July 18, 2008

Mr. Mark Bezilla
Site Vice President
FirstEnergy Nuclear Operating Company
Perry Nuclear Power Plant
P. O. Box 97, 10 Center Road, A-PY-290
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT COMPONENT DESIGN BASES INSPECTION REPORT 05000440/2008006

Dear Mr. Bezilla:

On June 6, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed a Component Design Bases inspection at your Perry Nuclear Power Plant. The enclosed report documents the inspection findings, which were discussed on June 6, 2008, with Mr. K. Krueger 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, four 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 these NCVs, 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 Perry Nuclear Power Plant.

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 No. 50-440
License No. NPF-58

Enclosure: Inspection Report 05000440/2008006
w/Attachment: Supplemental Information

cc w/encl: J. Hagan, President and Chief Nuclear Officer - FENOC
J. Lash, Senior Vice President of Operations and
Chief Operating Officer - FENOC
D. Pace, Senior Vice President, Fleet Engineering - FENOC
J. Rinckel, Vice President, Fleet Oversight - FENOC
P. Harden, Vice President, Nuclear Support
Director, Fleet Regulatory Affairs - FENOC
Manager, Fleet Licensing - FENOC
Manager, Site Regulatory Compliance - FENOC
D. Jenkins, Attorney, FirstEnergy Corp.
Public Utilities Commission of Ohio
C. O'Claire, State Liaison Officer, Ohio Emergency Management Agency
R. Owen, Ohio Department of Health

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Sincerely,

/RA/

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

Docket No. 50-440
License No. NPF-58

Enclosure: Inspection Report 05000440/20
w/Attachment: Supplemental Information

cc w/encl: J. Hagan, President and Chief Nuclear Officer - FENOC
J. Lash, Senior Vice President of Operations and
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D. Pace, Senior Vice President, Fleet Engineering - FENOC
J. Rinckel, Vice President, Fleet Oversight - FENOC
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Letter to Mr. Mark Bezilla from Ms. Ann Marie Stone dated July 18, 2008.

SUBJECT: PERRY NUCLEAR PLANT COMPONENT DESIGN BASES INSPECTION REPORT 05000440/2008006

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-440
License No:	NPF-58
Report No:	05000440/2008006
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Perry Nuclear Power Plant, Unit 1
Location:	Perry, OH
Dates:	May 5 – June 6, 2008
Inspectors:	S. Sheldon, Senior Engineering Inspector, Lead J. Jacobson, Senior Engineering Inspector B. Jose, Senior Projects Inspector C. Brown, Operations Inspector S. Kobylarz, Electrical Contractor W. Sherbin, Mechanical Contractor
Observers:	M. Jones, Reactor Engineer V. Meghani, Reactor Engineer
Approved by:	Ann Marie Stone, Chief Engineering Branch 2 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000440/2008006; 05/05/2008 – 06/06/2008; Perry Nuclear Plant; 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. Four findings of very low safety significance were identified, all with associated Non-Cited Violations (NCVs). 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-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to ensure that the design limits in electrical calculations bound expected operational values. Specifically, the licensee failed to perform an adequate design review for expected conditions of the offsite power supply in determining design inputs for evaluating the effects of offsite voltage on plant equipment and to ensure that proper design control was maintained. During the inspection, the licensee evaluated the conditions and determined that the higher than analyzed offsite power system voltage did not have an impact on the operability of plant equipment.

  The finding was greater than minor because the licensee failed to assure and verify the effects of the maximum offsite power system voltage on plant equipment which could have affected the capability of safety-related equipment to respond to initiating events. The finding was determined to be of very low significance, because it was a design deficiency that did not result in actual loss of safety function. The cause of the finding is related to the cross-cutting area of Problem Identification and Resolution, specifically with respect to Corrective Action Program, because the licensee failed to evaluate and determine the extent of condition of the voltage in the offsite power supply. P.1(c) (Section 1R21.3.b(1))

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to ensure that equipment installed in the plant was in accordance with the design documentation. The inspectors identified several examples of equipment installed in the plant with electrical characteristics that varied from the design documentation. These conditions were subsequently evaluated and determined not to affect the operability of the equipment.

  The finding was determined to be more than minor because the finding involves multiple examples of a loss of configuration control which indicates deficiencies at the programmatic level that, if not corrected, could result in a more significant safety

concern. Specifically, replacement equipment could possibly be installed in the field that would not be able to perform in accordance with design requirements. The finding screened as "Green" because it was a design deficiency that did not result in actual loss of safety function. This finding has a cross-cutting aspect in the area of Human Performance, Resources because the licensee did not ensure that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety. Specifically, the licensee failed to maintain configuration control because the procedures/processes in place were not adequate to ensure the design documentation was complete, that engineering personnel were made aware of equipment changes, or nameplate data (tagging) was accurate. H.2(c) (Section 1R21.3.b(2))

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to identify and correct errors and discrepancies in seismic qualification documents for the Standby Liquid Control (SLC) storage tank. Subsequent licensee evaluation indicated that stresses in the critical SLC tank components will remain within the acceptance limits.

  The finding was determined to be more than minor because the lack of design control during the design modification for the SLC tank could affect its availability during a design basis seismic and hydrodynamic event. The finding screened as "Green" because it was a design deficiency that did not result in actual loss of safety function. This finding does not have a cross-cutting aspect because it is not indicative of current performance. (Section 1R21.3.b(3))

- Green. 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 test reactor protection system key locked bypass switches. The licensee entered this issue into its corrective action program and initiated procedural changes to require periodic testing of the RPS bypass switches.

  The finding was determined to be more than minor because it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the bypass circuitry needs to be tested periodically to verify that it remains functional for use when required. The finding screened as "Green" because it was a design deficiency that did not result in actual loss of safety function. This finding does not have a cross-cutting aspect because it is not indicative of current performance. (Section 1R21.5.b(1))

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 or taken by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Component Design Bases Inspection (71111.21)

.1 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 this report.

.2 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 Perry Nuclear Power Plant Standardized Plant Analysis Risk (SPAR) Model, Revision 3P. In general, 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 constitutes 29 samples as defined in Inspection Procedure 71111.21-04.

.3 Component Design

a. Inspection Scope

The inspectors reviewed the Updated Safety Analysis Report (USAR), 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 walk downs were conducted for 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 18 components were reviewed:

- Div 1 Emergency Diesel Generator (EDG) Fuel Oil Transfer Pumps (R45-C001A,B): The Division 1 EDG fuel oil pumps, R45-C001A,B were reviewed to verify their ability to adequately support the Division 1 EDG in response to transient and accident conditions. The team reviewed the pump net positive suction head (NPSH) calculation, and the usable tank volume calculation related to fuel consumption to ensure adequate NPSH existed, and to ensure vortex analysis methods were appropriate. The team verified seismic adequacy of the fuel oil pumps' mounting bolts. The team reviewed EDG surveillances to ensure adequate fuel oil was delivered to the day tank by the pumps. The team reviewed associated electrical calculations to confirm that the design basis minimum voltage at the motor terminals would be adequate for starting and running the motor under design basis conditions. A review of the cable's ampacity was performed and evaluated to determine if adequate margin was available for all motor operating conditions. The team reviewed the motor control logic diagrams and the 120 Vac voltage drop calculation to ensure adequate voltage would be available for the control circuit components. The team also reviewed the 480 Vac short circuit and coordination calculations to assure coordination between the motor control center (MCC) fuses and the MCC feed breaker and to verify the interrupting ratings of the MCC fuses and the feed breaker.

