual Inspection and Preventive Maintenance; Revision 18
- DMS 5800-10; Unit 2(3) Crane and Integral Hoisting Equipment, Monthly Inspection and Preventive Maintenance; Revision 06
- ER-MW-450; Structures Monitoring; Revision 4

- MA-DR-MM-5-58001; Visual Inspection and Preventive Maintenance of Jib, Monorail, and Underhung Cranes with Integral Hoisting Mechanisms; Revision 09
- MA-DR-MM-5-58003; Visual Inspection and Preventive Maintenance of Unit 1, Unit 2, Unit 3, and Unit 2/3 Overhead and Gantry Cranes; Revision 06
- WO 00843432-01; MM D2 2Y PM, Pre-Refueling Inspection of Refuel Grapple; completed August 10, 2007
- WO 01043265-01; MM D2/3 Annual PM, Reactor Building Overhead Crane Inspection; completed June 20, 2008
- WO 01112224-01; MM D2 Annual PM, Reactor Building Jib Crane; completed

#### Commitment Item 16

- AR 484118; Drywell Pneumatic Nitrogen Not Meeting Air Quality Standard; April 27, 2006
- AR 921677; LR DTS 4700-01 Change; May 19, 2009
- WO 864089; D2 RFL COM Instrument Air Sys (MSIV Room) By Sys Engr; November 9, 2007
- WO 976814; D3 RFL PM LLRT Of Target Rock Relief Pneumatic System; November 12, 2008

#### Commitment Item 17

- EC 4612; RWCU – Remove/Replace U3 Piping and Heat Exchanger; November 21, 1997
- EC 5898; RWCU – Replace Us Retained Heat Exchangers and Piping; August 1, 1997
- WO 94094445; M12-3-91-018-A Replace Non Safety Related RwcU Piping; December 16, 1997
- WO 94094749; Replace Non-safety Related RWCU Piping; February 10, 1997

#### Commitment Item 18

- AR 982928; NRC-Identified License Renewal Procedures without Qualification Requirement; October 22, 2009
- DFPS 4145-01; Cardox System Operability Test; Revision 23
- DFPS 4145-02; Auxiliary Electric Equipment Room Manual Cardox System; Revision 13
- DFPS 4175-02; Operating Fire Stop/Break Surveillance; Revision 22
- DFPS 4175-03; Shutdown Fire Stop Surveillance; Revision 19
- DFPS 4175-04; Auxiliary Electrical Equipment Room Fire Resistive Structural Steel and Cable Coating Surveillance; Revision 10
- DFPS 4175-07; Fire Door/Oil Spill Barrier Surveillance; Revision 25
- DFPS 4175-09; Fire Damper Visual Inspection; Revision 14
- DFPS 4175-11; Appendix R Cable/Conduit Firewrap Inspection; Revision 7
- DFPS 4175-12; Fire Resistive Structural Steel Coating Surveillance; Revision 11
- DFPS 4195-02; Auxiliary Electrical Equipment Room Halon System Test; Revision 24
- DOS 1300-05; 2/3A(B) Isolation Condenser Makeup Pump Capacity Test; Revision 4
- OP-AA-201-001; Fire Marshal Tours; Revision 4

#### Commitment Item 19

- DFPS 4125-02; Fire Hydrant Flush; Revision 11
- DFPS 4132-01; Verification of Unit 1, 2 and 3 Sprinkler System Integrity; Revision 16
- DFPS 4132-02; Verification of Unit 2 Sprinkler Systems Integrity; Revision 16
- DTS 3900-07; Crib House/Intake Structure Inspection; Revision 9
- WO 00955096; D2 18M TSTR Transformer 21 Test and Inspection; March 10, 2008
- WO 00955098; D2 18M TSTR Transformer 2 Test and Inspection; March 11, 2008

- WO 01037864; D2 AN Perform Inspections of Piping for Fire Protection Syst; June 12, 2008

