



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
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April 29, 2016

Mr. Bryan C. 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 – INTEGRATED
INSPECTION REPORT 05000237/2016001; 05000249/2016001**

Dear Mr. Hanson:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Dresden Nuclear Power Station, Units 2 and 3. The enclosed report documents the results of this inspection, which were discussed on April 13, 2016, with Mr. P. Karaba and other members of your staff.

Based on the results of this inspection, one self-revealed finding was evaluated under the risk-significance determination process as having very low safety significance (green). The NRC has also determined that a violation was associated with this issue. This violation is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the subject inspection report.

If you contest the subject or severity of the NCV, 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 copies to the Regional Administrator, Region III; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Dresden Nuclear Power Station.

In addition, if you disagree with the cross-cutting aspect assigned to 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 Dresden Nuclear Power Station.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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

B. Hanson

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inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA Karla Stoedter Acting for/

Jamnes Cameron, Chief
Branch 4
Division of Reactor Projects

Docket Nos. 50-237; 50-249
License Nos. DPR-19; DPR-25

Enclosure:
IR 05000237/2016001; 05000249/2016001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-237; 50-249

License Nos: DPR-19; DPR-25

Report No: 05000237/2016001; 05000249/2016001

Licensee: Exelon Generation Company, LLC

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL

Dates: January 1 through March 31, 2016

Inspectors: G. Roach, Senior Resident Inspector
R. Elliott, Resident Inspector
M. Garza, Emergency Preparedness Inspector
T. Go, Health Physicist
G. Hausman, Senior Reactor Inspector

Approved by: J. Cameron, Chief
Projects Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report 05000237/2016001; 05000249/2016001; 01/01/2016 – 03/31/2016;
Dresden Nuclear Power Station, Units 2 and 3; Identification and Resolution of Problems.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was self-revealed. The finding involved a Non-Cited Violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) requirements. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated February 2014.

Cornerstone: Mitigating Systems

Green. A finding of very low safety significance and an associated NCV of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion III, "Design Control," was self-revealed associated with the licensee's failure to assure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, since initial plant construction the licensee failed to correctly identify the effect a loss of non-safety 2/3 emergency diesel generator (EDG) room ventilation could have on maintaining operability of the 2/3 EDG. On November 6, 2015, during a planned maintenance outage of the normal non-safety related instrument air pneumatic supply and a failure resulting in the depressurization of the back-up non-safety related nitrogen system, the 2/3 EDG ventilation intake and exhaust dampers failed closed making the 2/3 EDG inoperable for approximately 20 minutes on two occasions from the time of discovery of the condition. The licensee incorrectly believed that a loss of the non-safety related instrument air system and its non-safety related back-up nitrogen system would cause the dampers to fail in the conservative open position. This feature was never tested; and therefore the licensee incorrectly believed the non-safety related control systems for the room ventilation system would not adversely affect the safety-related EDG's operability.

The performance deficiency was determined to be more than minor, and thus a finding, in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Design Control attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and if left uncorrected could lead to a more significant safety concern. The finding screened as very low safety significance (Green) because the inspectors answered "no" to questions A.1. through A.4. of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, dated June 19, 2012. This finding has a cross-cutting aspect in the area of Human Performance, Training, because the licensee did not ensure licensed operations and engineering personnel properly understood the operation and configuration of the 2/3 diesel generator ventilation system under accident conditions and its impact on the safety-related 2/3 EDGs ability to accomplish its design function. Specifically, the

licensee incorrectly believed that the 2/3 EDG room ventilation system failed in a conservative manner with a loss of its non-safety related pneumatic supply systems. Corrective Action Program documents and other engineering products up until September 2015 incorrectly state that the 2/3 EDG's operability was not adversely affected by a loss of damper control pneumatics as the dampers were expected to fail open. [H.9] (Section 4OA2.4)

REPORT DETAILS

Summary of Plant Status

Unit 2

Unit 2 operated at or near full power for the entirety of the inspection period.

Unit 3

Unit 3 operated at or near full power for the entirety of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Condition—High Wind Conditions and Tornado Watch

a. Inspection Scope

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for March 15, 2016, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. On March 14-15, 2016, the inspectors walked down the unit 3 low pressure coolant injection and core spray systems with the unit 3 high pressure coolant injection system inoperable, in addition to the licensee's emergency alternating current (AC) power systems, because their safety-related functions could be affected or required as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. The inspectors also reviewed a sample of corrective action program (CAP) items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one readiness for impending adverse weather condition sample as defined in Inspection Procedure (IP) 71111.01–05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- 2/3A standby gas treatment (SBGT) with 2/3B SBGT OOS (Out-of-Service);
- 3B reactor building containment cooling water (RBCCW) upon return to service from a maintenance outage;
- 3B standby liquid control (SBLC) with 3A SBLC OOS; and
- 2/3 EDG and support systems upon return to service from a maintenance outage.

The inspectors selected these systems based on their risk-significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted four partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On February 23, 2016, the inspectors performed a complete system alignment inspection of the unit 2 core spray system to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that

ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

These activities constituted one complete system walkdown sample as defined in IP 71111.04–05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Fire Zone 8.2.5C, 2/3 electro-hydraulic control reservoir area, elevation 517’;
- Fire Zone 8.2.5E, unit 3 reactor feed pumps, elevation 517’;
- Fire Zone 8.2.4, unit 2 cable tunnel, elevation 502’;
- Fire Zone, 8.2.6A, control room emergency ventilation system, elevation 534’; and
- Fire Zone, 11.1.3, unit 3 high pressure coolant injection (HPCI) pump room, elevation 476’.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for OOS, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee’s fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant’s Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant’s ability to respond to a security event. Using the documents listed in the Attachment to this report, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee’s CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted five quarterly fire protection inspection samples as defined in IP 71111.05–05.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On March 3, 2016, the inspectors observed a fire brigade activation unannounced fire drill on unit 2, reactor building, elevation 589'. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were:

- proper wearing of turnout gear and self-contained breathing apparatus;
- proper use and layout of fire hoses;
- employment of appropriate firefighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;
- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined in IP 71111.05–05.

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the corrective action program to verify the adequacy of the corrective actions. The inspectors performed an

observation of the following plant area to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- Unit 3 containment cooling service water (CCSW) pump vault watertight door leak test.

Documents reviewed during this inspection are listed in the Attachment to this report. This inspection constituted one internal flooding sample as defined in IP 71111.06–05.

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07A)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee's clean and inspect including eddy current testing and tube plugging of the 2/3 RBCCW heat exchanger to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria, the correlation of scheduled testing and the frequency of testing, and the impact of instrument inaccuracies on test results. Inspectors also verified that test acceptance criteria considered differences between test conditions, design conditions, and testing conditions. Documents reviewed for this inspection are listed in the Attachment to this document.

This annual heat sink performance inspection constituted one sample as defined in IP 71111.07–05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

On January 25, 2016, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training. The inspectors verified that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and that training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;

- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program simulator sample as defined in IP 71111.11–05.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation During Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On March 5, 2016, the inspectors observed operators perform a unit 3 down power for main steam isolation valve (MSIV) testing, turbine testing, and rod pattern adjustment. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of procedures;
- control board and equipment manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions.

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11–05.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- SBTG; and
- Reactor building heating, ventilation and air conditioning (HVAC).

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Unit 2 and 3 Yellow risk with 2/3B SBTG OOS;

- Unit 2 Yellow risk with instrument air to service air cross tie OOS during 2A instrument air compressor and dryer maintenance;
- Unit 3 Yellow risk with high pressure coolant injection HPCI OOS and severe weather forecasted; and
- Unit 2 Yellow risk with HPCI OOS.

These activities were selected based on their potential risk-significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by Title 10 of the *Code of Federal Regulations* (CFR) 50.65(a)(4) and were accurate and complete. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed Technical Specification (TS) requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Documents reviewed during this inspection are listed in the Attachment to this report. These maintenance risk assessments and emergent work control activities constituted four samples as defined in IP 71111.13–05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- 10 CFR Part 21 review of ASCO Solenoid Valves for Adequate Environmental Qualification;
- Impact of storage platforms located on reactor building elevation 613' on secondary containment operability during a safe shutdown earthquake;
- MSIV closure time historical operability review;
- Endurance of 125 VDC and 250 VDC safety related batteries during station blackout; and
- 2/3 EDG excitation panel missing bolts.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with

the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted five samples as defined in IP 71111.15–05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modification(s):

- Reactor building to turbine building secondary containment interlock modification, elevation 570’.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and maintenance personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one permanent plant modification sample as defined in IP 71111.18–05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance (PM) activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- WO 01677577, "Operations 'B' SBTG Post Maintenance Test (PMT)";
- WO 01843311, "Operations Perform PMT after Pipe Replacement (fire protection system)";
- WO 00894711, "OPS PMT Leak Check Solenoid Replacement for 3-4999-74 (Unit 3 CCSW Vault Drain Line Isolation Valve)";
- WO 01894035, "Dresden 3 Quarterly Station Blackout Diesel Generator Surveillance"; and
- WO 01891739, "Dresden 3 Quarterly TS HPCI Pump Operability Test and In-Service Test Surveillance."

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following: the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various U.S. Nuclear Regulatory Commission (NRC) generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted five post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- DIS 0500-05, "Unit 2 Scram Discharge Volume Level Calibration (routine)";
- DFPS 4123-01, "Unit 1 Diesel Fire Pump Operability (routine)";
- DOS 0500-27, "Unit 3 Main Steam Line Isolation Valve Closure Scram Circuit Functional Test (routine)";
- DTS 8236, "Unit 2 Traversing In-Core Probes Run Reactivity Management (routine)"; and
- DOS 1100-04, "Standby Liquid Control System Quarterly/ Comprehensive Pump Test for Inservice Testing (inservice test)."

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- equipment was returned to a position or status required to support the performance of its safety functions; and

- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted four routine surveillance testing samples and one in-service test sample as defined in IP 71111.22, Sections–02 and–05.

b. Findings

No findings were identified.

1EP2 Alert and Notification System Evaluation (71114.02)

.1 Alert and Notification System Evaluation

a. Inspection Scope

The inspectors reviewed documents and held discussions with Emergency Preparedness (EP) staff regarding the operation, maintenance, and periodic testing of the primary and backup Alert and Notification System (ANS) in the plume pathway Emergency Planning Zone. The inspectors reviewed monthly trend reports and siren test failure records from July 2014 through March 2016. Information gathered during document reviews and interviews were used to determine whether the ANS equipment was maintained and tested in accordance with Emergency Plan commitments and procedures. Documents reviewed are listed in the Attachment to this report.

This ANS evaluation inspection constituted one sample as defined in IP 71114.02-06.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03)

.1 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed and discussed with plant EP management and staff the Emergency Plan commitments and procedures that addressed the primary method of initiating an Emergency Response Organization (ERO) activation to augment the on-shift staff as well as the provisions for maintaining the plant's ERO team and qualification lists. The inspectors reviewed some information regarding the backup method of ERO activation and augmentation. The inspectors reviewed reports and a sample of CAP records of unannounced off-hour augmentation drills and call-in tests, which were conducted from July 2014 through March 2016, to determine the adequacy of the drill critiques and associated corrective actions. The inspectors also reviewed a sample of the training records of approximately seven ERO personnel, who were assigned to key and support positions, to determine the status of their training as it related to their assigned ERO positions. Documents reviewed are listed in the Attachment to this report.