- Emergency Closed Cooling Water (ECCW) System Pump "A" (1P42-C0001A): The inspectors reviewed the ECCW System thermal hydraulic calculations including NPSH available, to verify that the pump has the capability to deliver the minimum required system flow and flow rate to each component at all modes of operation. Calculations to establish the design basis heat loads and required Emergency Service Water (ESW) flow for the ECCW heat exchanger, including instrument loop accuracy to measure flow were also reviewed. The inspectors reviewed the calculation to establish the pump performance criteria along with recent inservice testing (IST) and performance trend data to verify acceptable pump performance. The team reviewed associated electrical calculations to confirm that the design basis minimum voltage at the motor terminals would be adequate for starting and running the motor under design basis conditions. A review of the motor feed and control cables' ampacity was performed and evaluated to determine if adequate margin was available for all motor operating conditions. The team reviewed the motor control logic diagrams and the 125 Vdc voltage drop calculation to ensure adequate voltage would be available for the control circuit components under all design basis conditions. The team also reviewed the 125 Vdc short circuit and coordination calculations to assure coordination between the motor feed breaker open and close control circuit fuses and 125 Vdc supply breakers and to verify the interrupting ratings of the control circuit fuses and the 125 Vdc control power feed breaker.

- Essential 4.16kV Switchgear (EH12): The inspectors reviewed selected calculations for electrical distribution system, including load flow/voltage drop, short-circuit, and electrical protection and coordination. This review was conducted to assess the adequacy and appropriateness of design assumptions, and to verify that bus capacity was not exceeded and bus voltages remained above minimum and below maximum acceptable values under design basis conditions. Additionally, the switchgear's protective device settings and breaker ratings were reviewed to ensure that selective coordination was adequate for protection of connected equipment during worst-case short-circuit conditions. To determine if breakers and relays were maintained in accordance with industry and vendor recommendations, the inspectors reviewed the preventive maintenance inspection and testing procedures. 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.

- Essential 4.16/.48kV Load Center Transformer (EHF-1-C): The inspectors reviewed the system one-line diagram, nameplate data, and selected calculations for electrical load flow, short-circuit, and breaker protective relay settings and loading requirements to determine the adequacy of the transformer to supply required power to the associated 480Vac essential switchgear.

- Essential 480Vac Load Center (EF-1-C): The inspectors reviewed the 480V load center to verify it would operate during design basis events. The inspectors reviewed selected calculations for electrical distribution system load flow and voltage, short-circuit, and electrical protection and coordination. The adequacy and appropriateness of design assumptions and calculations were reviewed to verify that bus capacity was not exceeded and bus voltages remained above minimum and below maximum acceptable values under design basis conditions. The load center protective device settings and breaker ratings were reviewed to

ensure that selective coordination was adequate for protection of connected equipment during worst-case short-circuit conditions.

- Containment Vacuum Breakers: The inspectors verified sizing calculations for vacuum breaker lines to verify design basis pressurization values were used, and that design inputs were properly translated into system procedures and surveillance tests. The inspectors reviewed completed tests intended to demonstrate component operability.

- Low Pressure Core Spray (LPCS) Pump (1E21-C0001): The inspectors reviewed the LPCS pump to verify its capability to meet design basis assumptions with respect to pump flow and pressure. The inspectors reviewed calculations, drawings, procedures, tests, and other analyses to verify selected calculation inputs, assumptions, and methodologies were accurate and justified, and were consistently applied. The available net positive suction head for the LPCS pump was verified to be consistent with design assumptions to ensure reliable pump operation. The inspectors reviewed completed tests to confirm the acceptance criteria and test results demonstrated the capability of the pump to provide required flow rates. The IST results were reviewed to assess potential component degradation and impact on design margins. In addition, the licensee responses and actions to Bulletin 88-04, "Potential Safety-Related Pump Loss," were reviewed to assess implementation of operating experience. The team reviewed associated electrical calculations to confirm that the design basis minimum voltage at the motor terminals would be adequate for starting and running the motor under all postulated design basis conditions. A review of the motor feed and control cables' ampacity was performed and evaluated to determine if adequate margin was available for all motor operating conditions. The team reviewed the motor control logic diagrams and the 125 Vdc voltage drop calculation to ensure adequate voltage would be available for the control circuit components under all design basis conditions. The team also reviewed the 125 Vdc short circuit and coordination calculations to assure coordination between the motor feed breaker open and close control circuit fuses and 125 Vdc supply breakers and to verify the interrupting ratings of the control circuit fuses and the 125 Vdc control power feed breaker.

- LPCS Minimum Flow Valve (1E21-F0011): The team reviewed the motor operated valve (MOV) calculations for 1E21-F0011, including required thrust, structural evaluation, and maximum differential pressure, to ensure the valve was capable of functioning under design conditions. Periodic Verification Diagnostic and IST results were reviewed to verify acceptance criteria were met and performance degradation would be identified. Associated electrical calculations were reviewed to verify that the design basis minimum voltage at the MOV motor terminals was consistent with the design inputs used in the MOV thrust calculations, and noted that thermal overload protection was not included in MOV circuits at Perry. A review of the power supply and control cables' ampacity was performed and evaluated to determine if adequate margin was available for all motor operating conditions. The team also reviewed the control logic schematic diagrams, the system description, and flow control diagrams to verify the adequacy of valve control logic design and to ensure that the valve was capable of functioning under design conditions.

- LPCS Injection Valve (1E21-F0005): The team reviewed the MOV calculations for 1E21-F0005, including required thrust, structural evaluation, and maximum differential pressure, to ensure the valve was capable of functioning under design conditions. Periodic Verification Diagnostic and IST results were reviewed to verify acceptance criteria were met and performance degradation would be identified. Associated electrical calculations were reviewed to verify that the design basis minimum voltage at the MOV motor terminals was consistent with the design inputs used in the MOV thrust calculations, and noted that thermal overload protection was not included in MOV circuits at Perry. A review of the power supply and control cables' ampacity was performed and evaluated to determine if adequate margin was available for all motor operating conditions. The team also reviewed the control logic schematic diagrams, the system description, and flow control diagrams to verify the adequacy of valve control logic design and to ensure that the valve was capable of functioning under design conditions.