#### Commitment Item 20

- AR 00901998; Resin Fines/Debris Found During The 2/3 B CST Inspection; April 2, 2009
- AR 00902383; 2/3 B CST Tank Bottom Has A Gap Between The Tank And Ground; April 3, 2009
- AR 00902395; 2/3 A CST Gasket Sealant Needs To Be Repaired/Replaced; April 3, 2009
- AR 00921376; LR: B.1.20 Internal/External Tank Inspection Frequency; May 19, 2009
- AR 00921382; LR: B.1.20 UT Tank Bottom Inspection Frequency; May 19, 2009
- AR 00956967; LR: B.1.20 Potential For Missed Commitment; August 24, 2009
- DTS 8502; Outdoor Nitrogen System And Storage Tanks Inspection; Revision 1
- EC 375998; Lost Parts Evaluation – Resin In The A And B Condensate Storage Tanks; Revision 0
- EC EVAL 375018; Foreign Material In The A and B Contaminated Storage Tanks; Revision 000
- EC EVAL 376156, Evaluation Of Foreign Material From The Contaminated Condensate Storage Tanks In Core Spray Systems; Revision 000
- WO 00719305; D2/3 AN PM Inspect Outdoor N2 Tank For License Renewal; September 21, 2007
- WO 00776451; D2/3 IOY PM Internal UT INSP Of CLN Demin Tank Bottom; July 17, 2008
- WO 00776462; D 2/3 10 Y PM Internal UT Inspection Of CCST-A Tank Bottom; May 22, 2008
- WO 00776466; D2/3 10Y PM Internal UT Inspection Of CCST-B Tank Bottom; May 28, 2008
- WO 01088605; D2/3 2Y PM Inspection Of Outdoor N2 System And Storage Tanks; July 8, 2008

#### Commitment Item 21

- AR 472071; 2/3 Edg Fuel Oil Storage Tank Inspection Results; March 28, 2006
- AR 590684; Unit 2 EDG Fuel Oil Storage Tank Inspection Results; February 12, 2007
- DOS 6600-01; Diesel Generator Surveillance Tests; Revision 110
- EC 360239; Evaluate The Effect Of Below Minimum/Design Wall Thickness Values In The 15,000 Gallon EDG Fuel Oil Storage Tanks And Revise Calculation 8.11.6-11; January 2, 2007
- EC 366134; Evaluate Issues For EDG Fuel Oil Storage Tank Wall Thickness Measurements; JULY 12, 2007
- EC 376945; Corrosion Evaluation For The 2/3 A ISO Condenser Make Up Diesel Engine Day Tank and U2 Fuel Oil Day Tank; Revision 0
- ER-AA-335-004; Manual Ultrasonic Measurement Of Material Thickness And Interferinf Conditions; Revision 2
- IR 959624; LR Perform Evaluation Of Day Tank Corrosion; August 31, 2009
- WO 1229022 D1 QTR TSTR Sample Water/Sediment From U1 DFP Fuel Main Tank; July 17, 2009
- WO 1247665; OP D2/3 1M TS Diesel Generator Fuel Oil Day Tank Sample; August 5, 2009
- WO 99065762; D2 10Y TS Clean And Inspect EDG FOST; June 3, 2007
- WO 99065764; D2/3 10 Y TS Clean/Inspect Edg Fuel Oil Storage Tank; January 1, 2006
- WO 99140316; COM Clean Diesel Fire Pump Fuel Oil Day Tank; October 9, 2008

## Commitment Item 22

- BWRVIP-86-A, dated October 2002, BWR Vessel and Internals Project Updated BWR Integrated Surveillance Program (ISP) Implementation Plan.
- BWRVIP – 102, dated June 2002, BWR Vessel and Internals Project BWR Integrated Surveillance Program Implementation Guidelines.
- ER-AA-370; Reactor Coolant Pressure Boundary (RCPB) Integrity; Revision 7
- ER-AB-331-103; BWR Vessel Integrated Surveillance Program Implementation; Revision 1
- NRC letter dated Feb. 24, 2006, to Bill Eaton, BWR VIP Chairman, “Proprietary Safety Evaluation of the “BWRVIP Vessel and Internals Project, Integrated Surveillance Program (ISPO Implementation for License Renewal (BWRVIP-116),” EPRI Report TR-1007824, and July 2003.
- SER for BWRVIP-116; Vessel and Internals Project, Integrated Surveillance Program (ISP) Implementation for License Renewal.

