UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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July 2, 2010

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

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3
NRC COMPONENT DESIGN BASES INSPECTION REPORT
05000237/2010-007(DRS); 05000249/2010-007(DRS)

Dear Mr. Pardee:

On May 21, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed a Component Design Bases inspection at your Dresden Nuclear Power Station, Units 2 and 3. The enclosed report documents the inspection findings, which were discussed on May 21, 2010, with Mr. Shane Marik and other members of your staff.

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

Based on the results of this inspection, three NRC-identified findings of very low safety significance were identified. The findings involved a violation of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations (NCVs) in accordance with Section VI.A.1 of the NRC Enforcement Policy. Additionally, a licensee identified violation is listed in Section 4OA7 of this report.

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

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000237/2010-007; 05000249/2010-007
w/Attachment: Supplemental Information

cc w/encl:

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-237; 50-249
License Nos:	DPR-19; DPR-25
Report No:	05000237/2010-007; 05000249/2010-007
Licensee:	Exelon Generation Company, LLC
Facility:	Dresden Nuclear Power Station, Units 2 and 3
Location:	Morris, IL
Dates:	April 19 through May 21, 2010
Inspectors:	Stuart Sheldon, Senior Reactor Engineer (Team Lead) Carey Brown, Operations Inspector Mohammad Munir, Engineering Inspector Néstor Féliz Adorno, Engineering Inspector Stanley Kobylarz, Electrical Contractor Stanley Spiegelman, Mechanical Contractor
Observer:	Jorge Corujo-Sandin, Engineering Inspector
Approved by:	Ann Marie Stone, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000237/2010-007; 05000249/2010-007; 04/19/2010 – 05/21/2010; Dresden Nuclear Power Station, Units 2 and 3; Component Design Bases Inspection (CDBI).

The inspection was a 3-week onsite baseline inspection that focused on the design of components that are risk significant and have low design margin. The inspection was conducted by regional engineering inspectors and two consultants. Three Green findings were identified by the inspectors. The findings were considered Non-Cited Violations (NCV) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," having very low safety significance for the failure to establish inspection procedures that were appropriate for the circumstances for the NRC Generic Letter (GL) 89-13 program heat exchangers. Specifically, procedures did not contain adequate guidance for partially blocked heat exchanger tubes found to be completely blocked. As a result, the licensee did not evaluate the as-found conditions of the 2/3 Emergency Diesel Generator (EDG) jacket water heat exchangers; therefore, did not determine the heat exchangers were not bounded by applicable design documents. The licensee entered this issue into its corrective action program.

  The performance deficiency was determined to be more than minor because it was associated with the mitigating system cornerstone attribute of procedure quality and affected the cornerstone objective. This finding was of very low safety significance because it was a qualification deficiency confirmed not to result in loss of operability or functionality. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance because the licensee did not use a conservative assumption in decision making. Specifically, the licensee did not use a conservative assumption when establishing the acceptance criteria for the inspection of heat exchangers. H.1(b) (Section 1R21.3.b.1)

- Green. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," for improperly classifying Low Pressure Coolant Injection (LPCI) pump mechanical seals as non-safety-related. The licensee subsequently concluded that the seals should be classified as safety-related based upon Exelon procedure SM-AA-300 and parts classification Guide M-1994-300, and reclassified them as safety-related.

  The performance deficiency was determined to be more than minor because if left uncorrected, it would become a more significant safety concern. This finding was of very

low safety significance because it was a qualification deficiency confirmed not to result in loss of operability or functionality. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance because the licensee did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. H.1(b) (Section 1R21.3.b.2)

- Green. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure to have an adequate post-maintenance test for circuit breakers to confirm fast bus transfer capability. Specifically, the licensee failed to ensure that either vendor overhaul procedures or the station procedure for receipt inspection confirmed that breaker timing tests were performed after the circuit breakers were overhauled at a vendor facility. The licensee entered this issue into its corrective action program.

  The finding was more than minor because if left uncorrected, the finding could have the potential to lead to a more significant safety concern. This finding was of very low safety significance (Green) because the test deficiency was confirmed not to result in loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because it was not reflective of current performance. (Section 1R21.3)

B. Licensee-Identified Violations

A violation of very low safety significance that was identified by the licensee has been reviewed by inspectors. Corrective actions planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 4OA7 of this report.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Component Design Bases Inspection (71111.21)

Introduction

The objective of the component design bases inspection is to verify that design bases have been correctly implemented for the selected risk significant components and that operating procedures and operator actions are consistent with design and licensing bases. As plants age, their design bases may be difficult to determine and an important design feature may be altered or disabled during a modification. The Probabilistic Risk-Assessment (PRA) model assumes the capability of safety systems and components to perform their intended safety function successfully. This inspectable area verifies aspects of the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for which there are no indicators to measure performance.

Specific documents reviewed during the inspection are listed in the attachment to the report.

Inspection Sample Selection Process

The inspectors selected risk significant components and operator actions for review using information contained in the licensee's PRA and the Dresden Nuclear Power Station Standardized Plant Analysis Risk Model, Revision 3.5. In gene**ra**l, the selection was based upon the components and operator actions having a risk achievement worth of greater than 1.3 and/or a risk-reduction worth greater than 1.005. The operator actions selected for review included actions taken by operators both inside and outside of the control room during postulated accident scenarios. In addition, the inspectors selected operating experience issues associated with the selected components.

The inspectors performed a margin assessment and detailed review of the selected risk significant components to verify that the design bases have been correctly implemented and maintained. This design margin assessment considered original design reductions caused by design modification, or power uprates, or reductions due to degraded material condition. Equipment reliability issues were also considered in the selection of components for detailed review. These included items such as performance test results, significant corrective action, repeated maintenance activities, Maintenance Rule (a)(1) status, components requiring an operability evaluation, NRC resident inspector input of problem areas/equipment, and system health reports. Consideration was also given to the uniqueness and complexity of the design, operating experience, and the available defense in depth margins. A summary of the reviews performed and the specific inspection findings identified are included in the following sections of the report.

This inspection constituted 29 samples as defined in Inspection Procedure 71111.21-05.

Component Design

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), design basis documents, drawings, calculations and other available design basis information, to determine the performance requirements of the selected components. The inspectors used applicable industry standards, such as the American Society of Mechanical Engineers (ASME) Code, Institute of Electrical and Electronics Engineers (IEEE) Standards and the National Electric Code, to evaluate acceptability of the systems' design. The NRC also evaluated licensee actions, if any, taken in response to NRC issued operating experience, such as Bulletins, Generic Letters (GLs), Regulatory Issue Summaries (RISs), and Information Notices (INs). The review was to verify that the selected components would function as designed when required and support proper operation of the associated systems. The attributes that were needed for a component to perform its required function included process medium, energy sources, control systems, operator actions, and heat removal. The attributes to verify that the component condition and tested capability was consistent with the design bases and was appropriate may include installed configuration, system operation, detailed design, system testing, equipment and environmental qualification, equipment protection, component inputs and outputs, operating experience, and component degradation.

For each of the components selected, the inspectors reviewed the maintenance history, system health reports, operating experience-related information and licensee corrective action program documents. Field walkdowns were conducted for all accessible components to assess material condition and to verify that the as-built condition was consistent with the design. Other attributes reviewed are included as part of the scope for each individual component.

The following 19 components were reviewed:

- Unit 3 125Vdc Station Battery/Battery Charger: The inspectors reviewed calculations and analyses relating to battery sizing and capacity, hydrogen generation, station blackout (SBO) coping, and battery room transient temperature. The review was performed to ascertain the adequacy and appropriateness of design assumptions, and to verify that the battery was adequately sized to support the design basis required voltage requirements of the 125Vdc safety-related loads under both design basis accident and SBO conditions. The inspectors reviewed calculations relating to sizing and current limit setting to ascertain the adequacy and appropriateness of design assumptions, and to verify that the charger was adequately sized to support the design basis duty cycle requirements of the 125Vdc safety-related loads and the associated battery under both normal and design basis accident conditions. The inspectors also reviewed a sampling of completed surveillance tests, service tests, and modified performance tests. The review of various discharge tests was to verify that the battery capacity was adequate to support the design basis duty cycle requirements and to verify that the battery capacity meets TS requirements. In addition, the test procedures were reviewed to determine whether maintenance and testing activities for the battery charger were in accordance with vendor's recommendations.

- 125Vdc Buses 3 and 3A: The inspectors reviewed 125Vdc short circuit calculations to verify the interrupting ratings of the fuses and the molded-case circuit breakers were well above the calculated short circuit currents. The 125Vdc voltage calculations were reviewed to determine if adequate voltage would be available for the breaker open and close coils and spring charging motors. The inspectors reviewed the motor control logic diagrams and the 125Vdc voltage drop calculation to ensure adequate voltage would be available for the control circuit components under all design basis conditions. The inspectors also reviewed the 125Vdc short circuit and coordination calculations to assure coordination between the motor feed breaker open and close control circuit fuses and 125Vdc supply breakers and to verify the interrupting ratings of the control circuit fuses and the 125Vdc control power feed breaker.

- 250 Vdc Motor Control Center 2: The inspectors reviewed 250Vdc short circuit calculations to verfiy the interrupting ratings of the molded-case circuit breakers were well above the calculated short circuit currents. The 250Vdc voltage calculations were reviewed to determine if adequate voltage would be available for the contactor coils. The inspectors reviewed the motor control logic diagrams and the 250Vdc voltage drop calculation to ensure adequate voltage would be available for the control circuit components under all design basis conditions. The inspectors also reviewed the 250Vdc short circuit and coordination calculations to assure coordination between the motor feed breaker open and close control circuit fuses and 250Vdc supply breakers and to verify the interrupting ratings of the control circuit fuses and the 250Vdc control power feed breaker.