- LPCS Room Cooler and Fan: The inspectors reviewed the design basis documentation, and system drawings for the LPCS room cooler and associated fan. The inspectors reviewed the electrical one-line and elementary diagrams to determine the adequacy of the power supply and control logic for design basis conditions. The inspectors reviewed the LPCS room cooler thermal sizing calculation, room heat load calculation, vendor drawings, and recent airflow and cooling water testing results to ensure that the room cooler and fan were capable of keeping the room temperature below analyzed limits. Vibration test data was reviewed to ensure the fan was operating within acceptable limits.

- Heating, Ventilation, and Air-Conditioning (HVAC) for Switchgear Room (M23C0001A&B, M23C0002A&B and M24C0001A&B): The inspectors reviewed electrical one-line and elementary diagrams, breaker sizing and relay setting calculations, and fuse and thermal overload trip device selection calculations to determine the adequacy of the power supply and control logic for design basis conditions. In addition, the inspectors reviewed these calculations to verify that the most limiting conditions were taken into account, including the maximum fan and belt drive brake-horsepower (BHP) requirements. The inspectors also reviewed the surveillance testing procedures to determine whether the test adequately demonstrated system response during LOOP/LOCA conditions.

- Reactor Protection System (RPS): The inspectors reviewed the RPS reactor water level and reactor pressure instrumentation. Calculations and drawings were reviewed against the design basis specifications to verify that the setpoints were adequately maintained. The inspectors reviewed completed surveillances, completed work orders, and calibration records for consistency with design basis requirements. A modification listed in Section 1R21.5 was reviewed.

- Residual Heat Removal (RHR) Heat Exchanger Bypass Valve (1E12-F0048B): The team reviewed the MOV calculations for 1E12-F0048B, including required thrust, structural evaluation, and maximum differential pressure, to ensure the valve was capable of functioning under design conditions. Periodic Verification Diagnostic and IST results were reviewed to verify acceptance criteria were met and performance degradation would be identified. Associated electrical calculations were reviewed to verify that the design basis minimum voltage at the

MOV motor terminals was consistent with the design inputs used in the MOV thrust calculations, and noted that thermal overload protection was not included in MOV circuits at Perry. A review of the power supply and control cables' ampacity was performed and evaluated to determine if adequate margin was available for all motor operating conditions. The team also reviewed the control logic schematic diagrams, the system description, and flow control diagrams to verify the adequacy of valve control logic design and to ensure that the valve was capable of functioning under design conditions.

- RHR Pump Minimum Flow Valve (1E12-F0064B): The team reviewed the MOV calculations for 1E12-F0064B, including required thrust, structural evaluation, and maximum differential pressure, to ensure the valve was capable of functioning under design conditions. Periodic Verification Diagnostic and IST results were reviewed to verify acceptance criteria were met and performance degradation would be identified. Associated electrical calculations were reviewed to verify that the design basis minimum voltage at the MOV motor terminals was consistent with the design inputs used in the MOV thrust calculations, and noted that thermal overload protection was not included in MOV circuits at Perry. A review of the power supply and control cables' ampacity was performed and evaluated to determine if adequate margin was available for all motor operating conditions. The team also reviewed the control logic schematic diagrams, the system description, and flow control diagrams to verify the adequacy of valve control logic design and to ensure that the valve was capable of functioning under design conditions.

- Unit 1, Division 2 Battery Charger (FD-1-B): The team reviewed electrical calculations for the 125Vdc battery charger FD-1-B, including sizing calculation, contribution to short-circuit fault current, and breaker sizing. The operating procedures for normal, abnormal, and emergency conditions were reviewed. In addition, the test procedures were reviewed to determine if maintenance and testing activities for the battery chargers were in accordance with the vendor recommendations. The team performed a visual non-intrusive inspection of the battery chargers to assess the installation configuration, material condition, and potential vulnerability to hazards.

- 125 Vdc, Division 2 Bus (1R42-S025): The team reviewed 125 Vdc schematic and elementary diagrams, fuse and 125 V dc molded case circuit breaker ratings, voltage drop and coordination calculations to confirm that sufficient coordination existed between various interrupting devices and sufficient power and voltage was available to safety related equipment supplied by this bus to perform their safety function. The team reviewed 125 Vdc short circuit calculations and verified that the interrupting ratings of the fuses and the molded case circuit breakers were well above the calculated short circuit currents. The team also reviewed the 125 Vdc molded case circuit breaker testing and maintenance procedures to determine if they were in accordance with the vendor recommendations.

- Standby Liquid Control (SLC) Storage Tank: The inspectors reviewed tank volume calculations in order to ensure boron solution volume is adequate to provide the required shutdown margin when needed. Tank level instrument set point calculations were reviewed for pump shut-off to ensure vortex margins at

the tank outlet were adequate. Tank level alarm setpoint calculations were reviewed to ensure the required volume of solution was maintained in the tank. Inspectors also reviewed the calibration and inspection data on the level transmitters and alarm set points to ensure the equipment was maintained. Calculations, drawings, and other documents supporting structural, seismic and dynamic qualification for the SLC tank and level transmitters were reviewed to ensure design basis requirements were addressed. Recent Inservice Inspection (ISI) records for the tank were also reviewed to ensure that there is no appreciable structural degradation of the tank, and associated equipment.

- Diesel Engine-Driven Fire Pump (1P54-C0001): The inspectors assessed the capability of the Diesel-Driven Fire Pump to provide flow in the emergency lineup when injecting into the reactor vessel during a beyond design bases event when safety related equipment is not available for decay heat removal. The inspectors reviewed the hydraulic calculation for vessel injection from the pump to ensure adequate forward flow into the vessel via the fire hose connection. The inspectors reviewed pump flow testing, and fire main testing to ensure assumptions in design calculation were appropriate.

b. Findings

(1) Switchyard Voltage Found Outside Analyzed Maximum Limit

Introduction: 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 inspectors for the failure to ensure that the design limits in electrical calculations bound expected operational values.

Description: During this inspection, the team identified that the licensee failed to perform an adequate design review for all conditions of the offsite power supply in determining design inputs for evaluating the effects of offsite voltage on the design basis for plant equipment and to ensure that proper design control was maintained. Specifically, the licensee failed to adequately identify the bounding maximum voltage condition in the offsite power supply, which resulted in an inaccurate determination of short circuit current and load flow. The team found that the operational limits in the power plant voltage schedule that was used by the operators in the main control room, dated June 1, 2006, were higher than the limits in the voltage schedule that was used to develop the plant load flow and short circuit calculations. The calculations used 351.9 kV as a maximum analyzed limit based on a voltage schedule, dated May 6, 1986, for a maximum recommended system voltage of 1.009 per unit on a 345 kV base or 348.1 kV. However, the voltage schedule used by the operators during the inspection allowed a maximum of 1.015 per unit on a 348 kV base or 353.2 kV. In effect, the maximum switchyard scheduled voltage increased from 348.1 kV to 353.2 kV. The high voltage alarm setpoint was selected at 350.2 kV based on a maximum scheduled voltage of 348.1 kV. The team found the maximum scheduled switchyard voltage (353.2 kV) was greater than both the high voltage alarm setpoint (350.2 kV) and the maximum analyzed voltage limit (351.9 kV). Therefore, the effect of the change and net increase in the maximum scheduled voltage of the offsite power source was not addressed in the load flow and short circuit calculations.

