



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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January 22, 2018

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

**SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3—NRC INTEGRATED
INSPECTION REPORT 05000237/2017004; 05000249/2017004; AND
EMERGENCY PREPAREDNESS ANNUAL INSPECTION REPORT
05000237/2017501; 05000249/2017501**

Dear Mr. Hanson:

On December 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Dresden Nuclear Power Station, Units 2 and 3. On January 8, 2018, the NRC inspectors discussed the results of this inspection with Mr. P. Karaba and other members of your staff. The results of this inspection are documented in the enclosed report. The NRC also completed its annual inspection of the Emergency Preparedness Program. This inspection began on January 1, 2017, and the issuance of this letter closes Inspection Report 05000237/2017501; 05000249/2017501.

Based on the results of this inspection, the NRC has identified one issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that one violation is associated with this issue. Because the licensee initiated condition reports to address 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 violation or significance 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; and the NRC Resident Inspector at the Dresden Nuclear Power Station.

If you disagree with the cross-cutting aspect assignment or any finding not associated with a regulatory requirement 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at the Dresden Nuclear Power Station.

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

Sincerely,

/RA/

Jamnes Cameron, Chief
Branch 4
Division of Reactor Projects

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

Enclosure:
IR 05000237/2017004; 05000249/2017004;
05000237/2017501; 05000249/2017501

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Letter to Bryan C. Hanson from James Cameron dated January 22, 2018

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000237; 05000249
License Nos: DPR-19; DPR-25

Report No: 05000237/2017004; 05000249/2017004;
05000237/2017501; 05000249/2017501

Licensee: Exelon Generation Company, LLC

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL

Dates: October 1 through December 31, 2017

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Projects Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report 05000237/2017004, 05000249/2017004; 10/01/2017 – 12/31/2017; 05000237/2017501, 05000249/2017501; 01/01/2017 – 12/31/2017; Dresden Nuclear Power Station, Units 2 & 3; Fire Protection.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. 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 November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Cornerstone: Mitigating Systems

Green. The inspectors identified a finding of very-low safety significance and associated NCV of Technical Specification 5.4.1.c for the licensee's failure to implement the established Fire Protection Program procedures which ensure Fire Barrier Integrity. Specifically, the licensee ran an electrical cable through the doorway of an automatically closing fire door. This was contrary to Procedure DFPP 4175-01, which requires in part that fire doors must not be blocked open by props or any other material in its closing path. The licensee took immediate actions to restore the fire door, by removing the obstruction and entered the issue into their Corrective Action Program (CAP).

The inspectors determined that the performance deficiency was more-than-minor because it affected the Mitigating Systems cornerstone objective since the electrical cable could have prevented the fire door from performing its function. The finding was of very-low safety significance per Task 1.4.3-A of IMC 0609, Appendix F. Specifically, the total combustible loading on both sides of the affected fire door was representative of a fire duration less than 1.5 hours. The inspectors determined the finding had a cross-cutting aspect in the area of Human Performance, associated with the Training component, because the licensee failed to provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, the licensee believed the performance deficiency was caused by the one of the new temporary contractors brought onto the site to work in support of the D2R25 refueling outage. [H.9] (Section 1R05)

REPORT DETAILS

Summary of Plant Status

Unit 2

Unit 2 began the inspection period in coastdown for refueling outage D2R25. On October 30, 2017, operators shut down the unit to commence the refueling outage. At the completion of D2R25, operators synchronized the unit onto the grid on November 18, 2017 and achieved full power on November 19, 2017. On December 13, 2017, operators reduced power to 32 percent and the licensee made a containment entry to repair an oil leak on the 2A reactor recirculation pump lower bearing. The operators returned the unit to full power on December 14, 2017, where it remained for the rest of the inspection period.

Unit 3

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

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. 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. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment to this report. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Unit 1 and 2/3 cribhouses at the diesel generator cooling water pumps and the diesel fire pumps;
- 2/3A and B isolation condenser (IC) make-up pump house;
- radwaste tank area;

- Unit 2 and Unit 3 125 VDC and 250 VDC battery rooms; and
- station blackout diesel building.

This activity constituted one winter seasonal readiness preparations 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:

- Unit 2 IC following return to service after maintenance;
- shutdown cooling while in alternate decay heat removal mode;
- Unit 2, Division I engineered safety buses 23, 23–1, and 28 during Division II outage; and
- Unit 2 containment cooling service water return to service following piping replacements.

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.

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 1.2.2, Unit 2 Primary Containment – Drywell all elevations;
- Fire Zone 8.2.5B, Unit 2 Low Pressure Heater Bays, Elevation 517’;
- Fire Zone 8.2.5A, Unit 2 High Pressure Heaters/Steam Lines, Elevation 517’;
- Fire Zone 8.2.6B, Unit 2 Low Pressure Heater Bays, Elevation 538’; and
- compensatory measures with Unit 1 diesel fire pump and CO2 suppression system out-of-service (OOS).

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 out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee’s fire plan. The inspectors selected fire areas and conditions 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

Failure to Follow Procedure, Results in Non-Functional Fire Door

Introduction: The inspectors identified a finding of very low safety significance (Green) and associated NCV of Technical Specifications 5.4.1.c, “Procedures,” for the licensee’s failure to implement the established Fire Protection Program procedures which ensure fire barrier Integrity. Specifically, the licensee ran an electrical cable through the doorway of an automatically closing fire door. This was contrary to procedure DFPP 4175–01, which requires that fire doors must not be blocked open by props or any other material in its closing path.

Description: On October 18, 2017, during a plant walkdown the inspectors identified an electrical cable (extension cord) passing through a doorway protected by rolling fire

door 2/3-4100-57. The cable passed through the top south corner of the doorway. Rolling fire door 2/3-4100-57 is normally opened and actuated via a fusible link. When closed it separates Fire Zone (FZ) 1.1.2.2, "Unit 2 Reactor Ground Floor Elevation 517'" from FZ 1.1.1.2, "Unit 3 Reactor Ground Floor Elevation 517'."

In response to the inspectors' observation, the licensee removed the electrical cable and restored the fire barrier's functionality. When informed of the obstruction, the licensee entered the required actions for TRM 3.7.n, "Fire Rated Assemblies", Condition A, "One or more fire rated assemblies or sealing devices inoperable".

The inspectors reviewed a number of the licensee's fire protection implementation procedures including DFPS 4175-01, "Fire Barrier Integrity and Maintenance", Revision 23. This procedure outlines the policies regarding the proper maintenance of each type of fire barrier. Adherence to this procedure ensures that fire barriers are kept in proper condition at all times. Section G.4.a. of DFPS 4175-01 states:

"Fire doors must not be blocked open by props or any other material in its closing path. Hoses, ropes, cabling, etc. running through a fire door opening could prevent the door from closing as describe during a fire"

From conversations with the licensee and review of the fire protection reports, the inspectors noted that in case of a fire on FZ 1.1.2.2 (Unit 2) some of the equipment used to achieve safe shutdown was located on FZ 1.1.1.2 (Unit 3). The reverse is also true. If a fire occurs on FZ 1.1.1.2 (Unit 3) some of the equipment used to achieve safe shutdown was located on FZ 1.1.2.2 (Unit 2). The licensee stated that in a case like this, the site has additional procedures to control the needed equipment from alternate locations.

The inspectors reviewed the site's fire loading calculation, DRE97-0105, Revision 9 to determine the baseline combustible loading expected for each affected fire zone. The inspectors also obtained the totals for additional combustible loading due to transient combustibles in these zones, at the time the deficiency was identified. For FZ 1.1.2.2 (Unit 2) the total loading was 25,350 BTU/ft² and for FZ 1.1.1.2 (Unit 3) the total loading was 27,853 BTU/ft². For a total loading across both zones of 53,203 BTU/ft².

The licensee entered this issue into their CAP as Issue Report (IR) 04064252, "Fire Door 2/3-4100-57 INOP".

Analysis: The inspectors determined that the licensee's failure to follow fire protection program implementing procedures regarding fire doors was contrary to Technical Specification 5.4.1.c, which requires that written procedures covering Fire Protection Program implementation, be established, implemented, and maintained. As a result, this is considered a performance deficiency. Specifically, licensee procedure DFPP 4175-01, "Fire Barrier Integrity and Maintenance", Revision 23, Section G.4.a requires that fire doors must not be blocked open by props or any other material in its closing path.

Using IMC 0612 Appendix B, "Issue Screening" (issued date 09/07/12) the performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events (Fire) and affected the cornerstone objective of ensuring the availability, reliability, and capability of

systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the electrical cable running through the fire door path could have affected the capability of the fire barrier by preventing the fire door from closing if required during a fire.

In accordance with IMC 0609, "Significance Determination Process," (issued date 04/29/15) Attachment 0609.04, "Phase I - Initial Characterization of Findings," (issued date 10/07/16) Table 3, Section F.2.a the inspectors determined the finding involved the ability to confine a fire. Therefore, screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process," (issued date 09/20/13) was required.

Using IMC 0609, Appendix F the inspectors determined that the finding affected the fire finding category of Fire Containment. The inspectors were able to answer "yes" to Question Task 1.4.3–A. The finding involved a fire door for which the combustible loading on both sides of the wall was representative of a fire duration less than 1.5 hours (i.e., less than 120,000 BTU/ft². Specifically, total combustible loading at the time the issue occurred was 53,203 BTU/ft². Therefore, the inspectors determined that the finding screened as having very-low safety significance (Green).

The inspectors determined the finding had a cross-cutting aspect in the area of Human Performance, associated with the Training component, because the licensee failed to provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, the licensee believed the performance deficiency was caused by the one of the new temporary contractors brought onto the site to work during the refueling outage. [H.9]

Enforcement: Technical Specification 5.4.1.c, "Procedures," requires, in part, that written procedures covering Fire Protection Program implementation, be established, implemented, and maintained. Procedure DFPP 4175–01, "Fire Barrier Integrity and Maintenance", Revision 23, was the established procedure that outlines the policies regarding proper maintenance of fire barriers and ensures those fire barriers are kept in proper condition at all times. Specifically, Procedure DFPP 4175–01, Section G.4.a. requires, in part, that fire doors must not be blocked open by props or any other material in their closing path.

Contrary to the above, on October 18, 2017, the licensee blocked open fire door 2/3–4100–57 by running an electrical cable through the doorway. Since the electrical cable was tied in place on both sides of the fire door, if a fire had occurred the door would not have been able to fully close when required.

This violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy because it was of very-low safety significance, and was entered into the licensee's CAP as IR 04064252. As immediate actions, the licensee removed the electrical cable and posted a sign instructing workers not to obstruct the doorway. **(NCV 05000237/2017004–01; 05000249/2017004–01, Failure to Follow Procedure, Results in Non-Functional Fire Door)**

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. Specifically, the inspectors performed a walkdown of failed flood barrier FL-12-6 to assess the adequacy of repairs made to this flood barrier in the Unit 2 condensate pit area. 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 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 also visually inspected watertight doors and verified drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments.

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 Heat Sink Performance (71111.07T)

.1 Triennial Review of Heat Sink Performance

a. Inspection Scope

The inspectors reviewed completed surveillances, associated calculations, performance test results, and inspection results associated with the 3B low pressure coolant inspection (LPCI)/containment cooling service water heat exchanger. The heat exchanger was chosen based on its risk-significance in the licensee's probabilistic safety analysis, its important safety-related mitigating system support functions, its operating history, and its relatively low margin.

For the 3B LPCI heat exchanger, the inspectors reviewed the testing, inspection, maintenance, and monitoring of biotic fouling and macrofouling programs to assess the heat transfer capability of the heat exchanger. This was accomplished by reviewing whether: (1) the test method used was consistent with accepted industry practices; (2) the test conditions were consistent with the selected methodology; (3) the test acceptance criteria were consistent with the design basis values; and (4) the results of the heat exchanger performance test met established acceptance criteria. The inspectors also reviewed whether: (1) the test results considered differences between

testing conditions and design conditions; (2) the frequency for testing considered previous test result trends; and (3) test results considered test instrument inaccuracies and differences.

For the 3B LPCI heat exchanger, the inspectors reviewed the testing, inspection, maintenance, and monitoring of biotic fouling and macrofouling programs to assess the heat transfer capability of the heat exchanger. The inspectors reviewed whether: (1) the methods used to inspect and clean the heat exchanger were consistent with as-found conditions identified, expected degradation trends, and industry standards; (2) the licensee's inspection and cleaning activities had established acceptance criteria consistent with industry standards; and (3) the as-found results were recorded, evaluated, and dispositioned such that the as-left condition was consistent with the established criteria.

In addition, the inspectors reviewed the condition and operation of the 3B LPCI heat exchanger to determine consistency with design assumptions in heat transfer calculations and as described in the Final Safety Analysis Report. The inspectors reviewed the periodic flow testing at or near maximum design flow for redundant and infrequently used heat exchangers. In addition, eddy current test reports and visual inspection records were reviewed to determine the structural integrity of the heat exchanger.

The inspectors reviewed the performance of ultimate heat sink (UHS) and safety-related containment cooling service water system and subcomponents such as piping, intake screens, pumps, valves, etc. by tests or other equivalent methods to ensure availability and accessibility to the inplant cooling water systems. Specifically, the inspectors reviewed the UHS in accordance with NRC Inspection Procedure 71111.07, "Heat Sink Performance," Section 02.02, Sub-Sections d.4 and d.7.

The inspectors reviewed the results of the licensee's inspection of the UHS intake and discharge canals. The inspectors also reviewed whether identified settlement or movement indicating loss of structural integrity and/or capacity was appropriately evaluated and dispositioned by the licensee. In addition, the inspectors assessed the licensee's trending and removing of debris or sediment buildup in the UHS to ensure sufficient reservoir capacity.

The inspectors reviewed the licensee's operation of the containment cooling service water systems and UHS. This included a review of procedures for a loss of the containment cooling service water system or UHS, and a review of the availability and functionality of instrumentation which is relied upon for decision making. In addition, the inspectors assessed whether macrofouling was adequately monitored, trended, and controlled by the licensee to prevent clogging. The inspectors reviewed whether the licensee's biocide treatments for biotic control were adequately conducted and the results monitored, trended, and evaluated. The inspectors also reviewed whether the licensee maintained adequate pH, calcium hardness, etc. of the UHS. The inspectors reviewed the containment cooling service water systems' susceptibility to strong pump weak pump interaction, and the licensee's controls in place for susceptible systems. In addition, the inspectors reviewed design changes to the containment cooling service water systems and the UHS to verify they were not adversely impacted by the changes.

The inspectors performed a system walkdown of the service water intake structure to assess its structural integrity and component functionality. This included observations of

the structural integrity of component mounts and an assessment of the functionality of the traveling screens and strainers. The inspectors reviewed licensee activities which monitor, trend, and maintain containment cooling service water and pump bay silt accumulation at acceptable levels, and those which monitor and ensure proper function of pump bay water level instruments. The inspectors also reviewed the licensee's ability to ensure functionality of the intake structure during adverse weather conditions. The inspectors also evaluated the licensee's strategy for protecting against silt intrusion during periods of low flow or low level.

In addition, the inspectors reviewed corrective action documents related to the heat exchanger and heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of their corrective actions. The documents that were reviewed are included in the Attachment to this report.

These inspection activities constituted two heat sink inspection samples as defined in IP 71111.07–05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

From October 30, 2017, through November 3, 2017, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the Unit 2 reactor coolant system (RCS), emergency feedwater systems, risk-significant piping and components and containment systems.

The inspections described in Sections 1R08.1 and 1R08.5 below constituted one ISI sample as defined in IP 71111.08–05.