## Commitment Item 23

- 2R18-040; UT Exam Report 2/1/0306-3/N9-3; October 23, 2008
- 2R18-046; UT Exam Report 2/1/0308-3/3-10(B); October 22, 2008
- ACIT 101522.32.06; Commitment Item Change HPCI Flexible Hoses; July 7, 2009
- AR 00696175; License Renewal Tank Thickness Discrepancy; November 8, 2007
- AR 00697433; License Renewal Exam Identifies NDE Recordable Indications; November 10, 2007
- AR 00697456; License Renewal Inspection Found Unacceptable; November 8, 2007
- AR 00922965; LR: No Record of License Renewal Required Evaluation B.1.23M; May 22, 2009
- AR 00955597; License Renewal Inspection Not Completed; August 20, 2009
- AR 00957959; LR: Recordable Indication of Pitting on U2 HPCI Booster Pump; August 26, 2007
- AR 00963559; Minor Degradation Noted During License Renewal Inspections; September 10, 2009
- AR 00964134; LR-VT3 Exam Noted “Light Surface Corrosion Visible...”; September 12, 2009
- AR 00966566; LR-VT-3 Noted “Light Corrosion Visible...”; September 17, 2009
- AR 00973868; Review of 2-1301-506 License Renewal VT-3 Exam Performed; September 24, 2009
- EC 376852; Evaluation of U2 SBLC Storage Tank UT Inspection for LR Commitment Item B.1.23K; Revision 0
- WO 00566545-01; NDE UT of 2-1910B-6”-K; January 31, 2007
- WO 00578693-01; One-Time Inspect 2/3 EDG Day Tank UT; March 29, 2006
- WO 00578703-01; One-Time Inspect 2/3 EDG Fuel Oil Sys; March 28, 2006
- WO 00582948-01; One-Time Inspect UT U3 HPCI Lube Oil Tank; November 4, 2004
- WO 00596706-01; One-Time Inspect SBLC Disch Hdr OTBD Vent; March 7, 2007
- WO 00596710-01; One-Time Inspect 2A CS Pmp Suct Hdr Vent; May 29, 2007
- WO 00627272-01; One-Time Inspect Torus Lubrite Baseplates; March 19, 2008
- WO 00634482-01; One-Time Inspect ISCO 2-1301-2 Drn Line; November 11, 2007
- WO 00652788-01; 4Y TS/IST Disassemble and Insp 3-2301-20; December 18, 2007
- WO 00727036-01; Perform a UT of Unit 2 SBLC Storage Tank for License Renewal; November 14, 2007
- WO 00736854-01; LR One-time Inspection – 3C ERV Disch Line Vacuum Brkr; November 9, 2008

- WO 00736856-01; LR One-time Inspection – 3B ERV Disch Line Vacuum Brkr; November 10, 2008
- WO 00739285-01; One-Time Inspect D2 EHC Main Pump Suction Line 2-5660A-4”; November 13, 2005
- WO 00739289-01; Perform a One-Time Insp of 2-0263-23B-HD; November 11, 2007
- WO 00740436-01; One-Time Inspect U2 H2 Seal Oil Drn Valve; November 10, 2007
- WO 00740717-01; One-Time Inspect D2/3 Turbine Oil Filter Pump; April 17, 2008
- WO 00742131-01; VT3 of 2-1901-7; January 30,2007
- WO 00873571-10; One-Time Inspect U3 SCRAM Outlet Valve; November 8, 2006
- WO 00873571-11; One-Time Inspect U3 SCRAM Inlet Valve; November 8, 2006
- WO 00942508-03; D2R20 HCU Overhaul; November 8, 2007
- WO 00942508-06; D2R20 HCU Overhaul; November 8, 2007

Commitment Item 24

- WO 00509646-01; One-Time Inspect HPCI Lube Oil Cooler Valve 3-2303-SOC; November 13, 2006
- WO 00596677-01; One-Time Inspect Fire Protection Cable Tunnel Sprinkler System Test Tap Valve 2/3-41999-229; completed June 12, 2008
- WO 00596678-01; One-Time Inspect Fire Protection Hose Station Valve 3-4100-F131; completed March 1, 2006
- WO 00596685-01; One-Time Inspect Fire Protection Header Valve 3-4166-501; June 19, 2008
- WO 00596704-01; One-Time Inspect Service Water Valve 3-3912-500-B; November 13, 2008
- WO 00634479-01; One-Time Inspect RBCCW Heat Exchanger Temperature Control Valve Drain Valve 2-3999-440; completed April 16, 2008
- WO 00693296-03; One-Time Inspect DG Cooling Water Temperature Regulating Valve 3-6699-128; July 21, 2008
- WO 0596676-01; One-Time Inspect D/G Cooling Water Pump Drain Valve 2/3-4100-DGC; completed March 28, 2006
- WO 99207934-01; One-Time Inspect EDG Cooling Water Vent Valve 3-6699-127B; November 9, 2006