The team requested plots of the plant switchyard voltage for 2007 to assess actual offsite power voltage conditions. The team found that while the maximum analyzed voltage limit was 351.9 kV in the design calculations, the actual maximum switchyard voltage was found to be approximately 356 kV, and that the switchyard voltage exceeded 351.9 kV for over 18 hours during May 13 and 14, 2007. In addition, the team found that switchyard voltage exceeded 351.9 kV during several plant outages in 2007.

The team found that alarms and procedures, that were put in place to alert the plant during high switchyard voltage conditions such that the switchyard and plant operators could coordinate and take appropriate mitigating actions, were not being followed by the switchyard operator. As a result, the plant operators found voltages at equipment in the plant that were in excess of analyzed limits. The licensee identified in CR 07-17878 and CR 07-18471 that the plant experienced high voltage conditions at equipment but the Control Room was not notified by the switchyard operator that they had received the high voltage alarm(s). The team found that the licensee's corrective actions were inadequate and ineffective in resolving the voltage conditions that were adverse to the station and in the inadequate alarm response by the switchyard operator.

The licensee entered this finding into the corrective action program as CR 08-40964. On June 3, 2008, "FirstEnergy Balancing Authority Power Plant Voltage Schedules" were revised to include a note that stipulates that the maximum voltage at the Perry 345 kV bus is 351.9 kV.

Analysis: The inspectors determined that the failure to ensure that the design limits in electrical calculations bounded expected operational values was a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on September 20, 2007. The finding involved the attribute of design control and could have affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the failure to assure and verify the effects of the maximum offsite power system voltage on plant equipment could have affected the capability of safety-related equipment to respond to initiating events. During the inspection, the licensee evaluated and determined that the effect of the higher than analyzed offsite power system voltage did not have an impact on the operability of plant equipment.

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 "Green" because it was a design deficiency that did not result in actual loss of safety function. This finding has a cross-cutting aspect in the area of problem identification and resolution, specifically with respect to corrective action, because the licensee failed to evaluate and determine the extent of condition of the voltage in the offsite power supply. Specifically, the licensee initiated several corrective action documents in response to identified issues; however, did not perform an engineering evaluation of conditions to determine corrective actions to resolve the identified issue. P.1(c)

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," required, in part, that measures shall be established to assure that applicable regulatory

requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, during this inspection, the team identified that the licensee failed to perform an adequate design review for expected conditions of the offsite power supply in determining design inputs for evaluating the effects of offsite voltage on the design basis for plant equipment and to ensure that proper design control was maintained. Specifically, the licensee failed to adequately identify the bounding maximum voltage condition in the offsite power supply, which resulted in an inaccurate determination of short circuit current and load flow. The licensee entered this performance deficiency into the corrective action program as CR 08-40964.

Because this violation was of very low safety significance and it was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000440/2008006-01).

(2) Failure to Maintain Configuration Control

Introduction: A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for failing to ensure that equipment installed in the plant was in accordance with the design documentation.

Description: The inspectors reviewed the replacement of the 4160 Vac to 480 Vac transformer EHF-1-C. During a walkdown, the inspector identified a discrepancy with the nameplate on the transformer enclosure and was informed that it was the nameplate for the old transformer that had been replaced. The inspector requested the nameplate data for the new transformer and observed a slight difference in electrical characteristics. This difference would have increased available fault current and should have been reflected in electrical short circuit calculations. The licensee initiated a condition report (CR 08-40004) to document the concern that there was no programmatic requirement to review such data on replacement transformers.

When questioned about procedures for motor replacement, the licensee provided procedure GEI-0049 which required a motor run-in test data sheet be filled out and transmitted to engineering for review to capture such changes in electrical characteristics. Inspectors asked for a copy of the data sheet for switchgear HVAC fan motor 0M23-C0002B, which had been replaced on March 3, 2006, and November 10, 2007. The inspector was informed that the requested data sheets had not been transmitted to engineering for review. Subsequent review of the data sheet revealed conservative changes in electrical characteristics. The licensee initiated a condition report (CR 08-40780) to document that motor run-in test data sheets contained in GEI-0049 and discussed in Section 6.2 requirements were not being forwarded to the DES Electrical Supervisor.

While reviewing circuit breaker ratings in EF-1-C 480 Vac switchgear, the inspector questioned the fault ratings on installed breakers. The licensee found two breakers installed, which had nameplates indicating fault ratings of 30,000 amps when the design

documentation required breakers to be rated at 42,000 amps. The licensee documented this condition in CR 08-40682. Preliminary investigation indicated the breakers were adequately rated, but had the incorrect nameplates installed by the vendor.

These examples of configuration control deficiencies indicated problems at the programmatic level which concerned the inspectors. The licensee captured the issue in CR 08-40938 and initiated an apparent cause investigation.

Analysis: The inspectors determined that these configuration control examples indicated a problem maintaining design control as required by 10 CFR Part 50, Appendix B, Criterion III, and was a performance deficiency.

The finding was determined to be more than minor because the finding involves multiple examples of loss of configuration control which indicates deficiencies at the programmatic level that, if not corrected, could result in a more significant safety concern. Specifically, replacement equipment could possibly be installed in the field that would not be able to perform in accordance with design requirements. 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 "Green" because it was a design deficiency that did not result in actual loss of safety function and Question 1 in Table 4a was answered yes. Each of the examples was determined not to be an operability concern.

This finding has a cross-cutting aspect in the area of Human Performance Resources because the licensee did not ensure that equipment and procedures were available and adequate to assure nuclear safety. Specifically, the licensee failed to maintain configuration control because the procedures/processes in place were not adequate to ensure the design documentation was complete, that engineering personnel were made aware of equipment changes, or nameplate data (tagging) was accurate. H.2(c)

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related function of structures, systems, and components.

Contrary to the above, as of May 5, 2008, the licensee failed to establish adequate processes to maintain plant equipment in accordance with design documentation. Specifically, several pieces of equipment were replaced in the plant without confirmation that the associated electrical characteristics were in accordance with the design bases. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as CR 08-40938, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000440/2008006-02).

(3) Standby Liquid Control Storage Tank Seismic Calculations Deficiencies

Introduction: A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for

failure to identify and correct errors and discrepancies in seismic qualification documents for the Standby Liquid Control (SLC) storage tank. Specifically, the licensee failed to use the correct value for the number of anchor bolts, and to correctly apply the formulas for calculation of anchor bolt stresses. The licensee also failed to identify and correct numerous discrepancies in the associated design documents.