This ERO augmentation testing inspection constituted a partial sample. The inspection sample will be completed by the end of the calendar year 2016 with the review of the backup method of ERO activation and augmentation.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (71114.05)

.1 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the nuclear oversight staff's 2015 audit of the Dresden Nuclear Power Station's EP Program to determine that the independent assessments met the requirements of 10 CFR 50.54(t). The inspectors reviewed samples of CAP records associated with the 2015 biennial exercise, as well as various EP drills conducted in 2014 and 2015, in order to determine whether the licensee fulfilled drill commitments and to evaluate the licensee's efforts to identify and resolve identified issues. The inspectors reviewed a sample of EP items and corrective actions related to the station's EP Program, and activities to determine whether corrective actions were completed in accordance with the site's CAP. Documents reviewed are listed in the Attachment to this report.

This maintenance of EP inspection constituted one sample as defined in IP 71114.05-06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety, and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

.1 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors assessed whether workers were adequately informed of radiological hazards present through radiation work permits, alarming dosimeter set points, area postings, and labelling of containers.

These inspection activities constituted one sample as defined in IP 71124.01-05.

b. Findings

No findings were identified.

.2 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors determined whether workers and materials were adequately assessed for radioactive contamination before leaving the radiologically controlled area(s). Additionally, the inspectors assessed whether sealed sources were adequately identified, stored, and did not leak.

These inspection activities constituted one sample as defined in IP 71124.01-05.

b. Findings

No findings were identified.

.3 High Radiation Area and Very-High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors observed the physical controls for high radiation areas and very-high radiation areas. The inspectors ensured the controls prevented an individual from gaining unauthorized access to very-high radiation areas.

These inspection activities constituted one sample as defined in IP 71124.01-05.

b. Findings

No findings were identified.

2RS2 Occupational As-Low-As-Reasonably-Achievable Planning And Controls (71124.02)

.1 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors evaluated whether radiological work planning as-low-as-reasonably-achievable (ALARA) evaluations properly identified appropriate dose reduction techniques and that these techniques were integrated into work procedures and/or radiation work permits.

The inspectors assessed whether the results achieved were aligned with the intended work activities. The inspectors also evaluated whether lessons learned from post-job reviews were identified and recorded.

These inspection activities constituted one sample as defined in IP 71124.02-05.

b. Findings

No findings were identified.

.2 Verification of Dose Estimates and Exposure Tracking Systems (02.03)

a. Inspection Scope

The inspectors reviewed the effectiveness of source term reductions activities and the methodologies for estimating collective exposures. The inspectors reviewed various ALARA work planning documents to evaluate the assumptions and bases for the collective radiation exposure estimates. The inspectors assessed whether the methods for adjusting or re-planning work for changes in work scope were based upon sound radiation protection and ALARA principles.

These inspection activities constituted one sample as defined in IP 71124.02-05.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours Performance Indicator (IE01) (PI) for Dresden Nuclear Power Station, Units 2 and 3, covering the period from the 1st quarter 2015 through 4th quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC Integrated Inspection Reports for the period of January through December 2015, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two unplanned scrams per 7000 critical hours samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications Performance Indicator (PI) (IE04) for Dresden Nuclear Power Station, Units 2 and 3, covering the period from the 1st quarter 2015 through 4th quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC Integrated Inspection Reports for the period of January through December 2015 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two unplanned scrams with complications samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours PI (IE03) for Dresden Nuclear Power Station, Units 2 and 3, covering the period from the 1st quarter 2015 through 4th quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, dated August 31, 2013, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC Integrated Inspection Reports for the period of January through December 2015 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two unplanned transients per 7000 critical hours samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Drill and Exercise Performance

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise (DEP) PI (EP01) for the period from the third quarter 2015 through the fourth quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, were used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the DEP indicator, in accordance with relevant procedures and NEI guidance. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance on assessing opportunities for the PI; assessments of PI opportunities during pre-designated control room simulator training sessions; performance during the 2015 biennial exercise; and performance during other drills. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes one DEP sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors sampled licensee submittals for the ERO Drill Participation PI (EP02) for the period from the third quarter 2015 through fourth quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, were used. The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator, in accordance with relevant procedures and NEI guidance. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance on assessing opportunities for the PI; participation during the 2015 biennial exercise and other drills; and revisions of the roster of personnel assigned to key ERO positions. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes one ERO drill participation sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.6 Alert and Notification System Reliability

a. Inspection Scope

The inspectors sampled licensee submittals for the ANS PI (EP03) for the period from the third quarter 2015 through fourth quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, were used.

The inspectors reviewed the licensee's records associated with the PI to verify that the licensee accurately reported the indicator, in accordance with relevant procedures and NEI guidance. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance on assessing opportunities for the PI and results of periodic ANS operability tests. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes one ANS sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Follow-Up Sample for In-Depth Review: Review of Enforcement Discretion Non-Cited Violations Identified During the 2014 Cyber-Security Inspection 2014405 and Associated Corrective Action Documents

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents, specifically IR 1618507, "Cyber Security - Potential Data Diode Bypass"; IR 1620801, "NRC Concern With IMP [Insider Mitigation Program] Control Room Walkdowns"; IR 1620964, "Cyber Security - A DTE [Digital Test Equipment] Scanning Procedure is Required"; IR 1620997, "Cyber Security CDA [Critical Digital Assets] Database Needs Improvement"; and IR 1621227, "NRC Concern with the Control of Software License Key Devices." The inspectors interviewed personnel, performed walkdowns, verified the completion of and assessed the adequacy of the corrective actions taken in response to the two NRC identified NCVs and the three licensee-identified NCVs given enforcement discretion.

The inspectors' review and evaluation was focused on the licensee's corrective actions to ensure they: were complete, accurate, and timely; considered extent of condition; provided appropriate classification and prioritization; provided identification of root and contributing causes; were appropriately focused; included action taken which resulted in the correction of the identified problem; identified negative trends; ensured operating experience was adequately evaluated for applicability; and communicated applicable lessons-learned to appropriate organizations.

This review constituted a single follow-up inspection sample for in-depth review as defined in IP 71152-05.

b. Background

In accordance with Title 10 CFR, Part 73, Section 54, "Protection of Digital Computer and Communication Systems and Networks" (i.e., the Cyber Security Rule), each nuclear power plant (NPP) licensee was required to submit to the NRC for review and approval a cyber-security plan (CSP) and an associated implementation schedule by November 23, 2009. A Temporary Instruction (TI) 2201/004, "Inspection of Implementation of Interim Cyber-Security Milestones 1 through 7," was developed to evaluate and verify each NPP licensee's ability to meet the interim milestone requirements of the Cyber-Security Rule. On April 25, 2014, the NRC completed an inspection at the Dresden Nuclear Power Station, Units 2 and 3, which evaluated the interim cyber-security Milestones 1 through 7. During performance of the TI, NCVs were identified and incorporated into the licensee's CAP. These NCVs were subsequently given enforcement discretion following the Security Issues Forum Meeting conducted on March 26, 2014, and April 23, 2014. During the week of January 25, 2016, the inspectors reviewed the Cyber-Security Milestones 1 through 7 inspection NCVs as a

problem identification and resolution annual (PI&R) inspection sample. The CAP documents were evaluated to determine the effectiveness of the licensee's corrective actions.

c. Observations

As discussed in the "Inspection Scope" section above, the inspectors' review was focused on the licensee's actions to ensure the NCVs corrective actions were appropriately focused to correct the identified problems. In addition, during the inspectors' review of the cyber-security inspection's corrective action documents, the following four observations were identified:

The inspectors observed several cyber-security procedures that were not identified as security-related documents and the inspectors were concerned that copies/revisions may not be disposed of properly when discarded. The licensee entered this concern into their CAP as IR 2618465, "Classification of Cyber Security Implementation Procedures," dated January 28, 2016.

During the 2014 Cyber-Security Milestone 1 through 7 Inspection, IR 1620509, "CDA Media Possibly Being Used on CDAs Without Successful Scan," dated February 12, 2014, was issued to address the "Failed to Scan" messages received at the kiosk when scanning media. During the 2016 PI&R inspection, the NRC inspectors' review of the licensee's method to address this issue was acceptable. However, the inspectors questioned the closure of IR 1620509-03, since the issue was not tracked to final resolution (e.g., the closure of this assignment stated the licensee would review, test, and coordinate installation of an upgraded software version when it was provided by the vendor). As a result, the licensee entered this observation into their CAP as IR 2619280, "NRC Questions IR Assignment Closure," dated January 29, 2016.

The inspectors' review of IR 2612447, "Cyber-Security - Key Control for Computer Room and TSC," dated January 14, 2016, noted the IR was coded "NCAP" when processed by the Station Ownership Committee (SOC). The inspectors questioned the "NCAP" coding and concluded the IR should have been coded "CAP." The licensee entered this issue into their CAP as IR 2620336, "IR 2612447 Coded Incorrectly," dated February 1, 2016. The licensee's SOC re-screened the IR and properly coded the IR as "CAP."

During the 2014 Cyber-Security Milestone 1 through 7 Inspection, the NRC inspectors observed that an uninterruptible power supply (UPS) distribution panel door was held closed by electrical tape. This condition was originally identified in April 2012. During this inspection, the inspectors observed the UPS distribution panel door had not been repaired. As a result, the licensee entered this concern into their CAP as IR 2621131, "Cyber-Security - Timely Repair of Latch On 23-0944-5 Panel," dated February 3, 2016.

d. Findings

No findings were identified.

.4 Annual Follow-up of Selected Issues: Review of Corrective Actions Associated with a 2/3 EDG Room Ventilation Failure Affecting EDG Operability

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents, specifically IR 2583140, "Pressure Regulating Valve for 2/3 EDG Dampers Increased Leakage"; IR 2593932, "2/3 EDG Ventilation System Dampers Do Not Failsafe Open"; and IR 2636045, "Nitrogen Leak on 2/3 EDG N2 Regulator." The inspectors interviewed personnel, performed walkdowns, observed the installation of plant modifications, and verified the completion of and assessed the adequacy of the corrective actions taken in response to a loss of control pneumatics to the 2/3 EDG room ventilation system on November 6, 2015.

The inspectors' review and evaluation was focused on the licensee's corrective actions to ensure they: were complete, accurate, and timely; considered extent of condition; provided appropriate classification and prioritization; provided identification of root and contributing causes; were appropriately focused; included action taken which resulted in the correction of the identified problem; identified negative trends; ensured operating experience was adequately evaluated for applicability; and communicated applicable lessons learned to appropriate organizations. The inspectors noted that the licensee's corrective actions at the time of this report corrected deficiencies in the back-up nitrogen system and created a more robust design to decrease the likelihood of a loss of control pneumatics to the 2/3 EDG room ventilation system, but that long term actions to ensure that the 2/3 EDG room ventilation system functionality supports 2/3 EDG operability during accident conditions without operator manual actions are yet to be completed. The inspectors will continue to follow licensee actions and design modifications to support this ultimate plant configuration.

This review constituted a single follow-up inspection sample for in-depth review as defined in IP 71152-05.

b. Background

On November 6, 2015, with the normal source of pneumatics to the 2/3 EDG room ventilation damper positioning system secured for maintenance, on two occasions for approximately 20 minutes each the back-up non-safety related nitrogen source depressurized causing the room ventilation dampers to fail in a closed condition. Based on the licensee's understanding of system performance a loss of 2/3 EDG room ventilation damper control pneumatics was supposed to result in the dampers failing conservatively open. The licensee had not previously tested the performance of the back-up nitrogen system nor had they tested EDG room ventilation system response to a complete loss of pneumatics to ascertain actual system response.

c. Findings

Introduction. A finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was self-revealed associated with the licensee's failure to ensure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, since initial plant construction the licensee failed to correctly identify the effect a loss of non-safety related control

pneumatics to the 2/3 EDG room ventilation dampers could have on maintaining operability of the 2/3 EDG. On November 6, 2015, during a planned maintenance outage of the normal non-safety related instrument air pneumatic supply and a failure resulting in the depressurization of the back-up non-safety related nitrogen system, the 2/3 EDG ventilation intake and exhaust dampers failed closed making the 2/3 EDG inoperable for approximately 20 minutes on two occasions from the time of discovery of the condition. The licensee incorrectly believed that a loss of the non-safety related instrument air system and its non-safety related back-up nitrogen system would cause the dampers to fail in the conservative open position. This feature was never tested, and therefore the licensee incorrectly believed the non-safety related control systems for the room ventilation system would not adversely affect the safety-related EDG's operability.