.1 Piping Systems Inservice Inspection

a. Inspection Scope

The inspectors observed and/or reviewed records of the following Non-Destructive Examinations mandated by the American Society of Mechanical Engineers (ASME) Section XI Code to evaluate compliance with the ASME Code Section XI and Section V requirements and if any indications and defects were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC approved alternative requirement:

- magnetic particle examination of integral attachment welds for pipe support M-1151D-132; high-pressure coolant injection system;
- liquid penetrant examination of integral attachment welds for pipe support M-1164D-296; LPCI system;
- ultrasonic (UT) examination of pipe elbow to elbow weld, 2/2/2302-16/16-9 in the high-pressure coolant injection system;
- UT examination of pipe weld, 2/1/1404-10/W-112B in the core spray system;
- UT examination of heat exchanger weld 2-1503B-1 in the LPCI system; and

- magnetic particle examination of heat exchanger nozzle welds 2–1503B–N3–1A and 1B in the LPCI system;

The licensee had not identified any recordable indications during surface and volumetric examinations performed since the beginning of the previous refueling outage. Therefore, no NRC review was completed for this inspection procedure attribute.

The inspectors reviewed the following pressure boundary weld completed for risk-significant systems during the last Unit 2 refueling outage to determine if the licensee applied the pre-service non-destructive examination and acceptance criteria required by the construction Code, or the ASME Code Section XI. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedure was qualified in accordance with the requirements of the Construction Code and the ASME Code Section IX:

- field welds no. 1 on thermos-well connection, in standby liquid control system (Work Order 01502648–01).

b. Findings

No findings were identified.

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities—Not Applicable

.3 Boric Acid Corrosion Control—Not Applicable

.4 Steam Generator Tube Inspection Activities—Not Applicable

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI-related problems entered into the licensee's Corrective Action Program and conducted interviews with licensee staff to determine if:

- the licensee had established an appropriate threshold for identifying ISI-related problems;
- the licensee had performed a root cause (if applicable) and taken appropriate corrective actions; and
- the licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with Title 10 of the *Code of Federal Regulations* (CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

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

a. Inspection Scope

On December 13, 2017, the inspectors observed main control room operators during an emergent down power of Unit 2 to 32 percent rated thermal power and the deinerting of the primary containment in order to support repairs of an oil leak on the 2A reactor recirculation pump lower bearing oil reservoir system. This was an activity that required heightened awareness and 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 manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and notifications.

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 activity 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 (71111.12Q)

a. Inspection Scope

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

- quality control audit of maintenance affecting the main steam system; and
- emergency direct current (DC) lighting.

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 performed a quality review for main steam, as discussed in IP 71111.12, Section 02.02.

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 activity constituted one quarterly maintenance effectiveness sample and one quality control sample 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 3 online risk Yellow due to Unit 2 outage activities;
- Unit 2 shutdown risk Yellow with bus 24-1 OOS & 2B reactor building closed cooling water OOS; and
- U2 shutdown risk Yellow during 2B service water pump OOS (bus 24 outage).

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 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. 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 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 activities constituted three maintenance risk assessments and emergent work 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:

- standby gas treatment single failure concern during a hypothetical loss of offsite/loss of coolant accident with failure of DC Bus 2B–1;
- Engine Systems, Inc. – 10 CFR 21 – speed switch issue results in emergency diesel generator failure to start in the industry;
- Unit 2 emergency diesel generator (EDG) output breaker did not close with bus 24–1 de-energized;
- Unit 3 LPCI heat exchanger relief valve flange potential non-conforming condition;
- Unit 2 IC 3–1301–3 stroke length too short, historic operability assessment; and
- 2/3 EDG foreign material found in the air start regulator valve.

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 six 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):

- main steam Target Rock relief valve bellows drain modification (engineering change (EC) 404631); and
- main steam isolation valve (MSIV) bypass switch addition to the containment Group I isolation logic circuitry (EC 397320).

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 training 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 activity constituted two permanent plant modification samples 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 activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- 1A, 2C, 2D MSIV local leak rate testing (LLRT) following valve internals repairs;
- 2–1601–33F torus to drywell vacuum breaker testing following repairs;
- anticipated transient without scram (ATWS) recirculation pump trip (RPT) on high reactor pressure test following set point change (EC 395141);
- 2A reactor recirculation pump seal hydrostatic pressure testing following seal package replacement;

- Unit 2 essential service system uninterruptible power supply testing following replacement (EC 406339);
- Unit 2 drywell spray containment isolation valve 2-1501-28A testing following repairs; and
- Unit 2 'A' feedwater check valves 2-0220-58A and 2-0220-62A LLRT following repairs.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): 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 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 activity constituted seven post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan (OSP) and contingency plans for the Unit 2 refueling outage (RFO) D2R25, conducted October 30, 2017 through November 18, 2017, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- licensee configuration management, including maintenance of defense-in-depth commensurate with the OSP for key safety functions and compliance with the applicable TS when taking equipment out of service;
- implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;

- installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- controls over the status and configuration of electrical systems to ensure that TS and OSP requirements were met, and controls over switchyard activities;
- monitoring of decay heat removal processes, systems, and components;
- controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- controls over activities that could affect reactivity;
- maintenance of secondary containment as required by TS;
- licensee fatigue management, as required by 10 CFR 26, Subpart I;
- refueling activities, including fuel handling;
- startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing; and
- licensee identification and resolution of problems related to RFO activities.

Documents reviewed are listed in the Attachment to this report.

This activity constituted one RFO sample as defined in IP 71111.20–05.

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:

- Unit 2 MSIV LLRT (isolation valve);
- Unit 2 high pressure coolant injection, reactor water clean-up, 'B' feedwater containment check valve leak tightness testing (isolation valve);
- emergency core cooling system (ECCS) integrated functional test (routine); and
- ATWS–RPT and ECCS Level functional test (routine).

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;
- where applicable for inservice testing activities, 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;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- 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.

These inspections constituted two routine surveillance testing samples, and two containment isolation valve samples as defined in IP 71111.22, Sections–02 and–05. In addition, the inspectors did not identify any performance degradation in the RCS leakage for the entire cycle. The reactor coolant system leak detection inspection sample was not performed as defined in IP 71111.22, Section–02.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the Emergency Plan, Emergency Action Levels (EALs), and EAL Bases document to determine whether these changes decreased the effectiveness of the Emergency Plan. The inspectors also performed a review of the licensee's 10 CFR 50.54(q) change process, and Emergency Plan change documentation to ensure proper implementation for maintaining Emergency Plan integrity.

The inspectors' review was not documented in a safety evaluation report, and did not constitute NRC approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This EAL and Emergency Plan change inspection constituted one sample as defined in Inspection Procedure 71114.04–06.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on October 10, 2017, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Technical Support Center and Operational Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

This emergency preparedness drill inspection constituted one sample as defined in IP 71114.06–05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

.1 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors assessed the licensee's current and historic isotopic mix, including alpha emitters and other hard-to-detect radionuclides. The inspectors evaluated whether survey protocols were reasonable to identify the magnitude and extent of the radiological hazards.

The inspectors determined whether there have been changes to plant operations since the last inspection that may have resulted in a significant new radiological hazard for onsite individuals. The inspectors evaluated whether the licensee assessed the potential impact of these changes and implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard. The inspectors reviewed the last two radiological surveys from selected plant areas and evaluated whether the thoroughness and frequency of the surveys were appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate materiel conditions and performed independent radiation measurements, as needed, to verify conditions were consistent with documented radiation surveys.

The inspectors assessed the adequacy of pre-work surveys for select radiologically risk-significant work activities.

The inspectors evaluated the radiological survey program to determine whether hazards were properly identified. The inspectors discussed procedures, equipment, and performance of surveys with radiation protection staff and assessed whether technicians were knowledgeable about when and how to survey areas for various types of radiological hazards.

The inspectors observed work in potential airborne areas to assess whether air samples were being taken appropriately for their intended purpose and reviewed various survey records to assess whether the samples were collected and analyzed appropriately. The inspectors also reviewed the licensee's program for monitoring contamination which has the potential to become airborne.

These inspection activities constituted one complete sample as defined in Inspection Procedure (IP) 71124.01–05.

b. Findings

No findings were identified.

.2 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors reviewed select radiation work permits used to access high radiation areas and evaluated the specified work control instructions or control barriers. The inspectors also assessed whether workers were made aware of the work instructions and area dose rates.

The inspectors reviewed electronic alarming dosimeter dose and dose rate alarm set point methodology. For selected electronic alarming dosimeter occurrences, the inspectors assessed the worker's response to the alarm, the licensee's evaluation of the alarm, and any follow-up investigations.

The inspectors reviewed the licensee's methods for informing workers of changes in plant operations or radiological conditions that could significantly impact their occupational dose.

The inspectors reviewed the labeling of select containers of licensed radioactive material that could cause unplanned or inadvertent exposure to workers.

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

b. Findings

No findings were identified.

.3 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors observed locations where the licensee monitors material leaving the radiologically controlled area and assessed the methods used for control, survey, and release of material from these areas. As available, the inspectors observed health physics personnel surveying and releasing material for unrestricted use.

The inspectors observed workers leaving the radiologically controlled area and assessed their use of tool and personal contamination monitors and reviewed the licensee's criteria for use of the monitors.

The inspectors assessed whether instrumentation was used at its typical sensitivity levels based on appropriate counting parameters or whether the licensee had established a de facto release limit.

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact. The inspectors also evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

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

b. Findings

No findings were identified.

.4 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, radiation work permits, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination controls. The inspectors evaluated the licensee's use of electronic alarming dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with licensee procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that the licensee properly employed a NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in work areas with significant dose rate gradients.

For select airborne area radiation work permits, the inspectors reviewed airborne radioactivity controls and monitoring, the potential for significant airborne levels, containment barrier integrity, and temporary filtered ventilation system operation.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials stored within pools and assessed whether appropriate controls were in place to preclude inadvertent removal of these materials from the pool.

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

b. Findings

No findings were identified.

.5 High Radiation Area and Very High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors observed posting and physical controls for high radiation areas and very high radiation areas to assess adequacy.

The inspectors conducted a selective inspection of posting and physical controls for high radiation areas and very high radiation areas to assess conformance with performance indicators.

The inspectors reviewed procedural changes to assess the adequacy of access controls for high and very-high radiation areas to determine whether procedural changes substantially reduced the effectiveness and level of worker protection.

The inspectors assessed the licensee's controls for high radiation areas greater than 1 rem/hour that included areas with the potential to become high radiation areas for compliance with Technical Specifications and procedures.

The inspectors assessed the controls for very-high radiation areas and areas with the potential to become very-high radiation areas. The inspectors also assessed whether individuals were unable to gain unauthorized access to these areas.

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

b. Findings

No findings were identified.

.6 Radiation Worker Performance and Radiation Protection Technician Proficiency (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance and assessed their performance with respect to radiation protection work requirements, the level of radiological hazards present, and radiation work permit controls.

The inspectors assessed worker awareness of electronic alarming dosimeter set points, stay times, or permissible dose for radiologically significant work as well as expected response to alarms.

The inspectors observed radiation protection technician performance and assessed whether the technicians were aware of the radiological conditions and radiation work permit controls and whether their performance was consistent with training and qualifications for the given radiological hazards.

The inspectors observed radiation protection technician performance of radiation surveys and assessed the appropriateness of the instruments being used, including calibration and source checks.

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

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.08)

a. Inspection Scope

The inspectors assessed whether problems associated with radiological hazard assessment and exposure controls were being identified at an appropriate threshold and were properly addressed for resolution. For select problems, the inspectors assessed the appropriateness of the corrective actions. The inspectors also assessed the licensee's program for reviewing and incorporating operating experience.

The inspectors reviewed select problems related to human performance errors and assessed whether there was a similar cause and whether corrective actions taken resolved the problems.

The inspectors reviewed select problems related to radiation protection technician error and assessed whether there was a similar cause and whether corrective actions taken resolved the problems.

These inspection activities constituted one complete 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 Problem Identification and Resolution (02.06)

a. Inspection Scope

The inspectors reviewed self-assessments and/or audits performed of the as low as reasonably achievable program and determined whether these reviews identified problems or areas for improvement.

The inspectors assessed whether problems associated with as low as reasonably achievable planning and controls were being identified by the licensee at an appropriate threshold and properly addressed for resolution.

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

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

.1 Radioactive Material Storage (02.02)

a. Inspection Scope

The inspectors selected areas where containers of radioactive waste are stored, and evaluated whether the containers were labeled in accordance with 10 CFR 20.1904, or controlled in accordance with 10 CFR 20.1905.

The inspectors assessed whether the radioactive material storage areas were controlled and posted in accordance with the requirements of 10 CFR Part 20. For materials stored or used in the controlled or unrestricted areas, the inspectors evaluated whether they were secured against unauthorized removal and controlled in accordance with 10 CFR 20.1801 and 10 CFR 20.1802.

The inspectors evaluated whether the licensee established a process for monitoring the impact of low-level radioactive waste storage that was sufficient to identify potential unmonitored, unplanned releases or nonconformance with waste disposal requirements.

The inspectors evaluated the licensee's program for container inventories and inspections. The inspectors selected containers of stored radioactive material, and assessed for signs of swelling, leakage, and deformation.

These inspection activities constituted one complete sample as defined in IP 71124.08–05.

b. Findings

No findings were identified.

.2 Radioactive Waste System Walk-Down (02.03)

a. Inspection Scope

The inspectors walked down accessible portions of select radioactive waste processing systems to assess whether the current system configuration and operation agreed with the descriptions in plant and/or vendor manuals.

The inspectors reviewed administrative and/or physical controls to assess whether equipment that is not in service or abandoned in place would not contribute to an unmonitored release path and/or affect operating systems or be a source of unnecessary personnel exposure. The inspectors assessed whether the licensee reviewed the safety significance of systems and equipment abandoned in place in accordance with 10 CFR 50.59.

The inspectors reviewed the adequacy of changes made to the radioactive waste processing systems since the last inspection. The inspectors evaluated whether changes from what is described in the Final Safety Analysis Report were reviewed and documented in accordance with 10 CFR 50.59 or that changes to vendor equipment were made in accordance with vendor manuals. The inspectors also assessed the

impact of these changes on radiation doses to occupational workers and members of the public.

The inspectors selected processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers and assessed whether the waste stream mixing, sampling, and waste concentration averaging were consistent with the process control program, and provided representative samples of the waste product for the purposes of waste classification.

The inspectors evaluated whether tank recirculation procedures provided sufficient mixing.

The inspectors assessed whether the licensee's process control program correctly described the current methods and procedures for dewatering and waste stabilization.

These inspection activities constituted one complete sample as defined in IP 71124.08–05.

b. Findings

No findings were identified.

.3 Waste Characterization and Classification (02.04)

a. Inspection Scope

For select waste streams, the inspectors assessed whether the licensee's radiochemical sample analysis results were sufficient to support radioactive waste characterization as required by 10 CFR Part 61. The inspectors evaluated whether the licensee's use of scaling factors and calculations to account for difficult-to-measure radionuclides was technically sound and based on current 10 CFR Part 61 analysis.

The inspectors evaluated whether changes to plant operational parameters were taken into account to: (1) maintain the validity of the waste stream composition data between the sample analysis update; and (2) assure that waste shipments continued to meet the requirements of 10 CFR Part 61.

The inspectors evaluated whether the licensee had established and maintained an adequate quality assurance program to ensure compliance with the waste classification and characterization requirements of 10 CFR 61.55 and 10 CFR 61.56.

These inspection activities constituted one complete sample as defined in IP 71124.08–05.

b. Findings

No findings were identified.

.4 Shipment Preparation (02.05)

a. Inspection Scope

The inspectors did not observe radioactive waste processing; however inspectors discussed the process of radioactive processing with radiation workers. Inspectors also observed radioactive material shipment preparation and receipt activities.