- 4160Vac Switchgear 23-1 (SWGR 23-1): The inspectors reviewed the one line diagrams, the short circuit and load flow calculation, and the switchgear vendor specifications to determine maximum load, interrupting duty and bus bracing requirements for design basis conditions and to verify conformance with switchgear equipment vendor ratings. The breaker coordination calculation was reviewed to verify selective coordination. Switchgear and circuit breaker maintenance results were reviewed for indications of adverse conditions. A walkdown was conducted to determine the visible material condition and any potential seismic II/I conditions.

- 480Vac Motor Control Center 28-1 (MCC 28-1): The inspectors reviewed the one line diagrams, the short circuit and load flow calculation, and the MCC vendor specifications to determine maximum load, interrupting duty and bus bracing requirements for design basis conditions and to verify conformance with MCC equipment vendor ratings. The breaker coordination calculation was reviewed to verify selective coordination. Motor control center and circuit breaker maintenance results were reviewed for indications of adverse conditions. A walkdown was conducted to determine the visible material condition and any potential seismic II/I conditions.

- Unit Aux Transformer (UAT) to Reserve Aux Transformer (RAT) Bus Transfer: The inspectors reviewed a white paper analysis for fast bus transfer and the modification that installed replacement circuit breakers that implemented the fast bus transfer scheme. The replacement circuit breaker procurement specification and vendor test results were reviewed for conformance with design basis fast bus transfer requirements. Modification tests and circuit breaker overhaul tests were reviewed to confirm adequate breaker time testing and a finding was identified.

- 2/3 Emergency Diesel Generator (EDG): The inspectors reviewed EDG fuel consumption and tank level setpoint calculations to assess the capacity of the fuel oil storage and day tanks. The inspectors reviewed underground tank buoyancy and structural calculations, and procedures to assess the fuel oil storage tank protection against external events such as flooding and earthquakes. The fuel oil monitoring limits were reviewed to assess fuel oil quality. The inspectors reviewed room heat-up, jacket water, and lube oil cooling calculations to assess the 2/3 EDG cooling capacity. Also, the inspectors reviewed calculations and surveillances associated with starting air to assess starting air capacity. The inspectors reviewed design documentation associated with seismic protection to assess the protection against external events and vendor specifications to make sure that these parameters had been correctly translated into calculations, as required. Design change history, corrective actions, surveillance results, and trending data were reviewed to assess potential component degradation and impact on design margins. The inspectors performed visual non-intrusive inspections to assess the installation configuration, material condition, and potential vulnerability to hazards.

- 2/3 Diesel Fuel Oil Transfer Pump: The inspectors reviewed system hydraulic calculations such as those associated with net positive suction head (NPSH) and vortexing to ensure that the pump was capable of providing its functions. The inspection also included a review of operating procedures related to these functions. The inspectors reviewed design documentation associated with seismic protection to assess the protection against external events and vendor specifications to make sure that these parameters had been correctly translated into calculations, as required. In addition, the inspectors reviewed design change history, corrective actions, surveillance results, and trending data to assess potential component degradation and impact on design margins. The inspectors performed visual non-intrusive inspections to assess the installation configuration, material condition, and potential vulnerability to hazards.

- Instrument Air (IA) System: The inspectors reviewed the IA system design to verify the system would function as described in the USAR and reviewed the design basis calculations. Procedures were reviewed to assure that appropriate measures were taken to implement station shutdown in the event of all instrument air per UFSAR commitment. The inspectors reviewed corrective action program documents and work orders to verify that design and maintenance issues were fully evaluated and resolved. The inspectors reviewed system piping and instrumentation diagrams and performed a system walk-down with licensee staff to evaluate the material condition of plant equipment. The main steam isolation valve (MSIV) accumulator was reviewed to assure effective resolution of past material issues.

- Low Pressure Coolant Injection (LPCI) Pump 2A: The inspectors reviewed LPCI Pump 2A to assure that the Regulatory commitments that have been made in the UFSAR and TS are being met. Specifically the post Extended Power Uprate (EPU) pump operating parameters were evaluated to assure adequate flow for short term and long term containment conditions. Because the NPSH calculations assume credit for containment pressure following a Design Basis Accident, the containment pressure calculation was reviewed for minimum containment pressure conditions. The inspectors reviewed motor sizing and pump brake horsepower requirements and vendor ratings for conformance with design basis load conditions. The inspectors also reviewed load flow analysis to determine the adequacy of voltage at

motor terminals during degraded voltage conditions and the adequacy of feeder cable sizing. The motor protective device coordination curves and overcurrent relay tests were reviewed to determine the adequacy of protection and coordination for electrical components. Finally the team performed a walkdown of the LPCI pump and motor, and interviewed the systems engineer to evaluate operating performance and recent history.

- 2A LPCI/Component Cooling Service Water (CCSW) Heat Exchanger (Hx): The team reviewed the LPCI/CCSW Hx to evaluate actions that are being taken to mitigate performance declines due to intrusion of biological materials. Recent thermal calculations were reviewed to evaluate the test data as compared to the regulatory and design basis commitments. Corrective action and root cause reports were reviewed to evaluate the licensee's actions from identified causes. Biocide injection activities were reviewed including a modification package that is being installed to improve the biocide injection program. The LPCI systems engineer and the program manager for the biocide program were interviewed to discuss corrective actions. A tube vibration analysis was reviewed and potential tube vibration was compared with eddy current test results. The eddy current program manager was interviewed to discuss the history of the eddy current testing.

- Unit 2 Reactor Building Closed Cooling Water (RBCCW) Pumps: The inspectors reviewed the U2 RBCCW pumps design to verify its capability to meet design basis assumptions with respect to pump flow and pressure. The inspectors reviewed drawings, procedures, vendor manuals, pump curves, and tests to verify assumptions were accurate and justified. The inspectors interviewed the system engineer to discuss the acceptable performance and capability of the pumps to provide the required flow rates in addition to discuss any current issues. The system overall health was reviewed with emphasis on maintenance rule requirements, previous condition reports and current performance issues. The inspectors reviewed the equipment's seismic classification and requirements, and verified its appropriateness based on design assumptions and possibility to affect surrounding equipment. A number of walkdowns were conducted to determine the material condition of the pumps and adjacent areas.

- Unit 2 Standby Liquid Control System (SLC) Pumps: The inspectors reviewed system hydraulic calculations such as those associated with NPSH and vortexing to ensure that the pumps were capable of providing their accident mitigating function. The inspection also included a review of operating procedures related to these functions. The inspectors reviewed vendor specifications to make sure that these parameters had been correctly translated into calculations, as required. Design change history, corrective actions, surveillance results, and trending data were reviewed to assess potential component degradation and impact on design margins. The inspectors reviewed motor sizing and pump brake horsepower requirements and vendor ratings for conformance with design basis load conditions. The inspectors also reviewed load flow analysis to determine the adequacy of voltage at motor terminals during degraded voltage conditions and the adequacy of feeder cable sizing. The motor protective device coordination curves and thermal overload relay selection were reviewed to determine the adequacy of motor protection and coordination for electrical components. Motor starter inspection results were reviewed for indications of adverse conditions. The inspectors

performed visual non-intrusive inspections to assess the installation configuration, material condition, and potential vulnerability to hazards.

- Unit 2 SLC Tank: The inspectors reviewed boron injection volume and tank level set-point calculations to assess the tank capacity. The boron concentration limits were reviewed to ensure consistency with applicable design documents. The inspectors also reviewed structural calculations to assess the structural integrity of the tank and vendor specifications to verify these parameters had been correctly translated into calculations, as required. Design change history, corrective actions, surveillance results, and trending data were reviewed to assess potential component degradation and impact on design margins including TS volume limits. The inspectors performed visual non-intrusive inspections to assess the installation configuration, material condition, and potential vulnerability to hazards.

- Isolation Condenser Backup Makeup Water Motor Operated Valve (MOV) 3-4102: The inspectors reviewed completed surveillances to ensure that actual performance was monitored. Design change history and corrective actions were reviewed to assess potential component degradation. The inspectors performed visual non-intrusive inspections to assess the installation configuration, material condition, and potential vulnerability to hazards.

- Unit 3 Isolation Condenser Condensate Return Inboard Containment Isolation MOV 3-1301-4: The inspectors reviewed the MOV 3-1301-4 required design basis. The MOV calculations for required thrust and weak link analysis was also reviewed. The inspectors reviewed drawings, procedures, tests, performed surveillances and operability evaluations associated with the MOV. The MOV's required opening and closing times were reviewed to verify they were within the allowable limits. The system's overall condition was reviewed based on previous condition reports, modifications performed on the equipment and discussions with knowledgeable engineers associated with the system.

- Reactor Water Clean Up (RWCU) System MOV 3-1202-2: The inspectors reviewed RWCU System MOV 3-1202-2 to assure that it can meet its safety function to close on demand. The MOV valve engineer was interviewed to gain an understanding of the valve design, operating performance and maintenance history. The weak link analysis was reviewed and compared with the Midas results from the valve testing program. Key values were reviewed to assure that the design basis was correctly used in the test analysis. Further, maintenance records from the past three years were reviewed to determine if any changes were made in the design.

- RBCCW MOV 2-3706: The inspectors reviewed the RBCC inboard isolation valve to assure that it can meet its safety function of closing on demand. The weak link and seismic thrust and torque calculations were reviewed and compared to results from the valve testing program from the past 2 tests. The MOV valve engineer was interviewed to discuss the Midas results and recent valve operating performance. The TSs and UFSAR were reviewed to determine if specific regulatory or design commitments were made regarding this valve in addition to containment isolation. Finally, the log of past maintenance activities was reviewed to evaluate the maintenance program.

- Unit 2 High Pressure Coolant Injection (HPCI) Gland Seal Condenser: The inspectors reviewed eddy current test results to assess the condition of the gland seal condenser. Operating procedures were reviewed to ensure that parameters had been correctly translated from specifications. The inspectors reviewed design documentation associated with seismic protection to assess the protection against external events. Design change history and corrective actions were reviewed to assess potential component degradation. The inspectors performed visual non-intrusive inspections to assess the installation configuration, material condition, and potential vulnerability to hazards.

b. Findings

(1) Failure to Establish Heat Exchanger Inspection Procedures Appropriate for the Circumstances.