Description. At 10:10 p.m. on November 5, 2015, Unit 2, 480 VAC bus 28-1 was de-energized for routine maintenance during Unit 2 refueling outage D2R24. In preparation for this activity, the licensee verified that back-up nitrogen for the 2/3 EDG room ventilation damper control circuit was adequately pressurized and available as the normal instrument air supply would be interrupted by the planned loss of power. At 4:15 a.m., on November 6, 2015, operators in the 2/3 EDG room noted nitrogen supply pressure was zero and that the dampers were failed closed meaning that the room ventilation system would be unavailable if the 2/3 EDG were required to be run. Operations declared the 2/3 EDG inoperable and entered TS condition 3.8.1.B for Unit 3. At 4:35 a.m., a new nitrogen cylinder was installed restoring pressure. The licensee exited TS 3.8.1.B at this time, but had to re-enter the TS again at 6:05 a.m. when the nitrogen system again depressurized and was restored at 6:30 a.m. The licensee repaired a regulator which was acting as the source of the nitrogen leak at 5:08 p.m. Operators maintained the system pressurized by nitrogen until bus 28-1 was restored and instrument air to the 2/3 EDG ventilation system was again available on November 8, 2015.

The 2/3 EDG is the safety-related, on-site source of power to the division 1 engineered safety features 4160 VAC and 480 VAC buses for both Unit 2 and Unit 3. The room ventilation system for the 2/3 EDG is considered non-safety related at Dresden and consists of an intake damper, a room fan, and an exhaust damper. Air is brought in from the outside environment in order to cool the EDG and its associated electrical circuitry within the EDG room and directed back to the outside environment when the system is running. The dampers are normally closed and the fan is not normally running with the EDG shutdown. When the 2/3 EDG receives a start signal and achieves 800 revolutions per minute, a speed sensing circuit on the EDG will, among other actions, energize solenoid valve 2/3-5790-EP2 (powered by bus 28-1 or 38-1) which will pass the active pneumatic supply (normally instrument air with nitrogen as a back-up) to air operated valves opening the intake and exhaust dampers. The ventilation fan will also start on this signal. Pneumatic supply to the dampers was controlled on November 5, 2015, by solenoid valve 2/3-5790-EP1 and pressure switch PS 2/3-5790-2. The pressure switch would sense that instrument air (non-safety related) was adequately pressurized and as such pass a signal energizing solenoid valve EP1 (which received power from bus 28-1) allowing instrument air to pass to EP2 and at the same time block the back-up nitrogen source. If the pressure switch sensed a loss of pressure in instrument air or there was a loss of bus 28-1, EP1 would de-energize and reposition allowing back-up nitrogen (non-safety related) supplied by two compressed gas cylinders attached to a regulator to the pass to EP2. On November 5-8, 2015, with bus 28-1 de-energized EP1 would be expected to be de-energized and as such be positioned to pass back-up nitrogen as the

source of pneumatics for operating the supply and exhaust dampers for room ventilation if the 2/3 EDG was called upon to mitigate the effects of a design basis accident. Due to leakage in the back-up nitrogen system associated with a regulator, the system depressurized below the required 200 psig needed to operate the room ventilation dampers on two occasions during this time period and the TS for an inoperable 2/3 EDG needed to be entered for Unit 3.

Prior to the loss of pneumatics to the 2/3 EDG room ventilation dampers on November 6, 2015, the licensee understood the system to operate in a manner in which with a loss of non-safety related instrument air and non-safety related back-up nitrogen the system would fail conservatively leaving the dampers in an open configuration. This event revealed this understanding of the system response to be inaccurate. Historic record review identified numerous CAP documents identifying loss of standby nitrogen pressure due to system leaks or leak by of the EP1 solenoid valve. In each of these previous events, instrument air remained available and the licensee would incorrectly state in their operability statement that even if it didn't, the dampers would fail conservatively open. During a design basis loss of offsite power (LOOP) concurrent with a loss of cooling accident (LOCA), the 2/3 EDG would be expected to start and restore power to Division 1 safety related mitigating systems necessary to combat this accident. With the LOOP, power to the instrument air compressors would be lost and be required to be manually restored along with the turbine closed cooling water system in order to restore instrument air. With a loss of instrument air, the ventilation system would be reliant on the performance challenged, non-safety related back-up nitrogen system to maintain the dampers open in order for ventilation to be effective with the EDG running. Licensee analysis indicates that the 2/3 EDG room temperature would exceed 140F after 220 minutes of running with no ventilation. This would be the temperature when EDG equipment, specifically, the voltage regulator, would begin to fail due to over temperature conditions in the room. The EDG maintains a TS surveillance endurance run requirement and a probabilistic risk assessment mission time of 24 hours. As indicated above, the EDG would not be able to meet its design function after 220 minutes without ventilation, therefore a configuration existed in which non-safety related systems not expected to function during a design basis event would adversely affect the ability of the safety-related 2/3 EDG to accomplish its design function. This would occur unless significant operator manual actions were taken.

In 2001, the licensee developed surveillance procedure DOS 5750-09, "Diesel Generator Ventilation Nitrogen Back-up System Functional Test," which among other things ensured the 2/3 EDG room dampers failed open upon a loss of instrument air and nitrogen pneumatic supply. This procedure, which would have identified this inaccurate assumption, was never performed. The licensee was not able to identify a reason this procedure was created but never implemented.

Analysis. The inspectors determined that the licensee's failure to ensure that design requirements were correctly translated into installed plant equipment was a performance deficiency. The performance deficiency was determined to be more than minor, and thus a finding, in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Design Control attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and if left uncorrected could lead to a more significant safety concern. Specifically, the licensee failed to correctly analyze and

identify that a failure of the non-safety related pneumatic control systems for the EDG room ventilation system results in closure of the room ventilation isolation dampers and therefore a loss of room ventilation which could result in a high ambient room temperature adversely affecting components of the 2/3 EDG and therefore prevent fulfillment of its required design function.

The inspectors determined the finding could be evaluated in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, dated June 19, 2012. The inspectors reviewed the Mitigating Systems Screening Questions in Appendix A, Exhibit 2 and answered "no" to questions A.1. through A.4. As a result, the finding was determined to be very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Training, because the licensee did not ensure licensed operations and engineering personnel properly understood the operation and configuration of the 2/3 diesel generator ventilation system under accident conditions and its impact on the safety-related 2/3 EDGs ability to accomplish its design function. Specifically, the licensee incorrectly believed that the 2/3 EDG room ventilation system failed in a conservative manner with a loss of its non-safety related pneumatic supply systems. CAP documents and other engineering products up until September 2015 incorrectly state that the 2/3 EDG's operability was not adversely affected by a loss of damper control pneumatics as the dampers were expected to fail open. [H.9]

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, measures be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application, for those components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, from initial construction through February 2016, the licensee failed to ensure that design requirements for the Unit 2/3 EDG were correctly translated into installed plant equipment in that the licensee failed to review for suitability of application of parts and equipment essential to the safety-related functions of the 2/3 EDG. Specifically, the licensee failed to correctly analyze and identify that a failure of the non-safety related pneumatic control systems for the EDG room ventilation system results in closure of the room ventilation isolation dampers and therefore a loss of room ventilation which could result in a high ambient room temperature adversely affecting components of the 2/3 EDG and therefore prevent fulfillment of its required design function.

Licensee corrective actions included restoration of the 2/3 EDG operability by replacing the depressurized nitrogen cylinders and a leaking regulator thereby restoring the ability to open EDG room ventilation dampers. A modification was installed in February 2016, replacing the three-way solenoid valve and pressure switch which selected the pneumatic source to the room ventilation damper controls with check valves and adjustments were made to the instrument air and nitrogen system pressure regulators to minimize nitrogen losses with the system in a standby configuration. The licensee is presently reviewing further design changes which would affect the configuration that the dampers fail in on a loss of pneumatic supply or the safety classification of the source of supply pneumatics.

Because this violation was of very low safety significance and it was entered into the licensee's CAP (IR 2583140), this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000237/2016001-01; 05000249/2016001-01, Failure to Maintain Design Control of the 2/3 Emergency Diesel Generator**).

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Supplemental Licensee Event Report 05000249/2015-001-01, "Main Steam Line Flow Switches Found Outside Technical Specification Allowed Value"

a. Inspection Scope

On September 5, 2015, the unit 3 'A' main steam line high flow switch 3-0261-2A did not meet the required channel check criteria. Due to a personnel error, the operations crew failed to perform the TS requirement to trip the channel which had failed the channel check criteria. The licensee conducted Apparent Cause Evaluation 2552152-03 and determined that the unit supervisor did not utilize all resources available to them including procedures, drawings, and the regulatory assurance organization when they misapplied TS 3.3.6.1. In addition, the flow switch was assessed to have failed due to excessive humidity and temperature in the portion of the reactor building housing the associated instrumentation. Licensee corrective actions included recalibration of the affected main steam line flow switch, training of the operations crew on application of TS 3.3.6.1, revision of the operator round sheets to clarify minimum instrumentation requirements, and repairs to the reactor building chill water system to improve environmental conditions in the reactor building.

The failure to perform the required TS action was documented in IR 2552152. The failure to enter a required TS action statement was a performance deficiency. This performance deficiency was previously documented in NRC inspection report 05000249/2015003 (ADAMS Accession Number ML15295A194). Licensee Event Report (LER) 05000249/2015-001-00, "Main Steam Line Flow Switches Found Outside Technical Specification Allowed Value" was previously closed in Integrated Inspection Report 05000237/2015004; 05000249/2015004, (ADAMS Accession Number ML16020A223) dated January 19, 2016. Documents reviewed are listed in the Attachment.

The licensee reported this event in accordance with 10 CFR 50.73(a)(2)(i)(B), any event or condition which is prohibited by the plant's TS.

This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

.2 (Closed) Supplemental Licensee Event Report 05000237/2015-005-01, "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing"

a. Inspection Scope

On September 23, 2015, at 2100, with the reactor at 100 percent power, the Unit 2 HPCI system failed a scheduled surveillance test when system flow could not be raised. After operating at full flow with the HPCI motor gear unit (MGU) controlling speed automatically, HPCI system flow had been reduced to 75 percent by lowering the flow controller setpoint in accordance with the test procedure. Raising the flow controller setpoint failed to restore the HPCI system flow to 100 percent. The test was stopped, HPCI was declared inoperable, and the operators made an unplanned entry into emergency core cooling (ECCS) and isolation condenser (IC) system TS 3.5.1 G.1 and G.2 for not having HPCI operational.

The licensee performed Equipment Apparent Cause Evaluation (EACE) 2627450-02, "Failure of the Dresden 2 HPCI System to Increase Speed During DOS 2300-03 High Pressure Coolant Injection System Operability and Quarterly IST Verification Test," and determined the apparent cause of the event to be a failure of the HPCI MGU high speed stop (HSS) limit switch 2-2303-LS18C. Specifically, the switch displayed high contact resistance due to deposits which built up on the switch's moveable contact faces. This high resistance simulates the limit switch being at the HSS, therefore, preventing the MGU from increasing the speed of the HPCI turbine. Documents reviewed are listed in the Attachment to this report.

LER 05000237/2015-005-00, "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing," was previously closed in Integrated Inspection Report 05000237/2015004; 05000249/2015004, (ADAMS Accession Number ML16020A223) dated January 19, 2016.