Commitment Item 25

- ACIT 101522.34.02; “One-time UT of tank bottom for EDG Fuel Oil Storage Tank 2/3-5201
- EC 373983; Tank wall minimum thickness determination; closed February 7, 2006
- EC 366134; Evaluate Regulator Issues for EDG FOST Wall Thickness Measurements; Revision 0
- ACIT 101522.49.19; One-time inspection of buried ductile iron fire protection piping including a mechanical joint
- WO 1093807-01; Buried Ductile FP Piping to Be Excavated and Inspected; completed September 29, 2008
- AR 101522.49.38; process fire water system procedure changes; November 10, 2004
- DFPS 4123-08; Fire Water System Flow Test; Rev 18
- ER-MW-450; Structures Monitoring; Revision 3
- SA-AA-117; Excavation, Trenching, and Shoring; Revision 10
- WO 544553-01; Unit 2 emergency diesel fuel tank leak check; completed February 14, 2005
- WO 00804970-01; Perform Pressure Testing of CCSW Piping Block 2CC01; completed June 30, 2008
- WO 00851878-01; Perform Pressure Testing of DGSW Piping Block 2DG01; completed May 22, 2007

- WO 00912394-01; Perform Pressure Testing of DGSW Suction Piping Block 2/3DG03; completed July 9, 2009
- PMRQ 370-03; D2/3 8Y TS Clean/Inspect EDG FOST; due March 27, 2014
- PMRQ 8723-01; D1/2/3 fire water system triennial flow test; due February 10, 2012
- PMRQ 370-06; Unit 2/3 emergency diesel fuel tank leak check; due March 26, 2016
- WO 00935084-01; Perform Pressure Testing of 2/3 DGSW Piping Block 2/3DG01; completed July 9, 2009
- WO 578694-01; NDE One-Time Inspect 2/3 FOST UT; completed April 6, 2006
- AR 472071; 2/34 EDG FOST inspection results; completed April 28, 2006
- Calculation 8.11-6.11; Seismic Qualification of Buried Diesel Fuel Tanks; Revision 000A

#### Commitment Item 27

- AR 00990261; Wrong Forms Used to Document Visual Exams; November 7, 2009
- AR 00898718; IEMA Inspector Request; April 1, 2009
- AR 00834825; Corrosion on two Unit 2 Torus Support Baseplates; October 23, 2008
- ER-AA-330; Conduct of Inservice Inspection Activities; Revision 7
- ER-AA-335-016; VT-3 Visual Examination of Component Supports, Attachments and Interiors of Reactor Vessels; Revision 5
- Report 09-294; Item 9 and 10 Drywell Steel Lugs, November 13, 2009
- Certification Record; John Kish-Level II VT-3; October 27, 2009
- Certification Record; David Knox- Level II VT-3; October 27, 2009
- Certification Record; Inspector W-8696- VT-1/VT-3; January 31, 2008
- Certification Record; Inspector S-9960- VT-1/VT-3; July 23, 2009
- Certification Record; Inspector R-0919- VT-1/VT-3; August 7, 2007
- Certification Record; Inspector E-8717- VT-1/VT-3; July 23, 2009
- Certification Record; Inspector E-2355- VT-1/VT-3; October 24, 2008
- Certification Record; Inspector J-5880- VT-1/VT-3; July 23, 2009
- QP.10.09B; Procedure for VT-1 and VT-3 Visual Examinations of Class MC Metallic Shell and Penetration Liners and Class CC Pressure Retaining Components and their Integral Attachments; Revision 1

#### Commitment Item 28

- DRE02.G03; ISI Program Plan Fourth Ten-Year Inspection Interval; Revision 6
- DOS 7000-06, Revision 06, Local Leak Rate Testing of Primary Containment Penetration Expansion Bellows
- DTP 47; Leak Rate Testing Program; Revision 18
- DTS 1600 – 33; Helium Leak Test of Primary Penetration Expansion Bellows; Revision 4
- ER-AA-330-007; Visual Examination of Section XI Class MC Surfaces and Class CC Liners; Revision 7
- ER-AA-380; Primary Containment Leakrate Testing Program; Revision 6
- FASA Self-assessment No. 567605-04, dated March 27, 2007
- WO 01118278-01; Perform ISI Containment Inspection IAW ER-AA-335-018; November 4, 2009
- WO 883040-01; D2 RFL Perform Required ISI Containment Inspections; November 10, 2007
- WO D1199511, Repair Penetration 1201-1 and 1A