Introduction: A finding of very low safety significance and associated Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to establish inspection procedures that were appropriate for the circumstances for the GL 89-13 program heat exchangers.

Description: On May 11, 2010, the inspectors identified that the guidance contained in licensee procedures resulted in the inappropriate acceptance of as-found conditions of the 2/3 EDG jacket water heat exchangers. The as-found conditions were not bounded by applicable design documents and were not evaluated.

Each EDG had two parallel jacket water heat exchangers that removed heat from the EDGs. Heat is rejected to a dedicated service water system referred to as diesel generator cooling water (DGCW). The inspectors noted that the applicable design documents associated with the 2/3 EDG jacket water heat exchangers showed zero design margin. Specifically, operation of four Unit 2 CCSW pumps will result in degradation of Unit 2/3 DGCW flow because the systems discharged to a common header, creating a strong-vs.-weak pump effect. As a result, operation of four CCSW pumps was only allowed by applicable procedures at DGCW intake temperatures less than or equal to 82°F and operation of three CCSW pumps was only allowed at temperatures less than or equal to 91°F. The maximum allowed service water intake temperature was 95°F. In addition, calculation ATD-0400, "Unit 2/3 diesel generator jacket water cooler capacity," established operability limits based on no tubes blocked and low levels of fouling. However, the inspectors noted that the annual inspection results of the 2/3 EDG jacket water heat exchangers showed the presence of macrofouling (i.e., shells) in 2007, 2008, and 2010. In addition, the inspectors reviewed pictures taken at the time of the heat exchangers inspect-and-clean activities and noted shells which were about the size of the inner diameter of the tubes inside the tubes. The worst as-found condition was a total of approximately 31 shells in the two 2/3 EDG jacket water heat exchangers in 2010.

The inspectors noted that, although the as-left condition of the jacket water heat exchangers was clean (i.e., no macrofouling), the licensee did not: (1) assess the past-operability of the 2/3 EDG and (2) evaluate the adequacy of the frequency of the inspect-and-clean activities of the jacket water heat exchangers. The inspectors were concerned because the as-found conditions of the 2/3 EDG jacket water heat exchangers were not bounded by applicable design documents and were not evaluated. Specifically, the inspectors noted that ER-AA-2007, "Management of Design and Operating Margins,"

defined analyzed design limit as the limiting condition of a system or component from an engineering perspective and that this value is typically found in engineering calculations. It further stated that analytical margins are an unanalyzed region that cannot be used unless an analysis is performed to establish a new analyzed design limit. The inspectors noted that calculation ATD-0400 explicitly established the analyzed design limits for the 2/3 EDG jacket water heat exchangers and that a new analyzed design limit was not established to bound the as-found conditions.

The discovery of macrofouling during the inspect-and-clean activities conducted in 2007, 2008, and 2010 were not considered to be outside of the analyzed design limits by the licensee because the acceptance criteria required 100 percent flow blockage to remove a tube from service. Specifically, ER-AA-340-1002, "Service Water Heat Exchanger Inspection Guide," stated that prior to each inspection a pre-conceived set of visual inspection acceptance criteria shall be recorded on the heat exchanger inspection report. This procedure also included a note that stated that 100 percent flow blockage was required to remove a tube from service. The inspectors noted that the licensee established an acceptance criteria in 2007, 2008, and 2010 that was consistent with the guidance of ER-AA-340-1002 and confirmed through interviews with the licensee that partial blockage of tubes was viewed as acceptable because the tube surface area remained active as long as flow existed. However, the inspectors determined the mathematical model used in the calculation assumed uniform fluid and thermal behaviors across all the tubes. Therefore, partial blockage and its impact on the fluid dynamics in the heat exchanger were not evaluated.

As a result of the inspectors' concerns, the licensee performed a new analysis and determined that 10 out of 216 tubes at each 2/3 EDG jacket water heat exchanger (i.e., a total of 20 out of 432 tubes) could be completely blocked and the heat exchanger would remain operable. The worst as-found condition was considered bounded by the result of this analysis. The inspectors did not have further concerns.

The licensee captured this issue in their corrective action program as AR01071081. The corrective actions included revising calculations and procedures to include the acceptable maximum numbers of tubes that could be blocked and guidance on assessing the impact of flow blockage due to macrofouling of the tubes on the heat removal capability of heat exchangers.

Analysis: The inspectors determined that the failure to establish inspection procedures appropriate for the circumstances for the GL 89-13 program heat exchangers was contrary to 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and was a performance deficiency.

The performance deficiency was determined to be more than minor because it was associated with the mitigating system cornerstone attribute of procedure quality and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inspectors had reasonable doubt on the past operability of the 2/3 EDG because the as-found conditions of the jacket water heat exchangers were not bounded by applicable design documents. A new analysis was required to demonstrate operability. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the mitigating system cornerstone. The finding

screened as of very low safety significance (Green) because the finding was a qualification deficiency confirmed not to result in loss of operability or functionality. Specifically, the licensee performed an analysis that determined the maximum acceptable amount of completely blocked tubes for the 2/3 EDG heat exchanger. The worst as-found condition was re-evaluated to be bounded by design documents.

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance because the licensee did not use a conservative assumption in decision making. Specifically, the licensee failed to establish appropriate procedures because the licensee made a non-conservative assumption that partial tube blockage was acceptable without further evaluation when establishing the acceptance criteria for the heat exchangers inspections in 2007, 2008 and 2010. [H.1(b)]

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances.

Contrary to the above, as of May 11, 2010, the procedures used for the inspection of GL 89-13 program heat exchangers were not appropriate to the circumstances. Specifically, procedure ER-AA-340-1002 required the licensee to remove heat exchangers from service if fully blocked tubes were found; however, did not contain appropriate acceptance criteria for heat exchangers with partially blocked tubes. For the 2/3 EDG jacket water heat exchangers, the procedure was deficient, in that, partially blocked tubes were considered acceptable; however, this condition was outside the analyzed design limits specified calculation ATD-0400. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as AR01071081 this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000237/2010007-01; 05000249/2010007-01 Failure to Establish Heat Exchanger Inspection Procedures Appropriate for the Circumstances).

(2) Improper Reclassification of LPCI Pump Mechanical Seals

Introduction: A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," was identified by the inspectors for improperly classifying LPCI pump mechanical seals as non-safety-related.

Description: Title 10 CFR 50.2 in part, defines safety-related structures, systems and components as those structures, systems and components that are relied upon to remain functional during and following design basis events to assure the capability to prevent or mitigate the consequences of accidents, which could result in potential offsite exposures comparable to the applicable guideline exposures set forth in 10 CFR 100.11. Title 10 CFR Part 50, Appendix B, Criterion II, requires in part, that licensees identify the structures, systems, and components to be covered by the quality assurance program, i.e., safety-related components.

Exelon procedure SM-AA-300 requires that parts within safety-related host components, that are required for the host to perform its safety function, be classified as safety-related. In engineering evaluation EC 376561, dated August 11, 2009, the licensee changed the classification of the LPCI pump mechanical seals from safety-related to non-safety-related, thus removing the quality assurance requirements associated with safety related

components from these mechanical seals. The licensee believed that credible failures would result in minimal leakage.

The inspectors reviewed the licensee's reclassification evaluation and concluded the licensee did not provide adequate analysis to demonstrate the failures of these seals during a design basis event would not result in reactor coolant leakage that would affect the safety function of the LPCI pump nor result in radiation doses comparable to regulatory limits. The inspectors reviewed the materials, construction, and installation of the seals and determined that failure of a seal could result in significant leakage. The inspectors also determined that failure of a seal during a design basis loss of coolant accident would reasonably result in control room radiation dose approaching the 10 CFR Part 50 Appendix A, Criterion 19 limit of 5 rem. The licensee subsequently concluded that the seals should be classified as safety-related based upon Exelon procedure SM-AA-300 and parts Classification Guide M-1994-300, and documented this in AR 1070607.

Analysis: The inspectors determined the licensee's reclassification of the LPCI pump mechanical seals to non safety-related was contrary to Exelon procedure SM-AA-300 and parts classification guide M-1994-300 and was a performance deficiency.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Specifically, by removing the quality assurance requirements for this part, the licensee reduced the assurance that replacement parts are of sufficient quality to assure reliable service during and following design basis events. The inspectors concluded this finding was associated with the mitigating systems cornerstone.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the Mitigating Systems cornerstone. The finding screened as of very low safety significance (Green) because the finding was a qualification deficiency confirmed not to result in loss of operability or functionality.

This finding has a cross-cutting aspect in the area of human performance, decision because the licensee did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. Specifically, the licensee accepted the conclusion a seal failure would result in minimal leakage without requiring an evaluation to demonstrate this conclusion was appropriate. H.1(b),

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," requires, in part, that the licensee identify the structures, systems, and components to be covered by the quality assurance program.

Contrary to the above, between August 11, 2009, and May 18, 2010, the licensee failed to assure that the LPCI pump mechanical seals were identified as components to be covered by the quality assurance program. Specifically, the licensee inappropriately classified the mechanical seals as non safety-related. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as AR 01070607, this violation is being treated as an NCV, consistent with Section VI.A.1 of the

NRC Enforcement Policy (NCV 05000237/2010007-02; 05000249/2010007-02: Improper Reclassification of LPCI Pump Mechanical Seals).

(3) Failure to Perform Adequate Testing to Confirm Acceptable Fast Bus Transfer Time

Introduction: A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," was identified by the inspectors for the failure to perform adequate testing after circuit breaker overhaul to confirm acceptable fast bus transfer time.

Description: A fast bus transfer is accomplished automatically from the UAT to the RAT offsite power source following a unit generator trip provided a fault does not exist on the bus. Section 8.3.1.2.1 of the UFSAR states that this transfer occurs fast enough to preclude load trip due to undervoltage. In a white paper, "Bus Transfer at Dresden and Quad Cities Stations," dated July 23, 1991, the licensee referenced a 1958 American Institute of Electrical Engineers (AIEE) paper, which recommended 6-cycle maximum "dead time" limit.