This event was reported in accordance with 10 CFR 50.73(a)(2)(v)(D), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

This LER is closed.

This event follow up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

.3 (Closed) Supplemental Licensee Event Report 05000237/2015-005-02, "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing"

a. Inspection Scope

On September 23, 2015, at 2100, with the reactor at 100 percent power, the Unit 2 HPCI system failed a scheduled surveillance test when system flow could not be raised. After operating at full flow with the HPCI MGU controlling speed automatically, HPCI system flow had been reduced to 75 percent by lowering the flow controller setpoint in accordance with the test procedure. Raising the flow controller setpoint failed to restore

the HPCI system flow to 100 percent. The test was stopped, HPCI was declared inoperable, and the operators made an unplanned entry into ECCS and IC system TS 3.5.1 G.1 and G.2 for not having HPCI operational.

The licensee performed EACE 2627450-02, "Failure of the Dresden 2 HPCI System to Increase Speed during DOS 2300-03 High Pressure Coolant Injection System Operability and Quarterly IST Verification Test," and determined the apparent cause of the event to be a failure of the HPCI MGU HSS limit switch 2-2303-LS18C. Specifically, the switch displayed high contact resistance due to deposits which built up on the switch's moveable contact faces. This high resistance resulted in the HPCI speed control logic assessing the limit switch to be at the HSS, therefore preventing the MGU from increasing the speed of the HPCI turbine. Documents reviewed are listed in the Attachment to this report.

LER 05000237/2015-005-00, "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing," was previously closed in Integrated Inspection Report 05000237/2015004; 05000249/2015004, (ADAMS Accession Number ML16020A223) dated January 19, 2016. Supplemental LER 05000237/2015-005-01, "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing" was previously closed in Section 4OA3.2 of this Integrated Inspection Report.

This event was reported in accordance with 10 CFR 50.73(a)(2)(v)(D), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

This LER is closed.

This event follow up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 13, 2016, the inspectors presented the inspection results to Mr. P. Karaba, 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

Interim exits were conducted for:

- The inspection results for the areas of radiological hazard assessment and exposure controls; and occupational ALARA planning and controls with Mr. P. Karaba, Site Vice President, on January 8, 2016.
- The results of the EP Program inspection with Mr. J. Washko conducted at the site on March 24, 2016.

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

P. Karaba, Site Vice President
J. Washko, Station Plant Manager
L. Antos, Manager Site Security
G. Baxa, Principal Regulatory Engineer
M. Budelier, Senior Engineering Manager
J. Connelly, Engineering Manager
P. DiSalvo, GL 89-13 Program Owner
D. Doggett, Emergency Preparedness Manager
N. Faith, Cyber-Security Manager, Corporate
D. Glick, Radioactive Material Shipping Specialist
F. Gogliotti, Director, Site Engineering
M. Hosain, Site EQ Engineer
R. Johnson, Chemistry
D. Ketchledge, Engineering
J. Kish, Site ISI
P. Marcus, Cyber Security Engineer
T. Mohr, Engineering Program Manager
G. Morrow, Operations Director
S. Matzke, Corrective Action Program Coordinator
M. Overstreet, Radiation Protection Manager
M. Pavey, Health Physicist
A. Pullam, Director, Site Training
J. Quinn, Director, Site Maintenance
D. Schiavoni, Engineering
R. Schmidt, Manager Site Chemistry, Environment & Radwaste
M. Sharma, Corporate Engineering
D. Smythe, Cyber Security Engineer
R. Stachniak, Engineering
R. Sisk, Buried Pipe Program Owner
T. Thoman, Cyber-Security Technical Analyst
D. Walker, Regulatory Assurance – NRC Coordinator
M. Wolf, Cyber-Security Senior Analyst

U.S. Nuclear Regulatory Commission

P. Loudon, Director, Division of Reactor Projects
J. Cameron, Chief, Division of Reactor Projects, Branch 4

IEMA

M. Porfirio, Resident Inspector, Illinois Emergency Management Agency

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000237/2016001-01 05000249/2016001-01	NCV	Failure to Maintain Design Control of the 2/3 Emergency Diesel Generator (4OA2.4)
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Closed

05000237/2016001-01 05000249/2016001-01	NCV	Failure to Maintain Design Control of the 2/3 Emergency Diesel Generator (4OA2.4)
05000249/2015-001-01	LER	Main Steam Line Flow Switches Found Outside Technical Specification Allowed Value
05000237/2015-005-01	LER	Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing
05000237/2015-005-02	LER	Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection (71111.01)

- IR 2640853; "Entered DOA 0010-02"
- OP-AA-108-111-1001; "Severe Weather And Natural Disaster Guidelines"; Revision 14

1R04 Equipment Alignment (71111.04)

- DOP 3700-M2/E2; "Unit 3 RBCCW System Checklist"; Revision 19
- DOP 3700-02; "Reactor Building Closed Cooling Water System Operation"; Revision 41
- Drawing M-353; Diagram of Reactor Building Cooling Water Piping
- IR 2614734; "NRC Identified U3 SBLC Suction Temp Tics Controlling Lower"
- IR 2558392; "U3 SBLC Discharge Pressure Backfill Valve Broken"
- IR 2558121; "U3 3B SBLC Pump Run With Low Suction Pressure"
- IR 2535219; "3B SBLC Pump Assembly Small Boron Leak"
- IR 2532951; "U3 SBLC Level Issues"
- IR 2511389; "3-1101-21 U3 SBLC Pump Recirc Vent Valve Leaking By"
- IR 2463283; "Elevated Temperature on 3B SBLC Squib Valve 3-1106-B"
- IR 2456171; "PMC – 3-1106-B SBLC Squib Valves High Temp"
- DOP 1100-M1/E1; "Unit 3 Standby Liquid Control (SBLC) System Checklist"; Revision 16
- Drawing: 12E-3460, Schematic Diagram Standby Liquid Control

1R04 Equipment Alignment (71111.04S)

- IR 2582506; "D2R24 As Found IST Seat Leak Test CV 2-1402-9A Failed"
- IR 2582351; "As Found Condition of 2A CS Suction Valve"
- IR 2579916; "CCP: Lock Broken on MOV Local Control Station"
- IR 2570414; "3A Core Spray Pump Cyclone Separator Leak DTP-09"
- IR 2544030; "DPT 2-1459A Output Signal Erratic and Fluctuating"
- IR 2518874; "Revise or Create New Procedure for Stop Check Valves"
- IR 2500723; "MOV Motor Borescope Could Not Be Performed 2-1402-24A"
- IR 2496795; "2B Core Spray Disch Press High"
- IR 2441327; "903-3 A-5 Alarming Spuriously"
- IR 2426123; "Part 21 GE SC 14-19.SBM Switch.3B Core Spray"
- IR 1695277; "U2 B Core Spray Fragnet 214B Critique"
- IR 1692683; "Excess Buildup on Intake Screens to 2B CS"
- IR 1684934; "MOV 2-1402-24B – Motor Replaced Out of Process"
- IR 1630493; "Hand Wheel Fell Off the 2-1402-36A"
- IR 1625399; "HSK Handwheel Has Fallen Off Valve 2-1402-36A"
- DOP 1400-01; "Core Spray System Preparation for Standby Operation"; Revision 13
- DOP 1400-E1; "Unit 2 Core Spray System Electrical Checklist"; Revision 04
- DOP 1400-M1; "Unit 2 Core Spray System"; Revision 24
- Drawing: M-27; Diagram of Core Spray Piping

1R05 Fire Protection (71111.05Q and A)

- IR 2620137; "NRC ID: Refuel Floor Fire Hose Nozzles"
- IR 2635845; "Unsatisfactory Fire Drill Performance"
- Dresden Pre-Fire Plan for Fire Zone 1.1.1.5D
- OP-AA-201-003; "Fire Drill Performance"; Revision 14
- Dresden Pre-Fire Plan for FZ 11.1.3
- Dresden Pre-Fire Plan for FZ 8.2.6A
- IR 2620137; "NRC ID: Refuel Floor Fire Hose Nozzles"

1R06 Flooding (71111.06)

- WO 01754779; "D3 18M Tstr CCSW Pump Vault Water Tight Door Leak Test"
- WO 01418373; "D3 18M Tstr CCSW Pump Vault Water Tight Door Leak Test"
- DOS 1500-21; "CCSW Pump Vault Watertight Door Leak Test"; Revision 01
- DTP 70; "Evaluation of CCSW Pump Vault Flood Protection Leakage Test Results"; Revision 002

1R07 Annual Heat Sink Performance (71111.07A)

- WO 01448799; "D2/3 4Y PM RBCCW '2/3' HX Clean, Insp, and Eddy Current Test"
- IR 2623088; "NRC Inquiry During Observation"
- IR 2622625; "2/3 RBCCW Heat Exchanger Has Leak Following Maint"
- IR 2620737; "Fire Marshal Tour"
- DOP 3700-01; "Reactor Building Closed Cooling Water System Fill and Vent"; Revision 10
- DOP 3700-02; "Reactor Building Closed Cooling Water System Operation"; Revision 41
- ER-AA-340-2000; "Balance-of-Plant Heat Exchanger Inspection, Testing, and Maintenance Guide"; Revision 7
- ER-AA-335-1006; "Heat Exchanger Electromagnetic Testing Methodology"; Revision 5
- Clearance Order 00124541; "Unit 2/3 RBCCW Heat Exchanger"; Checklist 002
- Drawing: M-20, Diagram of Reactor Building Cooling Water Piping

1R11 Licensed Operator Requalification Program (71111.11)

- IR 2617574; "NRC Resident Inquiry Into Training Session"
- IR 2618184; "Training Identified: LORT Crew Failed Out of the Box Evaluation"
- IR 2618949; "Training Identified: Incorrect Trigger Inserted During LORT Scenario"

1R12 Maintenance Effectiveness (71111.12)

- WO 1743058-01; "MMD Replace Valve 3-4799-1218"
- WO 1092792-01; "D2 14Y PM Replace IC TD Relay 0595-117A"
- IR 2612904; "2/3B SBT Charcoal Trays Need Replacement Next Fragnet"
- IR 2582186; "SRI Concern Brought Up to Shift Manager"
- IR 2562819; "2/3B SBT Fragnet 075B Critique Items"
- IR 2558843; "'B' SBT Flow Controller Setpoint Knob Broke"
- IR 2558395; "Found Unexpected Condition"
- IR 2555625; "PMC: 2/3-7504-A Leaking Oil"
- IR 2554270; "2/3 – 7509 SBT X-Tie Damper Limit Switch Not Closed"
- IR 2552293; "Corrections Needed – DIS 7500-05"
- IR 2546608; "NOS ID: DTS 7500-13 Without Acceptance Criteria"
- IR 2546599; "NOS ID: SBT Fan PM Comment Not Addressed"
- IR 2544453; "Evaluation of DAP 15-10 For SBT Testing Required"
- IR 2543272; "NOS ID: Clamps Not Engaged on SBT Access Panels"

