



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

March 8, 2019

Mr. Bryan Hanson  
Senior VP, Exelon Generation Company, LLC  
President and CNO, Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3, POST-APPROVAL  
SITE INSPECTION FOR LICENSE RENEWAL – PHASE 4; INSPECTION  
REPORT 05000237/2019010 AND 05000249/2019010

Dear Mr. Hanson:

On March 1, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Dresden Nuclear Power Station, Units 2 and 3, and discussed the results of this inspection with Mr. P. Karaba and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Karla K. Stodter, Chief  
Engineering Branch 2

Docket Nos.: 05000237 and 05000249  
License Nos.: DPR-19 and DPR-25

Enclosure:  
IR 05000237/2019010 and  
05000249/2019010

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Number(s): 05000237 and 05000249

License Number(s): DPR-19 and DPR-25

Report Number(s): 05000237/2019010 and 05000249/2019010

Enterprise Identifier: I-2019-010-0041

Licensee: Exelon Generation Co., LLC

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL

Inspection Dates: February 24, 2019 to March 02, 2019

Inspectors: J. Corujo-Sandin, Senior Reactor Inspector  
J. Neurauter, Senior Reactor Inspector  
G. O'Dwyer, Reactor Engineer

Approved By: Karla K. Stodter, Chief  
Engineering Branch 2  
Division of Reactor Safety

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a Post-Approval Site Inspection for License Renewal – Phase 4 inspection at Dresden Nuclear Power Station, Units 2 and 3, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. Findings and violations being considered in the NRC's assessment are summarized in the table below.

### **List of Findings and Violations**

No findings were identified.

## **INSPECTION SCOPES**

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## **OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL**

### 71003 - Post-Approval Site Inspection for License Renewal

The team selected eight Aging Management Programs (AMPs) for evaluation considering risk insights and programs that were enhanced or new under the renewed operating license. The team also considered for selection those programs with monitoring results that were performed for the first time or those that identified examination or test results not experienced in the past. For the AMPs selected, the team reviewed records, interviewed plant staff, and conducted plant walkdowns to evaluate whether AMP elements were being implemented involving program scope, preventive actions, parameters monitored or inspected, detection of aging effects, monitoring and trending, acceptance criteria, corrective actions, confirmation process, administrative controls, and operating experience.

The following AMPs were evaluated by the team:

### Post-Approval Site Inspection for License Renewal (8 Samples)

- (1) A.1.13 Open-Cycle Cooling Water System
- (2) A.1.18 Fire Protection
- (3) A.1.25 Buried Piping and Tanks Inspection
- (4) A.1.26 ASME Section XI, Subsection IWE
- (5) A.1.28 10 CFR Part 50, Appendix J
- (6) A.1.30 Structures Monitoring Program
- (7) A.1.32 Protective Coating Monitoring and Maintenance Program
- (8) A.2.9 Periodic Inspection of Components Subject to Moist Air Environments

## **INSPECTION RESULTS**

No findings were identified.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

- On March 1, 2019, the inspector presented the Post-Approval Site Inspection for License Renewal – Phase 4 inspection results to Mr. P. Karaba and other members of the licensee staff.

## **DOCUMENTS REVIEWED**

### **Procedures**

DFPS 4123-01; UNIT 1 Diesel Fire Pump Operability; Revision 52  
DFPS 4123-05; 2/3 Diesel Fire Pump Operability; Revision 56  
DFPS 4175-02; Operating Fire Stop - Break Surveillance; Revision 33  
DOS 7000-26; LLRT for U2/3 FW Valve 0220-58A & 62A; Revision 9  
ER-AA-2002; System and Equipment Health Monitoring; Revision 21  
ER-AA-450; Structures Monitoring; Revision 7  
ER-AA-700; License Renewal Implementation Program; Revision 7  
ER-AA-700-1003; Screening and Evaluation of Potential Aging Issues; Revision 4  
ER-DR-450-1001; Dresden Structures Monitoring Instructions; Revision 0  
PI-AA-120; Issue Identification and Screening Process; Revision 8  
PI-AA-125; Corrective Action Program (CAP) Procedure; Revision 6