### Commitment Item 29

- ER-MW-450; Structures Monitoring; Revision 4
- AR 101522.39; Dresden B.1.29, Masonry Wall Program [XI.S6]; completed September 7, 2004
- Check-In AT No. 304973; Structural Monitoring "Check-In" Assessment Report; December 29, 2005

### Commitment Item 30

- AR 00694895; Support Ring for Insulation Damaged on U2 Reactor Vessel; November 5, 2007
- AR 00916049; U2 Reactor Building Trackway Interlock Inner Door Has Degraded Seal; May 5, 2009
- CY-DR-170-2060; Dresden RGPP Supplemental Monitoring Program; Revision 7
- DMP 0040-20; Drywell Insulation Inspection; Revision 7
- DOS 0010-22; Preparation for Cold Weather for Unit 2; Revision 18
- DTP 73; ECCS Pump Room and Outboard MSIV Room Insulation Inspection; Revision 0
- ER-MW-450; Structures Monitoring; Revision 5
- IR 00934895; LR PMID or WO Not Created to Perform DMP 0040-70; June 24, 2009
- WO 00868368-01; Inspection of D2 Drywell Mirror Insulation Per DMP 0040-20; completed November 8, 2007
- WO 01208313-01; Perform Secondary Containment Interlock Door Seal Inspection; completed May 5, 2009

### Commitment Item 31

- AR 00680519; 10 Year PM Inspection of 2/3 Discharge Outfall Structure; October 5, 2007
- AR 00687916; Repair of Concrete at Base of Handrail at Discharge Outfall Structure; October 22, 2007
- AR 00687919; Erosion Under West Discharge Outfall Structure Retaining Wall; October 22, 2007
- AR 00959478; License Renewal Baseline Inspection and PMID; August 30, 2009
- AR 00992889; Unit 2/3 Discharge Structure- WO 1271013 Partial Completion; November 13, 2009
- AR 00992894; Broken Stop Logs; November 13, 2009
- Check-In AT No. 304973; Structural Monitoring "Check-In" Assessment Report; December 29, 2005
- DTS 3900-07; Crib House /Intake Structure Inspections; Revision 12
- ER-MW-450; Structures Monitoring; Revision 4
- ER-MW-450; Structures Monitoring; Revision 5
- IR 00959478; LR Baseline Inspection and PMID for Discharge Outfall Structure; August 30, 2009
- IR 00959499; LR Annotation of LR Commitments in Procedure ER-MW-450; August 30, 2009
- IR 00959934; LR Annual Soundings of Unit 2/3 Discharge Outfall Structure; August 31, 2009
- Regulatory Guide 1.127; Inspection of Water-Control Structures Associated with Nuclear Power Plants; Revision 1
- SR 00048147; Inspection Method on Discharge Outfall Structure; completed January 23, 2007
- WC-AA-107; Seasonal Readiness; Revision 6
- WO 00984902-01; D2 Crib House Bay C Inspection; completed February 11, 2009
- WO 00995033-01; D2/3 Discharge Outfall Structure Inspection; completed October 8, 2007
- WO 00998965-01; D2 Crib House Bay A Inspection; completed February 5, 2009

### Commitment Item 32

- AR 00843820; Torus Coating Inspection Identifies One Pit in D3R20; November 10, 2008
- AR 00942583; LR B.1.32 Coating Procedure Does Not Include LR Commitment; July 16, 2009
- DTS 1600-11; Primary Containment and Coatings Inspections; Revision 09
- EC 377418; Containment Coatings, Pre-Inspection Review of Previous Inspection Reports for Trending and Analyzing U2 Coating Failures; Revision 000
- ER-AA-330-008; Exelon Service Level I, and Safety-Related (Service Level III) Protective Coatings; Revision 6
- IR 00980605; LR Incorrect Title ECCE Ring Header and Definition to NRC; October 16, 2009
- WO 01062328; Inspection of DW Internal Coating per DTS 1600-11; November 4, 2009
- WO 378906-01; Unit 2 Inspect Torus, DW, and DW Head Internal Coating; August 10, 2003
- WO 468552-01; Unit 2 Torus Desludging and Inspection; October 13, 2003
- WO 632988-01; Unit 2 Torus Desludging and Inspection; August 9, 2005
- WO 661171-01; Unit 2 Inspect Torus, DW, and DW Head Internal Coating Per DTS 1600-11; November 1, 2005
- WO 870290-01; Unit 2 Torus Desludging and Inspection; July 16, 2007
- WO 872148-01; Unit 2 Inspect Torus, DW, and DW Head Internal Coating Per DTS 1600-11; November 2, 2007