- IR 2525100; "One Time NDE UT Inspection Needed for 'B' SBT Inlet Piping"
- IR 2505462; "Exposed Rotating Equipment Not in Compliance with OSHA"
- IR 2439910; "DAP 09-14 Review of DOA 7500-01"
- IR 2429634; "Enhancements Required – DIS 7500-04"
- IR 2425668; "SBT Flow Transmitter Out of Tolerance, Not a Tech. Spec."
- IR 2406638; "NRC Identified Excessive Amt of Grease on MOV Motor Casing"
- IR 2130403; "DOS 7500-02 Requires Enhancement"
- IR 2059635; "CCP: SBT X-tie Vlv Position Indicator Bolt Sheared Off"
- IR 1741630; "Template IR – VOC Introduced Into Charcoal Filter"
- IR 1685649; "DOS 7500-02 Procedure Issue"
- IR 1677739; "Informal OPEX Review Identified Potential Gap in SBT PM"
- IR 1662603; "CCP: Update Fuse Labeling in Surveillance"
- IR 1657989; "Instrument Air Sampling Shows Elevated Dewpoints"
- IR 1649600; "SBT EACE 1637704 Identifies and Issue With WGE"
- IR 1637704; "Closure of SPC 01599538-03 to EACE Assignment"
- IR 1636682; "Schedule Change Required"
- IR 1622772; "OPS and Engineering Need to Evaluate SBT Procedure"
- IR 1599538; "2/3A SBT Auto Started When C/S Was Taken to Standby"
- IR 1595477; "PMID 7318-01 / PM 1694446-01 – Past Late – OP"
- AR 1677739-02; "OPXR to Plant Engineering (Short) to Perform a Formal OPE X Review Assignment of RCR 19703-03"
- EACE [Equipment Apparent Cause Report] for AR 1637704-02; "2/3A SBT Unexpectedly Started When C/S was Taken to Standby"
- EC Eval 402552; "Evaluate UT on SBT Inlet Piping – WO 1380484-01"; Revision 00
- DOS 4700-11; "Sampling Instrument Air"; Revision 01
- ER-AA-310-1002; "Maintenance Rule Functions – Safety Significance Classification"; Revision 3
- Maintenance Rule - Failure Classification Form for IR 1599538; Train 75-1-OU R 75-1, Train A; Printed February 1, 2016
- Maintenance Rule - Failure Classification Form for IR 1599538; Train 75-1-OU R 75-1, Train B; Printed February 1, 2016
- MRule Expert Panel Minutes; Dated August 28, 2014
- MRule Expert Panel Minutes; Dated February 1, 2014
- MRule Expert Panel Minutes; Dated January 9, 2014
- Maintenance Rule Periodic Assessment #10 (10 CFR 50.65(a)(3) Assessment) for the period of October 1, 2012 – September 30, 2014; Dated December 16, 2014
- Dresden System Health Monitoring Report for 3rd Trimester of 2015 (3T15)
- NUMARC 93-01; "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"; Revision 4A
- List of Agostat E7000 Series Relays Utilized at Dresden
- IR 2623920; "ENS Notification Completed for Secondary Containment INOP"
- IR 2623885; "Secondary Containment DP Transient (T.S. Entry Req'd)"
- IR 2623618; "U3 RBV Area DP Controller Out of Adjustment"
- OP-AA-101-113-1004; Attachment 2, Revision 32; "Secondary Containment D/P Transient"
- Dresden System Health Report for Unit 2 HVAC – Reactor Building; Dated January 1, 2016 – March 31, 2016
- Dresden System Health Monitoring Report 3rd Trimester of 2015 (3T15)
- Dresden System Health Report for Unit 3 HVAC – Reactor Building; Dated January 1, 2016 – March 31, 2016
- Maintenance Rule System Basis Document for System #5704-1
- Maintenance Rule System Basis Document for System #5704-3

- Maintenance Rule System Basis Document for System #5704-4
 - Maintenance Rule System Basis Document for System #5704-5
 - Operations Log for time period February 1, 2016, 17:04, through February 10, 2016, 00:09
- Drawings:

- M-529, Diagram of Reactor Building Ventilation, Sheets 1 & 2
- M-269, Diagram of Reactor Building Ventilation

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

- Protected Equipment List for Unit 2/3 A SBT
- WC-AA-101; "On-Line Work Control Process"; Revision 25
- OP-AA-108-117; "Protected Equipment Program"; Revision 4
- OP-DR-108-117-1001; "Protected Equipment and Pathway Policy"; Revision 06
- Drawing: M-49, Diagram of Standby Gas Treatment
- Protected Equipment List of U2 "B" Inst Air Compressor
- Protected Equipment List of U2 Inst Air to U3 Inst Air X-Tie
- Protected Equipment List of U3 SA/IA X-tie Valve
- Protected Equipment List of U3 "A" Inst Air Compressor
- Protected Equipment List of U3 "B" Inst Air Compressor
- Protected Equipment List of U3 "C" Inst Air Compressor

Drawings:

- M-37, Diagram of 2A Instrument Air Piping"
- M-38, Diagram of Service Air Piping Turbine Building / Radwaste
- IR 2643955; "NRC Concern"
- IR 2643945; "Fire Marshall Tour"
- IR 2643847; "3D LPCI Breaker Indicates Test While Racked In"
- IR 2643668; "Work Not Performed Due to Weather"
- Protected Equipment List for Unit 3 IC
- Protected Equipment List for Unit 3 Div 1 Core Spray
- Protected Equipment List for Unit 3 ADS
- Protected Equipment List for Unit 3 Div I LPCI
- Protected Equipment List for Unit 3 Div II LPCI
- Protected Equipment List for Unit 3 Div 2 Core Spray
- OP-DR-201-012-1001; "Dresden On-Line Fire Risk Management"; Revision 04
- OP-AA-108-117; "Protected Equipment Program"; Revision 4
- Protected Equipment List for Unit 2/3 345 KV Switchyard
- Protected Equipment List for Unit 2 IC
- Protected Equipment List for Unit 2 Div 2 Core Spray
- Protected Equipment List for Unit 2 ADS
- Protected Equipment List for Unit 2 Div I LPCI
- Protected Equipment List for Unit 2 Div II LPCI
- Protected Equipment List for Unit 2 Div I Core Spray

1R15 Operability Determinations and Functional Assessments (71111.15)

- IR 2614751; "NRC in 2015-12 on Series Unaccounted Dose Error Terms"
- IR 2607808; "Review of ASCO Interim Part 21 Notification 50681"
- EC 383165; "Environmental and Seismic Qualification Evaluation of General Electric Relay Model 12HGA11J52G for Emergency Diesel Generator Auto Start Relays"; Revision 0
- CC-AA-203; "Environmental Qualification Program"; Revision 11
- CC-AA-203-1001; "Environmental Qualification Program Performance Indicators"; Revision 4

- ER-AA-300-110; "License Renewal Insulation Material for Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program"; Revision 1
- ER-AA-300-120; "Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program"; Revision 2
- Environmental Qualification Binder; EQ-39D, Revision 12, Unit 2 – page E6 of E9 and Unit 3 – Page E7 of E9
- NRC Information Notice 2015-12: "Unaccounted for Error Terms Associated with the Irradiation Testing and Environmental Qualification of Important-To-Safety Components"
- PDHonline Course #185 (1 PDH); "Environmental Qualification of Safety Related Electrical Equipment"; Dated 2012
- Industry Guidance Position Paper: "Responding to the 2014 Steris 10 CFR Part 21"; Revision 0
- EC 404609; "Historical Operability Review of Secondary Containment in RXB Due to Storage Platforms on Refuel Floor"; Revision 000
- IR 2619090; "Short Discussion W/NRC SRI Regarding IR 261715"
- IR 2617415; "Refuel Flr Storage Platforms Not On Drawings"
- Calculation for DRE98-0020; "Evaluation of Reactor Building Superstructure"; Revision 2C
- EC 356598; "Evaluation of Reactor Building Superstructure"; Revision 2C
- EC 342824; "Purpose: Record Minor Revision "2B" of Calculation DRES98-0020"
- EC 342824; "Evaluation of Reactor Building Superstructure"; Revision 2B
- EC 341837; "Purpose: Record Minor Revision "1A" of Calculation DRES98-0020"; Revision 1
- EC 341837; "Evaluation of Reactor Building Superstructure"; Revision 2A
- Calculation DRES98-0020; "Evaluation of Reactor Building Superstructure"; Revisions 0, 1, and 2
- Whiting Corporation; Proposal Specifications C-2712-R1, for DRES98-0020; Dated February 5, 1974
- Letter From W. M. Weaver, of Sargent & Lundy Engineers to Commonwealth Edison; Dated October 29, 1974
- TODI [Transmittal of Design Information] CC2002-9994 for System 00.58; Dated April 22, 2002
- ASCE [American Society of Civil Engineers] 7-98; "Minimum Design Loads for Buildings and Other Structures"
- IR 2620390; "NRC Identified – IR 2612384 Content Quality"
- IR 2612384; "Historical Operability Review for IRs 2593452 and 2593450"
- IR 2593452; "3-0203-2B Valve Shows Dual Indication"
- IR 2593450; "3-0203-1B Valve Shows Dual Indication"
- IR 2627920; "Historical Operability Review for IRs 2593452 and 2593450"
- DAN 902(3)-5 D-4; "Group I Isolation Initiated"; Revision 20
- DOS 0250-02; "Full Closure Timing and Exercising of Main Steam Isolation Valves"; Revision 31

Drawings:

- 12E-2501, Schematic Diagram Primary Containment Isolation System, Sensor and Trip Logic
- 12E-2504, Schematic Diagram Primary Containment Isolation Sys. Main Steam Isolating Circuit Inboard
- 223LN005-001; Group 1 Isolation Logic Division I; Revision 00
- 223LN005-008; Group I PCIS Functional Summary; Revision 01
- 239LN001-006; Main Steam Isolation Valve (Closed); Revision 02
- 239LN001-007; Main Steam Isolation Valve (Open); Revision 02
- IR 2644456; "Plant Health Committee Decision on Refuel Floor Storage Platforms in Reactor Building"

- EC 391973; "Extend 125 VDC and 250VDC Battery Coping Time with Load Shedding"; Revision 000
 - EC 343968; "Revise 250V DC Calculations in Response to Engineering 2003 SSDI FASA Findings"; Revision 001
 - DGA-03; "Loss of 250 VDC Battery Chargers With Simultaneous Loss of Auxiliary Electrical Power"; Revision 14
 - DGA-13; "Loss of 125 VDC Battery Chargers with Simultaneous Loss of Auxiliary Electrical Power"; Revision 20
 - DGA-22; "Station Blackout"; Revision 00
 - DOA 6900-T1; "Unit 2 and 3 125 VDC Battery System Detailed Load List"; Revision 26
 - DOA 6800-01; "Loss of Power to Essential Service System Bus or Instrument Bus"; Revision 34
 - DOP 6800-01; "Essential Service System"; Revision 31
 - Calculation DR-27D-E002; "Station Blackout (SBO) Building – 125v DC Battery"
 - 50.59 Screening 2005-0171; Revision 0 for EC 356114/DRE03-0025; Revision 000/000C
- Calculations:
- 3C2/3-0389-001; Revision 004, as part of EC 399624, "Loss of Ventilation During a Station Blackout (SBO)"
 - DRE03-0025; Revision 002, as part of EC 382480, "Baseline Calculation for 125 VDC ELMS-DC Conversion to DCSDM"
 - 7318-32-19-2; Revision 04; "24/48V DC Load Profile Input into ELMS"
 - 7056-00-19-5; Revision 035H; "Load Estimation of 125V DC Busses"
 - 7056-00-19-4; Revision 007 and 008; "250V DC Load Profile and Battery Sizing"
- Drawings:
- 263LN001-001; Safety Related 250VDC System
 - 263LN002-001; 125VDC System
 - 12E-6822; LOOP Schematic Functional Block Diagram Analog Trip System Class 1E Instrumentation Upgrade
 - 12E-2328; Single Line Diagram Emergency Power System
 - 12E-2325; Key Diagram 120 and 120/240V AC Distribution Essential Service Bus and Instrument Bus
 - 12E-2322; Key Diagram Reactor Building 125V DC Main Bus 2 Distribution Panel
 - 12E-2322-A; Key Diagram Turbine Building 125V DC Reserve Bus Distribution Panel
 - 12E-2321; Key Diagram 250V DC Motor Control Centers
 - Letter from M. Kaiseruddin, Sargent & Lundy, to Commonwealth Edison; Dated March 11, 1992; "NRC Letter from B. L. Siegel to T. J. Kovach of Commonwealth Edison Company; Dated December 11, 1990"
 - Letter from B. Siegel, NRC to T. Kovach; Dated December 11, 1990; "Safety Evaluations of the Response to the Station Blackout Rule Related to Dresden, Units 2 and 3 and Quad Cities, Units 1 and 2 (TAC NOS. 68539, 68540, 68590, and 68591)"
 - Letter from J. Schrage, ComEd to NRC; Dated September 1, 1995; "Proposed Scheduling Exemption for Commitments Related to 10CFR 50.63, Station Blackout (SBO) Rule"
 - Letter from G. Bowman, NRC to B. Hanson, Exelon; Dated February 7, 2016; "Dresden Nuclear Power Station, Units 2 and 3 – Response Regarding Phase 2 Staffing Submittals Associated with near-Term Task Force Recommendation 9.3 Related to the Fukushima Dai-Ichi Nuclear Power Plant Accident (TAC NOS. MF6446 and MF6447)"
 - Regulatory Guide 1.155; "Station Blackout"; Dated August 1988
 - IR 2641515; "U2 Diesel Generator Cover Missing a Screw"
 - IR 2641512; "Unit 2 Diesel Generator Panel Missing Screws"
 - IR 2641507; "There is a Screw Missing on the Aux Compartment 2-6722-8"
 - IR 2641499; "4 Holes in U2 Diesel Generator Damper Door"