The inspectors observed shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness. Also, the inspectors reviewed the technical instructions presented to workers and assessed whether the licensee's training program provided training to personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities. The inspectors assessed whether shippers were knowledgeable of the shipping regulations and demonstrated adequate skills to accomplish package preparation requirements. The inspectors evaluated whether the licensee was maintaining shipping procedures in accordance with current regulations. The inspectors assessed whether the licensee was meeting the expectations in NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and Burial," and 49 CFR Part 172, Subpart H, "Training."

The inspectors evaluated whether the requirements for Type B shipment Certificates of Compliance had been met. The inspectors determined whether the user was a registered package user and had an NRC-approved quality assurance program. The inspectors assessed whether procedures for cask loading and closure were consistent with vendor procedures.

The inspectors assessed whether non-Type B shipments were made in accordance with the package quality documents.

The inspectors assessed whether the receiving licensee was authorized to receive the shipment packages.

These inspection activities constituted one complete sample as defined in IP 71124.08-05.

b. Findings

No findings were identified.

.5 Shipping Records (02.06)

a. Inspection Scope

The inspectors reviewed select shipments to evaluate whether the shipping documents indicated the proper shipper name; emergency response information and a 24-hour contact telephone number; accurate curie content and volume of material; and appropriate waste classification, transport index, and UN number. The inspectors assessed whether the shipment marking, labeling, and placarding was consistent with the information in the shipping documentation.

These inspection activities constituted one complete sample as defined in IP 71124.08–05.

b. Findings

No findings were identified.

.6 Identification and Resolution of Problems (02.07)

a. Inspection Scope

The inspectors assessed whether problems associated with radioactive waste processing, handling, storage, and transportation, were being identified by the licensee at an appropriate threshold, were properly characterized, and were properly addressed for resolution. Additionally, the inspectors evaluated whether the corrective actions were appropriate for a selected sample of problems documented by the licensee that involve radioactive waste processing, handling, storage, and transportation.

These inspection activities constituted one complete sample as defined in IP 71124.08–05.

b. Findings

No findings were identified.

3. SECURITY

Cornerstone: Security

3S08 Fitness-For-Duty Program (71130.08)

a. Inspection Scope

The inspectors evaluated this area by: reviewing program procedures, implementing procedures, and records; conducting interviews with responsible personnel and plant employees; and performing walkdowns.

The inspectors completed 32 (5 Tier I, 21 Tier II, and 6 Tier III) inspection requirements as described in IP 71130.08, dated September 30, 2016. Along with the inspection requirements documented in inspection report DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 – NRC SECURITY BASELINE INSPECTION REPORT 05000237/2017403; 05000249/2017403 (ML17080A147), these activities constitute completion of one required sample. The following sample requirements were completed:

Tier I: 02.01a; 02.02a; 02.04a–c

Tier II: 02.05a–h; 20.06a–d; 02.07a–g; 02.08a–e; 02.09a, b

Tier III: 02.12a; 02.13a; 02.14a–c, e

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures (MS05) performance indicator (PI) Units 2 and 3, for the period from the fourth quarter 2016 through the third quarter 2017. To determine the accuracy of the PI data reported during those periods, the inspectors used 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. 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 October 1, 2016 through September 30, 2017 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 activity constituted two safety system functional failures samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS Leakage (BI02) performance indicator (PI) Units 2 and 3, for the period from the fourth quarter 2016 through third quarter 2017. To determine the accuracy of the PI data reported during those periods, the inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013. The inspectors reviewed the licensee's operator logs, RCS leakage tracking data, issue reports, event reports and NRC Integrated Inspection Reports for the period of October 1, 2016 through September 30, 2017 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 activity constituted two reactor coolant system leakage samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness Performance Indicator for the period from the first quarter 2016 through the third quarter 2017. The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the Performance Indicator data reported during those periods. The inspectors reviewed the licensee's assessment of the Performance Indicator for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's Performance Indicator data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate, accumulated dose alarms, dose reports, and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very-high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences performance indicator for the period from the first quarter of 2016 through the second quarter of 2017. The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the Performance Indicator data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous

and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences 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 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 corrective action program at an appropriate threshold, adequate attention was being given to timely corrective actions, and adverse trends were identified and addressed. Some minor issues were entered into the licensee's corrective action program as a result of the inspectors' observations; however, they are not discussed in 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.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector corrective action program item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of July 2017 through December 2017, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the CAP in major equipment problem lists, repetitive and/or rework maintenance lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results

contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This activity constituted one semi-annual trend review inspection sample as defined in IP 71152.

b. Observations and Assessments

During the period covered in this inspection sample, the inspectors and the licensee noted similar trends in equipment and program performance. Although these errors did not always result in any immediate adverse consequences, a potential trend in these areas is apparent and suggests that additional licensee attention to affect corrective actions may be appropriate. The licensee entered the following potential adverse trends into their CAP during this time period: intermediate range monitor performance (IR 4082783); digital electro-hydraulic control equipment issues (IR 4071797); source range monitor performance (IR 4082782); instrument air performance issues (IR 4061492); maintenance and technical training quality (IR 4041350); reactor recirculation adjustable speed drive system performance (IR 4061712); ventilation systems performance (IR 4035745); and 4kV breaker issues (IR 4021996). The inspectors also identified potential adverse trends in area radiation monitor performance; control rod drive/rod position indication system performance; and direct current (DC) system performance (grounds). Specific examples associated with these trends included, but were not limited to:

- abnormal operating procedures entries for rod position indication failure (IRs 4060528, 4060526, and 4040337);
- numerous Unit 2, 125 VDC system grounds (IRs 4083357, 4071210, 4065977, 4034419, 4031202, 4000497, and 3965179); and
- numerous false spurious high radiation and downscale failures of area radiation monitors (IRs 4066595, 4064804, 4054695, 4046011, 4018908, and 4009373).

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues: Review of the Licensee's Corrective Actions Associated with Non-Cited Violation 05000237/2017001-01; 05000249/2017001-01, Failure to Correct a Condition Adverse to Quality Associated with Emergency Diesel Generator Single Largest Load Rejection Surveillance Testing

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents, specifically Corrective Action Program Evaluation Report 3964435, "DOS 6600-12 Procedure Revision Inadequate." The inspectors interviewed personnel, reviewed engineering analysis documents associated with the single largest load operated on an EDG during accident conditions, reviewed historical surveillance testing and performance records for the Unit 2, Unit 3, and 2/3 EDGs, reviewed procedure changes for performing a single largest load rejection surveillance while parallel with the grid and while separated from the grid, and observed successful surveillance testing of the Unit 2 and 2/3 EDGs.

The inspectors' review and evaluation was focused on the causal determination for this safety related surveillance test which ensures the EDG does not trip on overspeed during accident conditions following a trip of a core spray pump, which has been analyzed as the largest load on an EDG post-accident at 720 kilowatts (KW). In addition, the licensee's corrective actions were reviewed to ensure they: were complete, accurate, and timely; considered extent of condition; provided appropriate classification and prioritization; provided identification of apparent and contributing causes; were appropriately focused; included action taken which resulted in the correction of the identified problem; 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

During a January 2017 review of licensee CAP documents associated with historic issues identified in the area of surveillance testing, the inspectors noted IR 2501498, "TSSR [Technical Specification Surveillance Requirement] 3.8.1.10: EDG Largest Load Reject," dated May 15, 2015. The IR described a condition identified by operations personnel which stated that when TSSR 3.8.1.10 was performed a service water pump, which had been identified in the Technical Specification Bases document and engineering documents as the single largest load, was to reject 686 KW under accident conditions. A review of actual load rejection during the most recent performances of this surveillance for all three EDGs indicated an actual load rejection of between 525-575 KW. The lower KW rejected were due to a lower heat load on the service water system in the colder month of November when the tests are performed during the Dresden Unit 2 or 3 refueling outages.

TSSR 3.8.1.10 specifically requires that each EDG reject a load greater than or equal to its associated single largest post-accident load, and:

- a) following load rejection, frequency ≤ 66.73 hertz (Hz);
- b) within 3 seconds following load rejection, voltage is ≥ 3952 V and ≤ 4368 V; and
- c) within 4 seconds following load rejection, the frequency is ≥ 58.8 Hz and ≤ 61.2 Hz.

The licensee performed the rejection of a service water pump with its respective EDG solely powering their associated safety related buses as a part of operations surveillance procedures DOS 6600-03, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2/3 Diesel Generator to Unit 3;" DOS 6600-04, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 3 Diesel Generator;" DOS 6600-05, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2 Diesel Generator;" and DOS 6600-06, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2/3 Diesel Generator to Unit 2." These procedures performed the single largest load rejections utilizing the acceptance criteria called out by TSSR 3.8.1.10, but did not have operators verify that at least 686 KW was rejected, therefore ensuring that the EDG would be able to meet acceptance criteria under design post-accident conditions. Actual load rejected was between 525 and 575 KW due to lower loading on the service water system during the month of November when the tests were performed.

In addition to performing a single largest load reject surveillance, the licensee also performs a full load reject in accordance with TSSR 3.8.1.11 in which the EDG must reject ≥ 2340 KW and ≤ 2600 KW while not experiencing an over speed trip or exceeding a generator output ≥ 5000 V. The licensee accomplishes this surveillance requirement with the EDG fully loaded and in parallel with the electrical grid. Operations surveillance procedure DOS 6600–12, “Diesel Generator Tests Endurance and Margin/Full Load Rejection/ECCS/ Hot Restart” is used to accomplish this surveillance requirement. The inspectors determined that a performance deficiency and violation of NRC requirements existed for the licensee’s failure to take corrective actions for a condition adverse to quality, specifically the failure to adequately test the EDGs with respect to TSSR 3.8.1.10. This issue was originally documented as NCV 05000237/2017001–01; 05000249/2017001–01, Failure to Correct a Condition Adverse to Quality Associated with EDG Single Largest Load Rejection Surveillance Testing in NRC Integrated Inspection Report 05000237/2017001 and 05000249/2017001 (ML17110A423).

c. Observations

The inspectors validated that the licensee incorporated adequate procedure changes for performing a single largest load rejection in accordance with Technical Specification Surveillance Requirement (TSSR) 3.8.1.10 into procedures DOS 6600–01, “Diesel Generator Surveillance Tests;” DOS 6600–03, “Bus Undervoltage and ECCS Integrated Functional Test for Unit 2/3 Diesel Generator to Unit 3;” DOS 6600–04, “Bus Undervoltage and ECCS Integrated Functional Test for Unit 3 Diesel Generator;” DOS 6600–05, “Bus Undervoltage and ECCS Integrated Functional Test for Unit 2 Diesel Generator;” and DOS 6600–06, “Bus Undervoltage and ECCS Integrated Functional Test for Unit 2/3 Diesel Generator to Unit 2.” In addition, the inspectors reviewed engineering analysis documents created by the licensee which established the single largest load on a post-accident EDG as a core spray pump at 720KW. Lastly, the inspectors observed successful completion of TSSR 3.8.1.10 for the Unit 2 and 2/3 EDGs and noted that the licensee is scheduled to perform TSSR 3.8.1.10 for the Unit 3 EDG during the 2018 Unit 3 refueling outage D3R25.

d. Findings

No findings were identified.

.4 Annual Follow-Up of Selected Issues: Corrective Action Program Evaluation Report 04014904, U.S. Nuclear Regulatory Commission Questions Environmental Qualification for Emergency Diesel Generator Auto Start Relay

a. Inspection Scope

The inspectors performed a review of the licensee’s CAP and associated documents, specifically Corrective Action Program Evaluation Report 04014904, “NRC Questions EQ [Environmental Qualification] for EDG Auto Start Relay.”

The licensee’s corrective actions were reviewed to ensure they: were complete, accurate, and timely; considered extent of condition; provided appropriate classification and prioritization; provided identification of apparent and contributing causes; were appropriately focused; included action taken which resulted in the correction of the

identified problem; ensured operating experience was adequately evaluated for applicability; and communicated applicable lessons learned to appropriate organizations.

In addition, the inspectors reviewed the licensee's extent of condition. The inspectors' review and evaluation was focused on the licensee's justification that the identified non-EQ qualified interposing relays did not need to be qualified.

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

b. Background

During a baseline post maintenance testing inspection of the Unit 3 EDG performed by the Dresden resident inspectors in May 2017, the inspectors noted that the licensee had previously replaced the auto start relay (ASR) with a non-EQ part in 2006 and was only now replacing the part as EQ. The inspectors asked the licensee questions about the operability assessment of the ASR when it was a non-EQ part and the timing of the replacement. The licensee entered this issue into the corrective action program as IR 04014904, "NRC Questions EQ for EDG Auto Start Relay" on May 24, 2017.

The licensee performed an extent of condition and reviewed 32 components in the EDG and found that all of the components were EQ and seismically qualified with the exception of the interposing relays. The licensee's justification for why the interposing relays did not need to be EQ qualified was that the relays perform their safety-related function of closing the output breaker on the EDG in 13 seconds which is before the harsh environment would reach the component. In the loss of coolant accident scenario the licensee has evaluated that it takes approximately 60 minutes for the area where the interposing relays are located to reach a harsh environment. In a high energy line break scenario the licensee evaluated that at the 13 second mark the interposing relays would, through thermal lag effect, not experience the harsh environment. In addition, the licensee noted that the interposing relays, model number GE relay model 12HGA11J52, are the same model as the ASR relays which are currently EQ qualified. The inspectors reviewed the licensee's "EQ Screening Considerations and Checklist" for the interposing relays, the design specifications for the ASR and interposing relays, and the EQ and Seismic Qualification for the EDG ASR.

c. Findings

No findings were identified.

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

.1 (Closed) Licensee Event Report 05000249/2017-001-00: Unit 3 Standby Liquid Control System Inoperable Due to a Manufacturing Defect Causing a Piping Leak

a. Inspection Scope

The inspectors reviewed the licensee's response to and assessment of a through-wall leak which developed on the Unit 3 standby liquid control (SBLC) system common discharge piping. Specifically, on September 10, 2017, during equipment operator (EO) rounds, the EO found crystalized boron on Unit 3 SBLC discharge piping. There was no

visible active leak and the source of the boron crystals was unknown, therefore the licensee staffed the outage control center to investigate the source of the boron crystals.

On September 12, 2017, the Division 1 SBLC pump was started to pressurize the system to the normal in-service testing pressure. A leak of approximately one drop per minute was identified on the common discharge line of the SBLC pumps which is ASME Code Class 2 piping. Due to the piping being ASME Code Class 2, the licensee was required to isolate it in accordance with Technical Requirements Manual 3.4.a, Structural Integrity. Isolating this piping resulted in both divisions of SBLC being declared inoperable, thus entering TS Limiting Condition for Operations (LCO) 3.1.7 with an action to restore one SBLC subsystem to operable status within eight hours. The licensee requested a Notice of Enforcement Discretion (NOED) to exceed the TS eight hours completion time to complete the pipe repair. The NRC granted a verbal NOED on September 12, 2017, followed by a letter on September 18, 2017 (ML17261B237). The licensee completed the repair and restored the SBLC system to operable status within the Technical Specification (TS) eight hour completion time. Follow-up investigation and testing of the failed piping indicated a manufacturing defect which evolved into a through-wall leak. The piping that failed had been in service since Dresden Unit 3 started operating in 1971.

The licensee reported this event in accordance with 10 CFR 50.73(a)(2)(v)(A) and 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 shut down the reactor and maintain it in a safe shutdown condition and mitigate the consequences of an accident. Documents reviewed are listed in the Attachment to this report. This Licensee Event Report (LER) is closed.