In safety-related modification M12-0-91-019D, the licensee replaced the original General Electric Magne Blast breakers with 4,160 volt Merlin Gerin circuit breakers. Licensee procedure ENC-QE-06, Design Modifications, Section 5C.1.4.1, required, in part, that the Cognizant Engineer, "Ensures that the basic design criteria, regulatory and functional requirements for design are identified and documented in sufficient detail to permit the detailed design activity to be carried out in a correct manner." However, the inspectors noted the licensee did not identify nor evaluate the design bases breaker performance requirements for the fast bus transfer scheme. Specifically, the licensee did not include post-modification testing to ensure the bus transfer scheme bus "dead time" was equivalent to or less than the recommended 6-cycle maximum "dead time" limit. However, the inspectors noted individual breaker testing performed by the manufacturer adequately demonstrated the breakers would meet the fast bus transfer scheme.

In addition, the inspectors noted the modification package did not include requirements for periodic testing or post-maintenance testing after a breaker overhaul to ensure the continued capability of the fast transfer within design limits. Specifically, the Merlin Gerin circuit breakers were overhauled by an outside 10 CFR Part 50, Appendix B qualified vendor (NLI). The inspectors identified the overhaul procedure, NLI-TECH-P110, did not require or perform breaker "as-left" close/trip time testing. In addition, the licensee's preventive maintenance and receipt inspection (new or rebuilt) breaker testing procedure, MA-AB-725-117, also did not time-test breakers to demonstrate satisfactory breaker trip and close time that is required for the fast bus transfer scheme. Refurbished circuit breakers have been installed in locations within the plant; however, the inspectors confirmed the circuit breakers currently installed for the UAT to RAT fast bus transfer had not been overhauled. The inspectors noted that there were no restrictions placed on the overhauled breakers; therefore, these breakers could be installed at any time in these locations.

Analysis: The inspectors determined that the failure to have an adequate circuit breaker post-maintenance test to confirm fast bus transfer capability was contrary to station modification procedure ENC-QE-06 requirements and was a performance deficiency. Specifically, the licensee failed to ensure that either the vendor's circuit breaker overhaul

procedure or the station procedure for receipt inspection confirmed that breaker timing tests were performed after the circuit breakers were overhauled at a vendor facility.

The finding was determined to be more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, the non-tested breakers could be used in the UAT to RAT transfer application which would impact the ability of other safety-related systems and components from fulfilling their safety function. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4A, for the mitigation systems cornerstone. The finding screened as "Green" because the finding did not represent an actual loss of safety function of a single train. This finding impacted the mitigating systems cornerstone.

The inspectors did not identify a cross-cutting aspect associated with this finding because this was an old design issue and therefore was not reflective of current performance.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures, which incorporate the requirements and acceptable limits contained in applicable design documents.

Contrary to the above, on August 15, 1994, the licensee failed to establish appropriate test requirements and acceptance criteria that would demonstrate that the station fast bus transfer scheme would function after circuit breaker maintenance was performed. Specifically, the licensee failed to ensure that either vendor circuit breaker overhaul procedures or the station procedure for receipt inspection confirmed that breaker timing tests were performed after the circuit breakers were overhauled at a vendor facility in 2008. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as AR 01071691, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000237/2010007-03; 05000249/2010007-03: Failure to Perform Adequate Testing to Confirm Acceptable Fast Bus Transfer Time).

Operating Experience

a. Inspection Scope

The inspectors reviewed six operating experience issues to ensure that NRC generic concerns had been adequately evaluated and addressed by the licensee. The operating experience issues listed below were reviewed as part of this inspection:

- IN 2001-13, Inadequate SLC relief valve margin;
- IN 2006-16, Spurious Relay Actuations Result in Loss of Power to Safeguards Buses;
- IN 2007-09, Equipment Operability Under Degraded Voltage Conditions;
- IN 2008-06, Instrument Air System Failure Resulting in Manual Reactor Trip;

- IN 2010-09, Importance of Understanding Circuit Breaker Control Panel Indications; and

- GL 2008-01, Gas Intrusion in ECCS Systems.

b. Findings

No findings of significance were identified.

Modifications

a. Inspection Scope

The inspectors reviewed three permanent plant modifications related to selected risk-significant components to verify that the design bases, licensing bases, and performance capability of the components had not been degraded through modifications. The modifications listed below were reviewed as part of this inspection effort and do not constitute a separate sample:

- EC350135, Change boron enrichment in SLC;

- EC 376404, Install a supplemental Chemical Injection System to inject Biocide chemical into CCSW Keep Fill Lines; and

- M12-0-91-019D, Bus 23 Station Blackout Tie-In and 4kV Enhancement;

b. Findings

No findings of significance were identified.

Risk Significant Operator Actions

a. Inspection Scope

The inspectors performed a margin assessment and detailed review of four risk-significant, time critical operator actions. These actions were selected from the licensee's PRA rankings of human action importance based on risk-achievement worth values. Where possible, margins were determined by the review of the assumed design basis and UFSAR response times and performance times documented by job performance measures results. For the selected operator actions, the inspectors performed a detailed review and walk through of associated procedures, including observing the performance of some actions in the station's simulator and in the plant for other actions, with an appropriate plant operator to assess operator knowledge level, adequacy of procedures, and availability of special equipment where required.

The following operator actions were reviewed:

- Control RPV Water Level (high) to Prevent Overfill;

- Control RPV Water Level (low) during ATWS;

- Switch to Reserve DC Power; and
- Diagnose and Terminate Reactor Building Flooding.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

Review of Items Entered Into the Corrective Action Program

a. Inspection Scope

The inspectors reviewed a sample of the selected component problems that were identified by the licensee and entered into the corrective action program. The inspectors reviewed these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions related to design issues. In addition, corrective action documents written on issues identified during the inspection were reviewed to verify adequate problem identification and incorporation of the problem into the corrective action program. The specific corrective action documents that were sampled and reviewed by the inspectors are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.0 (Closed) Low Pressure Coolant Injection Pump Mechanical Seals (URI 05000237/2009-004-03; 05000249/2009-004-03)

The inspectors reviewed an unresolved item (URI) related to the classification of LPCI pump mechanical seals. A finding was identified and is documented in Section 1R21.3.b(2).

4OA6 Meeting(s)

Exit Meeting Summary

On May 21, 2010, the inspectors presented the inspection results to Mr. Shane Marik, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. Several documents reviewed by the inspectors were considered proprietary information and were either returned to the licensee or handled in accordance with NRC policy on proprietary information.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) [or Severity Level IV] was identified by the licensee and is a violation of NRC requirements, which meets the criteria of Section VI.A.1 of the NRC Enforcement Policy for being dispositioned as an NCV.

A finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified by the licensee for the failure to assure that 125 VDC and 250 VDC safety-related batteries were installed in accordance with their seismic qualification. During a walkdown of the 125 VDC and 250 VDC batteries, the licensee noted that the ethafoam spacers between individual battery cells and against battery racks were not tight in spots due to 1/4 inch gaps and should have thicker or additional ethafoam. The finding was more than minor due to impacting the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The licensee entered this nonconformance into its corrective action program as AR01032718 and AR01054241 and initiated work orders to evaluate and replace the ethafoam spacers with properly sized material. To establish a reasonable assurance of operability, the licensee reviewed seismic experience database reports from the Seismic Qualification Utility Group (SQUG). Experience from actual seismic events has shown that batteries without spacers or with thinner spacers have survived earthquakes stronger than the Dresden design basis earthquake.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Marik, Plant Manager
J. Sipek, Engineering Director
D. Leggett, Regulatory Assurance Manager
T. Loch, Design Engineering Manager
J. Reda, Mechanical/Structural Design Manager
J. Griffin, Regulatory Assurance

Nuclear Regulatory Commission
C. Phillips, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000237/2010007-01; 05000249/2010007-01,	NCV	Failure to Establish Heat Exchanger Inspection Procedures Appropriate for the Circumstances
05000237/2010007-02; 05000249/2010007-02,	NCV	Improper Reclassification of LPCI Pump Mechanical Seals
05000237/2010007-03; 05000249/2010007-03,	NCV	Failure to Perform Adequate Testing to Confirm Acceptable Fast Bus Transfer Time

Closed

05000237/2010007-01; 05000249/2010007-01,	NCV	Failure to Establish Heat Exchanger Inspection Procedures Appropriate for the Circumstances
05000237/2010007-02; 05000249/2010007-02,	NCV	Improper Reclassification of LPCI Pump Mechanical Seals
05000237/2010007-03; 05000249/2010007-03,	NCV	Failure to Perform Adequate Testing to Confirm Acceptable Fast Bus Transfer Time
05000237/2009-004-03; 05000249/2009-004-03,	URI	Low Pressure Coolant Injection Pump Mechanical Seals