### Commitment Item 33

- AR 00977284; NRC-Identified Potential Finding with LR Cable Inspections; October 09, 2009
- IR 00963597; Walkdowns did not Include Attachment in Procedure MA-AA-723-500; September 10, 2009
- MA-AA-723-500; Inspection of Non EQ Cables and Connections for Managing Adverse Localized Environments; Revision 3

### Commitment Item 34

- ER-AA-470; Fatigue and Transient Monitoring Program; Revision 3
- DTP 07; Records of Operational Cycles for Dresden Units 2 and 3; Revision 15
- Dresden Unit 2 FatiguePro LR Database: Report Data Period: 03/24/1970 to 06/30/2009; prepared August 27, 2009

### Commitment Item 35

- AR 954985; Environmental Qualification (EQ) FASA – PM Frequency Deficiencies; August 14, 2009
- AR 954995; Raychem Splice Temperature Restriction not in Calculation DRE 02-0042; August 14, 2009
- EQ Binder No. EQ-15D; GE-NEBS Electrical Penetration Assembly Model F-01 Series; Revision 09
- FRPT 883218-03; 2009 Dresden Station Environmental Qualification Program FASA; August 21, 2009

### Commitment Item 37

- AR 00981789; NRC-Identified Missing SRM LR Action to Perform Review; October 19, 2009
- EC Evaluation 376940; Evaluate and Trend for Aging the Radiation Monitoring and Nuclear Instrumentation Cables related to License Renewal;

- WO 00863362; 24 Months Main Steam Line High Radiation with Source; October 29, 2007
- WO 00868785; 24 Months TS Drywell Hi Radiation Monitor Functional Calibration; November 11, 2007
- WO 00868815; 24 Months TS Off-Gas HI Radiation Calibration with Source and Off-Gas Timer Trip Check; November 12, 2007
- WO 00879918; PM IMD Work Under the Reactor Vessel Per DIP 0700-23 "SRM/IRM Cable and Detector Acceptance Testing"; November 24, 2007
- WO 01215071; 84D TS LPRM Calibration for Full Power Operation; June 1, 2009

#### Commitment Item 38

- AR 00959162; Procedure MA-AA-723-330 Does not Annotate License Renewal, August 29, 2009
- MA-AA-723-330; Electrical Testing of AC Motors Using Baker Instrument Advanced Winding Analyzer; Revision 2A
- WO 00719928; D2/3 2Y COM Baker Test SW Pump Motor 2/3-3901; December 13, 2007
- WO 01001524; CMO D2 2Y COM Baker Test SW Pump Motor 2-3901-A; February 02, 2009
- WO 01002284; CMO D2 2Y COM Baker Test SW Pump Motor 2-3901-B; February 12, 2008

#### Commitment Item 39

- LS-AA-125; Corrective Action Program; Revision 12
- LS-AA-110; Commitment Item Management; Revision 7

#### Commitment Item 40

- DES 6100-03; Non-Segregated Bus Duct Outdoor Section Inspection; Revision 4
- MA-DR-066-001; EDG and Unit Crosstie non-Segregated Phase Bus Duct Preventive Maintenance Inspection; Revision 0
- WO 757053; D2/3 8-Year Com EDG Bus Duct Internal Inspection; April 13, 2009
- WO 757054; D2 8-Year Com EDG Bus Duct Internal Inspection; February 19, 2009
- WR 970095946; D2 3RFL Preventive Maintenance Inspection XFMR 22 Non-Segregated Bus Duct; August 20, 1999

#### Commitment Item 41

- AR 977269; NRC-Identified Substandard LR Inspections on SBO Ventilation; October 9, 2009
- DMS 5700-01; Ventilating System Fan Damper Surveillance; Revision 10
- DTS 5750-03; Control Room Habitability System Inleakage Inspection Procedure; Revision
- DTS 7500-13; SBGT System Visual Inspection; Revision 03
- WO 00619983; D2 4Y Com SBO DG Rm Primary Vent Seal/Gasket Inspection; May 2, 2007
- WO 00619995; D2 4Y Com SBO SWGR Rm Primary Vent Seal/Gasket Inspection; May 3, 2007