Description: In 1999, the licensee performed calculation number SQ-0121, "SLCS Tank 1C41-A001 Evaluation", Revision 0 to address the impact of an increase in the boron concentration on the seismic qualification of the SLC tank. The licensee used an existing General Electric (GE) calculation 22A4596 (included in SQ-0121 as Attachment A) as basis for recalculating stresses on anchors and other tank components. The inspectors found that the licensee had failed to recognize that the GE calculation was for a generic SLC tank design using 36 anchor bolts. The Perry configuration consisting of 18 bolts was addressed in another GE calculation C41-49, "Perry Standby Liquid Control Storage Tank." The licensee also misapplied the equation for calculating the tension force at the tank base due to the overturning forces by considering all the bolts as effective instead of using only those in the tension zone as was correctly done in the GE calculation 22A4596. Based on a review of other applicable documents, these errors would result in bolt stresses exceeding the acceptable values stated in the calculation.

The inspectors reviewed the site specific calculation C41-49 and seismic qualification summary forms provided by GE (SQRT forms, C41-A001), parts of calculation 3:41.5 titled SLCS Storage Tank Support, and drawing D-511-080, "ATWS [anticipated transient without a scram]Tank and Pump Support Frames." These documents contained numerous discrepancies regarding seismic and hydrodynamic acceleration and critical damping values and were not consistent with the USAR. Upon identification by the inspectors, the licensee documented the discrepancies in Condition Reports 08-40335, 08-40387, 08-40771, and 08-41210. The licensee also found that ASTM A325 high strength bolts were used instead of the general purpose A307 bolts specified in the design documents. The licensee performed an evaluation using the appropriate seismic data to conclude the stresses for critical tank components including anchor bolts would remain within acceptance limits and thus the SLC operability was not affected. The licensee condition reports identified the need for updating the design basis documents including drawings, calculations, and the USAR for the SLC storage tanks.

Analysis: The inspectors determined that failure to use accurate bolt configuration, to correctly apply the equation for calculating bolt tension, and to identify and resolve the design document inconsistencies during performance of calculation SQ-121 was contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the Mitigation Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to the initiating events to prevent undesirable consequences (i. e., core damage). Specifically, the lack of design control during the design modification for the SLC tank could affect its availability during a design basis seismic and hydrodynamic event.

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. Based on the licensee evaluation indicating there was no loss of operability of the tank, the inspectors checked the Yes box in response to Question 1 in the Mitigation System column of Table 4a to screen the finding as Green. The finding was determined to be of very low significance based on the licensee evaluation indicating that stresses in the critical SLC tank components will remain within the acceptance limits.

The inspectors did not identify a cross-cutting aspect associated with this finding because the issue is not indicative of current performance.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Contrary to the above, on April 27, 1999, the licensee failed to provide adequate design control measures for verifying or checking the adequacy of the SLC tank seismic qualification when performing calculation SQ-0121, Revision 0. Specifically, in the calculation SQ-0121, the licensee failed to use accurate bolt configuration, to correctly apply the equation for calculating bolt tension, and to identify and resolve the design document inconsistencies. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as condition reports 08-40335, 08-40387, 08-40771, and 08-41210, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000440/2008006-03).

.4 Operating Experience

a. Inspection Scope

The inspectors reviewed seven 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 2002-12, "Submerged Safety-Related Electrical Cables";
- IN-2005-11, "Internal Flooding/Spray-Down of Safety-Related Equipment Due to Unsealed Equipment Hatch Floor Plugs And/Or Blocked Floor Drains";
- IN 2005-21, "Plant Trip and Loss of Preferred AC Power From Inadequate Switchyard Maintenance";
- IN 2006-03, "Motor Starter Failures Due To Mechanical-Interlock Binding";
- IN 2006-05, "Possible Defect in Bussmann KWN-R AND KTN-R Fuses";
- IN-2006-29, "MOV Failures Due to Stem Nut Wear"; and
- IN 2007-11, "Recent Operator Performance Issues at Nuclear Power Plants."

b. Findings

No findings of significance were identified.

.5 Modifications

a. Inspection Scope

The inspectors reviewed two 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:

- ECP 02-0212, RPS Low Water Level 3 Scram Bypass Function; and
- ECP 07-0092-001, Termination of EHF-1C Lightning Arrestors.

b. Findings

(1) Failure to Periodically Test Reactor Protection System Key Lock Bypass Switches

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 test RPS key locked bypass switches. The licensee entered this issue into its corrective action program and initiated procedural changes to require periodic testing of the RPS bypass switches.

Description: Following a review of ECP 02-0212, the inspector questioned if key locked bypass switches used to defeat automatic protection circuits were periodically tested. The licensee stated that while the RPS circuitry was tested in accordance with technical specification requirements to verify that it did not interfere with the primary function, the bypass function was not periodically tested. These key locked switches bypass the automatic scram on reactor water low level 3 to allow reset and repeat control rod scrams in an ATWS situation and level control at a lower band following plant transients. The bypass switches in question where installed in 2005 as a human factors improvement to facilitate implementation of emergency procedures.

Several NRC regulations and guidance documents identify the level of testing required for the RPS. These include: Title 10 CFR 50.55a, "Codes and Standards," Paragraph (h), which referenced IEEE-297; Appendix A to 10 CFR Part 50, General Design Criterion 21, "Protection System Reliability and Testability," Appendix B to 10 CFR Part 50, Criterion XI, "Test Control"; and Regulatory Guide 1.118, "Periodic Testing of Electric Power and Protection Systems," which endorses ANSI/IEEE Std 338-1987. The licensee is committed to follow ANSI/IEEE Std 338-1987.

The licensee entered the issue into their corrective action program as CR 08-40693 and updated surveillance procedures to include testing the bypass function of these switches. The switches were considered operable since they were tested following their installation in 2005, and there was no indication that the switches would not function when called upon.

Analysis: The inspectors determined that failing to establish a periodic test program for the key lock switches was contrary to ANSI/IEEE Std 338-1987 and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the mitigating system cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the bypass circuitry needs to be tested periodically to verify that it remains functional for use when required.

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. There was no indication based on the recent installation and historical operating experience that the switches would not function when called upon. As such, the finding screened as "Green" because it did not result in actual loss of safety function and Question 1 in Table 4a was answered yes.

The inspectors did not identify a cross-cutting aspect associated with this finding as it 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, as of May 19, 2008, the licensee failed to establish required periodic testing to demonstrate the RPS key locked bypass switches would perform satisfactory in service. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as CR 08-40693, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000440/2008006-04).

.6 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 USAR 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 plant 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:

- Suppression Pool Makeup;
- Containment Venting;
- Station Blackout Operator Actions; and
- Depressurize and Inject via Condensate transfer or Fire Water Crosstie.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

.1 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.