### **Corrective Action Documents Reviewed**

AR 2682197; Turbine Building – Parapet Roof Flashing Gaps; 06/15/2016  
AR 2682322; Unit 2 Siren Fallen Off of Wall Mount; 06/15/2016  
AR 4071235; Drywell to Torus Bellows Seal Leakage Identified; 11/05/2017  
AR 4221947; Containment Aging Management Trending; 02/20/2019  
AR 4203856; Evaluation Required for AMP B.1.33; 12/17/18  
AR 2735372; Corroded FP Pipe in LP Heater Bay; 11/01/2016  
AR 2585973; Corrosion Found on Support During ISI Inspection; 11/12/2015  
AR 2503911; License Renewal (VT-3 Like) Exam for Removed U3 2301-45 VLV; 05/21/2015  
AR 4140970; 3-3916-500 U3 H2 Cooler Bypass Valve Leaking; 05/24/2018  
AR 3972462; 1DPM Leak on Valve 2-1301-31; 02/10/2017  
AR 4173566; 2/3 Screen Refuse Pump Header Leak; 09/15/2018  
AR 4165107; Leak Identified on the Fire Protection Piping; 08/17/2018  
AR 2729795; U3 HPCI Oil Filter DP High; 10/19/2016  
AR 2742528; Steam Leak on 2-1301-16 Has Increased; 11/18/2016  
AR 4059273; Repair of Leak on Fire Header Piping in 2/3 Cribhouse Failed; 10/04/2017  
AR 4069866; 2B RFP Casing Degraded; 11/01/2017  
AR 2412330; 20 Coating Repair Inspections Delayed to D3R24; 11/15/2014  
AR 0992249; Containment Coating D2R21 Walkdown Results; 11/06/2009  
AR 0625190; NOS IDs Damage to U2 SBO DG Flexible Metal Hose; 05/03/2007  
AR 4157186; Missed LR Commitments in AMP B.2.9 #1; 07/19/2018  
AR 4157188; Missed LR Commitments in AMP B.2.9 #2; 07/19/2018  
AR 1442008; Metal Separation In Unit 3 HPCI Stop Valve; 11/18/2012  
AR 4068766; Main Steam inboard isolation AOV AO 2-0203-1A; 11/17/2017  
AR 4068772; Main Steam Outboard isolation AOV AO 2-0203-2D; 11/17/2017  
AR 4078878; Fire Barrier Penetration F-190-06 Inoperable; 11/29/2017  
AR 4013601; Degraded Unit 3 CCSW Piping Identified; 05/22/2017  
AR 1119624; Flanges Need Repair or Replacement on 2/3 CREVS RCU Heat Exchanger;  
09/29/2010  
AR 2726172; 3B TBCCW HX Tube Side Drain Line Plugged; 10/10/2016  
AR 0907762; Shrinkage Cracks – West Control Room Removable Block Wall; 04/14/2009  
AR 1642745; PMC-Fire Barrier for Penetration F-116-8 is Inoperable; 04/03/2014  
AR 1642750; PMC-Fire Barrier for Penetration F-116-7 Inoperable; 04/03/2014  
AR 1633156; Elbow Degraded and in Need of Replacement (WO 01618361-01); 01/13/2014

AR 2409106; Drywell Shell Thickness Measurements for Aging Management Program; 11/08/2014  
AR 2516061; High Pressure Drop Found During FP Yard Loop Test; 06/17/2015  
AR 2578570; License Renewal Exam Results on CCSW Keepfill Check Valves; 10/29/2015  
AR 2585794; LR-Unit 2 License Renewal HPCI Turbine Casing Inspection; 11/11/2015  
AR 2638773; PMC: Fire Penetration 186-4 Degraded but Operable; 03/10/2016  
AR 2682417; Loose Unit 2 Emergency Diesel Generator Vent Cover Flashing; 06/13/2016  
AR 2701885; Missing Tube Clamp in Unit 2 East Corner Room, Elevation 503; 08/08/2016  
AR 2701898; Missing Conduit Clamp in Unit 2 East Corner Room, Elevation 476; 08/08/2016  
AR 2714597; Pin Hole Leak on SW Strainers Backwash Outlet Header; 09/12/2016  
AR 2736931; Coating Patches Within the Isolation Condenser Have Chipped Away; 11/04/2016  
AR 2742531; Observe 3DPM Leak on East End-Bell of U2 Isolation Condenser; 11/18/2016  
AR 3976504; Unit 3 Emergency Diesel Generator Fuel Oil Storage Tank Wall Thickness Results and Remaining Life; 02/21/2017  
AR 4071835; Degraded Cable Insulation in JB at 2-3204-C-2D3 HP Heater Valve; 11/07/2017  
AR 4071288; Recordable Indications on Unit 2 Drywell Moisture Barrier; 11/04/2017  
AR 4071231; Drywell Sand Pocket Leakage Identified during DOS 1600-31; 11/05/2017  
AR 4100694; Leak at a Weld for Drain Valve at the 2B BBCCW HX; 02/04/2018  
AR 4104998; Abbreviated Maintenance on 2B Service Water Coupling; 02/16/2018  
AR 4108807; Through Wall Leaks on Radwaste Service Water Piping; 02/27/2018  
AR 4132695; NRC ID: Degraded LPCI Line Support in U2 Torus Basement; 04/30/2018  
AR 4131127; 2018 PI&R: Potential Aging Issue Screened Incorrectly on IR 4108807; 04/26/2018  
AR 4181844; U2 HPCI Drain Line 2-2323-1" Leak (Non-Safety Side); 10/09/2018  
AR 4182528; Underground Fire Header Leak Near the New Diesel Tank; 10/11/2018  
AR 4223423; Fire Protection Leaks to Be Evaluated As Part of Aging Management Program; 02/25/2019  
ATI 101522-38; Perform As-found LLRT Dry Test DOS 7000-1; 10/30/2017