- IR 2641479; "3-3401-D Condensate Pump Motor Vent Missing Screw"
- IR 2641001; "Plastic Window Missing Screws on Panel 2202-27"
- IR 2640988; "Chain Broken on Spool Piece to the West of U3 Drywell Hatch"
- IR 2640997; "Fire Door #46 Missing a Screw for the Cover of the Mechanism"
- IR 2640992; "Cover for Fire Door #12 Mechanism Missing a Screw"
- IR 2640984; "Cover for Fire Door 52 A Mechanism Missing Bolts"
- IR 2640977; "Fire Barrier Found INOP During Round"
- IR 2640003; "Fire Door 129 Missing a Screw on the Door Handle"
- IR 2639845; "Screw Missing on 2/3-4341-8008"
- IR 2639837; "U2 Elevator Control Panel in U2 Elevator is Missing Screws"
- IR 2639833; "Screws Missing on Unit 2 Interlock Panel"
- IR 2639832; "Screws Missing on 2B Service Water Pump"
- IR 2639829; "Screws Missing From the Back of Bus 2 on Unit 1"
- IR 2639791; "2-0299-27 is Missing Screws to the Panel"
- IR 2639788; "The Fire Door on the U2 HPCI Room Door Jam Missing Screw"
- IR 2639593; "Panel 2252-28 Missing Bolts"
- IR 2639591; "Panel 2202-27 Missing Bolts"
- IR 2639590; "Panel 2202-33 Missing Bolts"
- IR 2637275; "Screw Missing From Junction Box Cover in U3 EDG Room"
- IR 2636241; "Relay Failed to Pick Up During Performance of DOS 0500-27"
- IR 2635779; "NRC Identified Missing Fasteners Versus Operations on Rounds"
- IR 2635443; "Bolts Found Beneath U1 Diesel Fire Pump"
- IR 2635044; "Next to the U1 DFP Instrument Panel There Missing Screws"
- IR 2634453; "2CB-12 is Missing a Screw Holding the Panel On"
- IR 2634451; "Bolt Missing on Pipe Hanger on the North Side of Cribhouse"
- IR 2634449; "South West Window of the Cribhouse is Missing Bolts"
- IR 2634428; "Bolt Missing on Back of 2252-21 Panel"
- IR 2634423; "U3 EDG Missing Screws"
- IR 2634421; "2/3 EDG Missing Screws"
- IR 2634420; "2/3 EDG Missing Access Panel Screws"
- IR 2633686; "NRC Concern: 2/3 EDG Excitation Panel missing Bolts"

1R18 Plant Modifications (71111.18)

- EC 403455; "570 TB to RXB Interlock Door Circuit Logic Reconfiguration"; Revision 000
- WO 1868032; "570 TB to RXB Interlock Door Circuit Logic Reconfiguration"
- IR 2632278; "Unexpected Alarm 902-4 E-20 RX/Turb 569 Intlk Doors Inop/Byp"
- IR 2641763; "NRC ID'D: 570 Elevation Interlock Door Indicator Light"
- DTS 1600-08; "Secondary Containment Interlock Door Inspection"; Revision 11
- 50.59 Review for EC 403455; Revision 000
- Work Planning Instructions for Dresden Unit 2 EC 403455; Revision 000
- Apparent Cause Investigation Report for CR 2551306; "Unit 2 570' Elevation Interlock Doors Opened Simultaneously"

Drawings:

- 12E2844E; Wiring Diagram Reactor Building Personnel Entry Door
- RE-195-D; Wiring Diagram Access Control Part 10
- 12E-2675A; Wiring and Schematic Diagram 480V AC Turbine Building Motor Control Center 28-2 (2-7828-21) Part 1
- Sketch 7 Terminal Box 2TB-30 Panel Layout

1R19 Post-Maintenance Testing (71111.19)

- IR 1676358; "D2/3 24M TS 'B' SBT Charcoal Freon R-11 Leak Test"
- IR 1676362; "D2/3 24M TS Visual Inspection SBT Filter Train B"
- IR 1677577; "Perform 2/3B SBT DTS 7500-07 & DMP 7500-01"
- IR 1682963; "D2/3 24M TS 'B' SBT HEPA Filter Leak Test"
- IR 2612904; "2/3B SBT Charcoal Trays Need Replacement Next Fragnet"
- DOS 7500-02; "SBT System Surveillance and IST Testing"; Revision 52
- DTS 7500-11; "DOP Testing of 2/3 SBT HEPA Filters"; Revision 13
- DTS 7500-13; "SBT System Visual Inspection"; Revision 04
- DTS 7500-07; "Standby Gas Treatment System Air Filter Unit Performance Requirements (Methyl Iodine Removal Laboratory and Charcoal Bank In-Place Leak Test)"; Revision 18
- OP-AA-109-101; "Clearance Preparation/Approval Checklist, Clearance #129542"; Revision 10
- DFPP 4131-01; "Resetting Grinnell or GEM Multimatic Valves"; Revision 27
- DFPP 4131-06; "Resetting Tyco Model DV-1 Deluge Valves"; Revision 03
- Drawing: M-375; Diagram of Fire Protection Piping
- DOS 4400-01; "Containment Cooling Service Water Vault Floor Drain"; Revision 13
- Drawing: M-360; Diagram of L.P. Cooling Injection Piping
- Vendor fact sheet for Asco® General Service Solenoid Valves, 3/2 Series 8320
- WO 01894035; "D3 Qtr Com SBO Diesel Generator Surveillance"
- WO 01864547; "U3 SBO PLC Not in Run"
- WO 01864098; "U3 SBO Inverter Transformer Failure"
- WO 01848731; "D3 AN PM Exercise and Adjust Potentiometer"
- WO 01848729; "D3 AN COM Inspect Radiator Fan Belts 3-6610-204B"
- WO 01848728; "D3 AN COM Inspect Radiator Fan Belts 3-6610-214B"
- WO 01848726; "D3 AN COM Inspect Radiator Fan Belts 3-6620-204A"
- WO 01761868; "D3 2Y PM Test SBO Diesel Generator Relays/Meters"
- WO 01737717; "D3 2Y PM Diesel Generator Electrical Inspection"
- WO 01737278; "D3 2Y PM SBO Inverter Inspection"
- WO 01736531; "D3 2Y PM 3B SBO Engine Radiator Fan #2 Motor/Belt Insp"
- WO 01736529; "D3 2Y PM 3B SBO Engine Radiator Fan #1 Motor/Belt Insp"
- WO 01736263; "D3 2Y PM 3A SBO Engine Radiator Fan #2 Motor/Belt Insp"
- WO 01736259; "D3 2Y PM 3A SBO Engine Radiator Fan #1 Motor/Belt Insp"
- WO 01667325; "Unit 3 SBO I/O Card Bad (E3N1S2)"
- WO 01580090; "D3 10Y PM Replace SBO 2301A Governor"
- WO 01542443; "D3 4Y PM 4kv Cub Insp Bus 33 Cub 17, SBO Bus 71 Tie"
- WO 01542100; "OA D3 4Y PM Test 4kv Bus 33 Feed From SBO Bus 71 Relays"
- WO 01542098; "D3 4Y PM Test 4kv Bus 34 Feed From SBO Bus 71 Relays"
- WO 01438051; "D3 4Y PM Test Bus 71 Undervoltage and Bus Differential Relay"
- WO 01340906; "D3 5Y PM Inspect Cubicle 4kv Bus 71 Cub 1, Fd From SBO DG3"
- WO 01340904; "5Y PM Inspect Cubicle 4kv Bus 71 Cub 3, Feed to Bus 33"
- WO 01339010; "D3 5Y PM Inspect 4kv Bkr, UTC 0001185081 (Bus 61/71)"
- WO 01309786; "5Y PM Inspect 4kv Bkr, UTC 0001185077 (Bus 61/71)"
- WO 01309794; "5Y PM Inspect Cubicle 4kv Bus 71 Cub 4, Feed to Bus 34"
- WO 01236117; "D3 6Y PM 3B SBO Engine Start Air RB Starting SOV Seal Repl"
- WO 01236116; "D3 6Y PM 3A SBO Engine Start Air RB Starting SOV Seal Repl"
- WO 01236115; "D3 6Y PM 3B SBO Engine Start Air RB Starting SOV Seal Repl"
- WO 01236114; "D3 6Y PM 3A SBO Engine Start Air RB Starting SOV Seal Repl"
- IR 2626720; "U3 SBO Fragnet Project Critique"
- IR 2626093; "U3 SBO DG Room Secondary Vent Fans Did Not Start in Local"

- IR 2625765; "U3 SBO Lube Temperature Out Reading Low"
- IR 2625139; "Degraded U3 RBV Exhaust Fan Combination"
- IR 2625049; "Amber Bypass Lamp Not Lit"
- IR 2624954; "SBO D/G A-PH OC Relay As-Found OOT"
- IR 2623354; "24V Found in OOS Electrical Circuit"
- IR 2623146; "Found Nicked Insulation on Black Wire of VT 3-6620-173B"
- DOS 6620-07; "SBO 2(3) Diesel Generator Surveillance Tests"; Revision 41
- WO 1891739; "D3 Qtr TS HPCI Pump Oper Test and IST Surv"
- DOS 2300-03; "High Pressure Coolant Injection System Operability and Quarterly IST Verification Test"; Revision 109
- IR 2643876; "NRC Question Regarding HPCI Speed"
- IR 2641377; "U3 HPCI DTP-09 Leaks"

Drawings:

- High Pressure Coolant Injection System Functional Block Diagram, Figure 7.3-8A
- High Pressure Coolant Injection System Functional Block Diagram, Figure 7.3-8C

1R22 Surveillance Testing (71111.22)