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

b. Findings

No findings were identified.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000249/2017003–01, “Granted Notice of Enforcement Discretion 17–3–001: Limiting Condition for Operations 3.1.7 Required Action B.1 per Technical Specification 3.1.7, Standby Liquid Control System”

The inspectors reviewed the licensee’s response to and assessment of a through-wall leak which developed on the Unit 3 SBLC ‘A’ pump discharge piping. Specifically, on September 12, 2017, during a system operational pressure test, a through-wall leak was observed coming from the forged body of a 1.5” stainless steel pipe tee in the Unit 3 SBLC system. The affected component is a part of the ASME Code Class 2 boundary. Due to the piping being ASME Code Class 2, it was required to be immediately isolated in accordance with Technical Requirements Manual 3.4.a, Structural Integrity. Isolating this piping resulted in both trains of the Unit 3 SBLC system becoming inoperable as the leak was unisolable from both pumps. With both trains inoperable, the licensee entered LCO 3.1.7, Required Action B.1 which requires the restoration of at least one train of SBLC within 8 hours.

The inspectors examined the site's actions to uncover the issue with the Unit 3 SBLC system, their actions to address the issue once it was identified, and their compensatory actions associated with the receipt of the NOED. The inspectors also reviewed licensee documents to verify that information contained in the NOED request was accurate. Inspection activities included gathering additional information on the licensee's bases for needing the NOED; examining the site's decision-making process for the issue; reviewing the licensee's condition evaluation; observing the licensee's compensatory actions; and evaluating the licensee's operability determination. To correct this issue and exit the NOED, the licensee completed replacement of the affected Unit 3 piping and connections, satisfactorily tested the replaced components, and declared the Unit 3 SBLC system operable. The failed tee is part of original pipe installation in 1971. The licensee determined the cause was a manufacturing defect which evolved into a through-wall leak when the closely spaced inclusions from the manufacturing process opened up and linked due to service induced stresses to form a leak path. Structural Integrity Associates performed an historic operability evaluation of the flawed tee and determined the resulting leak would not have prevented the SBLC system from performing its intended function.

The inspectors determined that there was no violation of regulatory requirements. This item is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 8, 2018, 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 Triennial Review of Heat Sink Performance were discussed with Mr. J. Washko, Plant Manager; and other plant staff on October 20, 2017.
- The results of the ISI with the Site Vice President Mr. P. Karaba and other members of the licensee staff on November 3, 2017.
- The inspection results for the Radiation Safety Program review with Mr. P. Karaba, Site Vice President, on November 3, 2017 and again on December 1, 2017.
- The results of the Emergency Preparedness Program inspection with Mr. B. Franzen, Regulatory Assurance Manager, conducted over the phone on December 14, 2017.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

P. Karaba, Site Vice President
J. Washko, Station Plant Manager
Q. Alsup, Chemistry Specialist
D. Anthony, NDE Services Manager
L. Antos, Manager Site Security
J. Banks, Security Programs Lead
R. Bauman, Shift Operations Superintendent
M. Budelier, Senior Engineering Manager
H. Bush, Radiation Protection Manager
P. DiSalvo, Engineer
D. Doggett, Emergency Preparedness Manager
B. Franzen, Regulatory Assurance Manager
F. Gogliotti, Director, Site Engineering
P. Hansett, Operations Director
J. Jones, Rad Waste Coordinator
J. Kish, Engineer
K. Kretsinger, Manager Site Security Operations
A. Martin, Chemistry Manager
S. Matzke, Corrective Action Program Coordinator
A. McMartin, Manager Site Chemistry, Environment & Radwaste
J. Miller, NDE Services
M. Pansera, Engineer
M. Pavey, Health Physicist
S. Peacock, Security Scheduling and Oversight Lead
T. Pile, Manager Security Training
F. Polak, Senior Engineer
J. Quinn, Director, Site Maintenance
W. Remiasz, Work Control Director
F. Sadnick, Security Operations Supervisor
B. Sampson, Organizational Effectiveness Manager
D. Siuda, Licensed Operator Requal Author and Instructor
D. Thomas, Director, Site Training
D. Walker, Regulatory Assurance – Senior NRC Coordinator
D. Wolverton, Manager, Design Engineering Mechanical

IEMA

M. Porfirio, Resident Inspector, Illinois Emergency Management Agency
L. Torres, ASME Inspector, IEMA

U.S. Nuclear Regulatory Commission

J. Cameron, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000237/2017004-01 05000249/2017004-01	NCV	Failure to Follow Procedure, Results in Non-Functional Fire Door (1R05)
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Closed

05000237/2017004-01 05000249/2017004-01	NCV	Failure to Follow Procedure, Results in Non-Functional Fire Door (1R05)
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05000249/2017-001-00	LER	Standby Liquid Control System Inoperable Due to a Manufacturing Defect Causing a Piping Leak
05000249/2017003-01	URI	Granted Notice of Enforcement Discretion 17-3-001: LCO 3.1.7 Required Action B.1 per TS 3.1.7, Standby Liquid Control System

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

- WO 04571598-01, "D2 AN COM Preparation for Cold Weather For Unit 2"
- WO 04571600-01, "D2/3 AN PM Preparation for Cold Weather Changes for R/w"
- WO 04571601-01, "Prepare U3 for Cold Weather IAW DOS 10-25"
- WO 04574313-01, "D1 AN PM Preparation for Cold Weather Unit 1"
- IR 1503856, "Water Dripping from Insulation in the 2/3 A CST Doghouse"
- IR 4076378, "U1 Subpile, A Rebt Room Temp Heaters Not Working"
- IR 4082028, "East Turbine Building Vent Performance Challenging Unit 2 TS Battery Temperatures"
- EC evaluation 393806, Revision 0, "Corrosion Evaluation for the HPCI Test Return Line 2/3-2342-A-12"L"
- DOS 0010-22, "Preparation for Cold Weather Operations for Unit 2," Revision 25
- DOS 0010-19, "Preparation for Cold Weather Operations for Unit 1 & Out Buildings," Revision 43
- DOS 0010-25, "Preparation for Cold Weather Operations for Unit 3," Revision 23
- DOS 0010-31, "Preparation for Cold Weather Operations at the Lift Station, Goose Lake Pump Station, Security Diesel Building, and Cooling Towers," Revision 20

1R04 Equipment Alignment

- IR 4026860, "2/3A ISO Cond Make-up Pump Failed to Start"
- IR 4030278, "Trend IR: 2/3A ISO Condenser Make-up Pump"
- IR 4031361, "(A)(1) Determination Required for 2/3A ISO M/U PP"
- IR 4061383, "MOV 2-1301-10 Failed to Close"
- IR 4068882, "PMC - 2-1301-1 QSS Sensor Damaged"
- IR 4069471, "MOV 2-1301-3 Stroke Length Found Shorter Than Acceptable"
- IR 4070051, "As Found Evaluation of West Diaphragm Plate 2-1302 IC HX"
- IR 4070131, "Condition of Partition Shield Slightly Askew 2-1301 IC HX"
- IR 4070455, "Visual Indication Observed on Weld Surface During ISI Exam"
- DOP 1300-M2, "Unit 2/3 Isolation Condenser Makeup Pump Fuel Oil System," Revision 03
- DOP 1300-M1/E1, "Unit 2 Isolation Condenser System Checklist," Revision 22
- DOP 1300-01, "Standby Operation of the Isolation Condenser System," Revision 55
- Piping Systems Installation Requirements for EC/DRV 377076, Based on IR 957289
- Drawing: M-28, Diagram of Isolation Condenser Piping, Revision LR
- DOP 1000-03, "Shutdown Cooling Mode of Operation," Revision 82
- DOP 1000-E1, "Unit 2 Shutdown Cooling Electrical," Revision 03
- DOP 1000-M1, "Unit 2 Shutdown Cooling System Checklist," Revision 09
- DOS 1000-02, "Alternate Decay Heat Removal Using Shutdown Cooling and Fuel Pool Cooling," Revision 20
- IR 4023660, "2A CCSW Pump Suction Pressure Line Leak"
- IR 4033556, "U2 CCSW Vault Door Spring Latch Not Functioning Properly"
- IR 4062304, "WO Required for U2 CCSW Piping Replacement - Torus Catwalk"

- IR 4062307, "WO Required for U2 CCSW Piping Replacement – RBEDT Room"
- IR 4062310, "WO Required for U2 CCSW Piping Replacement – Cribhouse"
- WO 01848788-01, "U2 CCSW Piping Replacement 60 Ft 2-1514-16"
- WO 01848788-27, "EP Perform As-Found VT-3 Insp of U2 CCSW (6) Pipe Supports"
- WO 04654302-01, "2A CCSW Pump Suction Pressure Line Leak"
- DOP 1500-E1, "Unit 2 LPCI and CCSW Electrical Checklist," Revision 15
- DOP 1500-M1, "Unit 2 LPCI and Containment Cooling Valve Checklist," Revision 49
- WPS 8-8-GTSM, ASME Welding Procedure Specification Record (QW-482), "WPS 8-8-GTSM," Revision 6
- WPS 1-1-GTSM-PWHT, ASME Welding Procedure Specification Record (QW-482), "WPS 1-1-GTSM-PWHT," Revision 2
- Drawing: M-29, Diagram of L.P. Coolant Injection Piping, Revision CP
- Drawing: ISI-300, Inservice Inspection Class III Containment Cooling Service Water Piping, Revision F

1R05 Fire Protection

- Dresden Generating Station Pre-Fire Plan for FZ 1.2.2
- Exelon Generation Pre-Fire Plan Manual, Revision 4
- Dresden Generating Station Pre-Fire Plan for FZ 8.2.5B
- IR 4072547, "NRC ID: Inadequate Spark Containment"
- Dresden Generating Station Pre-Fire Plan for FZ8.2.5A
- IR 4072787, "XL-3 Zone 14 Detectors All Inoperable"
- OP-MW-201-007, "Fire Protection Impairment Permit," Fire Marshal 17-127, Revision 7
- Dresden Generating Station Pre-Fire Plan for FZ 8.2.6B
- IR 4058763, "2/3-7699-50 Actuator Failed to Close Properly"
- DFPS 4195-02, "Auxiliary Electrical Equipment Room Halon System Test," Revision 28
- DFPS 4175-09, "Fire Damper Visual Inspection," Revision 18
- Drawing: M-936, Diagram of East Turbine Room Ventilation System, Revision R
- IR 4064252, "Fire Door 2/3-4100-57 INOP"
- Dresden Pre-Fire Plan for FZ 1.1.1.2, Unit 3 Ground Floor, Elev. 517'
- Dresden Pre-Fire Plan for FZ 1.1.2.2, Unit 2 Ground Floor, Elev. 517'
- F-3-1, "Detection & Suppression Reactor Building El. 517'-6"
- Fire Load Calculation No. DRE97-0105, Revision 09, Amendment 18
- DFPP 4175-01, "Fire Barrier Integrity and Maintenance," Revision 23
- CC-AA-211, "Fire Protection Program," Revision 8
- DFPS 4175-07, "Fire Door/Oil Spill Barrier Surveillance," Revision 35

1R06 Flood Protection Measures

- Engineering Change (EC) 621880, "Unit 2 Turbine Building Elevation 495'-0" Modification of Flood Seal Barrier FL-12-6 Replace Welded Seal Plate with Elastomer Seal"
- Technical Task Pre-Job Brief for EC 621880 dated 11/2/2017
- WO 01692104-01, "D2 Rfl Com Flood Seals at TB El 469'-6" & 495'-0" Condenser"
- WO 01692105-01, "D2 RFL Com Flood Seals All Inaccessible Areas – Hotwell"
- WO 01692112, "D2 02 Com TB El 481'-0" Condenser Hotwell Basement"
- WO 04707264-01, "Repair Flood Seal FL-12-6"
- IR 4049215, "Unexpected Alarm, U3 West LPCI/CS Pump Lvl Hi"
- IR 4049289, "Recommendation of Clean Out All Four Corner Room Sumps"
- IR 4069701, "D2R25: Flood Seal FL-12-6 Failure"
- Scope Change Request for IR 4069701 dated 11/1/2017

- EC 391644, "Reactor and Diesel Building Flood Barriers," Revision 005
- Work Planning Instructions for EC 391644, Rev. 5
- Design Consideration Summary for EC 391644, Revision 5
- Surveillance History for 186883-01, D2 RFL Com Flood Seals at the TB EI 469'-6" & 495'-0" Condenser Wall
- ER-AA-450, "Structures Monitoring," Revision 6
- ER-DR-450-1001, "Dresden Structures Monitoring Instructions," Revision 0
- Drawing: FL-12, Sheets 1 and 2, Section FL-12 Flood Barrier Turbine Building, Revision A

1R07 Heat Sink Performance

- Containment Exchanger Heat Exchanger Specification Sheet
- Containment Cooling Heat Exchanger Thermal Test Data, 09/28/2017
- Dresden LPCI/Containment Cooling System—Comparison of Heat Exchanger Heat Transfer Rates, 12/28/1992
- DOA 0010-01, "Dresden Lock and Dam Failure," Revision 35
- DOA 0010-19, "Partial or Complete Loss of Crib House," Revision 5
- DOA 4400-06, "2/3 Crib House Screen Plugging," Revision 8
- DOP 4400-07, "Circulation Water De-icing Operation," Revision 15
- DTS 4450-04, "Dresden UHS Bathymetric Intake and Discharge Canal Surveillance," Revision 0
- DMP 3900-04, Inspect/Clean Unit 2/3 Fire Pump Bay (Bay 13) and Screens Done 01/06/2017
- DRE16-011, "Dresden Required Ultimate Heat Sink Capacity," Revision 0
- DRE 98-0117, "LPCI Heat Exchanger K Factor," Revision 0
- DRE98-0117, "LPCI Heat Exchanger K Factor," Revision 000B
- DRE98-0117, "LPCI Heat Exchanger K Factor," Revision 0A
- EC 404293, "Install U3 Div2 CCSW Vault Cooler Coils for Coolers C & D," Revision 2
- HX Inspection Report, 11/16/2014
- HX Inspection Report, 09/07/2017
- IR 1372828, "2A CCSW Pump Motor Screens Found to be Damaged"
- IR 2532734-07, "DRE16-011 Rev 0 Issued and Determined UHS Required Volume"
- IR 2587506, "2B LPCI SW 18-24 Sample <8PPM"
- IR 2599144, "3A LPCI Service Water Failed Biocide Analysis"
- IR 2674821, "Biocide Layup Samples not Taken for U3 LPCI Hxs"
- IR 2676479, "WO 01903998 Exists to Address 3-1599-65A Leaks"
- IR 2676512, "WO 01787509 Completed 5/23/16 Flushing Sample Valves"
- IR 2676515, "Work Request Generated to Repair Valve 3-1599-66B"
- IR 2676501, "Work Request Generated to Repair Valve 3-1599-112"
- IR 2676524, "Work Request Generated to Repair Valve 3-1599-64B"
- IR 2676524, "Closed to WO 01123401031 Next 3A LPCI Biocide Injection"
- IR 2725870, "3A LPCI Service Water Failed Biocide Analysis"
- IR 3991347, "Dresden Pre-NRC Triennial Heat Sink and GL 89-13 Self-Assessment"
- IR 4065226, "NRC 2017 UHS Identified: Document Unavailable"
- IR 4065206, "NRC 2017 UHS Identified: DOS 1500-10 Data Sheet 1 Discrepancy"
- IR 4065238, "NRC 2017 UHS Identified: Calculation DRE 98-0117 Discrepancy"
- IR 4064091, "NRC 2017 UHS Identified: 3B LPCI Heat Exchanger Room – Insulation Adrift"
- IR 4065121, "NRC 2017 UHS Identified: LPCI HX Component Drawing Sheet 1 not Found"
- IR 4064544, "NRC 2017 UHS Identified: Corrosion on 2D U2 CCSW pp "
- IR 4064965, "NRC 2017 UHS Identified: U2 CCSW HVAC Duct Support Baseplate Corrosion"
- IR 4065273, "2017 UHS Identified: PMID 179935-01 not Classified as Safety-Related"