4OA6 Management Meetings

.1 Exit Meeting Summary

On June 6, 2008, the inspectors presented the inspection results to Mr. K. Krueger, 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.

4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- Title 10 CFR Part 50, Appendix B, Criterion III, Design Control requires in part that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of a suitable testing program. Contrary to

this, between mid 1990s and June 2008, approximately 40, 480 Vac motor control center components, such as, starter coils and interposing relays, had not been periodically tested to verify the adequacy of available voltages for their proper function. This was identified in the licensee's corrective action program as Condition Report 08-38977. This finding was of very low safety significance because the failure to perform periodic testing did not impact current operability of these components since the purpose of the periodic testing was to assure the minimum voltage remained acceptable as these components aged.

ATTACHMENT: SIUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee:

M. Bezilla, Site Vice President
C. Elberfeld, Regulatory Compliance Supervisor
D. Gartner, Design Engineering
J. Grabnar, Site Engineering Director
T. Hilston, Design Engineering Manager
K. Krueger, Plant General Manager
J. Lausberg, Regulatory Compliance Manager
K. Russell, Regulatory Compliance

Nuclear Regulatory Commission

M. Franke, Perry Senior Resident Inspector, Reactor Projects Branch 6
M. Wilk, Perry Resident Inspector, Reactor Projects Branch 6

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000440/2008006-01	NCV	Switchyard Voltage Found Outside Analyzed Maximum Limit (Section 1R21.3.b(1))
05000440/2008006-02	NCV	Failure to Maintain Configuration Control (Section 1R21.3.b(2))
05000440/2008006-03	NCV	Standby Liquid Control Storage Tank Seismic Calculations Deficiencies (Section 1R21.3.b(3))
05000440/2008006-04	NCV	Failure to Periodically Test Reactor Protection System Key Lock Bypass Switches (Section 1R21.5.b(1))

LIST OF DOCUMENTS

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	Revision
2.5.3	Containment Negative Pressure Evaluation	7 and Add. 1
2.5.3-4	Containment Vacuum Transient	4
2.5.3-5	Containment Vacuum Relief	4 & 5
3:41.5-601 / 624	SLCS Storage Tank Support	2/17/82
B21-C02	Reactor Vessel High Level 8 Trip, Low Level 3 Trip/Permissive	4
B21-C03	Reactor Vessel High Pressure Trip Setpoints	1
C41-C01	1C41N010A-D Set Points: SLCS Tank Level-Pump Shutoff	1
CJ-ECA-066/01	M23/M24 Airflow Distribution and Impact on Environmental Zone CB-2 Temperatures	1
CL-MOV-1E12-2	Determine maximum dp for Valve F0064B	1
CL-MOV-1E12-6	Determine maximum dp for Valve F0048B	2
CL-SBO-004	Calculation of the Temperature Within The Division I and Division II Switchgear Rooms During a Station Blackout	0
DRF C41-49	Perry Standby Liquid Control Storage Tank New Loads	2/14/81
E12-088	RHR System Hydraulic Calculation	1
E21-014	SVI-E21-T2001, LPCS Pump Performance Acceptance Criteria	4
E21-2	LPCS System, NPSH Calculation	0 & DCC-003, 004
E21-C04	LPCS Injection Pressure Permissive	0
ECA-067	Estimate of EQ Zone Temperature Increase as a Result of Temperature Changes in ESW and ECCW System Piping	0
EPG04-P54-2	RPV Injection Using Fire Water	1
EPG-9	Primary Containment Pressure Limit	2
FSPC-0030	Fuse Sizing and Overload Relay Selection for Class 1E 460V Motors (excluding MOVs)	1
G43-001	Upper Pool/Suppression Pool Volume	0
JL-061	Auxiliary Building Flooding Analysis	3
JL-61	Auxiliary Building Flooding Analysis	3
M17-10	Containment Vacuum Relief Valves	1
M17-C01	M17 System Containment Vacuum Relief Setpoints	3
M39-016	ECCS Pump Room Coolers Design Airflow	0
MOV EPP-015	Rising Stem TTW (1E12F0048B)	9

MOVC-0043	Thrust required for Gate Valves	4
MOVC-0044	Thrust required for Globe Valves	4
MOVC-0073	AC MOV Actuator Degraded Voltage Torque/Thrust Capability using Commonwealth Edison Method	7
P42-028	ECCW System Thermal Hydraulics Analysis	4
P42-036	ECCW Pump Performance Acceptance Criteria	2
P42-039	Design Basis Heat Load & Required ESW Flow for ECC Hxs	2
P42-049	ECCS Pump Room Coolers, Cooled by ECCW, Performance	0
P42-C04	Loop Accuracy for ESW Flow from ECC Hx Flow Indication	1
PRDC-0002	125 Vdc Div. 1, 2, & 3 Coordination	3
PRDC-0004	Class 1 E, DC Control Circuit Coordination	3
PRDC-0015	Division 2, 125 VDC System Load Evaluation, Voltage Drop, Battery/Battery Charger Sizing Calculation	2
PRLV-0002	480 Volt Safety Related Motor Relay Calculation for Motors Connected to Switchgear Breakers	4
PRLV-0011	480 Volt Buses EF-1-A, EF-1-B, EF-1-C, and EF-1-D	1
PRMV-0008	Unit 1 EH Bus Supply Breakers, Preferred and Alternate	3
PRMV-0010	EHF-1-C XFMR Supply Breaker EH1204	1
PRMV-0013	Protective Relay Setpoints for Div. 2 Tie Breaker to the XH-12 Stub Bus: Circuit Breaker EH1214	3
PRMV-0061	Div. 1,2,3 D/G Voltage-Controlled, Overcurrent and Load Test Overload Protection	0
PSTG-0001	PNPP Class 1E Power Distribution System Voltage Study	4
PSTG-0006	PNPP Short Circuit Study	3
PSTG-0030	Voltage Drop In Control Circuits Of Safety-Related MCC Starters, NEMA Sizes 1, 2, 3 and 4	1
R45-11	EDG Fuel Oil Transfer Pump Performance Requirements	0
R45-3	Diesel Fuel Oil Pumps	1
R45-T05	Div. 1 and 2 Diesel Fuel Oil Day Tank High and Low Level Alarms	4
SQ-0025	Seismic Qualification of Valve 1E21F0011	4/23/07
SQ-0027	Seismic Qualification of 12”, 1500# Gate Valve 1E21F0005	1
SQ-0035	Seismic Qualification of 6”, 300# Gate Valve 1E12F064A	1
SQ-0041	Seismic Qualification of 18”, 300# Globe Valve 1E12F0048	3
SQ-0121	SLCS Tank 1C41-A001 Evaluation	0
SQ-0141	Seismic Qualification of the Diesel Fuel Oil Transfer Pump	0
T21-4	ECCS Suppression Pool Suction Strainer Hydraulic Loss Evaluation	0 &1