- WO 1875687-01; "D2 Qtr TS Scram Disch Volume High Level Scram"
- DIS 0500-05; "Unit 2 Scram Discharge Volume Level Sensor Functional Tests"; Revision 33
- Drawing: Scram Discharge Volume (SDV), Figure 4.5-11
- DFPS 4123-01; "Unit 1 Diesel Fire Pump Operability"; Revision 50
- WO 1897086; "D1 1M Tstr/Com Diesel Fire Pump Operability Surveillance"
- IR 2635443; "Bolts Found Beneath Diesel Fire Pump"
- IR 2571390; "U1 DFP Block Heater is Not Working"
- IR 1618481; "U1 DFP Fuel Day Tank Level Alarm"
- IR 1503078; "U1 DFP Day Tank Local Indicator Does Not Work"
- IR 1119642; "U1 DFP Day Tank Level Indication Stuck"
- IR 0877803; "U2 DFP Fuel Oil Day Tank Level Indication is Stuck"
- IR 0805780; "IEMA Inspector Questions of U1 DFP Day Tank Operations"
- IR 0803315; "U1 DFP Day Tank Level Indicator Stuck at 3/4"
- IR 0508341; "U1 DFP Day Tank Level Indication is Broken"
- IR 0389425; "U1 DFP Day Tank Level Indication Stuck"
- IR 0276974; "U1 Diesel Fire Pump Day Tank Level Indicator Stuck"
- DOS 0500-27; "Unit 3 Main Steam Line Isolation Valve Closure Scram Circuit Functional Test"; Revision 07
- DOS 0500-27; "Unit 3 Main Steam Line Isolation Valve Closure Scram Circuit Functional Test"; Revision 05
- DOP 3200-05; "Reactor Feed Pump Shutdown"; Revision 39
- 50.59 Review for Unit 3 TCCP 405013, 405048, 405049, 405015, 405053, 405054; "Utilize MSIV 2A Test Limit Switch as the RPS Signal for the Failed MSIV 1A or 1B Contact"; Revision 000
- 50.59 Evaluation 2016-03-002; TCCP 405013; Revision 001
- Prompt for IR 2636241; "Relay 3-0590-102B failed to re-energized during performance of DOS 0500-27"
- WO 1885485; "D3 QTR TS MSIV Scram Functional Test"
- IR 2636241; "Relay Failed to Pick Up During Performance of DOS 0500-27"
- WO 01888503; "Operations Perform DTS 8236/ Unit 2 TIP[Traversing In-Core Probes] Run Reactivity Management"
- DTS 8236; "Whole Core LPRM Calibration (Mixed Core)"; Revision 38
- DOP 0700-06; "Traversing Incore Probe (TIP) System Operation"; Revision 31

- DIP 0700-40; "TIP Drive Control Unit Drawer PM&C"; Revision 02
- WO 1906787-01; "Troubleshoot 2D TIP machine manual switch degraded"
- WO 1906388-01; "Troubleshoot 2B TIP not communicating with PCC"
- WO 1372501-01; "Troubleshoot 2E TIP Moving without any operator input"
- WO 01163902; "Unable to Run TIPS on Ch 4 'D' Machine"
- WO 01215089; "Unit 2 'E' TIP Machine Reversed on Autostart Depression"
- IR 2638046; "2B TIP System Not Communicating W/PPC"
- IR 2638036; "2D TIP Machine Manual Switch Degraded"
- IR 1489317; "2D TIP Unexpectedly Reversing Direction"
- IR 1377003; "2D TIP Machine Auto Reversed While in TIP Indexer"
- IR 1289769; "2D TIP Unexpectedly Reversing Direction"
- IR 1115715; "Unit 2 'E' TIP Machine Drive Issue"
- IR 1080248; "2A TIP Machine Requires Troubleshooting"
- IR 0884197; "Unit 2 'E' TIP Machine Reversed on Autostart Depression"
- IR 0812265; "'A' and 'D' TIP machines Malfunctioning During TIP Run"
- Drawing: 12E-2463; Schematic Diagram Traversing In-Core Probe Calibration System (TIP)
- WO 1888309; "D3 QTR TS 3B SBLC Pmp Test for IST"
- IR 2643139; "High Pitch Squeal From Motor Bearing/Gear Reducer Area"
- DOS 1100-04; "Standby Liquid Control System Quarterly/Comprehensive Pump Test for the Inservice Testing (IST) Program"; Revision 50

1EP2 Alert and Notification System Evaluation (711114.02)

- FEMA ANS Design Basis Report; Dated May 2013
- FEMA ANS Letter for Backup ANS; Dated December 10, 2012
- Fulton Technologies Exelon ANS Siren Test Procedures
- Siren Testing and Maintenance Data; Dated July 2014 through March 2016
- IR1665308; "EP Siren Failure"
- IR 1673663; "EP Siren Failure DR22"
- IR 1677576; "EP – Siren Failures (BD10, BD13, DR10, DR21)"
- IR 1678297; "Siren Failures (BD03, BD06, BD11, BD13, DR21)"
- IR 1678500; "EP – Siren Failures (BD03, BD06, DR20)"
- IR 2542816; "EP – Siren Failure (DR09 and DR10)"
- IR 2601882; "DRE E-Plan Annex ANS Backup Conflict"
- IR 2644468; "MW ANS Design Report Change"
- IR 2644484; "Copies of MW Station ANS Design Reports Not Current"

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03)

- EP-AA-112; "Emergency Response Organization/Emergency Response Facility (ERF) Activation and Operation"; Revision 18
- Emergency Response Organization Augmentation Call-in Drill Results; Dated July 2014 through March 2016
- Selected Station Emergency Response Personnel Training Records
- IR 1647265; "EP ERO Group Page Delayed 96 Minutes"
- IR 2464409; "Missed Duty Member EP Call In Drill"

1EP5 Maintenance of Emergency Preparedness (71114.05)

- EP-AA-1000; "Exelon Standardized Radiological Emergency Plan"; Revision 28
- EP-AA-1004; "Radiological Emergency Plan Annex for Dresden Station"; Revision 35
- NOSA-DRE-15-03; "Emergency Preparedness Audit Report"; Dated March 30 - April 17, 2015
- Focused Area Self-Assessment; "2015 NRC EP Exercise (Dresden) Inspection Readiness"

- Focused Area Self-Assessment; "NRC Emergency Preparedness Baseline Inspection"
- Dresden 2015 Pre-Exercise Report
- Dresden 2015 NRC Graded Exercise Report
- IR 1668568; "EP CFAM PI Decline – Key Participation"
- IR 1668569; "EP CFAM PI Decline – 6 Month DEP Classification"
- IR 1668618; "EP CFAM PI Decline – Key ERO Stability"
- IR 1668675; "EP CFAM PI Overall Point Decline"
- IR 2434594; "4Q14 EP Focus Area Drill Comments Roll-up and Lessons-Learned"
- IR 2493743; "Roll-up IR For 1Q15 EP Full PI Drills"
- IR 2535255; "Failed DEP Opportunity During 2015 Dresden Exercise"
- IR 2539103; "DRE-EP-2015-NRC Ex SIM-Other Issues"
- IR 2539106; "DRE-EP-2015-NRC Ex TSC-Other Issues"
- IR 2539107; "DRE-EP-2015-NRC Ex OSC-Other Issues"
- IR 2546171; "Trend IR 3 DEP Failures in a 2 Month Period"
- IR 2569723; "3Q15 EP Focus Area Drill – Roll-up IR"
- IR 2590387; "4Q EP Drill Roll-up IR"
- IR 2618606; "EP-DEP Failure and Missed NARS Time During TSC Drill"
- Most current review of Letters of Agreement with: General Electric, Will County Sheriff, Grundy County Sheriff, Coal City Fire Protection District, Morris Hospital, Corp of Engineers, St. Joseph Hospital

1EP6 Drill Evaluation (71114.06)

- Player Brief; 1Q16 Full Performance Indicator FAD
- EP-MW-114-1200-F-01; "Nuclear Accident Reporting System (NARS) Form"; Revision H

4OA1 Performance Indicator Verification (71151)

- NRC Performance Indicator Data; Emergency Preparedness – Drill/Exercise Performance; Dated 4th Quarter 2015 through 4th Quarter 2015
- NRC Performance Indicator Data; Emergency Preparedness – ERO Readiness; Dated 4th Quarter 2015 through 4th Quarter 2015
- NRC Performance Indicator Data; Emergency Preparedness – Alert and Notification System Reliability; Dated 4th Quarter 2015 through 4th Quarter 2015
- Reviewed Data Collection from January 2005 through December 2015; and also Reviewed Related Corrective Action Program Data between 2014 through 2015

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

- IR 02581575; "Water Found in Mausoleum While Performing Survey"
- IR 02582803; "Level 1 PCE on CB&I Carpenter Working in U-2 LPHB in Turbine Pipe"
- IR 02584842; "Level 1 PCE Worker Working in "A" Moisture Separator in U-2 LPHB Grinding on Weld"
- IR 02588977; "A Fuel Handling Supervisor has a Low Level Internal Activity"
- IR 02584148; "GE Technician was Contaminated on the Neck"
- IR 02587536; "Equipment Unconditional Released with RAM Sticker on the Boxes"
- IR 02584813; "ED Dose Rate Alarm Investigation for Anomaly"
- 452250; "Intake Investigation Form"; Dated November 18, 2015
- RP-AA-800-001; "National Source Tracking System 2016 Annual Inventory Reconciliation 2B.127"
- 2015 Annual Inventory Reconciliation Report; NSTS Notification of 2015 Submission Acknowledgement ID 5830, License No. NPF-72
- RP-AA-401-1002; "Radiological Risk Management"; Revision 19

- RP-AA-401-1003; "Contamination Control Best Practice Application"; Revision 2
- RP-AA-403; "Planned Dose Rate Alarm Form"; Revision 8
- RP-AA-441; "Methodology for Estimating Airborne Radioactivity Based upon Contamination Levels and Work Activities"; Revision 5
- RP-AA-460; "Controls for High and Locked High Radiation Areas"; Revision 26
- RP-AA-460-001; "Controls for Very High Radiation Areas"; Revision 5
- RP-AA-460-002; "Additional High Radiation Exposure Control"; Revision 3
- RP-AA-461; "Radiological Controls for Contaminated Water Diving Operations"; Revision 5
- RP-AA-462; "Controls for Radiographic Operations"; Revision 10
- RP-AA-503; "Unconditional Release Survey Method"; Revision 10
- RP-AA-800; "Semi Annual Inventory and Leak Test; Control, Inventory, and Leak Testing of Radioactive Sources"; Revision 7
- OU-AA-390; "Spent Fuel Pool (SFP) Material Control"; Revision 3
- RP-AA-700-1239; "Operation and Calibration of the Model SAM-12 small article Monitor"; Revision 2
- SFP Material Log; Braidwood Unit-Common 2RS2
- Semi-Annual Inventory and Leak Test Checklist; Dated August 9, 2015
- D2R24 Post Outage Report; RP-AA-4004; Revision 2
- RWP-10017117; "D2R24 Drywell Control Rod Drive (CRD) Exchange"; Revision 4
- RWP-10017130; "D2R24 Reactor Disassembly/Reassembly and Related Activities"; Revision 0
- RWP-10018233; "D2M19; Reactor Disassembly/Reassembly and Related Activities"; Revision 19
- RWP-10017198; "D2R24 Drywell Motor Impeller Replacement"; Revision 1
- RWP-10018235; "D3M19; CRD Exchange Support Activities"; Revision 1
- RWP-10017109; "D2R24 Drywell LLRT Activities"; Revision 19
- RWP-10017134; "D2R24 Fuel Floor Reactor Cavity Platform Activities"; Revision 1

2RS2 Occupational ALARA Planning and Controls (71124.02)

- RP-AA-400; "ALARA Program"; Revision 12
- RP-AA-400-1007; "Elevated Dose Rate Response Planning"; Revision 2
- ALARA-10017117; "D2R24 Drywell Control Rod Drive (CRD) Exchange"; Revision 4
- ALARA -10017130; "D2R24 Reactor Disassembly/Reassembly and Related Activities"; Revision 0
- ALARA -10018233; "D2M19; Reactor Disassembly/Reassembly and Related Activities"; Revision 19
- ALARA -10017198; "D2R24 Drywell Motor Impeller Replacement"; Revision 1
- ALARA -10018235; "D3M19, CRD Exchange Support Activities"; Revision 1
- ALARA -10017109; "D2R24 Drywell LLRT Activities"; Revision 19
- ALARA -10017134; "D2R24 Fuel Floor Reactor Cavity Platform Activities"; Revision 1
- IR-02601711; "D2R24 Drywell CRD System Maintenance Activities and Pull Puts Post Job ALARA Analysis"; November 24, 2015