- M-360 Sheet 2, Diagram Of L.P. Coolant Injection Piping-M-360 Sheet 1, Diagram Of L.P. Coolant Injection System
- Recommendations for Tube Replacement Versus Plugging on LPCI Heat Exchangers, 11/24/1992
- WO 01652385, "D3 2Y TS CCSW PMP Comprehensive OPER Test And IST SURV"
- WO 01851584, "D3 2Y TS CCSW PMP Comprehensive OPER Test And IST SURV"
- WO 01893654, "2/3 Soundings of Forebay, Intake and Discharge Canals done 11/03/2016"
- WO 04616409, "D3 QTR TS CCSW PMP Operability Test And IST SURV"
- WO 04655169, "D3 QTR TS CCSW PMP Operability Test And IST SURV"
- WO 01407044, "D3 RFL COM Clean/Insp/Hydro/Eddy Current 'B' LPCI HX"
- WO 01941522, "D2/3 SA COM Insp Fire Pump Bay/Downstream Screen with Diver"
- WO 01941549, "D3 AN COM Perform HX Thermal Performance Test - 3B LPCI HX"
- WO 01952590, "QTR TS LPCI System Pump Run And IST SURV"
- WO 04688723, "Unit 2 Traveling Screens Proper Operation Verification on 09/26/2017"
- WO 04688726, "Unit 3 Traveling Screens Proper Operation Verification on 09/26/2017"
- WO 04579996, "D3 QTR TS LPCI System Pump Run and IST SURV"
- WO 04615847, "D3 QTR TS LPCI System Pump Run and IST SURV"
- WO 04653753, "D3 QTR TS LPCI System Pump Run and IST SURV"
- WO 04691796, "OPS U2 Weekly Travelling Screen Insp with Screens In Auto"
- WO 04692738, "OPS U3 Weekly Travelling Screen Insp with Screens In Auto"
- Underwater Construction Corporation 2A/2B Traveling Water Screen Inspection 03/03/2016
- Underwater Construction Corporation 2C/2D Traveling Water Screen Inspection 02/19/2016
- Underwater Construction Corporation 2E/2F Traveling Water Screen Inspection 03/03/2016
- Underwater Construction Corporation 3A/3B Traveling Water Screen Inspection 03/04/2016
- Underwater Construction Corporation 3C/3D Traveling Water Screen Inspection 12/16/2016
- Underwater Construction Corporation 3E/3F Traveling Water Screen Inspection 03/10/2016
- Underwater Construction Corporation Bay 13 Inspection Dive Report 07/16/2016
- Underwater Construction Corporation Bay 13 Inspection Dive Report 01/19/2017
- Underwater Construction Corporation Bay 13 Inspection Dive Report 07/27/2017

1R08 Inservice Inspection Activities

- IR 02582315, "FME/Paint Chip found During RX IVVI"
- IR 02583485, "FME: Nylon Brush Bristles on AD-2 Weld on Jet Pump #4"
- IR 02583557, "FME: Legacy Foreign Material discovery in Reactor Vessel"
- IR 02585840, "FME Discovered in Reactor Vessel Annulus"
- IR 02591573, "U2 Drywell Penetration X-202J Threaded Connection Leak"
- IR 02680405, "PMC-Body to Bonnet Leak HCU 38-19 Isolation Valve"
- IR 03994028, "VT-2 Not Performed as Required by the Repair/Replacement Plan"
- IR 04046757, "Instrument Nozzle Exam Recommendations"
- IR 04058473, "Unit 2 HPCI Pump Leak From Casing Bolt"
- IR 04070003, "D2R25 IVVI – Steam Dryer ID Through Supports"
- IR 04069978, "NDE Results for ISI Weld 2/1/1506-16/M-1164D-296(IWA)"
- Drawing M-1151D-132, Hanger Mark No. M-1151D-132, Sheets 1 and 2, Revision A
- Drawing M-1164D-296, LPCI Pipe Support Line #2-1506-16, Revision B
- EPRI PDQS-858 – Procedure PDI-UT-1, Revision F
- EPRI PDQS-859 – Procedure PDI-UT-2, Revision G
- ISI Isometric ISI-203, Sheet 1, Revision D
- ISI Isometric ISI-203, Sheet 2, Revision F
- ISI Isometric ISI-104, Revision H
- Procedure ER-AA-335-002, "Liquid Penetrant (PT) Examination," Revision 10

- Procedure ER-AA-335-003, "Magnetic Particle (MT) Examination," Revision 8
- Procedure ER-AA-335-1008, "Code Acceptance & Recording Criteria for Non Destructive (NDE) Surface Examination," Revision 4
- Procedure GEH-ADM-1001, "Procedure for Performing Linearity Checks on Ultrasonic Instruments," Version 7
- Procedure GEH-PDI-UT-1, "PDI Generic Procedure for the Ultrasonic Examination of Ferritic Welds," Version 11
- Procedure GEH-PDI-UT-2, "PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds," Version 11
- Report D2R25-PT-001, Liquid Penetrant Examination, M-1164D-296 (IWA), November 1, 2017
- Report 17-176, MT Yoke Functional Lift Report, September 18, 2017
- Report D2R25-MT-001, Magnetic Particle Examination, 2-1503B-N3-1B, October 30, 2017
- Report D2R25-MT-002, Magnetic Particle Examination, 2-1503B-N3-1A, October 30, 2017
- Report D2R25-MT-003, Magnetic Particle Examination, M-1151D-132(IWA), October 30, 2017
- Report D2R25-UT-001, UT Calibration/Examination, 2-1503B-1, October 30, 2017
- Report D2R25-UT-003, UT Calibration/Examination, 2/2/2302-16/16-9, October 31, 2017
- Report D2R25-UT-011, UT Calibration/Examination, W-112B, November 2, 2017
- WO 01502648-01, "Weld Repair/Replace Connection Leaking on SBLC TK"
- WPS 8-8-GTSM, ASME Welding Procedure Specification Record, Revision 6

1R11 Licensed Operator Requalification Program

- DOP 1600-07, "Primary Containment Deinerting," Revision 30
- DGP 03-01, "Power Changes," Revision 135
- DGP 03-04, "Control Rod Movements," Revision 74
- Drawing M-26, "Diagram of Nuclear Boiler & Reactor Recirculating Piping" Sheets 2 & 3

1R12 Maintenance Effectiveness

- WO 0983294, "Contingent Repair of 2-030-1B MSIV"
- WO 1896444, "Target Rock Bellows Mod – U2 ERVR"
- Design Considerations Summary for EC 407168, Rev. 000
- Work Planning Instructions for EC 407168, Rev 000, "Replace MSIV Angled Disc with Radius/Spherical Disc in Unit 2 MSIV"
- Design Summary for EC 390652, Rev.001, "MSIV Limit Switch Relocation"
- Work Planning Instructions for EC 390652, Rev. 001
- IR 2581871, "Loose Bolting on Hanger M-569-22"
- IR 2582510, "Loose Bolting Found on Hanger M-569-12"
- IR 2582516, "Loose Bolting Found on Hanger 569-18"
- IR 2582857, "2-0203-3C (S45) ERV Actuator Plunger Movement During Surveil"
- IR 2583137, "1A RPS Limit Switch Did Not Pass Testing on the 2A MSIV"
- IR 2583586, "2-0203-2B MSIV 3A Limit Switch Lagging"
- IR 2588148, "Through Wall Leak Found Downstream of 2-3005"
- IR 2609218, "Main Steam Drain Line Piping Requires Replacement"
- IR 2736296, "3-0203-3C ERV Solenoid Performance During DOS 0250-07"
- IR 2738150, "Failed AOV"
- IR 2740506, "Approximate 1 GPM Leak on Line 3-3011-2"-L, MS Drain Line"
- IR 2741164, "Unit 3 2C and 2B MSIV's Failed as Found 10% Testing"
- IR 3977719, "Out of Tolerance No Tech Spec Violation"
- IR 3977730, "Out of Tolerance, No Tech Spec Violation"

- IR 3990883, "MSL DPIS 3-0261-2P Performance"
- IR 4059568, "Valve Not Properly Certified by Vendor"
- IR 4056452, "Identified Steam Leak 2/3-3099-61A"
- IR 4061119, "Issues Identified During Pre Outage ERV Rebuilds"
- IR 4061913, "Resident Inspector Looked at MSIV Parts"
- IR 4064059, "Issue Identified During Pre-Outage Inspection"
- IR 4064107, "Relay Arrived With Damage, Rejected During Receiving"
- IR 4070066, "NRC Identified Safety Storage Issue with MSIVs"
- Maintenance Rule Expert Panel Minutes, "Remove Scoping Overlap Per A3 Assessment," April 18, 2017
- Maintenance Rule Expert Panel Minutes, "U2 203-1/30-3 A2 Determination," December 14, 2015
- SM-AA-3019, "Parts Quality Process," Revision 4
- MA-AA-300-1002, "Bill of Material Development and Right Parts Selection for Maintenance," Revision 8
- Risk Assessment for Risk Issue DRE-2-2017-0075
- MA-AA-716-001, "Quality Material/Components Control and Identification/Segregation of Non-Conforming Items," Revision 8
- Drawing: 12E-2504A, Schematic Diagram Primary Containment Isolation Sys. Main Steam Isolating Circuit Outboard, Revisions V and Z
- Drawing 12E-2819C, Wiring Diagram Primary Cont. Isolation Main Steam Valves Jct. Boxes 2RB-33, 34, 2TB-63, 64, Revision L
- IR 1607890, "Maintenance Rule Function 7902-1 For SSD Lights is (A)(2) at Risk"
- IR 1686202, "Maintenance Rule Function 79-02 Requires A1 Determination"
- IR 2624248, "Work Order Needed for SSD Light Upgrades"
- IR 2624342, "Work Order Needed for U2 SSD Light Upgrades"
- IR 4023870, "LED SSD Light"
- IR 4061484, "Maintenance Rule Function 7902-1 Requires A1 Determination"
- IR 4084760, "SSD Light #258 Battery Found With Low Conductance"
- IR 4084868, "SSD Light #304 Has Low Conductance"
- IR 4084930, "SSD Light #306 Low Conductance"
- Maintenance Rule Expert Panel Meeting Minutes October 19, 2017
- EC 402576, "Replacing 6 Volt Incandescent ELBP to 12 Volt LED ELBP System," Revision 000
- DOS 7900-02, "Emergency Lighting Battery Pack Quarterly Inspection," Revision 30
- MA-AA-723-350, "Emergency Lighting Battery Pack Inspection," Revision 15

1R13 Maintenance Risk Assessments and Emergent Work Control

- D2R25 Minimum Requirement to Prevent Risk Color Change dated 10/12/17
- D2R25 Protected Equipment Summary, dated 10/24/17
- Protected Equipment List for U2 EDG
- Protected Equipment List for U2/3 CREVS
- Protected Equipment List for U2/3 A SBTG
- Protected Equipment List for U2/3 EDG
- Protected Equipment List for U2/3 "B" SBTG
- WC-AA-101-1006, "On-Line Risk Management and Assessment," Revision 2
- D2R25 Protected Equipment Summary, dated 10/24/17
- D2R25 Refuel Outage Shutdown Safety Review, dated 10/23/17
- Protected Equipment List for U2/3 2/3 EDG
- Protected Equipment List for U2/3 2/3 RBCCW

- Protected Equipment List for U2 Division 1 AC 480v (aka Bus28)
- Protected Equipment List for U2 TR 22 (Division 1)
- Protected Equipment List for U2 Division 1 AC 4Kv (aka 23–1)
- Protected Equipment List for U2 2A RBCCW
- Protected Equipment List for U2 2A SDC
- Protected Equipment List for U2 2C SDC (Aligned to FPC for ADHR)
- Protected Equipment List for U2/3 CREVS
- Protected Equipment List for U2 SBO
- Protected Equipment List for U2 2A Fuel Pool Cooling
- Protected Equipment List for U3 3B Fuel Pool Cooling
- Protected Equipment List for U3 3B EDG
- Protected Equipment List for U2 2B 24/48 VDC Battery Charger
- Protected Equipment List for U2 Bus 29/Bus 28 Xtie (fed from Bus 23–1)
- Protected Equipment List for U2 125 VDC Battery Charger #2A
- Protected Equipment List for U2 Instrument Bus
- Protected Equipment List for U2 MSL Plug Air Supply
- Protected Equipment List for U1 Diesel Fire Pump
- Protected Equipment List for U2 345 KV BT 2–3 and 3–4
- OU-AA-101–1011, “Outage Risk Management,” Revision 0
- D2R25 Protected Equipment Summary, dated 10/24/17
- D2R25 Refuel Outage Shutdown Safety Review, dated 10/23/17
- Protected Equipment List for U2/3 Div 1 4kv XTIE 23–1 to 33–1 (back to TR 32)
- Protected Equipment List for U2/3 Div 2 4kv XTIE 24–1 to 34–1 (back to TR 32)
- Protected Equipment List for U2 Bus 23 Feed to 25

1R15 Operability Evaluations

- EC 621545, “Reconfigure the SBGT Flow Switch Circuits to Address a Single Failure Concern,” Revision 000
- OpEval 17–003, Revision 000 for EC 621547, SBGT
- WO 4697305, “Reconfigure the SBGT Flow Switch Circuits”
- WO 0960615-01, “D2/3 24M TS ‘A’ SBGT Char Camp Iodine Removal EFF Test”
- IR 4061472, “Potential SSBGT Divisional Separation Concern”
- IR 4062286, “Potential SBGT Divisional Separation Concern”
- Maintenance History for D2/3 24M TS ‘A’ SBGT Charcoal Sample Iodine Removal EFF Test
- Maintenance History for D2/3 24M TS ‘B’ SBGT Charcoal Sample Iodine Removal EFF Test
- DOA 7500–01, “Standby Gas Treatment System Fan Trip,” Revision 17
- OP-AA-102–104, Standing Order for EC 17–006, Rev 01, “SBGT Single Failure Compensatory Measures IR 4061472”
- Maintenance Material List for WO# 4697305–01
- Operator Logs for the Period of 10/07/2017 17:50 through 10/10/2017 23:00
- Lab results from Nucon International, Inc. for ID# W753, Batch 445, Lot 55, dated 17-Sept-15
- Generic Letter 99-02, “Laboratory Testing of Nuclear-Grade Activated Charcoal”
- Drawing: 216LN002–002A Unit 2 ATS Panels, Revision 00
- Drawing: 216LN002–002B Unit 3 ATS Panels, Revision 00
- Drawing: 263–001, 125VDC System, Revision 2
- Drawing: 26100–001, Standby Gas Treatment, Revision 04
- Drawing: 12E–2322 sheet 2, Key Diagram Turbine Building 125V DC Main Buses 2A–1 & 2A-2 Distribution Panels, Revision AS
- Drawing: 12E–2322A, Key Diagram Turbine Building 125V DC Reserve Bus Distribution Panels, Revision Q