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

CALCULATIONS

Number	**Description or Title**	**Date or Revision**
	Containment (LPCI) Heat Exchanger Study (Tube Vibration Analysis)	1
002316(CQD)	Stress analysis and requalification of SLC tank	04/29/10
0590-107-007	Charger Alarm Set Points	0
10553-CALC-03	Dresden EDG fuel oil storage tanks volume	03/23/07
10553-CALC-05	EDG fuel oil day tanks volume calculation	04/20/93
10553-CALC-07	EDG endurance calculations	01/30/07
5569-31-19-1	125 VDC Fault Currents	4
5569-31-19-2	125 VDC System Breaker and Fuse Coordination	3
7927-25-19-1	Protective Device Setting Verification	0
8-11.6-11	Seismic qualification of buried diesel fuel tanks	08/24/92
8900-77-19-1	Calc. for Contactor/Interposing Relay Coil Voltage During Starting	009C
8982-13-19-2	Calc. for Contactor Relay Coil Voltage	002A
ATD-0400	Unit 2/3 diesel generator jacket water cooler capacity	07/07/94
CC-AA-309-1001	ATTACHMENT 1 Design Analysis Major Revision cover sheet: Weak Link Analysis of Overthrust Load for MOV MO3-1301-4	4
CE-007-12, 006-3	MOV Allowable Stem Thrust for Valve 3-1201-2,1	1
CQD-002316	Stress Analysis And Requalification Of Standby Liquid Control Tank	05/11/82
D2/3 MSIV-I	Safety Related Air Lines for the Inboard MSIV's @ Dresden 2 & 3	3
DR-27D-M-018	Engine Jacket Water Cooling System Line Sizing Verification	09/28/93
DR-292-M-001	Instrument Air Piping Required Wall Thickness	0
DR-368-M-003	Determine Hole Size for Instrument Air System Check Valves	3
DRE 01-0057	Comparison of EPU and Pre-EPU NPSH for Old and New Strainers For Long And Short Term Events, Assuming One Strainer 100 Percent Blocked And 3 Strainers Clean	0
DRE 01-0057	(Minor Revision to Revision 0 For Blocked Strainers And Strainer Type)	0A
DRE 01-0066	Dresden Unit 2 and 3 Standby Liquid Control System Discharge Piping Pressure Drop	2

DRE 02-0033	Ultimate Suppression Pool PH Following a LOCA	02/09/10
DRE 03-0010	Reactor Water Clean-up System Combined DBD and DP Calculation	0, 0A
DRE 03-0013	LPCI Combined DBD and DP Calculation	0
DRE 03-0025	Baseline Calculation for 125 VDC ELMS-DC Conversion to DCSDM	000N
DRE 03-016	Reactor Building Closed Cooling Water Combined DP and DBD Calculation	
DRE 04-0003	Baseline Calculation for 250 VDC ELMS-DC Conversion to DCSDM	0
DRE 05-0037	Seismic Qualification of 4kV Switchgear with Breakers in Test Position or Removed	0
DRE 05-0038	Auxiliary Power Analysis for Dresden Unit 2	001D
DRE 05-0048	Dresden Units 2 and 3 Post LOCA EAB, LPZ, and CR Dose – Alternate Source Term Analysis	0
DRE 06-0001	NPSH for EDG Diesel Fuel Oil Transfer Pump	04/13/07
DRE 06-0023	Diesel Generator Room Ventilation	04/09/07
DRE 06-211 (Part 1,2 and 3)	LPCI Derivation of System Resistance Curves, Pump Curves and Comparison with LOCA	6
DRE 07-002	EDG Loading for LPCI Pump – LOCA Long Term Cooling	0
DRE 07-021	Determination of Battery Inter-Cell Connector Resistance Limits	0
DRE 09-017	2B Instrument Air Receiver Tank Wall Thickness Requirements and Rerating the Pressure Vessel	0
DRE 96-135	DG Starting Air Compressor and Receiver Pressure Setpoints Analysis	10/01/96
DRE 96-149	Breaker Settings for Bus 28 and 29	3
DRE 96-189	Voltages on Loads Fed from the Safety Related 250 V Batteries	3
DRE 96-211	LPCI Derivation of System Resistance Curves, Pump Curves and Comparison with LOCA Analysis (3 parts)	6
DRE 96-214	Derivation of Differential Pressure Between the LPSI and CCSW Sides of the CCSW Hx for Various Flows	0
DRE 96-103	Weak Link Calculation for Crane 6 in Gate Valve (for 2-3706)	0A
DRE 96-179	Sizing of the Unit 3 125 VDC Battery Chargers 3 and 3A	0
DRE 97-012	Dresden LPCI/Core Spray NPSH Analysis Post-DBA LOCA: Short Term Design Basis	3
DRE 97-042	Evaluation/Justification for extending the EQ Lubrication/Inspection Interval from 18 to 24 months	0
DRE 97-068	Minimum Flow Through the LPCI and HPCI Minimum Flow Lines (4 parts)	2, 2B
DRE 97-073	LPCI/CCSW Hx Differential Pressure	0
DRE 97-145	Maximum Flow Through the LPCI and HPCI Minimum Flow Lines (4 parts)	2,2A
DRE 98-031	Unit 2 Reactor Building MCC Thermal Overload Relay Heater Sizing for AC Loads at Post LOCA Temperature	1

DRE 98-117	LPCI Heat Exchanger K Factor	0, 0A, 0B
DRE 98-197	Standby Liquid Control Tank Boron Injection Volume	12/11/06
DRE-2-3706	Midacalc results for Dresden Unit 2 AC Motor Gate Valve (Work in Process)	1
DRE-2-3706	Midacalc for Dresden Unit 2 AC Motor Operated Gate Valve (As built)	2
DRE-3-1201-2	Midacalc Results Dresden Unit 3 DC Motor Operated Gate Valve Calculation	4
EC 342994	Containment Cooling Service Water (CCSW) System Water Hammer Loss of Keep-Fill Analysis	0
EC 368594	Fatigue Assessment of ISCO MOV 3-1301-4 Overthrust Condition	0
EC 370261	System Scope For GL 2008-01 and SER 2-05 GAS Intrusion	4/7/08
ENC-QE-51.D	Sodium Pentaborate Requirements for the SLC	08/19/91
GE-NE-A22-0013-08-01	Task T0400 – Containment System Response	1
NED-M-MSD-072	The Thrust Seismic of Dresden Non-Mark I, MO3-1201-2	1
NED-M-MSD-072, Ad 7	The Thrust Seismic of Dresden Non-Mark I, (for 2/3 3706)	0
NED-M-MSM-2	Sodium Pentaborate Requirements for the SLC Systems	08/19/91
OTC-382	Crane Alloyco, Thrust Analysis for Valve 2/3 3706	1
SO 280685 pumps 270419/26	Bingham Pump Company, Cavitation Test Report 12x14x14-1/2 CVDS Pumps	5/22/69
VE-4	Dresden Unit 3 Battery Room Ventilation	0
VT-16	Turbine Room Ventilation Requirements	0

CORRECTIVE ACTION PROGRAM DOCUMENTS

Number	**Description or Title**	**Date**
AR 00075599	Potential for SLC Relief Valve lifting	09/18/01
AR 00079135	NRC Concerns	10/16/01
AR 00081637	2B MSIV Accumulator Inlet Ck Valve 2-220-85B Leakage Test Failure	10/28/01
AR 00151287	Crack in MSIV “A” Accumulator, EPN * 3-0220-82	3/29/03
AR 00151288	Minor Leaks on 3 of 4 MSIV’s at the Air Line to Manifold Conn	3/29/03
AR 00151955	Walkdown Notes Discrepancies in As-Built Configuration	3/29/03
AR 00169181	Containment Requiring More Frequent Venting	7/26/03
AR 00186282	Unit 2 Disconnected from the Grid Due to Main TR 2 Oil Leak	11/14/03
AR 00198148	NRC PI&R ID 151287-51 Closure Documentation Improvement	10/17/03
AR 00393863	As Found IST Leakage Test Exceeds Admin Limit	11/02/05
AR 00556697	Air Leak at “D” Outboard MSIV Accumulator	11/11/06

CORRECTIVE ACTION PROGRAM DOCUMENTS

Number	Description or Title	Date
AR 00571424	Target Rock Accumulator Does Not Meet T.S. Bases Parameter	12/19/06
AR 00616606	2/3 RBCCW PP LOW AMPS AND POSSIBLY DEADHEADED	04/13/07
AR 00626209	U2/3 RBCCW PP DEAD-HEADED IN PARALLEL WITH 3B RBCCW PP	05/07/07
AR 00694387	MOV 2-1301-4 FOUND IN OVER-THRUST CONDITION	11/04/07
AR 00696567	INCORRECT METHODOLOGY IN OVERTHRUST CALC FOR MOV 3-1301-4	11/08/07
AR 00698426	REMOVE AND REPLACE DISC IN MOV 3-1301-4	11/13/07
AR 00744053	U2 RBCCW PP SUCTION HEADER CONTAINS AIR POCKET	03/03/08
AR 00744496	IMPROOVE U2(3) RBCCW VENTING CAPABILITIES	03/04/08
AR 00747629	AIR POCKET REMAINS IN THE U2 RBCCW PP SUCTION HEADER	03/10/08
AR 00748107	AIR IDENTIFIED IN THE U2/3 RBCCW PP SUCTION HEADER	03/11/08
AR 00749282	AIR IDENTIFIED IN THE 2/3 RBCCW PP SUCTION HEADER FROM U3	03/13/08
AR 00750912	RBCCW PUMP SWAP DUE TO POOR PERFORMANCE	03/17/08
AR 00752497	FREEZE SEAL PROCEDURE MA-AA-736-610 SECTION 4.4.7 HAS A FLAW	03/18/08
AR 00772915	OPEX – Industry Experiences Involving Instrument Air Lines	12/30/08
AR 00776598	3B LPCI Hx Inspection Results	5/13/08
AR 00805955	NRC Generic Letter 89-13 Commitment Not Being Performed Apparent Cause Evaluation	8/11/08
AR 00814420	Water In-Leakage Into The U2 East Reactor Building Corner Room	09/05/08
AR 00844349	WORK PACKAGE INSTRUCTIONS REVISED DURING WORK	11/12/08
AR 00845739	2/3 RBCCW PMP ERRATIC OPERATION	11/16/08
AR 00911050	Unexpected LPCI Pump Seal Flow High Alarm (U2)	
AR 00917349	Calculation Error Regarding Target Rock Accumulator Volume	5/08/09
AR 00926605	Oil leak On The 2/3 DG Turbo Lube Oil Y-Strainer	06/02/09
AR 0094775	Omission from Required CR120A Contact Retainer Replacement	07/28/09
AR 00950011	NRC Identified use of Non-Safety-Related Seal in 2A LPCI Pump	8/6/09
AR 00952577	OP Eval for LPCI Pump Seals Has Been Extended	8/11/09
AR 00961025	EOC Review T.S. 5.5.2 for Proper Classification	8/28/09
AR 00967008	2A LPCI Hx Degraded Thermal Performance	9/18/09