#### Commitment Item 42

- DOS 1500-14; LPCI Torus Spray Test; Revision 2
- DTS 1500-03; LPCI Containment Spray Test; Revision 3
- IR 00958480; WO 326507-01 ID'd Degraded Spray Flow in Unit 3 Torus Bays; August 27, 2009
- WO 00326507; D3 10Y/RFL TS LPCI Torus Spray Test; November 17, 2006

- WO 00326794; D2 5Y/RFL LPCI Torus Spray Test; October 21, 2001
- WO 99019349; D2 5Y TS LPCI Containment Spray Test; October 29, 2001

Commitment Item 43

- WO 96021732; 1M COM 2/3 DG Sample Crank Case
- WO 96021747; SBO Diesel Generator Engine Crankcase Lube Oil Sample
- WO 97067754; D3 QTR SBO Diesel Engine Lube Oil Sample
- WO 97120840; D2 2Y PM Sample/Change Oil Pump Booster Bearing Housing HPCI Pump
- WO 95060352; D3 2Y PM Sample/Change Oil Pump Boosting

Commitment Item 44

- AR 00814892; U2 Isolation Condenser Failed DOS 1300-01; September 7, 2008
- D2 2RFL COM ISO CDSR Internal Grating/support Steel Visual; November 3, 2007
- IR 00693887; UNIT 2 ISO Condenser Shell-Side Inspection Identifies Damage
- WO 00481273; D3 5Y TS Isolation condenser Heat Removal Test; November 24, 2006
- WO 00633776; D2 5RFL PM HPCI Gland Seal Cond/Clean/Insp Eddy Current Test; 09/20/2007
- WO 00658486; D2 5Y TS Isolation Condenser Heat Removal Test; September 5, 2008
- WO 00658527; D2 2RFL COM ISO CDSR Internal Grating/support Steel Visual; November 3, 2007
- WO 00787665; D2 2RFL COM Isolation Condenser Inspect/Eddy Current
- WO 00790650; D2 2 RFL COM Isolation CDSR Insp/Eddy Current West Tube Bundle; September 11, 2007
- WO 00853078; D2/3 2Y COM Control Room Train B Air Handling Unit Inspection; July 16, 2007
- WO 658486-01; D2 5Y TS Isolation Condenser Heat Removal Test; September 5, 2008
- WO 99223687; D3 6Y PM HPCI Gland Seal Cond/Clean/Insp Eddy Current Test AS; September 1, 2006

Commitment Item 45

- CY-AA-120-440; Stator Cooling Water Chemistry; Revision 5
- CY-DR-120-440; Stator Cooling Water System Manipulations for Chemistry Needs, Revision 4

Commitment Item 46

- ER-AA-335-017; VT-3 Visual Examination Of Pump And Valve Internals; Rev 5
- WO 788922; INSP HTR 2-5752-E STM Trap; August 9, 2009
- WO 788935; D2 5Y COM Inspect HTR 2-5752-E STM Outlet Piping; June 3, 2009
- WO 788916; D2 5Y COM Inspect HTR 2-5752-E STM Outlet Isol Vlv; June 3, 2009
- WO 788974; MM Disassemble To Insp TB STM Supply HDR Isol Vlv; May 28, 2009

#### Commitment Item 47

- Dresden 2 and 3 Technical Specification, Amendment No. 209, section 3.4.9, RCS Pressure and Temperature (P/T) Limits.

#### Commitment Item 48

- Calc File 0800674.301; Revised Recirculation/RHR Class 1 Piping Analysis; Revision 0
- Calc File 0800674.302; Environmental Fatigue Calculations for NUREG/CR-6250 Locations; Revision 0
- EC 340795; Repair jet Pump 9 at Leaf to Block Weld and install Clamps on other Jet pumps; closed November 2, 2003
- EPRI/BWRVIP Memo No 2005-217; Subject: Potential Error in Existing Fatigue Reactor Water Environmental Effects Analyses; July 1, 2005
- EXLN-15Q-302; Dresden & Quad Cities – Updated Fatigue Analysis of Feedwater Nozzle; Revision 0
- EXLN-15Q-303; Dresden & Quad Cities – Recirculation/RHR Class 1 Piping Analysis; Revision 0
- EXLN-15Q-304; Environmental Fatigue Calculations for NUREG/CR-6250 Locations; Revision 0
- IR 00905504; Potential Issue with Fatigue-Pro Monitoring of Feedwater Nozzle; April 9, 2009
- IR 00958725; LR B.1.34 AMP – Fatigue-Pro Software Issues; August 28, 2009
- IR 00982528; Resolution of the FatiguePro Related Issue (RIS 2008-30); October 21, 2009
- WO 00499890-01; Repair Pump Riser Brace and Install Vibration Clamps; closed February 5, 2004