- Drawing: 12E-2322 Sheet 1, Key Diagram Turbine Building 125V DC Main Bus 24-1 Distribution Panel, Revision AD
- Drawing: 12E-2322 Sheet 3, Key Diagram Reactor Building 125V DC Main Bus 2 Distribution Panel, Revision AZ
- Drawing: 12E-2322B, Overall Key Diagram 125V DC Distribution Centers, Revision L
- Drawing 12E-2400C Sheets 1 & 2, Schematic Standby Gas Treatment, Revision AJ
- Drawing: 12E-6822, LOOP Schematic Functional Block Diagram Analog Trip System Class 1E Instrumentation Upgrade, Revision AD
- WO 00892168-01, Replace 2A CC Relief Valve 2-4899-72"
- IR 4066442, "LPCI/CCSW Heat Exchanger Relief Valve Flange Issue"
- IR 4066989, "LPCI/CCSW Heat Exchanger Relief Valve Flange Issue"
- DMS 0040-01, "IST Program Relief Valve Surveillance," Revision 28
- IR 4068894, "10 CFR Part 21 EDG Speed Switch"
- Event Notification Report 53037
- Engine Systems, Inc. Report No. 10CFR21-0118, Rev. 0
- Drawing: 12E-2351A, Schematic Diagram Engine Control and Generator Excitation Standby Diesel Generator 2/3, Revision BB
- Drawing: 12E-2350A, Schematic Diagram Engine Control and Generator Excitation Standby Diesel Generator 2, Revision AW
- Drawing: 12E-2644, Wiring Diagram Standby Diesel Generator 2 Engine Equipment Control Panel, Revision AE
- Drawing: 12E-3350A, Schematic Diagram Standby Diesel Generator 3 Engine Control and Generator Excitation, Revision AS
- IR 4069816, "U2 EDG Output Breaker Did Not Close to Bus 24-1"
- WO 4706777-01, "Replace C/S 2-6640-19 / (C/S 2-6601) U2 D/G to Bus 24-1"
- WO 4706777-04, "PMT U2 D/G to Bus 24-1 ACB C/S"
- DOS 6600-05, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2 Diesel Generator," Revision 67
- Operator Log for the Period of 11/01/2017 01:35 through 20:36
- Drawing: 12E-2739, Wiring Diagram Main Control Board Panel 902-8 Terminal Blocks "A" thru "D", Revision AT
- Drawing: 12E-2737, Wiring Diagram Main Control Board Panel 902-8 Front Face, Part 2, Revision AM
- Drawing: 12E-2654B, Wiring Diagram 4160V Switchgear Bus 24, Cubicle 8,9,10,11,12,13,14&15, Revision AJ
- Drawing: 12E-2346, Schematic Diagram 4160V Bus 24-1 Standby Diesel 2 Feed, Revision AT
- IR 4069471, "MOV 2-1301-3 Stroke Length Found Shorter Than Acceptable"
- IR 4079307, "Historical Operability Review for IR 4069471"
- WO 1484145, "EM Perform As-Left Diagnostic Test MOV 2-1301-3"
- WO 4587937-01, "EM/CMO D2 San Verification of 2-1301-3 Stroke Length"
- EC 372073, "Unit 2 Isolation Condenser Valve 2-1301-3 Opening Setting Adjustment," Revision 003
- EC 372233, "Calculation DRES 02-0020 Major Revision 3," Revision 000
- EC 372707, "Test Data Evaluation for Unit 2 Isolation Condenser Heat Capacity Test Performed on 09/07/2008," Revision 000
- DOS 1300-01, "Isolation Condenser Five Year Heat Removal Capability Test," Revision 48
- Surveillance History Record for PMRQ: 00001376, D2 SA PM Verification of 2-1301-3 Stroke Length"
- Drawing: M-28, "Diagram of Isolation Condenser Piping," Revision LR
- WO 1259044, "Replace 2/3 EDG Starting Air Filter HSGS & Outlet Piping"

- IR 4069961, "2/3 EDG Air Start System Leak"
- IR 4071159, "2/3 EDG Air Start Reg Valve FM Found Internals"
- EC 423609, "Seal Welding of Unions in Support of Replacement of Piping"
- MA-AA-716-008, "Loss of Integrity Notification and Recovery Plan," Revision 13
- MA-AA-716-008, "FME Internal Device Record," Revision 12
- Drawing: M-173, Diagram of Corrosion Test & Diesel Start-up Air Piping," Revision BI

1R18 Plant Modifications

- Engineering Change (EC) 404631, "Install a Bleed Orifice for the Target Rock Valve Bellow Leakage Pressure Switch"
- WO 01896444, "Target Rock Bellows Mod – U2 ERVR"
- WO 01896444-02, "Install Bleed Orifice for Unit 2 Target Rock Valve Bellows Leakage Pressure Switch per EC 404631"
- WO 01896444-06, "Perform PMT Pressure Test for EC 404631"
- IR 4072784, "Incorrect Quality Parts Used in Modification"
- Design Consideration Summary for EC 404631, Rev. 000
- Work Planning Instructions (WPI)/DCP Instructions (DCPI) for EC 404631
- 50.59 Review for EC 404631 & 404632, Revision 000
- Maintenance Material List (MML) for WO 1896444-02
- Design Analysis Major Revision, QDC-0200-M-1811, Revision 001, "Determination of Bleed Orifice Diameter for Bellows Leak Detection System Line Valve 1-0203-3A and 2-0203-3A"
- DIS 0250-11, "Target Rock Valve Alarm/Indication Pressure Switches Calibration," Revision 10
- Drawing: EC404631-SK-M-01, Target Rock Valve 2-203-3A Pressure Switch 2-203-3A Installation Detail, Revision N/A
- Drawing: M-12, Diagram of Main Steam Piping, Revision PG
- EC 397320, "Replace Manual Jumpers for -59" RWL Per DEOP 0500-02 With Keylock"
- WO 01906891-02, "PMT for EC 397320 'Replace Manual Jumpers for -59" RWL per DEOP 0500-023 with Keylock Switches"
- Design Change Package for EC 397320, Rev. 000, WO# 01906891
- Design Change Package for EC 397320, Rev. 001
- Design Change Package for EC 397320, Rev. 002
- Design Change Package for EC 397320, Rev. 003
- Design Change Package for EC 397320. Rev. 004
- IR 4071928, "-59 Mod Annunciator Window Circuit Wired Wrong"
- WO 04709034-01, "CE Make Wiring Changes in Panel 902-34 per EC 397320"
- Drawing: 12E-2815AE, Wiring Diagram Annunciator Relay Panel 902-34, Rack 2R, Revision

1R19 Post Maintenance Testing

- WO 01692485-06, "OP PMT Perform as Left Wet or Dry LLRT on 2-0203-2C"
- WO 01696562-06, "OP PMT Perform as Left Wet or Dry LLRT on 2-0203-2D"
- WO 01770616-07, "OPV 1A MSIV – Perform as Left – LLRT Following O/H"
- DOS 7000-01, "Local Leak Rate Testing of Main Steam Isolation Valves (Dry Tests)", Revision 09
- WO 01963002, "Vacuum Breaker 2-1601-33F Would Not Properly Close"
- DTS 1600-05, "Torus Vacuum Breaker Individual Test," Revision 09
- Engineering Change (EC) 395141, "ATWS RPT Pressure Setpoint Change Unit 2," Revision 000
- Work Planning Instructions for EC 395141

- Design Considerations Summary for EC 395141, Revision 000
- 50.59 Review Form for EC 395141 (Unit 2) and EC 395142 (Unit 3), Revision 000
- 50.59 Applicability Review Form for EC 395141 (Unit 2) and EC 395142 (Unit 3), Revision 000
- HU-AA-1212, "Technical Task Pre-Job Brief Form" for EC 395141, Brief Date 9/1/2016
- WO 00868005-04, "IM PMT Perform DIS 0263-08 For Solenoid 2-0399-524A"
- WO 00868006-01, "IM PMT Perform DIS 0263-08 for Solenoid 2-0399-524B"
- WO 00868007-04, "IM PMT Perform DIS 0263-08 for Solenoid 2-0399-548B"
- WO 00871521-04, "IM PMT Perform DIS 0263-08 for Solenoid 2-0399-549B"
- WO 00871610-04, "IM PMT Perform DIS 0263-08 for Solenoid 2-0399-549A"
- WO 01669180-01, "ATWS RPT Setpoint Change U2 EC 395141"
- WO 01878172-01, "D2 24M/RFL TS ATWS RPT/ARI Pressure Channel Calibration"
- WO 01900850-01, "D2 24M/RFL TS ATWS RPT/ari OGIC System Functional Test"
- IR 01669180-03, "OP Revise Procedures Per EC 395141 ATWS Setpoint Change"
- DIS 0263-08, "Unit 2 ATWS RPT/ARI Logic System Functional Test," Revision 22
- WO 01901908-01 through -13, "D2 RFL TS 1000 PSI Reactor Vessel System Leakage Test/Hydro"
- IR 4073601, "Leak From D2 HCU 123 Valve Discovered During Hydro"
- IR 4073611, "Leak From P10 HCU 127 Valve Discovered During Hydro"
- IR 4073612, "Leak on Union Near 2-0261-26B"
- IR 4074113, "Unit 2 D2R25 Class 1 and 2 System Leak Test Results"
- DOS 0201-01, "Unit 2 RPV ASME B & PV Code 1000 PSI System Leakage Test"
- Operator Log for the Period of 11/10/2017 23:27 through 11/11/2017 09:58
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Reactor Head Cavity EL 589'-0" Revision B
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Drywell Fourth Floor EL 576'-7 1/8" Revision D
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Drywell Third Floor EL 562'-0" Revision D
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Drywell Second Floor EL 537'-1 1/4" Revision G
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Drywell First Floor EL 515'-5 3/4" Revision F
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Drywell Basement EL 502'-4" Revision I
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Lower Head CRD Area EL 502'-4" Revision B
- Drawing: ISI-501, System Pressure Test Walkdown Isometric Instrumentation Revision C
- Drawing: ISI-502, System Pressure Test Walkdown Isolation Condenser Piping Revision C
- Drawing: ISI-503, System Pressure Test Walkdown Isometric Shutdown Cooling Piping Revision 8
- Drawing: ISI-504, System Pressure Test Walkdown Isometric MSIV Room – X Revision C
- Drawing: ISI-505, System Pressure Test Walkdown Isometric Control Road Drive Hydraulic Piping East Bank Revision D
- Drawing: ISI-505, System Pressure Test Walkdown Isometric Control Road Drive Hydraulic Piping West Bank Revision C
- WO 01968495-12, "PMT DOS 6800-01 per EC 406339"
- WO 01968495-06, "Wiring Verification Per EC 406339 CC-AA-107 Attachment 1"
- DOS 6800-01, "Essential Service Uninterruptable Power Supply Operability Test," Revision 17
- Work Planning Instructions for EC 406339, Rev. 004
- Design Consideration Summary for EC 406339, "Bypass ESS UPS – U2," Revision 003

- MA-MW-773-039, "Nuclear Operational Analysis Department Testing of Control Circuits," Revision 0
- Drawing: 12E-2682, Wiring Diagram 120/240V AC Distribution Panels ESS SERV Bus Distribution Panel 902-49 Instrument Bus Distribution Panel 902-50, Revision BC
- Drawing: 12E-7505D, Cable Tabulation Cables 77350 to 77399, Revision Q
- Drawing: 12E-6541D, Junction Box Schedule Turbine Building, Revision AQ
- Drawing: 12E-2811C, External Wiring Diagram Uninterruptible Power Supply Panel 902-63, Revision E
- WO 04706538-05, "Perform as Left LLRT Testing 2-1501-28A"
- IR 4072712, "Need New Stem for 2-1501-28A"
- IR 4073926, "2-1501-28A Failed as Left Leak Rate Testing"
- IR 4069466, "D2R25 LLRT: MO 2-1501-28A Exceeded Action Limit of ,30 SCFH"
- DOS 7000-08, "Local Leak Rate Testing of Primary Containment Isolation Valves," Revision 13
- DOS 7000-15, "Local Leak Rate Testing of Unit 2(3) Low Pressure Coolant Injection (LPCI) System Valves," Revision 02
- Drawing: M-360, Diagram of Coolant Injection System, Revision VX
- WO 01623421-08, " OP PMT As Left LLRT 2-0220-58A per DOS 7000-26"
- WO 01623423-06, "Contingency Repair to the 2-0220-62A Check Valve"
- IR 4069673, "D2R25 LLRT for 2-220-62A Above Acceptance Criteria"
- IR 4069678, "D2R25 LLRT for 2-220-58A Above Acceptance Criteria"
- DOS 7000-26, "Local Leak Rate Testing of Unit 2(3) Feedwater System Valves [2(3)-220-58A(B), 2(3)-220-62A(B)]," Revision 08
- OP-AA-101-113-1004, "Equipment Issues Report Format for IRs 4069678 and 4069673," Revision 39
- Drawing: M-14, Diagram of Reactor Feed Piping, Revision MA

1R20 Refueling and Other Outage Activities

- Letter from P. Simpson, Exelon Generation to US NRC, RS-17-158, "Dresden Nuclear Power Station Fifth Inservice Inspection Interval Relief Request 15-16," dated November 7, 2017
- Hitachi Customer Notification Form (CNF-004), "Length and Through Wall Measurements of Previously Reported Indications on CNF-003," dated November 9, 2017
- Hitachi CNF-003, "During the Ultrasonic Examination of the Above Weld, a Linear Indication with Axial Component was Observed," dated November 6, 2017
- Vendor NDE Procedure Approval Form for GE-Hitachi Procedure Number GEH-UT-250, "Procedure For Automated Phased Array Ultrasonic Flaw Detection and Length Sizing in Austenitic and Ferritic Piping Welds with ZSCAN PA," Revision 0, Addenda DRR11-19
- Vendor NDE Procedure Approval Form for GE-Hitachi Procedure Number GEH-UT-251, "Procedure For Automated Ultrasonic Flaw Depth Sizing in Austenitic and Ferritic Piping Welds with Z-SCAN PA," Revision 2
- Vendor NDE Procedure Approval Form for GE-Hitachi Procedure Number GEH-PDI-UT-2, "PDI Generic Procedure For the Ultrasonic Examination of Austenitic Welds," Revision 11
- Vendor NDE Procedure Approval Form for GE-Hitachi Procedure Number GEH-PDI-UT-3, "PDI Generic Procedure For the Ultrasonic Through Wall Sizing in Piping Welds," Revision 5
- Hitachi Examination Summary Sheet, Report No. D2R22-056 for Component ID: 2/1/JPIA/N20A-6, dated 10/25/2001
- ASME Case N-504-4, "Alternative Rules for Repair of Classes 1, 2, and 3 Austenitic Stainless Steel Piping, Section XI, Division 1"
- ASME Case N-653-1, "Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds, Section XI, Division 1"

- Operator Log for the Period of 10/27/2017 05:20 through 10/30/2017 05:13
- Drawing: ISI-128, Inservice Inspection Class I Reactor Pressure Vessel, Revision C
- Work Schedules for Outage Period
- Regulatory Guide 5.73, "Fatigue Management for Nuclear Power Plant Personnel"
- 2 Month Readiness Review for D2R25
- Meeting Agenda for D2R25 Start Up Meeting 4, November 13, 2017
- Clearance Tag 00122486, "Overhaul HCU 34-55 (J-14)"
- Clearance Tag 00137880, "U2 Main Steam ERV's"
- Clearance Tag 00137874, "U2 HPCI – Prevent Inadvertent Actuation"
- Transmittal of Design Information 17-020, "Inputs for Evaluation of Lost Parts in the Reactor Vessel and Applicable Systems"
- Final Unit 2 D2C26 Core Verification Video and Core Map
- Main Control Room Operator Logs 10/29-10/30
- Main Control Room Operator Logs 11/17-11/19

Procedures:

- MA-AA-716-008, Attachment 10, "Loss of Integrity Notification and Recovery Plan – Historical Piece of Metal 1/4x2x2," Dated 11/4/17
- MA-AA-716-008, Attachment 10, "Loss of Integrity Notification and Recovery Plan – 1/8" Socket Head Screw. Historical in Nature," Dated 11/4/17
- MA-AA-716-008, Attachment 10, "Loss of Integrity Notification and Recovery Plan – GEH PTL Controller #1," dated 11/2/17
- OU-DR-104, "Shutdown Safety Management Program," Revision 21
- DFP 0800-91, "New Fuel Receiving," Revision 03
- DFP 0800-92, "New Fuel Preparation and Storage," Revision 04
- DGP 01-S1, "Start-Up Checklist," Revision 101
- DGP 01-01, "Unit Startup," Revision 192
- DGP 02-01, "Unit Shutdown," Revision 162
- DGP 03-01, "Power Changes," Revision 134
- DGP 03-04, "Control Rod Movements," Revision 73
- DOP 1000-03, "Shutdown Cooling Mode of Operation," Revision 82
- DOP 6500-30, "Bus 23-1 to Bus 33-1 Tie Breaker Operation," Revision 16
- D2R25 Protected Equipment Summary dated 10/24/17
- D2R25 Refuel Outage Shutdown Safety Review for These dates: 10/12/17 and 10/23/17;
- D2R25 "Shutdown Risk Contingency Plans, Compensatory Plans & Related Work Evaluation," dated 9/25/17
- D2R25 IPA/First Time Evolutions, dated 9/11/17
- NF-AA-411, "Receipt of Inspection of Nuclear Fuel and Associated Core Components," Revision 8

Issue Reports:

- IR 4074681, "Fatigue Assessment"
- IR 4074660, "D2R25 Torus Vent Tube and Centipede Closeout Inspection"
- IR 4074406, "X-Area Final Walkdown Results"
- IR 4074387, "Drywell Closeout Walkdown on 3rd/4th Floors"
- IR 4074023, "2-1402-4B Won't Close All The Way"
- IR 4073938, "U2 EDG Backup Nitrogen Pressure Low"
- IR 4073652, "WHR Deviation – Allied BM Internal Contamination"
- IR 4073517, "Piece of PC Stuck in Between Flanges"
- IR 4073316, "Water Identified From 2B RR Pump Seal Area"
- IR 4072713, "SRV Temperature Element Metal Sheathing Damaged"

- IR 4072636, "NDE Rejectable Indications on 2-5606-B (2B MSDT)"
- IR 4072388, "D2R25 Coating Inspection Deficiency – U2 Torus Bay 13"
- IR 4072354, "'B' Scram Air Header Filter Unions Leaking"
- IR 4072284, "D2R25 IVVI Minor Issues on Jet Pump Sensing Line Clamps"
- IR 4072251, "General Observation on FME Practices During D2R25"
- IR 4071740, "UT Indication-N20A Nozzle Weld 6"
- IR 4071711, "D2R25LL: ISI Surface Linear Indication Review"
- IR 4071699, "Fatigue Assessment"
- IR 4071664, "D2R25 OSHA Reportable Injury"
- IR 4071206, "D2R25 APS First Aid – PF – Forearm"
- IR 4071200, "Penetration X-205E EQ Inspection Results"
- IR 4071177, "D2R25 IVVI – Wear Identified on Jet Pump 19 Auxiliary Wedge"
- IR 4071170, "D2R25 IVVI - Core Spray Sparger Bracket Indication"
- IR 4071075, "Main Mast Cable Jumped The Drum"
- IR 4071063, "Fatigue Assessment"
- IR 4071051, "Damaged IRM Drive Cable"
- IR 4071033, "Supplemental Asbestos Worker Sustains OSHA Recordable Injury"
- IR 4070970, "D2R25 – 4G SRV Test Failure"
- IR 4070860, "Historical FME in Fuel Pool"
- IR 4070849, "U2 SBLC Flow Rate Change >5%"
- IR 4070765, "First Aid – Allied Boilermaker"
- IR 4070545, "D2R25 IVVI – Steam Dryer Hood Anomalies"
- IR 4070379, "Apparent WHR Violation"
- IR 4070323, "Individual First Aid While Lifting Gang Box Cover"
- IR 4070298, "D2R25 Peanut Light and Power Cord - FME"
- IR 4069811, "2D ERV Open Light Failed to De-energize During Testing"
- IR 4069809, "2C ERV Open Light Failed to Energize During Testing"
- IR 4069779, "D2R25 LLRT RWCU 1201-1/1A/2/3 As Found >20 SCFH (Alarm)"
- IR 4069785, "TRM Snubber 2-3019E-58 Failed its Functional Test"
- IR 4069714, "10CFR26 Covered Work Clarification"
- IR 4069471, "MOV 2-1301-3 Stroke Length Found Shorter Than Acceptable"
- IR 4069204, "Security – Non-Outage Work Related Injury"
- IR 4069165, "Security – Fatigue Assessment Conducted"
- IR 4069157, "Security – WHR Deviation"
- IR 4068909, "Valve Stem Discovered Scored During Inspection"
- IR 4068879, "2-0203-2A MSIV Air Piping Leaks"
- IR 4068895, "D2R25: 2-2001-8 Will Not Close From MCR for LLRT"
- IR 4068891, "MOV 2-1201-1 Motor Degradation"
- IR 4068686, "Conduit Detached on U2 2C OTBD MSIV AOV"
- IR 4068785, "D2R25 LLRT: Bellows 2-X108A Exceeded Action Limit of < 5 SCH"
- IR 4068603, "IEMA Identified Graffiti in the Plant"
- IR 4068466, "Computer PT Not Received During DIS 0500-20"
- IR 4068463, "Loud Hum and Buzzing Coming from Conduit Box to 2-3305-D"
- IR 4068458, "Need RX Mode SW Contacts Burnished 'B' 2-2C"
- IR 4068437, "CRD F-8 Rod Drift Alarm"
- IR 4068419, "CRD M-11 RPIS Issues"
- IR 4068408, "Bad IRM Indication on Range 2"
- IR 4068407, "IRM 14 1/2 Scram During S/D"
- IR 4068406, "IRM 13 1/2 Scram"
- IR 4068402, "During SRM Insertion SRM 23 Would Not Drive In"
- IR 4067478, "NRC ID: Housekeeping Issues Identified"

- IR 4066438, "Power Cable Routed Near SRM/IRM Cabinet"
- IR 4066247, "Shutdown Cooling Pump Trip Vulnerability"
- IR 4065604, "Leak Found on Non-Code Piping During ASME Class 2 Walkdown"
- IR 4065013, "SDC Discharge to the Fuel Pool Leaking By"
- IR 4064937, "Channel Distortion Acceptance Criteria"
- IR 4064918, "MCR Received Unexpected Alarm 902-8 F6"
- IR 4063569, "Unit 2 CRD Friction Timing Program"
- IR 4061732, "Unit 2 TIP System Calibration Issue"
- IR 4061707, "U2 D2R25 CRDM Replacement List Incorrectly Verified"
- IR 4059292, "ASD Power Cell Vulnerability Review for D2R25"
- IR 4058775, "U2 Outage Issue – U2 Refuel Bridge"
- IR 4054019, "Work Hour Limits Waiver Error – EMD"
- IR 4054012, "Work Hour Limits Waiver Error – EMD"
- IR 4054010, "Work Hour Limits Waiver Error – EMD"
- IR 4053873, "D2R25 Independent Shutdown Safety Review Report"
- IR 4044179, "Tripped Accelerometer on Outer Box of Incoming Fuel Truck"

1R22 Surveillance Testing

- WO 00721195-01, "Upgrade MSIV 2-0203-2D Internals"
- WO 01899340-01, "Perform as Found LLRT Wet Test 2-0203-2D"
- WO 01899343-01, "Perform as Found LLRT Wet Test 2-0203-2B"
- WO 01899346-01, "Perform as Found LLRT Wet Test 2-0203-2C"
- WO 01899336-01, "Perform as Found LLRT Wet Test Per DOS 7000-02"
- WO 01903002-01, "Perform as Found LLRT Dry Test MSIV 2-203-1B & 2-203-2B"
- WO 01904922-01, "Perform as Found LLRT Dry Test MSIV 2-203-1A & 2-203-2A"
- WO 01903001-01, "Perform as Found LLRT Dry Test MSIV 2-0203-1C & 2-203-2C"
- WO 01903309-01, "Perform as Found LLRT Dry Test MSIV 2-0203-1D & 2-203-2D"
- IR 1277778, "D2R22 as Found LLRT on 2-0203-2D Exceeded Leakage Limit"
- IR 1277794, "D2R22 as Found LLRT on 2-0203-1A Exceeded Leakage Limit"
- IR 2581116, "D2R24 LLRT on 0203-2A Exceeded Tech Spec Limit of < 34 SCFH"
- IR 4068686, "D2R25: Conduit Detached on U2 2C OTBD MSIV AOV"
- IR 4068766, "D2R25 LLRT on 0203-1A Exceeded Tech Spec Limit of < 34 SCFH"
- IR 4068771, "D2R25 LLRT on 0203-2C Exceeded Tech Spec Limit of < 34 SCFH"
- IR 4068772, "D2R25 LLRT on 0203-2D Exceeded Tech Spec Limit of < 34 SCFH"
- DOS 7000-01, "Local Leak Rate Testing of Main Steam Isolation Valves (Dry Tests), Revision 09"
- DOS 7000-02, "Local Leak Rate Testing of Main Steam Isolation Valves (Wet Test), Revision 05"
- Surveillance History for U2 MSIV Local Leak Rater Testing
- Drawing: M-12, Diagram of Main Steam Piping, Revision ABS
- WO 01898531-01, "D2 RFL Com IST Seat Leak Test – HPCI Inlet to FW Check Valve"
- WO 01898532-01, "D2 RFL Com IST Seat Leak Test on RWCU to FW Sys Check Valve"
- WO 01898534-01, "D2 RFL Com IST Seat Leakage Test on Outboard FW Check Valve"
- DOS 7100-06, "Seat Leakage Testing of Valves," Revision 08
- Drawing: M-14, Diagram of Reactor Feed Piping, Revision MA
- Drawing: M-30, Diagram of Reactor Water Clean-up System, Sheet 1, Revision AAQ
- Drawing: M-51, Diagram of High Pressure Coolant Injection Piping, Revision CV
- Drawing: TSG-2, RPV & Containment DEOP-SAMG Action Level Adjustment, Revision 05
- WO 01715270-01, "D2 24m TS Bus 24-1 UV and ECCS Integrated Func Test"

- DOS 6600-05, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2 Diesel Generator," Revision 67
- WO 01900572-01, "D2 24M/RFL TS/EQ ATWS RPT/ARI & ECCS Level Chan Cal & EQ INS"
- WO 01878172, "IM D2 24 M/RFL TS ATWS RPT/ARI Pres Channel Calibration"
- WO 01319197, "IM Replace MTU 2-0263-25C"
- DIS 0263-07, "Unit 2 ATWS RPT/ARI and ECCS Level Transmitters Channel Calibration Test and EQ Maintenance Inspection," Revision 25
- Operations Log for the Period of 11/05/2017 20:48
- Maintenance and Testing Equipment Calibration Records

1EP4 Emergency Action Level and Emergency Plan Changes

- EP-AA-1004, Addendum 3; Emergency Action Levels for Dresden Station; Revisions 2, 3, 4, and 5
- Eval 16-88; 50.54(q) Program Evaluation/Assessment Review for EP-AA-1004, Addendum 3, Revision 3; 06/14/2016
- Eval 16-123; 50.54(q) Program Evaluation/Assessment Review for EP-AA-1004, Addendum 3, Revision 4; 08/15/2016
- Eval 16-140; 50.54(q) Program Evaluation/Assessment Review for EP-AA-1004, Addendum 3, Revision 5; 10/21/2016

1EP6 Drill Evaluation

- IR 4002993, "DRE-EP-2017-NRC-OSC-Other Issues"
- IR 4002984, "DRE-EP-2017-NRC-TSC-Other Issues"
- IR 3988762, "EP-FEB 2 Dep Failure (After Drill Confidentiality Lifted)"
- IR 3998231, "EP 1Q17 FAD Facilities and Equipment"
- IR 3998228, "EP 1Q17 FAD Combined Facility Comments"
- Nuclear Accident Reporting System (NARS) Utility Message No. 2 and 3

2RS1 Radiological Hazard Assessment and Exposure Controls

- Unit 2 Turbine Survey Data Elevation: 561' Turbine Area, 502' Condenser Tube Pull Pit; Turbine Area; 517' Moisture Separator Area; 481' Hotwell Basement; 517' X-Area; High Pressure Heater Bay; Heater Bay Upper Elevation; Low Pressure Heater Bay; 538' Turbine Pipeway; 10/30/2017
- Unit 2 Drywell Survey Data; 502' Basement; 502' Sub-pile Room; 502' Basement; 515' General Area; 536' General Area; 536' General Area; 552' General Area; 576' General Area; 10/30/2017
- IR-04023316, "Completion of the 2017 Dry Cask Campaign WO# 1930465"
- IR-04060153, "B-Max Concentrator has Historical Issue of the Site Glass Breaking that Caused Concentrator Water to Spray and Accumulate to Vault Below"
- IR-04036752, "Door Auto Closure Device Not Working Properly"
- IR-04035556, "Possible Safety Issues During Quarterly LHRA Surveillance"
- IR-03953422, "Elevated Levels of Iron in Feed Water"
- IR-02736271, "Dresden Exceeded D3R24 PCE Goals"
- IR-03999836, "2017 Dry Cask Storage Campaign Completion of Cask #1"
- IR-03999093, "One Level Two PCE and Radiation Worker Practice"
- IR-04046929, "Inconsistent Response to a PCE and Site Expectations"
- RWP-DR-02-17-00402 and ALARA Plan; D2R25 Outboard Main Steam Isolation Valve (MSIV) Activities; 11/1/2017

- RWP-DR-02-17-00512 and 513 and ALARA Plan; D2R25 Drywell Control Rod Drive Exchange/ CRD Support Activities; 11/1/2017
- RWP-DR-02-17-00511 and ALARA Plan; D2R25 Drywell Valve Maintenance and Support Activities and ALARA Plan; 8/1/2017
- RWP-DR-02-17-00402 and ALARA Plan; D2R25 Drywell Main Steam Valve ERV's, SRV's and Target Rock Valve and Pilot Valves and ALARA Plan; 8/10/2017
- RWP-DR-02-17-00506 and ALARA Plan; D2R25 Drywell Scaffold Activities; 10/3/2017
- RWP-DR-02-17-00517 and ALARA Plan; D2R25 Drywell NDE, FAC and ISI Prep Activities; 11/1/2017
- RWP-DR-02-17-00546 and ALARA Plan; D2R25 Drywell Emergent Nuclear Instrumentation; 10/31/2017
- RWP-DR-0-17-00204/05 and ALARA Plan; 2017 Drywell Activities/2017 Dry Cask Activities with Added Controls; 6/19/2017
- RWP-DR-02-17-00901 and ALARA Plan; D2R25 Reactor Disassembly/Reassembly and Related Activities; 11/1/2017
- RWP-DR-02-17-00903 and ALARA Plan; D2R25 Reactor Cavity Work Platform Activities; 11/1/2017
- RWP-DR-02-17-00702/703 and ALARA Plan; D2R25 Torus Diving and Support Activities; 10/25/2017
- Dresden Unit-2 and Unit-3 Spent Fuel Pool Hanging Material Log Inventories; 10/11/2017
- RP-AA-301; Beta/Gamma for Dry-Cask Campaign Activities Associated with HI-TRAC; 10/21/2017
- PI-AA-125-1001; Dresden Station Radiation Protection Investigation of the D3R24 PCE Occurrences; Revision 2
- RP-AA-400-1006, "Outage Exposure Estimating and Tracking," Revision 7
- RP-AA-400-1007, "Elevated Dose Rate Response Planning," Revision 2
- RP-AA-400-1004, "Controls for the Draining and Decontamination of BWR/PWR Reactor Cavity and Associated Pits," Revision 3
- RP-AA-460, "Controls for High and Locked High Radiation Areas," Revision 29A
- RP-AA-460-1006, "Controls for the Repair or Replacement of In-Core Detectors and Associated Components," Revision 4
- RP-AA-461, "Radiological Control for Contaminated Water Diving Operations," Revision 7