### **Corrective Action Documents Generated as a Result of Inspection**

AR 4224765; NRC Identified 2/3-4600-B Tank Coating Chipped to Base Metal; 2/26/2019  
AR 4224436; Re-evaluate Potential Aging Issue Aging Evaluation Determination – IR4182528; 02/27/2019  
AR 4224716; NRC Identified Broken Strand on 2A SBO DG Flex Hose; 2/26/2019  
AR 4224840; Unit 2 Emergency Diesel Generator Silencer Pipe Support on Roof; 02/28/2019  
AR 4225162; NRC Identified Procedure Deficiency for Significance Level of Aging Issues IRs; 03/01/2019  
AR 4225186; Structures Monitoring Program Procedure Enhancements; 02/28/2019

### **Work Orders**

WO 1451948; PMRQ 186872-01: D2/3 Turbine Building Roofs Elevation 622'-6" and North Roofs at Elevation 567'-0"; 06/15/2016  
WO 0618951-02; PMRQ 11894-04: D2/3 Inspection of Station Blackout Diesel Fuel Oil Storage Tank 2/3-5280-200; 05/09/2007  
WO 1327474-03; PMRQ 370-03: D2/3 Ultrasonic Test – Emergency Diesel Generator Fuel Oil Storage Tank 2/3-5201; 03/27/2018  
WO 4667585-01; PMRQ 180111-01: D2/3 Inspections of Buried Piping; 05/17/2018  
WO 01904922; D2 RFL TS LLRT MSIV 203-1A & 203-2A DRY TEST; 10/30/2017  
WO 04602371; D3 RFL Diver De-sludge and Coating Inspect Torus; 11/08/2018