4OA2 Identification and Resolution of Problems (71152)

- IR 2547964; "NRC Follow-Up Inspection On Cyber Security Check-In Self-Assessment"
- IR 2618465; "Classification of Cyber Security Implementation Procedures"
- IR 2619280; "NRC Questions AR Assignment Closure"
- IR 2620336; "IR 2612447 Coded Incorrectly"
- IR 2621131; "Cyber Security - Timely Repair of Latch on 2/3-0944-5 Panel"
- IR 1488187; "Cyber Security Response to NRC IA-13-01"

- IR 1582330; "Cyber Security - Key Control in Areas with CDA's"
- IR 1582784; "Cyber Security - DTE Scanning Guidance Inadequate"
- IR 1613406; "Security - NRC Question on Document Classification"
- IR 1615101; "Cyber Security - Key Control for TSC and Main Computer Room"
- IR 1615156; "Security - Main Computer Room Door Not Locked"
- IR 1618507; "Cyber Security - Potential Data Diode Bypass"
- IR 1620104; "Security - Enhancement Identified for Tour Paperwork"
- IR 1620115; "Security - Questions Concerning Tour Completion"
- IR 1620217; "NRC Questioned the Bolt Holds Not Being Engaged on EDG Panel"
- IR 1620509; "CDA Media Possibly Being Used on CDAs Without Successful Scan"
- IR 1620801; "NRC Concern With IMP Control Room Walkdowns"
- IR 1620826; "Security - Document Classification Concern"
- IR 1620964; "Cyber Security - A DTE Scanning Procedure is Required"
- IR 1620997; "Cyber Security CDA Database Needs Improvement"
- IR 1621227; "NRC Concern with the Control of Software License Key Devices"
- IR 1622805; "Security- Root Cause Report Requested For SGI Classification"
- IR 1631398; "Historical Operability for Panel 2-2252-10 and EDG System"
- IR 2216162; "Receipt of NRC Inspection Report 2014-405"
- IR 2218195; "NRC Inspection Report 2014-405 Cyber Security"
- IR 2220614; "NRC Inspection Report 2014-405 Cyber Security"
- IR 2222057; "NRC Inspection Report 2014-405 Cyber Security"
- IR 2224776; "NRC Inspection Report 2014-405 Cyber Security"
- IR 2612447; "Cyber Security - Key Control for Computer Room and TSC"
- IR 2618239; "Kiosk Failed to Scan One Block on CDA0016212"
- IR 2619556; "MCR Recorder CDA Checks Require Enhanced Labels"
- IR 2619557; "Cyber Security; Removable Media w/o Orange CDA Sticker"
- IR 2619646; "Cyber Security; Non-CDA Approved Media Installed In MCR"
- IR 2619647; "Cyber Security; Non-CDA Approved Media Installed In MCR"
- IR 2619649; "Cyber Security; Non-CDA Approved Media Installed In MCR"
- IR 2619654; "Cyber Security; Non-CDA Approved Media Installed In MCR"
- IR 2619655; "Cyber Security; Non-CDA Approved Media Installed In MCR"
- IT-AA-235-1005; "DTE Scanning"; Revisions 1 and 2
- IT-AA-235-1005-F-01; "DTE Scanning Record"; Revisions 1 and 2
- IT-AA-235-1005-F-02; "Cyber Security DTE Malware Investigation Form"; Revision 0
- LE-AC-301; "Protecting Exelon Information"; Revision 3
- MA-AA-716-235; "Control of CDA Portable Media and Portable Devices"; Revisions 3 and 4
- PI-AA-120; "Issue Identification and Screening Process"; Revision 3
- PI-AA-125; "Corrective Action Program (CAP) Procedure"; Revision 2
- EC398839; "Replace TSC Video Switch (23-0944-TSC-DVI-SW) With Mechanical Type";
Dated January 23, 2015
- IR 1622805-02; "Root Cause Investigation Report Content and Format"
- 2013-2015 LORT Cycle 7; Insider Mitigation Program - Cyber Security; Dated August 2014
- IA-13-01; "Information Assessment Team Advisory for Power Reactors";
Dated January 25, 2013
- ML14134A524; "Dresden Cyber-Security Milestones 1 - 7 Inspection Report 2014405";
Dated May 14, 2014
- ML14316A042; "IP 71152, Problem Identification and Resolution"; Dated February 26, 2015
- N-AN-AA-CYBER-SEC-TECH-OPS; "Component Completion Report: Cyber Security Tech
and Insider Mitigation / Tampering Training –Ops"; Dated January 25, 2016
- N-AN-SY-CYBERIMP; "Component Completion Report: Cyber Related Tampering – Insider
Mitigation Program"; Dated January 25, 2016

- SVPL TR: #16-0001; "Exelon Notification of Completion of Corrective Actions";
Dated January 21, 2016
- WO 1539107; "Latch on 213-0944-5 Computer UPS Distribution Panel"
- WO 1670302; "Correct Typo (VAIDATE vs VALIDATE) in Step 4.2.1"
- WO 1743601; "Security-Main Computer Room Door Not Locked"
- WO 1761957; "Cyber Security U2 FWLC Workstation License Keys"
- WO 1897060; "Reconfigure the 2/3 EDG Ventilation N2 Backup to IA Selector"
- IR 2644523; "EDG Ventilation TT Potential Failure Vulnerability Per Opex"
- IR 2636045; "Nitrogen Leak on 2/3 EDG N2 Regulator"
- IR 2633460; "Results From SPC 2583140-04 for 2/3 EDG Ventilation PRV"
- IR 2621195; "Need to Replace 2/3 EDG Vent IA Supply Regulator"
- IR 2621172; "Need to Replace 2/3 EDG Vent Nitrogen Solenoid"
- IR 2617360; "Excessive Nitrogen Leakage 2/3 EDG Ventilation"
- IR 2617188; "NRC Questions 2/3 EDG Ventilation Design"
- IR 2613879; "2/3 EDG Ventilation Backup N2 is Empty"
- IR 2603232; "IEMA Question"
- IR 2593932; "2/3 EDG Ventilation System Dampers Do Not Failsafe Open"
- IR 2583140; "PRV for 2/3 EDG Dampers Increased Leakage"
- IR 2561420; "Nitrogen Back Ups to 2/3 EG Room Dampers are Empty"
- IR 2449604; "U2 EDG Damper Backup Nitrogen Bottles Empty"
- IR 1568417; "Nitrogen Bottles Need to Be Replaced"
- IR 1495034; "Vent Damper Nitrogen Bottles Empty Again"
- IR 1187442; "U2 EDG Dampers Leak on N2 System"
- IR 1089198; "2/3 EDG Ventilation Panel Nitrogen Leak"
- IR 0778059; "DG Vent Control Solenoid Vlv Has the Incorrect Press Rating"
- IR 0778056; "DG Vent Control Solenoid Vlv Has the Incorrect Press Rating"
- IR 0706371; "2/3 EDG Vent Control Panel N2 Bottles Depleted"
- IR 0642076; "Need to Provide Change to N2/Air Pressure Regulators for EDG"
- IR 0591863; "EDG Vent Sys Solenoid Valves Passport Classification Error"
- IR 0577806; "DG Vent Calculation Clarification"
- IR 0466794; "2/3 EDG Vent Flow Ctrl Damper Operation"
- IR 0466360; "U2 EDG Measured Air Flow is Lower Than Design Value"
- IR 0312304; "2/3 EDG Vent Damper Backup N2 System Depressurizing"
- IR 0200672; "D2 EDG Room Temp Cal Equipment Issues Cause Schedule Delays"
- DOP 6700-18; "Bus 28 Outage"; Revision 0
- DOS 6700-18; "Bus 28 Outage"; Revision 01
- DOS 5750-09; "Diesel Generator Ventilation Nitrogen Backup System Functional Test";
Revision 00
- EC 404657; "Reconfigure the 2/3 EDG Ventilation N2 Backup to IA Selector Circuit";
Revision 000
- EC 361746; "Calculation DRES06-0023, Diesel Generator Room Ventilation Design
Considerations Summary"; Revision 000
- ACE for CR 2598796-02; "SPC Closure for U2 EDG Inoperable Due to Low Temperature";
Dated January 11, 2016
- PM Change Review 91150; "2/3 EDG Ventilation Nitrogen Back Up"
- Design Analysis DRE06-0023; EC 365188, "Diesel Generator Room Ventilation"; Revision 2
- Letter from J. Perry to NRC; Dated November 18, 1997; "Clarification of Commitment
Associated With the Safety Classification of Dresden Station HVAC Systems"

Drawings:

- M-974; Diagram of Diesel Generator Room Ventilation
- 12E-2813D; Wiring Diagram Diesel Generator 2/3 Room Ventilation System Local Panel 2223-56
- 12E-2351B; Schematic Diagram Diesel Generator 2/3 Auxiliaries & Start Relays
- NRC Information Notice 97-78; "Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Times"
- Letter from P. O'Connor, NRC to Commonwealth Edison; Dated April 12, 1982; Forwarding Draft Evaluation Report of Systematic Evaluation Program(SEP), Topic IX-5, "Ventilation Systems For the Dresden Nuclear Power Plant Unit 2"

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

- IR 2552152; "Tech Spec 3.3.6.1 Entry Due to MSL Flow Switch"
- Apparent Cause Evaluation (ACE) 2552152; "A' Main Steam Line High Flow Switch Inoperability"
- Equipment Apparent Cause Evaluation (EACE) 2627450-02; "Failure of the D2 HPCI System to increase Speed During DOS 2300-03 High Pressure Coolant Injection System Operability and Quarterly IST Verification Test"
- DOS 2300-03; "High Pressure Coolant Injection System Operability and Quarterly IST Verification Test"; Revision 110
- LER 05000249/2015-001-01; "Main Steam Line Flow Switches Found Outside Technical Specification Allowed Value"
- LER 05000237/2015-005-01; "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing"
- LER 05000237/2015-005-02; "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow during Testing"

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access and Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
ANS	Alert and Notification System
AR	Action Request
CAP	Corrective Action Program
CCSW	Containment Cooling Service Water
CDA	Critical Digital Assets
CFR	<i>Code of Federal Regulations</i>
CSP	Cyber-Security Plan
DEP	Drill and Exercise Performance
DTE	Digital Test Equipment
EACE	Equipment Apparent Cause Evaluation
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
ERO	Emergency Response Organization
HPCI	High Pressure Coolant Injection
HSS	High Speed Stop
HVAC	Heating, Ventilation, and Air Conditioning
IC	Isolation Condenser
IMC	Inspection Manual Chapter
IMP	Insider Mitigation Program
IP	Inspection Procedure
IR	Inspection Report
IR	Issue Report
IST	Inservice Test
LER	Licensee Event Report
LLC	Limited Liability Corporation
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
MGU	Motor Gear Unit
MSIV	Main Steam Isolation Valve
NCAP	Non-Corrective Action Program
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NPP	Nuclear Power Plant
NRC	U.S. Nuclear Regulatory Commission
OOS	Out-Of-Service
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PM	Post-Maintenance
PMT	Post-Maintenance Testing
RBCCW	Reactor Building Closed Cooling Water
SBGT	Standby Gas Treatment
SBLC	Standby Liquid Control
SOC	Station Ownership Committee
TI	Temporary instruction
TS	Technical Specification

UFSAR	Updated Final Safety Analysis Report
UPS	Uninterruptible Power Supply
VAC	Volts Alternating Current
VDC	Volts Direct Current
WO	Work Order

B. Hanson

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Sincerely,

/RA Karla Stoedter Acting for/

Jamnes Cameron, Chief
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Docket Nos. 50-237; 50-249
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Enclosure:
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