2RS2 Occupational ALARA Planning and Controls

- RP-AA-4004; D3R24 Post Outage Report; Dresden Station D3R24 RP / ALARA Refuel Outage Report Fall 2016
- IR-02741034, "D3R24; Post Job Review for D3R24 Torus Dives"
- IR-03945947, "Dresden Exceeds November SAC Approved Goal"
- IR-03976229, "Inconsistencies Incomplete ALARA Paperwork"
- IR-02741066, "D3R24LL; IR to Document the Post Job Report on Drywell Dose"
- IR-02740952, "RP-AB-460 Needs an Enhancement to Preclude Confusion"
- IR-02741226, "D3R24LL Post Job Review on RWP-DR-03-16-00901 Reactor Disassembly and Reassembly"
- IR-02741065, "D3R24LL; IR to Document the Post Job Report for Drywell"
- IR-02738041, "D3R24LL; RWP-DR-03-16-00903 Reactor Cavity Work Platform Activities Needed to be Increased due to Additional Core Shroud Inspection"
- D2R15 Station ALARA Committee; RWP-DR-02-17-00901/903; Reactor Disassembly/Reassembly and IVVI
- PI-AA-126-1001-F-01; Self-Assessment for RP Shipping; 10/26/2017
- RP-AA-550-1001; Hot Spot Tracking; Revision 4

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

- IR 4007270, "Limited Quantity Shipment Discrepancies during Shipment"
- IR 4079792, "NRC Identified Three B-25 Boxes that need Bolts Tightened"
- IR 4079796, "NRC Identified that a Flatbed with Sealand was Leaning at Sealand Yard"
- IR 4079797, "NRC Identified a Safety Issue that a Shipping Cask on Top of Flatbed was Leaning due to Degraded Flatbed"
- IR 2622089, "Apparent Cause Investigation Report; Vendor Found Material on Liner when Opening a Shipping Cask"
- DOP 2000-53, "Transfer of Resin from Spent Resin Tank to Contract Vendor Mobile Solidification/Dewatering Unit," Revision 12
- DOP 2000-23, "Sparging Air Compressor," Revision 10
- Drawing: M-46, Dresden Diagram of Radwaste Sludge & Concentrated Waste Subsystem Piping
- RP-AA-605, "Waste Stream Results Review; U2 RWCU Resin-2015"
- Teledyne Brown Engineering L68300 RWCU Resin Analysis; Dated May 31, 2016
- RP-AA-605, Waste Stream Results Review; U3 Fuel Pool Resin; Dated October 3, 2008
- D3R24 TORUS Filters 10 CFR 61 Database Analysis; Dated January 30, 2017
- 2017 DAW Average – 10 CFR 61 Database Analysis; Dated March 22, 2017
- U3 RWCU Resin 2016 – 10 CFR 61 Database Analysis; Dated March 8, 2017
- Condensate Resin 2017 – 10 CFR 61 Database Analysis; Dated August 14, 2017
- RP-AA-500-1001; Outdoor Container Checklist; Container Inspection Prior to Loading or Storing Outdoors; 0603, 0040, Cask 15394, 0161, 0142, 0123, 0249, 0239, 0331, 0110, Blue Box 1216; Dated May 28, 2017
- DM-17-109; UN3321, Radioactive Material, Low Specific Activity (LSA-II), 7; U2 CRDs to GE Wilmington, NC; Dated November 9, 2017
- DW-17-006; UN3321, Radioactive Material, Low Specific Activity (LSA-II), 7; U3 Fuel Pool Resin to WCS, TX; Dated June 28, 2017
- DW-16-001; UN3321, Radioactive Material, Low Specific Activity (LSA-II), 7; 2014 Spent Resin Tank Resin to Clive Containerized Waste Facility, Clive UT; Dated January 8, 2016
- DW-17-043; UN2916, Radioactive Material, Type B(U) Package, 7; RWCU Resin to Clive Containerized Waste Facility, Clive UT; Dated August 29, 2017
- DW-17-041; UN2916, Radioactive Material, Type B(U) Package, 7, to Clive Containerized Waste Facility, Clive UT; Dated August 21, 2017
- DW-16-014; UN3321, Radioactive Material, Low Specific Activity (LSA-II), 7; 40' Sealand with DAW to Energy Solutions, Bear Creek, TN; Dated March 24, 2016
- 71-9365; Certificate of Compliance No. 9365, Revision 1, Model No. RT-100 Package
- Conformance of CNS 14-190H Cask with Specifications for DOT 7A, Type A Packaging; Dated September 9, 2004
- RW-AA-100; Process Control Program for Radioactive Wastes; Revision 12
- RP-AA-600-1004; Radioactive Waste Shipments to Energy Solutions' Clive Utah Disposal Containerized Waste Facility; Revision 13
- RP-AA-600-1005; Radioactive Material and Non Disposal Site Waste Shipments; Revision 19
- RP-AA-600-1008; Radioactive Waste Shipments to Waste Control Specialists (WCS) Disposal Facility; Revision 5
- RP-AA-600-1009; Shipment of Category 2 Quantities of Radioactive Material or Waste (Category 2 RAMQC); Revision 2

3S08 Fitness for Duty Program

- SY-AA-103-513, "Behavior Observation Program," Revision 12
- SY-AA-102, "Exelon Generation Fitness-For-Duty Program," Revision 20
- SY-AA-102-201, "Call-Outs for Unscheduled Work," Revision 9
- SY-AA-102-202, "Testing For Cause," Revision 18
- SY-AA-102-204, "Random Selection and Notification Process," Revision 11
- SY-AA-102-224, "Work Performance Investigation," Revision 4
- SY-AA-102-226, "Test Results and MRO Response," Revision 10
- SY-AA-102-230, "Designated Collection Facility," Revision 8
- SY-AA-102-240, "Collection of Specimen for Testing in an Exelon Facility," Revision 14
- SY-AA-102-252, "Fitness-For-Duty Training and Qualification Requirements," Revision 3
- SY-AA-103-513, "Behavioral Observation Program," Revision 12

4OA1 Performance Indicator Verification

- Unit Daily Surveillance Log – Section 1 – Unit 3 NSO Mode 1, 2, and 3 Reactor Coolant Leakage Logs October 2016 through September 2017
- Unit 3 Reactor Coolant System Leakage Performance Indicator Data October 2016 through September 2017
- Unit Daily Surveillance Log – Section 1 – Unit 2 NSO Mode 1, 2, and 3 Reactor Coolant Leakage Logs October 2016 through September 2017
- Unit 2 Reactor Coolant System Leakage Performance Indicator Data October 2016 through September 2017
- LS-AA-2140; Monthly Data Elements for NRC Occupational Exposure Control Effectiveness; Revision 5
- Monthly Data Elements for NRC Occupational Exposure Control Effectiveness; Reviewed from January 2016 through July 2017 and Lists of ED Dose and Dose Rate Alarms
- LER 237/2016-004-00, "Reactor Building Differential Pressure Less Than Technical Specification Requirement"
- LS-AA-2150, "Monthly Data Elements for RETS/ODCM Radiological Effluent Occurrences," Revision 5
- Data Elements RETS/ODCM Occurrences Reviewed from January 2016 through June 2017

4OA2 Problem Identification and Resolution

- DOS 6600–01, "Diesel Generator Surveillance Tests," Revision 138
- DOS 6600–03, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2/3 Diesel Generator to Unit 3." Revisions 43 and 44
- DOS 6600–04, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 3 Diesel Generator," Revisions 50 and 51
- DOS 6600–05, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2 Diesel Generator," Revisions 67 and 68
- DOS 6600–06, "Bus Undervoltage and ECCS Integrated Functional Test for Unit 2/3 Diesel Generator to Unit 2," Revision 56
- Engineering Change (EC) 617930, Revision 001, "OPEV 17–002, EDG Load Reject Measurement and Performance (TSSR) 3.8.1.10/ EDG Single Largest Load Reject"
- Technical Evaluation for EC 402550, Rev. 001, "Evaluate Using Core Spray Pump for EDG Largest Single Load Reject Test"
- Engineering Evaluation for EC 617695, Rev. 000, "Basis for Core Spray as the Largest Single Load to Demonstrate TSSR 3.8.1.10"

- WO 01715270-01, "D2 2YR/RFL TS Bus 24-1 UV and ECCS Integrated Func Test"
- WO 04676591-01, "WOS Required for EDG LLR to Meet NRC Commitment"
- IR 4036493, "WOS Required for EDG LLR to Meet NRC Commitment"
- IR 3968275, "NRC Question Regarding EDG Under Voltage Test Freq for Div I"
- IR 3964266, "NRC Question Concerning TS SR 3.8.1.10 and 3.8.1.11"
- Calculation No. DRE07-0001, Revision 0, for EC 364069, "EDG Loading for CS Pump – LOCA Long Term Cooling"
- Management Review Committee (MRC) package for IR 3964435, "DOS 6600-12 Not Revised per ACIT," Dated 3/10/17
- Maintenance Rule Expert Panel Meeting Minutes July 6, 2017
- Maintenance Rule Expert Panel Meeting Minutes August 15, 2017
- Maintenance Rule Expert Panel Meeting Minutes August 24, 2017
- Maintenance Rule Expert Panel Meeting Minutes August 30, 2017
- Maintenance Rule Expert Panel Meeting Minutes September 21, 2017
- Maintenance Rule Expert Panel Meeting Minutes October 5, 2017
- Maintenance Rule Expert Panel Meeting Minutes October 17, 2017
- Maintenance Rule Expert Panel Meeting Minutes October 19, 2017
- System Health Report December 2107
- IR 1525939, "3C IAC Trip on Low Oil Pressure During Start"
- IR 1532930, "3C IAC Trip on Low Oil Pressure During Start"
- IR 2661258, "3A Instrument Air Compressor Oil Has Water Intrusion"
- IR 2689381, "3A IA Compressor Has Water Intrusion"
- IR 3965179, "Level II Ground on U2 125 VDC Battery"
- IR 3978244, "U2 Inst Air Pressure Low, Enter DOA 4700-01"
- IR 3997442, "Trend ID: AK-25 Breaker Adverse Trend"
- IR 4000497, "Level 3 Ground on U2 125 VDC Isolated to 2A-1, CKT 10"
- IR 4009373, "Unexpected Alarm: 903-3 F-1, Area Rad Mon Downscale"
- IR 4018045, "IRM 15 Spiking – Unexpected Alarm"
- IR 4018136, "Unexpected Alarm, U2 LPRM 32-09-B Failed Downscale"
- IR 4018908, "Unexpected Alarm 903-3 C-1"
- IR 4021996, "Issues Encountered with 4KV Breakers"
- IR 4020766, "U3 LPRM 32-17B Intermittent Downscale Alarms"
- IR 4024526, "3B IAC Intercooler Cooling Water Outlet Temp High"
- IR 4031202, "Unexpected Alarm 902-8 C-9, U2 125 VDC Batt Ground"
- IR 4034419, "Unexpected Alarm 902-8 C-9, U2 125 VDC Batt Ground"
- IR 4035745, "Adverse Trend With U3 Battery RM HVAC Unit"
- IR 4036311, "LPRM 5B-48-25 (APRM Group 2) Testing Issues During DIP 700-15"
- IR 4036456, "Unexpected Alarm 902-5 B-4 OPRM Trouble/Inop"
- IR 4036479, "LPRM 1B-32-49 (APRM 1) Testing Issues During DIP 700-15"
- IR 4040337, "U3 CRD C-6 Position Indicating Amber 98"
- IR 4041057, "OPRM 6 Failed Response Time Test"
- IR 4041350, "Trending Issues: Issues in M&T Training"
- IR 4043031, "Unit 2 Service Air Comp Tripped When Started"
- IR 4046011, "Unexpected Alarm 902-3 A-1, RX Building Rad Hi"
- IR 4050104, "After Maintenance the 3C IAC Tripped on Start"
- IR 4050418, "Fuse Discrepancy Identified During 3C IAC Troubleshooting"
- IR 4051304, "U3 'C' IAC Stopped Loading – Degraded Instrument Air Pressure"
- IR 4054695, "Unexpected Alarm: 903-3 F-1 ARM Downscale HPCI Cubicle"
- IR 4056590, "IRM 18 Spiking Hi"
- IR 4060374, "IRM 15 Spiking – Unexpected Alarm"
- IR 4060526, "U2 CRD F-10 Red Double Dashes at 48 DOA 0300-06 Entry"

- IR 4060528, "U2 CRD M-4 No RPIS at 48, DOA 0300-06 Entry"
- IR 4062321, "OPRM 7 Trouble Will Not Reset After Surveillance"
- IR 4063073, "Unexpected Alarm 903-5 B-4 OPRM Trouble/Inop"
- IR 4064804, "U2 Unexpected Alarm: ARM Downscale, CRD Repair RM"
- IR 4065396, "Unexpected Alarm 902-5 B-4 OPRM Trouble/Inop"
- IR 4065977, "U2 125 VDC Batt Level II Ground"
- IR 4066595, "Unexpected Alarm 903-3 D-1, Turb Bldg Rad Hi"
- IR 4068406, "IRM 13 1/2 Scram"
- IR 4068524, "During Performance of DOS 0700-12 S/N Ratio, SRM 22 Erratic"
- IR 4071210, "U2 125 VDC Battery Ground"
- IR 4071799, "SRM 23 Spiked High / Failed Channel Check"
- IR 4071806, "Bus 27 to Bus 24 Breaker (At Bus 27) Cycled Repeatedly"
- IR 4083357, "U2 125 VDC Battery Ground"
- ICES 407482, "Instrument Air Compressor Failed to Load"
- EC 383165, "Environmental and Seismic Qualification Evaluation of General Electric Relay Model 12HGA11J52G for Emergency Diesel Generator Auto Start Relays," Revision 0
- EC 366256, "EQ Screening Considerations and Checklist, Add Interposing Relay for Diesel Generator Output Breaker Unit 2," Revision 0
- EC 366256, "Design Considerations Summary, Add Interposing Relay for Diesel Generator for Unit 3 Diesel Generator Output Breaker," Revision 0
- IR 4014904, "NRC Questions EQ for EDG Auto Start Relay"
- GEH 1793J, "GE Instruction for Instantaneous Auxiliary Relay"

4OA3 Event Follow-Up

- LER 05000249/2017-001-00, "Standby Liquid Control System Inoperable Due to a Manufacturing Defect Causing a Piping Leak"
- MRC meeting minutes dated 12/5/2017 for IR 423292

4OA5 Other

- IR 4014904, "NRC Questions EQ for EDG Auto Start Relay"
- MRC Meeting Minutes dated 12/19/17 for IR 425920
- CAPE (Corrective Action Program Evaluation) for IR 4061472, "Potential SBGT Divisional Separation Concern"

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ASME	American Society of Mechanical Engineers
ASR	Auto Start Relay
ATWS	Anticipated Transient Without Scram
BTU	British Thermal Units
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
DC	Direct Current
EAL	Emergency Action Level
EC	Engineering Change
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EQ	Environmental Qualification
Hz	Hertz
IC	Isolation Condenser
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
IR	Issue Report
ISI	Inservice Inspection
KW	Kilowatts
LCO	Limiting Condition for Operations
LER	Licensee Event Report
LLRT	Local Leak Rate Test
LPCI	Low Pressure Coolant Injection
MSIV	Main Steam Isolation Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NOED	Notice of Enforcement Discretion
NRC	U.S. Nuclear Regulatory Commission
OOS	Out-of-Service
OSP	Outage Safety Plan
PI	Performance Indicator
RCS	Reactor Coolant System
RFO	Refueling Outage
RPT	Recirculation Pump Trip
SBLC	Standby Liquid Control
TS	Technical Specification
TSSR	Technical Specification Surveillance Requirement
UFSAR	Updated Final Safety Analysis Report
UHS	Ultimate Heat Sink
URI	Unresolved Item
UT	Ultrasonic Examination
V	Voltage