CORRECTIVE ACTION PROGRAM DOCUMENTS

Number	Description or Title	Date
AR 00969490	LPCI Gland Seal Leak-off Isolation found closed	9/23/09
AR 00975076	U2/3 EDG Started on RX Trip When Aux Power Transferred	10/03/09
AR 00977050	IN 2009-16 Spurious Relay Actuations Cause Loss of Power	10/09/09
AR 00981151	Replace Flexible Hoses on the 2/3 EDG Jacket Water System	10/19/09
AR 00983037	Issues With Structural Calculation For Unit 2 SLC tank	10/22/09
AR 00990160	2/3 EDG Auto Started When U3 Main Generator Was Tripped	11/06/09
AR 01007844	2/3 RBCCW PP Incompatible With 3B RBCCW PP	12/20/09
AR 01008320	Air Identified In The 2/3 RBCCW PP Suction Header From U3	12/21/09
AR 01013232	Non-Conservative AC Motor Voltage Used for MOV Thrust Calc	01/06/10
AR 01024943	UNIT 3 RBCCW PP Swap Results	02/02/10
AR 01029338	Need A Contingency Forced Outage Work Order Created	02/12/10
AR 01030739	CDBI FASA Issues Concerning Critical Operator Actions	2/15/10
AR 01031890	Test Criteria for DC TOL Relays Not in DES 8300-01 and 8300-03	02/17/10
AR 01032550	U3 HPCI Aux Oil Motor not Torqued to Seismic Requirement	10/23/02
AR 01032718	Battery Cells Seismic Qual. Issue 125/250 VDC	02/19/10
AR 01032793	2/3 RBCCW PP VENTING LONG-TERM ACTION	02/19/10
AR 01033065	Effect of Degraded Voltage on HPCI MSC and AOP	2/19/10
AR 01033268	Inadequate Basis for HPCI AOP Degraded Voltage Acceptance Criteria	02/20/10
AR 01034523	HPCI LOC and GSC Flow Less Than Design Due To Assumption	02/23/10
AR 01035130	Operating Time of MOVs Are Non-Conservatively Modeled in Calculation	02/24/10
AR 01041989	Alarm, High Seal Flow on 3 LPCI PP DTP 9 Leakage Related	3/13/10
AR 01053690	Water In-leakage U2 Reactor Building East Corner Room on 2-1501-5B MOV	04/07/10
AR 01054241	Battery Cells Seismic Qualification Concern Unit 3 125 VDC Main	04/08/10
AR 01055840	Non-Conservative RPV Water Level Used For Containment Analysis	04/13/10
AR 01057139	IN 2010-09 Circuit Breaker Control Power Indications	04/15/10
AR 01059108	NRC Identified Incorrect basis for parts Eval No. D-1999-251-02	4/20/09
AR 01061366	NER NC-10-028 Yellow – Fleet Response to H.B. Robinson Event	04/26/10

CORRECTIVE ACTION PROGRAM DOCUMENTS

Number	Description or Title	Date
RCR 776598-08	Dresden 3-1503-B, 3B LPCI Containment Cooling HX Failure to Meet Design Basis Heat Removal Capacity due to Inadequate Programatic Controls	5/27/09
RCR 967008-03	Dresden 2-1503-A,2A LPCI Containment Cooling Hx Failure to Meet Design Basis Heat Removal Capacity due to Asiatic Clam Micro Fouling Resulting From…..	9/18/09

CAP DOCUMENTS RESULTING FROM THE INSPECTION

Number	Description or Title	Date
AR 01060128	Typo in Calculation Design Input	04/22/10
AR 01060530	NRC CDBI: MCC Doors Not Fully Latched	04/23/10
AR 01060652	NRC CDBI: UFSAR Section 8.3.1.5.1 Discrepancy	04/21/10
AR 01062239	Incorrect Fuse Model Listed in Passport	04/27/10
AR 01063415	NRC CDBI – Calculation 041326(CMED) Needs to be Revised	04/15/10
AR 01063691	NRC CDBI: WO Created For Closed Op Eval Still Open	04/30/10
AR 01064916	NRC CDBI: Incorrect Allowable Stress Used In Evaluation	05/03/10
AR 01065327	NRC CDBI: Non-conservative Specific Gravity Used	05/03/10
AR 01065434	Typographical Error in Calculation Text	05/04/10
AR 01065444	NRC CDBI: Calculation DRE98-0031 Discrepancy	05/04/10
AR 01065734	NRC CDBI: Vulnerability on EDG fuel oil day tank setpoint	05/05/10
AR 01066167	LPCI Pump Motor Power Factor Discrepancy	05/06/10
AR 01066707	CDBI NRC: RBCCW Pump Bolt Identified W/O Full Thread Engage	05/07/10
AR 01066711	Completion of Breaker Rating Design Input	05/07/10
AR 01067821	NRC CDBI: Discrepancy between TS Bases and FSAR	05/11/10
AR 01068475	Typographical Error in Calculation	05/12/10
AR 01069334	NRC CDBI: Lack of Documented 4KV Auto Bus Transfer Analysis	05/14/10
AR 01070256	NRC CDBI: Calculation 8.11.6-11 Enhancement Opportunity	05/17/10
AR 01070565	Error in Per Unit Conversion	05/18/10
AR 01071081	NRC CDBI: DCP1008-04 Does not Conserve Design Basis Assumption	05/19/10
AR 01071219	NRC ID'D Concern with Racked Out Breaker	05/19/10
AR 01071293	NRC CDBI: NRC Requested Documentation Could Not Be Located	05/19/10
AR 01071691	NRC CDBI: 4KV Fast Bus Transfer Timing Tests with AMHG GCBS	05/20/10
AR 1071842	4KV Racking Procedures Require Revision	05/21/10

DRAWINGS

Number	Description or Title	Revision
12E-2301	Single Line Diagram Standby Diesel Generator 2 and 2/3 4KV Bus 23-1, 4KV Bus 24-1, 4KV Bus 40	AU
12E-2303	Key Diagram 4160 Switchgears 23 and 24	V
12E-2304	Key Diagram 4160V Switchgears 23-1 and 24-1	V
12E-2318	Key Diagram Reactor Building 480V Motor Control Center 28-	AX
12E-2321	Key Diagram 250V DC Motor Control Centers	AP
12E-2322B	Overall Key Diagrams 125Vdc Distribution Centers	L
12E-2328	Single Line Diagram Emergency Power System	N
12E-2338	Schematic Diagram Generator and Transformer Tripping Relays Primary System	AP
12E-2342	Schematic Diagram 4160V Bus 23 Main and Reserve Feed G.C.B.'s	AE
12E-2343	Schematic Diagram 4160V Bus 24 Main and Reserve Feed G.C.B.'s	AF
12E-2344	Schematic Control Diagram 4160V Bus 23-1 Feed Breakers	W
12E-2398	Schematic RBCCW System MOV	F
12E-2509B	Schematic Primary Containment Isolation System for MOV 1201-2 & 1201-3 Control	W
12E-3311	Key Diagram Turbine Building 480V MCC 38-2 and 39-2	AU
12E-3321	Key Diagram 250V DC Motor Control Centers	AF
12E-3322A	Key Diagram Turbine Building 125V DC Main Bus Distribution Panels	Y
12E-3325	Key Diagram 120 and 120/240 AC Distribution Essential Service Bus and Instrument Bus	AC
12E-3484	Schematic Diagram Isolation Condenser System Motor Operated Valves	R
12E-3506	Schematic Primary Containment Isolation System Isolation Condenser Control Logic	AF
12E-3507B	Schematic Primary Containment Isolation System Reactor Inlet Valves 3-1301-1 and 3-1301-4	O
12E-3509B	Schematic Diagram Primary Containment Isolation System for MOV 1201-2 and 1201-3 Control	Z
12E-3658B	Wiring Diagram 480V Switchgear Bus 36, Section 364, 365 and 366	AE
12E-3661A	Wiring Diagram 480V Switchgear Bus 39 Sections 391, 392 and 393	AE
12E-3674D	Wiring Diagram Reactor Building 480V AC MCC 38-1	AF
12E-3683B	Wiring Diagram Turbine Building 250V DC MCC-3 Part 2	J
12E-3683C	Wiring Diagram Turbine Building 250V DC Motor Control Center 3	D
12E-3684A	Wiring Diagram Reactor Building 250V DC MCC 3A	N

DRAWINGS

Number	Description or Title	Revision
12E-3684B	Wiring Diagram Reactor Building 250V DC Motor Control Center 3A	X
12E-3684C	Wiring Diagram Reactor Building 250V DC MCC 3A	Y
12E-3684E	Wiring Diagram Reactor Building 250V DC Motor Control Center 3B	M
12E-3811B	Single Line Diagram Uninterruptible Power Supply Panel 903-63	H
12E-7400A	MOV Limit Switch Development	N
203LN001-001	Low Pressure Coolant (LPCI)System and Instrumentation	01
2D74383	Durametallic Corporation, Type “PTO” Dura Seal	01
2D74383	Flowserve Seal Type “PTP”	05
CA00728	Crane-Aloyco Drawing for MOV 3-1301-4	B
ISI-509, Sh 1,2	System Pressure Test Walkdown Isometric, LPCI Piping	C
ISI-559, Sh 1,2	System Pressure Test Walkdown Isometric, LPCI Piping	C
M-20	Diagram Reactor Building Closed Cooling Water Piping	LM
M-29, SH 1,2	Diagram of L.P. Coolant Injection Piping	CH
M-359	Diagram of Isolation Condenser Piping	BL
M-37	Diagram of Instrument Air Piping	RZ
M-4319	MSIV Accumulator 2-220-82 A,B,C, and D Support Upgrade	A