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

Number	**Description or Title**	**Date**
01-01700	Collective Significance for MOV Stem Lubrication Issues	3/29/01
02-00740	ESW Design Pressure May Not Meet Code Requirements	3/11/02

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

Number	Description or Title	Date
02-01418	Overpressure Protection Calculation Improvements	5/2/02
04-04756	OE RE-Evaluation – IEN 2002-12 Submerged SR Electrical Cables	9/23/04
05-04296	NRC Information Notice 05-11	5/16/05
05-05622	Evaluate NRC Information Notice 2005-21 – Switchyard Maintenance Issues/Effects	7/26/05
05-05933	NRC Observation of Auxiliary Building Floor Plugs	8/1/05
05-05938	Untimely Resolution of A Condition Adverse to Quality Issue	8/9/05
05-07685	ECC Pump A Inboard Bearing Bubbler Adjustment	11/19/05
05-07952	Near Miss of Tech Spec Requirement Following Unplanned Addition of 70 Gallons	12/8/05
06-00342	LPCS Room Cooler has Broken Tack Welds on Stiffener Bar	1/23/06
06-00703	Commitment in IEB 88-04 Response Not Implemented	2/13/06
06-01341	Grid Voltage Adjustment Frequently Required Due To XHF1A	3/21/06
06-08670	Lubrication Requirements For New Design 1M39B0006 Fan Bearings Are Not Evaluated	10/19/06
06-10645	Valve 1E21F0011 Exceeds Thrust Limit	11/28/06
07-17878	Excessive Grid Voltage Results in Higher Plant Voltages	4/6/07
07-18471	ONI-S11 Entered on Perry High Grid Voltage Alarm	4/15/07
07-19169	345 KV Voltmeters Read High	4/24/07
07-21716	Div 2 480 V Busses High Voltage	6/7/07
07-21848	SCC Voltage Schedule Could Not Be Met	6/10/07
07-24031	Computer Point Displaying Incorrect Data	7/24/07
07-29378	Div. 1 Fuel Oil Storage Tank Particulate Results are Higher Than Normal	10/29/07
08-34610	SCC Voltage Request Exceeded PY High Voltage Alarm	1/30/08
08-36252	EH13 Highest Voltage Reading High Out of Spec	3/3/08
08-37452	EHF-1-D Voltage High	3/29/08
08-38924	Pre-CDBI-Referenced Standard in Calculation not consistent with USAR	4/23/08
08-38967	GL 89-10 Calc Not IAW Current SOI revision	4/23/08
08-38977	Pre-CDBI-CALC PSTG-0030 Adequacy for Min. Pickup Voltages for Motor Starters	4/23/08
08-39296	Pre-CDBI, Inadequate Justification in Calculation Concerning Vortex Formation	4/25/08
08-39315	Pre-CDBI- Acceptance Criteria for Battery Service Test Results	4/28/08
08-39386	Pre-CDBI, Investigate the Need to Flow Test the EDG Fuel Oil Eductors	4/25/08
08-39880	Pre-CDBI – Electrical Calculations Not Updated When Transformers Were Replaced	5/6/08
08-39949	Sketch Incorrect in Calculation	5/6/08
08-39959	NRC CDBI Walk Down Questioned the use of an Operator Aid	5/6/08

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

Number	Description or Title	Date
08-40004	Programmatic Issues Related to Like For Like Component Replacement	5/8/08
08-40047	Status of Calculations (PERFORM Project)	5/8/08
08-40052	CDBI – Stored Materials in CC679 Do Not Appear To Be Properly Restrained	5/8/08
08-40335	CDBI-NRC Has Noted A Discrepancy About Number of SLC Tank Mounting Bolts	5/8/08
08-40387	CDBI - Discrepancy for Calculation 3:41.005, Rev. 6	5/14/08
08-40604	Master Setpoint List Reflects Incorrect Analytical Limits	5/20/08
08-40642	CDBI – LPCS Room Cooler Mounting Bolts	5/20/08
08-40677	CDBI – Enhancement to Plant Emergency Instructions (e.g., PEI-SPI 4.6, ONI-P54)	5/21/08
08-40682	K600 Load Center Breakers May Have Incorrect Fault Interrupting Rating	5/20/08
08-40693	CDBI NRC Identified – PM Testing not Established for RPV L3 Bypass Switch	5/20/08
08-40716	Wire Mark Error on Drawing	5/21/08
08-40717	Calculation PSTG-0006 (Short Circuit Study) Parameter Discrepancies	5/21/08
08-40733	CDBI Questioned Tech. Spec. Bases Clarity for Parameters in Table 3.8.6-1	5/22/08
08-40742	GEI-0135 EH1212 Breaker Spring Charging Motor Test Voltage	5/21/08
08-40771	CDBI-NRC Noted A Discrepancies in SLC Storage Tank Documentation	5/22/08
08-40780	CDBI NRC-ID GEI-0049 Compliance Issue – Motor Data Sheet Submittal	5/22/08
08-40938	CDBI – Collective Significance – Configuration Control Issues	5/28/08
08-40954	CDBI – Calc PRLV-0011 Reflects Incorrect Bkr Relay Setting Range	5/27/08
08-40964	CDBI Concern Grid Voltage Above Maximum Analyzed Limit	5/28/08
08-41181	CDBi – Containment Venting Calculation Not Updated for Power Uprate	6/2/08
08-41185	CDBI- NRC Calc. PRDC-0002 Has Incorrect Information	6/3/08
08-41210	CDBI Noted Potential Inaccuracy in USAR Regarding SLC Storage Tank	5/28/08
08-41270	CDBI Noted Potential Inaccuracy in USAR Regarding SLC Storage Tank	6/3/08
08-41537	NRC Questions Documentation Supporting FENOC And Industry Requirements Verses Manufacturer's Recommendation For Shelf Life Of Capacitors	6/5/08