#### Commitment Item 49

- EC 333597; Impact of EPU on EQ Binders – Documentation of the Revised Environmental Conditions Resulting from Extended Power Uprate Project on EQ Binders; April 2, 2002
- Service Request 21983; Predefine Addition PMD Various EQ PMS; December 3, 2008
- WO 654253-01; 34-year EQ Pressure Switch Replacement PS-2-1466-A; September 8, 2005

#### Commitment Item 50

- AR 977261; NRC-Identified – EC Eval Needs to be Revised Per NRC Request; October 9, 2009
- Drawing M-3230; ECCS Suction Strainer Installation Drawing; Revision A
- EC 373104; Evaluation of U3 Drywell Steel Liner NDE Data; Revision 2
- ER-AA-335-004; Manual Ultrasonic Measurement of Material Thickness and Interfering Conditions; Revision 3
- IR 948141; Evaluation Performed did not Meet LR Requirement; August 26, 2009
- Report 05-391; Ultrasonic Thickness Calibration Data Sheet X303C Flange; November 10, 2005
- Report 07-617; Ultrasonic Thickness Calibration Data Sheet X303C Flange; November 6, 2007
- Report 09-645; Ultrasonic Thickness Calibration Data Sheet X303C Flange; November 11, 2009
- WO 01086200, Attachment 1 ECCS Suction Flange at Penetration X-303C; November 11, 2009
- WO 0632988, Attachment 1 ECCS Suction Flange at Penetration X-303C; November 10, 2005

- WO 0870290, Attachment 1 ECCS Suction Flange at Penetration X-303C; October 6, 2007

Commitment Item 51

- SVPLTR 09-0056; License Renewal Commitment Item for Evaluation of Operating Experience at Extended Power Uprate Levels Prior to Period of extended Operation; November 18, 2009

AMP B.2.9

- AR 00881331; 2 EDG Exhaust Silencer Condition Description; February 16, 2009
- AR 00963397; Minor Degradation Noted During License Renewal Inspections; September 10, 2009
- EC 367854, Code I Operability Minimum Wall Thickness Evaluation for 16-Inch HPCI Turbine Exhaust Piping 2-2306-16"-LX; Revision 00
- IR 919743; LR - Missed LR Commitment Item B.2.9; May 14, 2009
- IR 926286; LR - Missed LR Commitment Item B 2.9; June 1, 2009
- WO 00636639; D2 Inspect 2-2301-40 Check Valve Per MA-AA-733-1001; September 14, 2009

## LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ASME	American Society of Mechanical Engineers
ATWS	Anticipated Transient Without Scram
BWR	Boiling Water Reactor
CASS	Cast Austenitic Stainless Steel
CCEF	Commitment Item Change Evaluation Form
CCSW	Component Cooling Service Water
CFR	Code of Federal Regulations
CR	Condition Report
CSCS	Core Standby Cooling System
EDG	Emergency Diesel Generator
EPRI	Electric Power Research Institute
EPU	Extended Power Uprate
ESS	4160 V Essential Service
FAC	Flow Accelerated Corrosion
GALL	NUREG-1801 "Generic Aging Lessons Learned"
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
IR	Inspection Report
IR	Issue Report
ISI	Inservice Inspection
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
NUMARC	Nuclear Management and Resources Council
PARS	Publicly Available Records
psid	Pounds Per Square Inch Differential
psig	Pounds Per Square Inch Gauge
P/T	Pressure Temperature
RAT	Reserve Auxiliary Transformer
RWCU	Reactor Water Cleanup
SBLC	Standby Liquid Control
SDP	Significance Determination Process
SER	Safety Evaluation Report
TLAA	Time Limited Aging Analysis
TR	Technical Report
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
Vac	Volts Alternating Current
Vdc	Volts Direct Current
WO	Work Order

C. Pardee

-2-

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

Sincerely,

/RA/

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

Docket Nos. 50-237  
License Nos. DPR-19

Enclosure: Inspection Report 05000237/2009007  
w/Attachment: Supplemental Information

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