MISCELLANEOUS

Number	Description or Title	Date or Revision
	Current Status of Biocide Testing	4/28/10
	LPCI System Health Report	4Q09
	Rising Stem Margin Report Category 96-05	4/13/01
	U2 CCSW System Health Report	4Q09
	White Paper on the Safety Classification of ECCS Pump Mechanical Seals (Final)	8/26/09
0005768038	Dresden Engineering Memorandum: Thread Engagement	09/17/98
0006050803	EDG minimum starting air pressure	10/27/99
041326(CMED)	HPCI Auxiliary Oil Motor [design analysis minor revision]	000A
21365-74D-E509-0164/01-02	Breaking and Making Test Results	01/07/94
21365-74D-E509-0234/01-01	Merlin Gerin Letter Dated March 21, 1994 to Golden Gate Switchboard, FG2 Closing Time	05/11/94
21365-74DQ-E509	Engineering Specification for 4,160 V Switchgear	2
25355	Bingham Pump Co. Pump Curve and Test Data	02/02/68

MISCELLANEOUS

Number	Description or Title	Date or Revision
4954005	Dresden Unit 1, 2 and 3 Missing or Partially Engaged Bolts, Studs and Nuts	05/10/96
992C510	GE Outline (Induction Motor)	3
AIEE Paper	Short Circuit Calculating Procedure for DC Systems with Motors and Generators	08/1954
Analysis 9107	Laboratory Report: Diesel Fuel – ASTM D 975 1998b	04/12/10
Analysis 9108	Laboratory Report: Diesel Fuel – ASTM D 975 1998b	04/12/10
Analysis 9109	Laboratory Report: Diesel Fuel – ASTM D 975 1998b	04/12/10
Analysis 9733	Laboratory Report: Diesel Fuel – ASTM D 975 1998b	02/26/10
Analysis 9734	Laboratory Report: Diesel Fuel – ASTM D 975 1998b	02/26/10
CMED-057555	S&L Parts Classification Generic Position	02
CR#1235	Certificate of Conformance – Enriched Sodium Pentaborate	10/27/06
D 2007-004	Instruction Manual for 8” -900lb double disk Gate Valve with Motor Oporators	12/9/94
D00-4600-B	SEWS – EDG Primary Gas Air Receiver Unit A1	06/25/96
D00-5202	OSVS – EDG Day Tank	06/25/96
D00-6601	SEWS – EDG	06/25/96
D02-2320-GSC	SEWS – HPCI Gland Seal Condenser	05/16/96
D1315	GNB Batteries	0
D1336	125 VDC Ground Detectors	001
D1622, Volume I	Solidstate Controls, Inc. Instruction/Technical Manual 200A/125V Charger	000
D1622, Volume II	Solidstate Controls, Inc. Instruction/Technical Manual 200A/250V Charger	001
D2/3 MSIV-I	Safety Related Air Lines for the Inboard MSIV’s @ Dresden 2 and 3 (EC 341990 and 341991, Rev 0)	03A
D2/3 MSIV-I	Safety Related Air Lines for the Inboard MSIV’s @ Dresden 2 and 3 (EC 372991, Rev 00)	03B
D2/3 MSIV-I	Safety Related Air Lines for the Inboard MSIV’s @ Dresden 2 and 3 (EC 374771, Rev 00)	003D
D2/3 MSIV-I	Safety Related Air Lines for the Inboard MSIV’s @ Dresden 2 and 3 (EC 373027, Rev 00)	003C
D2015	Cyberex 35 KVA Uninterruptible Power Supply	001
D-93-003-0858-00	Part Evaluation – LPCI Mechanical Seal	05/26/93
DTR 3081 – AMH	Report of Design Tests on CBSI AMHG, 350 MVA, 1200A and 2000A Breakers and Switchgear	2
EC 370787	CCSW Flow Rates Through The Unit 3 Div II LPCI/CCSW Hx When Maintaining a Higher Pressure Than The LPCI System	0
EC 371152	NRC GL 2008-01 Dresden LPCI System Evaluation to Support Response to NRC GL-2008-01	

MISCELLANEOUS

Number	Description or Title	Date or Revision
EC 372712	Dresden CCSW System Evaluation To Support Response to Industry Information	0
EC 376561	Engineering Evaluation – Safety Classification of LPCI Pump Shaft Seals	08/11/09
GEH-2614F	GE Installation and Maintenance Instructions 7700 Line Motor Control Center	6-81 5M
GE-NE-A22-00103-52-01	Project Task Report, Dresden and Quad Cities Extended Power Uprate, Task T0606: Reactor Building Closed Cooling Water (RBCCW) System Evaluation	0
GES-6103F	Molded Case Circuit Breaker F225 Line Time-Current Curves	01.04
IN 95-55	Inadequate NPSH of Emergency Core Cooling and Containment Heat Removal Pumps Under Design Basis Accident Conditions	10/22/96
K-2204	Sargent and Lundy Specification for Indoor Motor Control Centers for 440V Auxiliaries	12/16/96
ME P2-F12	Component Information and Check Lists	0
NLI-TECH-P110	Remanufacturing of Circuit Breaker Systems, Golden Gate Switchboard and/or Pacific Breaker Systems AMHG Replacement Breakers	2
Project 8900-71	Bus Transfer at Dresden and Quad Cities Stations	07/23/91
PTR 3081	Production Test AMH Replacement Circuit Breaker 5kV, 350 MVA, 1200 and 2000A	11
QP 2010-3081-3	Commercial Grade Dedication Requirements for AMH Replacement Circuit Breakers	14
RS-05-114	Exelon Letter to NRC Additional Information Supporting the Request for License Amendment Related to Alternate Source Terms	8/22/05
SL-4500	Overcurrent Protective Device Coordination Study Dresden Station - Units 2 and 3, Volume 1, Medium-Voltage Relay Coordination	03/24/89
SP 95-1-11	Modification Test for Bus 23 Circuit Breaker and Stationary Switch Replacement – Bus 23 Main Feed from Transformer 21 and Reserve Feed from Transformer 22	0
SPII 95-09-12	Modification Test for Bus 24 Circuit Breaker and Stationary Switch Replacement – Bus 24 Main Feed from Transformer 21 and Reserve Feed from Transformer 22	0
WO 00642579	Master-Lee, Eddy Current Examination Final Report November 2007	2

MODIFICATIONS

Number	Description or Title	Date or Revision
EC 347808	Modify Fuel Oil System On Diesel Generator To Allow For Flex Hose-U2 And U2/3	03/11/04
EC 350135	Change Boron Enrichment In SLC	09/26/06
EC 376404	Install A Supplemental Chemical Injection System To Inject Biocide Chemical Into CCSW Keep Fill Lines ……	001
EC 377462	Evaluate UT Thickness Readings For U2 SLC Tank	10/26/09
M12-0-91-019D	Bus 23 Station Blackout Tie-In and 4kV Enhancement	09/29/94

OPERABILITY EVALUATIONS

Number	Description or Title	Date or Revision
07-006	Operability Evaluation For Over-Thrust Condition On U3 Isolation Condenser System And Inboard Conondensate Return MOV 3-1301-4	11/13/07
EC 377021	2A LPCI Heat Exchanger Operability Evaluation	001
EC379048	U2 and U3 HPCI Lube Oil Cooler and Gland Seal Condenser Post LOCA Flow	02/26/10

PROCEDURES

Number	Description or Title	Revision
CC-|AA-304	Component Classification	5
CY-DR-110-220	LPCI Service Water (CCSW) and Torus Water Sampling	6
CY-DR-120-413	Cooling Service Water Chemical Injection	09
CY-DR-130-9314	Clam-trol Biocide (Spectrus 1300) Utilizing Hach DR/2000 or DR/2800	0
DAP 15-15	Part Selection Process	8
DCP 1008-04	Heat Exchanger Inspection Program	07
DEOP 100	RPV Control	10
DEOP 200-1	Primary Containment Control	10
DEOP 400-5	Failure to Scram	15
DES 6700-09	Inspection and Maintenance of General Electric MC-4.76 Horizontal Draw-Out Metal-Clad Switchgear	16
DES 8300-07	Unit 2 (3) Weekly Station Battery Inspection	20
DGA-13	Loss of 125 Vdc Battery Chargers with Simultaneous Loss of Auxiliary Electrical Power	16
DMP 0200-43	Main Steam Isolation Valve Operator Air and Oil Cylinder Maintenance	8
DMP 0200-44	Main Steam Isolation Valve Pilot Valve Maintenance	10
DMS 1100-01	Standby Liquid Control Relief Valve Testing And Surveillance	15

PROCEDURES

Number	Description or Title	Revision
DOA 0040-02	Localized Flooding in Plant	22
DOA 0600-01	Transient Level Control	48
DOA 3700-1	Loss Of Cooling By Reactor Building Closed Cooling Water (RBCCW) System	17
DOA 3700-2	Reactor Building Closed Cooling Water System Operation	35
DOA 4700-01	Instrument Air System Failure	39
DOA 6900-02	Failure of Unit 2 125 Vdc Power Supply	18
DOP 0040-01	Station Motor Operated Valve Operations	33
DOP 1200-02	RWCU System Blowdown	26
DOP 1300-02	Automatic Operation of Isolation Condenser	23
DOP 1500-02	Torus Water Cooling Mode of LPCI	60
DOP 4700-05	Cross-Connect Unit 1 Instrument Air to Unit2 Instrument Air System	6
DOP 6500-04	Racking Out 4160 Volt Manually Operated Air Circuit Breaker (ACB), Magne-Blast Hybrid (AMHG) or SF6 Gas Circuit Breaker (GCB) and to Canal Cooling Tower 5 kV Rated Vacuum Contactors	46
DOP 6500-07	Racking In 4160 Volt Manually Operated Air Circuit Breaker (ACB)	60
DOP 6900-06	125 VDC Ground Detection	29
DOP 6900-08	Unit2 – 125Vdc Battery System Restoration	9
DOS 0010-16	Unit 2(3) Isolation Condenser Safe Shutdown Valve Operability	24
DOS 110-04	Standby Liquid Control System Quarterly/Comprehensive Pump Test for the In-service Testing (IST) Program	42
DOS 1300-02	Isolation Condenser Valve Operability Check	17
DOS 1600-05	UNIT 3 Quarterly Valve Timing (W-9)	42
DOS 1600-05 (U3)	Valve Test Acceptance Criteria Sheet	09/17/09
DOS 6600-14	Diesel Oil Transfer Pump Operation And Fuel Consumption Test	15
DSSP 0100-CR	Hot Shutdown Procedure – Control Room Evacuation	42
ENC-QE-06	Design Modifications	6
ENC-QE-70	Procurement and Use of Items for Repair and Replacement of Safety Related Equipment	1
ER-AA-302-1001	MOV Rising Stem MOV Thrust and Torque Sizing and Set-up Window Determination Methodology	6
ER-AA-310	Implementation Of Mainteneance Rule	6
ER-AA-340-1002	Service Water Heat Exchanger Guide	4
MA-AA-723-325	Molded Case Circuit Breaker Testing	8b