WO 01794148; D3 RFL Diver De-sluge and Coating Inspect Torus; 11/11/2016  
WO 01904925; D2 RFL Diver De-sluge and Coating Inspect Torus; 11/10/2017  
WO 01545660; D3 6Y PM EDG Inspection; 2/23/2018  
WO 00756170; D2 10Y Commitment Inspect EDG Exhaust Silencer; 2/18/2019  
WO 01271973; D3 10Y Commitment Service Water Pump B Overhaul (3-3901B); 4/27/2017  
WO 00993535; D2 4Y Commitment Inspect/Clean C CCSW Vault CLR Coils, Fans & Filters;  
01/18/2011  
WO 1005939-01; PMRQ 11845-05: D2 Inspect Emergency Diesel Generator Fuel Oil Storage  
Tank 2-5201; 02/15/2011  
WO 01233184; U2 'A' SBO DG SA Tank 2-4680-21A Discharge Flex Hose inspection;  
05/04/2015  
WO 01269385; D3 12Y Commitment 3-4499-71A Manual Valve Internal Inspection; 11/03/17  
WO 01269390; D3 12Y Commitment 3-4499-71C Manual Valve Internal Inspection; 11/03/18  
WO 01338996; U3 'A' SBO DG SA Tank 3-4680-21A Discharge Flex Hose inspection;  
02/13/2016  
WO 1188010-01; PMRQ 172686-01: D3 Ultrasonic Test Inspection of Cylindrical and Upper  
Spherical Areas; 11/05/2014  
WO 1512242-04; PMRQ 5967-05: Ultrasonic Test – Emergency Diesel Generator Fuel Oil  
Storage Tank 3-5201; 02/20/2017  
WO 1434901-01; PMRQ 186886-01: D2 Turbine Building Masonry Wall on West Side of Control  
Room; 07/20/2011  
WO 1434917-01; PMRQ 186890-01: D2 & D3 Reactor Building Elevation 476'-6" – East & West  
Corner Rooms and High Pressure Coolant Injection Room Inspection; 07/19/2011  
WO 1463274-01; PMRQ 186886-01: D2 Turbine Building Masonry Wall on West Side of Control  
Room; 07/15/2016  
WO 1463279-01; PMRQ 186890-01: D2 & D3 Reactor Building Elevation 476'-6" – East & West  
Corner Rooms and High Pressure Coolant Injection Room Inspection; 07/12/2016  
WO 1488658-01; PMRQ 186860-01: D2 Flood Seals, Reactor Building East & West Corner  
Room Walls, Against Torus; 11/06/2013  
WO 01787004; 20 Delayed Coating Repair Inspections Completed D3R24; 11/07/2016  
WO 1807384-01; PMRQ 4804-01: D3 Ultrasonic Test inspection of Drywell Liner 3-1600;  
11/11/2016  
WO 1877237-02; PMRQ 1610-01: D2 Drywell Liner Leakage Inspection; 09/25/2017  
WO 1877237-01; PMRQ 1610-01: D2 Drywell Liner Leakage Inspection; 11/05/2017  
WO 1692100-01; PMRQ 186860-01: D2 Flood Seals, Reactor Building East & West Corner  
Room Walls, Against Torus; 11/03/2015  
WO 1884658-01; PMRQ 15330-01: D2 General Visual of Containment; 11/19/2017  
WO 01900588; D2 RFL TS/COM inspect Torus DW and DW head internal coatings; 11/01/2017  
WO 01903002; D2 30M/RFL TS LLRT MSIV 203-1B & 203-2B Dry Test; 10/30/2017  
WO 01916649; D2 30M/RFL TS LLRT Valve 0220-58B & 0220-62B FW Outboard Check Valve;  
11/06/2017  
WO 1966273-02; PMRQ 4804-04: D3 Drywell Liner Leakage Inspection; 10/06/2018  
WO 1967197-01; PMRQ 4804-01: D3 Ultrasonic Test inspection of Drywell Liner 3-1600;  
11/06/2018  
WO 1877924-01; PMRQ 186860-01: D2 Flood Seals, Reactor Building East & West Corner  
Room Walls, Against Torus; 10/30/2017  
WO 04589272; D3 30M/RFL TS As-found LLRT Valve 0220-58A & 62A FW Outboard Check  
Valve; 10/30/2018  
WO 04589271; D3 30M/RFL TS As-found LLRT MSIV 203-1D & 203-2D Dry Test; 10/20/2018  
WO 4599410-01; PMRQ 15331-01: D3 General Visual of Containment; 11/08/2018  
WO 4671115-01; PMRQ 180115-01: D2 Inspections of Buried Piping; 05/17/2018



WO 4671117-01; PMRQ 180119-01: D3 Inspections of Buried Piping; 05/17/2018

**Others**

ATI 1524214-02-12; Support Review of RIS 2011-05 for Dresden; 08/01/2013  
AR 04181844-02; Aging Management Evaluation of Leak; 12/20/2018  
B.1.13 Volume 1; Open Cycle Cooling Water System - License Renewal Binder; Revision 1  
B.1.18 Volume 1; Fire Protection (Non-Water) - License Renewal Binder; Revision 1  
AR 4080012-25; Dresden Aging Management Program (AMP) Effectiveness Review: AMP  
A.1.28 – 10 CFR Part 50 Appendix J; 10/31/2018  
AR 4080012-24; Dresden Aging Management Program (AMP) Effectiveness Review: AMP  
A.1.25 – Buried Piping and Tanks Inspection; 01/03/2019  
AR 4080012-23; Dresden Aging Management Program (AMP) Effectiveness Review: AMP B.18  
& 19 – Fire Protection and Fire Water System; 02/23/2018  
AR 4080012-19; Dresden Aging Management Program (AMP) Effectiveness Review: AMP  
A.2.9 – Periodic Inspection of Components Subject to Moist Air Environment; 07/19/2018  
AR 4080012-10; Dresden Aging Management Program (AMP) Effectiveness Review: AMP  
A.1.32 – Protective Coatings Monitoring and Maintenance Program; 10/10/2018  
AR 4080012-09; Dresden Aging Management Program (AMP) Effectiveness Review: AMP  
A.1.30 – Structures Monitoring Program; 09/27/2018  
AR 4080012-08; Dresden Aging Management Program (AMP) Effectiveness Review: AMP  
A.1.26 – ASME Section XI IWE; 12/13/2018  
AR 4080012-02; Dresden Aging Management Program (AMP) Effectiveness Review: AMP  
B.1.13 – Open Cycle Cooling Water; N/A