PROCEDURES

Number	Description or Title	Revision
MA-AB-725-117	Preventive Maintenance and Receipt Inspection on Merlin Gerin SF6 4KV Type AMHG Circuit Breakers	10
MA-DR-725-113	Inspection and Maintenance of General Electric 4KV Magne-Blast Circuit Breakers Types AMH4.76-250 (Horizontal Drawout)	3
SM-AA-1005	MOV Design Database Control and Design Data Sheet Activities	4
SM-AA-1007	MOV Limitorque Actuator Capability Determination Methodology	5
SM-AA-300	Procurement Engineering Support Activities	6
SM-AA-300-1002	BOM Development and Right Parts Selection for Maintenance	4

SURVEILLANCES (COMPLETED)

Number	Description or Title	Date or Revision
WO 00565281	6Y PM EDG Inspection	05/19/09
WO 00565281	Open, Inspect, And Clean The 2/3 EDG Heat Exchanger A/B	04/13/09
WO 00633776	HPCI Gland Seal Condenser Eddy Current Test	12/12/07
WO 00644121	Open, Inspect, And Clean The 2 EDG Heat Exchanger A	09/07/09
WO 00679588	Open, Inspect, And Clean The 3 EDG Heat Exchanger A	01/24/06
WO 00748995	Isolation Condenser Safe Shutdown Valve Operability	06/27/06
WO 00792697	Open, Inspect, And Clean The 2 EDG Heat Exchanger A/B	02/13/07
WO 00847007	Measure Airflow, Fan Amps, Etc. For Unit 3 EDG	01/27/06
WO 00889893	Open, Inspect, And Clean The 3 EDG Heat Exchanger A	01/23/08
WO 00909290	Open, Inspect, And Clean The 2/3 EDG Heat Exchanger A/B	03/26/07
WO 00911669	Open, Inspect, And Clean The 2/3 EDG Heat Exchanger A/B	03/24/08
WO 00934291	Isolation Condenser Safe Shutdown Valve Operability	12/28/07
WO 00975566	MSIV Leak Test	11/24/08
WO 00977606	MSIV Leak Test	11/04/08
WO 01002283	Fuel Consumption Test	03/10/09
WO 01016086	Fuel Consumption Test	05/09/09
WO 01022783	MM Repair Leak In Head Cylinder Gasket	10/15/07
WO 01077723	MSIV Leak Test	11/03/09
WO 01081285	MSIV Leak Test	11/02/09
WO 01093099	D3 18M TSTR Isolation Condenser Valve Operability Check	05/06/09
WO 01136214	2Y PM EDG Inspection	04/01/10
WO 01152490	MSIV Leak Test	11/11/09
WO 01233951	D2/3 TS EDG Fast Start Operability Surveillance	11/02/09
WO 01234856	D2/3 TS Unit EDG Operability	06/03/09

SURVEILLANCES (COMPLETED)

Number	Description or Title	Date or Revision
WO 01245578	SLC Quarterly/Comprehensive Pump Test – IST	09/16/09
WO 01272300	SLC Quarterly/Comprehensive Pump Test – IST	11/28/09
WO 01280282	Replace Flexible Hoses On The 2/3 EDG Jacket Water System	04/01/10
WO 01289106	D2/3 TS EDG Operability	12/23/09
WO 01290691	1M TS SLC Tank Boron Concentration	12/30/09
WO 01290709	SLC Quarterly/Comprehensive Pump Test – IST	03/17/10
WO 01294923	D3 Qtr Ts Valve Timing (Ist)	01/14/10
WO 01298768	1m Ts Slc Tank Boron Concentration	02/03/10
WO 01299407	D2/3 Ts Edg Operability	01/18/10
WO 01303693	D2/3 TS Unit EDG Operability	02/22/10
WO 01307305	1M TS SLC Tank Boron Concentration	03/03/10
WO 01313130	D2/3 TS EDG Operability	03/28/10
WO 01314723	1M TS SLC Tank Boron Concentration	03/31/10
WO 01867056	MM Repack 2B SBLC Pump	04/22/09
WO 1102337-01	Open, Inspect, And Clean The 3 EDG Heat Exchanger A	01/25/10
WO 1118985-01	Open, Inspect, And Clean The 2/3 EDG Heat Exchanger A	03/29/10
WO 1120020-01	Open, Inspect, And Clean The 2/3 EDG Heat Exchanger B	03/29/10
WO 01319914	D3 Weekly Tech Spec 125 VDC Battery Surveillance	03/25/10
WO 01323531	D3 Weekly Tech Spec 125 VDC Battery Surveillance	04/08/10
WO 01325637	D3 Weekly Tech Spec 125 VDC Battery Surveillance	04/15/10
WO 01268875	D3 Monthly Tech Spec 125 VDC Station Battery Inspection	10/23/09
WO 01303967	D3 Monthly Tech Spec 125 VDC Station Battery Inspection	02/19/10
WO 01311452	D3 Monthly Tech Spec 125 VDC Station Battery Inspection	03/19/10
WO 01232035	D3 Quarterly Tech Spec 125 VDC Station Battery Surveillance	07/30/09
WO 01256128	D3 Quarterly Tech Spec 125 VDC Station Battery Surveillance	10/03/09
WO 01281955	D3 Quarterly Tech Spec 125 VDC Station Battery Surveillance	01/22/10
WO 00833359	D3 Annual Tech Spec 125 VDC Main Station Battery Surveillance	04/29/10
WO 01028121	D3 Annual Tech Spec 125 VDC Main Station Battery Surveillance	04/21/08
WO 00342413	D3 24 Month Tech Spec 125 V Battery Service Test	01/21/03
WO 00834554	D3 5 Years Tech Spec 125V Station Battery Modified Performance Test	05/26/09
WO 00916784	D3 24 Month Tech Spec 125 V Battery Charger 3, 4 Hour Load Test	04/23/08

WORK DOCUMENTS

Number	Description or Title	Date or Revision
WO 00364144	5Y PM Inspect 4KV BKR UTC 0001185094	10/18/05
WO 00422001	Replace Unit 3 HPCI Aux Oil Pump Motor	01
WO 00479793	4Y PM Inspect 4KV BKR UTC 0000874011	07/26/07
WO 00548808	Replace A LPCI Pump Mechanical Seal	1
WO 00555038	D2 4Y PM Test 4KV Bus 23-1 to 2A LPCI PP Relays	03/05/07
WO 00563348	D2 6Y PM Insp 480V MCC, 2A DW and Torus Purge Exh Fan	08/24/09
WO 00619755	5Y PM Inspect 4KV BKR UTC 0000997121	08/20/09
WO 00634918	D2 2RFL PM Test 4KV Bus 23 Feed to Bus 23-1 Relays/Meters	11/09/07
WO 00687190	4Y PM Inspect 4KV BKR UTC 0001285082	03/19/07
WO 00690162	D2 4RFL EQ 480V MCC 28-1 Surveillance	11/01/07
WO 00975030	RWCU 3-1201-2 Valve LLRT Exceded Admin Alarm Limit	4/28/08
WO 01073676	D2 18M TS Bus 23-1 Degraded Voltage Relay Calibration	04/24/09
WO 99053282	D2 6RFL PM Clean/Insp Bus 23-1 Insul/Joints/Sprt/wiring	11/08/07
WO 99063433	16YR PM Overhaul 4KV BKR UTC 0000873996	09/28/07
WO 99181166	MOV Diagnostic Testing (2-3706 Rev)	1/28/09

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
AIEE	American Institute of Electrical Engineers
AR	Action Request
ASME	American Society of Mechanical Engineers
ATWS	Anticipated Transient Without Scram
CCSW	Component Cooling Service Water
CDBI	Component Design Bases Inspection
DGCW	Diesel Generator Cooling Water
EDG	Emergency Diesel Generator
GL	Generic Letter
HPCI	High Pressure Coolant Injection
Hx	Heat Exchanger
IEEE	Institute of Electrical & Electronic Engineers
IMC	Inspection Manual Chapter
IN	Information Notice
IP	Inspection Procedure
IR	Inspection Report
kV	Kilovolt
LPCI	Low Pressure Coolant Injection
MOV	Motor-Operated Valve
NCV	Non-Cited Violation
NPSH	Net Positive Suction Head
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records
PRA	Probabilistic Risk Assessment
RAT	Reserve Auxiliary Transformer
RBCCW	Reactor Building Closed Cooling Water
RCA	Radiologically Controlled Area
RIS	Regulatory Issue Summary
RWCU	Reactor Water Cleanup
RWP	Radiation Work Permit
SLC	Standby Liquid Control
SBO	Station Blackout
SDP	Significance Determination Process
SSC	Structures, Systems, and Components
TS	Technical Specification
UAT	Unit Auxiliary Transformer
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
Vac	Volts Alternating Current
Vdc	Volts Direct Current
WO	Work Order

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Sincerely,

/RA/

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

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

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