DRAWINGS

Number	Description or Title	Revision
04-4549-B-208-207	Electrical Elementary Diagram, 480V Load Center EF1C Main Supply Breaker &Tie Breaker, Sheet 10	H
206-0017-00000	Electrical One Line Diagram Class 1E 4.16KV Bus EH11 & EH12	EE
206-0025-00000	Electrical One Line Diagram Class 1E 480V Bus EF1C	YYY
206-0027-00000	Electrical One Line Diagram Class 1E 480V Bus EF1D	WWW
208-0007-0000	Electrical Elementary Diagram, Overload Relay, Heater Coil Selection Tables	E
208-0040-00009	Reactor Protection System Channel A, B, C & D Scram Trip Logic	R
208-0055-00039	Electrical Elementary Diagram, RHR MOV F064B	S
208-0055-00057	Electrical Elementary Diagram, RHR MOV F048B	P
208-060 A04	Low Pressure Core Spray System Relay Logic & Testable Check Valve F006	Z
208-060 A06	Low Pressure Core Spray System Testability Circuits	X
208-060 A11	Low Pressure Core Spray System LPCS Injection Shutoff MOV F005	L
208-0060-00004	Electrical Elementary Diagram, LPCS MOV F005	L
208-0060-00008	Electrical Elementary Diagram, LPCS Pump C001A	Z
208-0060-00010	Electrical Elementary Diagram, LPCS MOV F011	N
208-111 01	Containment Vacuum Relief ISO MOV F025	J
208-111 200	Containment Vacuum Relief Train A Pressure Process Instrumentation	H
208-0115-00002	Electrical Elementary Diagram, MCC, Switchgear and Misc. Electrical Equipment Area, HVAC Supply Fan C001B	R
208-0115-00004	Electrical Elementary Diagram, MCC, Switchgear and Misc. Electrical Equipment Area, HVAC Return Fan 0M23C0002B	U
208-0131-00002	Electrical Elementary Diagram, Pump Room Cooling System, LPCS Pump Room Cooler 1M39-B006	P
208-0173-00001	Electrical Elementary Diagram, ECCW Pump C001A	R
208-0218-00001	Schematic Diagram for Fuel Oil Transfer Pump 1R45-C001A	N
209-0218-00007	Interconnection Wiring Diagram for Fuel Oil Transfer Pumps 1R45-C001A, B, C and 1R45-C002A, B & C	P
302-0352-00000	Standby Diesel Generator Fuel Oil System	GG
302-0705-00000	Low Pressure Core Spray System	CC
39EA35-C893-9	LPCS Pump Room Cooling Air Handling Unit	G
511-080	ATWS Tank and Pump Support Frames	A
912-0609-00000	HVAC System Diagram M23, M24, MCC, Switchgear and Misc. Electrical Equipment Areas, HVAC System and Battery Room Exhaust	AA

DRAWINGS

Number	Description or Title	Revision
912-0616-00000	ECCS Pump Room Cooling Systems	J
912-606	Drywell and Containment Vacuum Relief	S
914-0001-00000	Fire Service Yard Area	MM
914-0004-00000	Fire Service Water Miscellaneous Services	U
914-0609-00000	MCC Switchgear and Misc. Electrical Equipment Areas HVAC System and Battery Room Exhaust	AA

10 CFR 50.59 DOCUMENTS (SCREENINGS/SAFETY EVALUATIONS)

Number	Description or Title	Date
03-00779	Addendum 1 to Calc SQ-0025, "Seismic Qualification of Valves…"	0

MISCELLANEOUS

Number	Description or Title	Date or Revision
	First Energy Balancing Authority Power Plant Voltage Schedules	11
	Memorandum: FirstEnergy Transmission – Revised Plant Voltage Schedules and Associated VAr/Reactive Procedures (REV. 8)	6/2/06
200246321	IN 2006-29 Common Cause Failure of MOVs As A Result Of Stem Nut Wear	7/16/07
38-51817-A4	Gould Report of Transformer Tests	10/19/78
C41-A001	Seismic and Dynamic Qualification Summary of Equipment, (Perry SQRT Document - SLC Storage Tank)	4/17/84
CEI/NRR-0971 L	Letter from A. Kaplan (PY) to USNRC, "NRC Generic Letter 88-14, Instrument Air Supply Problems"	2/22/89
DES/97-0645	Memorandum: Safety Related Bus Voltage Limits	3/17/97
DES/01-0146	Memorandum: Detection and Response to Degraded Grid Conditions	10/29/01
DES/05-0009	Memorandum: Electrical Distribution System Bus Voltage Limits	5/27/05
GEN/CEI-2779	Perry Plant, Revised Setpoint Results	1/4/88
NFPA 14	Standard for the Installation of Standpipe and Hose Systems	2007
NFPA 1002	Standard on Fire Apparatus Driver/Operator Professional Qualifications	2003
SDM-C41	Standby Liquid Control System	8
SDM-M17	Containment Vacuum Relief	2
SDM-R45	Standby Diesel Generator System	5
SP-552-4549-00	Conformed Specification Class 1E 4.16 kV Switchgear	1/23/84

MISCELLANEOUS

Number	Description or Title	Date or Revision
SP-553-4549-00	Conformed Specification Class 1E 480 Volt Load Center Unit Substations	12/10/84
SP-559-4549-00	Specification for 5 kV & 15 kV Power Cables	9/2/76
SP-560-4549-00	Specification for Small Power and Control Cables	5/16/78

MODIFICATIONS

Number	Description or Title	Date or Revision
02-0212	RPS Low Water Level 3 Scram Bypass Function	4
07-0092-001	Termination of EHF-1-C Lightning Arrestor	0

OPERABILITY EVALUATIONS

Number	Description or Title	Date
POD 07-29242	Diesel Generator Building Missile Shield Insulation Package Has Not Been Inspected	10/27/06
POD 07-30676	Justification for Continued Operation with an Increase in the Number of Allowable Cycles of HPCS Injections	12/5/07
POD 07-30922	Motor Operated Valve 0P42F0255B Had Dual Closed Indication When Stroked Closed	12/5/07
POD 08-40214	Annulus Exhaust Gas Treatment System B Shows Signs of Erratic Operation	5/14/08

PROCEDURES

Number	Description or Title	Revision
1M39B0006	Inspect Filters-LPCS Room AHU	0
1M39Q7004	Replace Agastat E7000 TD Relay (EQ)	0
32	Transmission Operations, Normal Operating Procedure	2
GEI-0009A	ABB Low voltage Power Circuit Breaker Types K-600 & K-600S Maintenance	0
GEI-0039	Generic Electrical Instructions for Full Battery Equalizing Charge for Lead-Calcium Batteries	8
GEI-0135	ABB Power Circuit Breaker 5 kV types 5HK250 and 5HK350 maintenance	19
NOP-LP-2100	Operating Experience Program	2
ONI-P-52	Loss of Service and/or Instrument Air	12
ONI-R10	Loss of Off-site Power [Flowchart]	A
ONI-R10	Loss of AC Power	8

PROCEDURES

Number	Description or Title	Revision
ONI-S11	Hi/Low Voltage	5
ONI-SPI A-8	LPCS Fire Water	0
ONI-SPI B-2	Restoration of XH12 After Loss of Off Site Power	1
ONI-SPI C-2	HPCS System Alignment	0
ONI-SPI C-3	CST Transfer to Suppression Pool	0
ONI-SPI C-6	Division 3 to Division 1 480 Volt Crosstie	0
ONI-SPI C-7	Division 3 to Division 2 480 Volt Crosstie	0
ONI-SPI D-1	Maintaining System Availability	0
ONI-SPI D-3	Cross-Tying Unit 1 and 2 Batteries	0
ONI-SPI D-6	Containment Closure	0
ONI-SPI D-7	BOP System Preservation	1
ONI-SPI F-1	Off-Site Power Restoration	1
ONI-SPI F-2	Yard Inspection	0
PAP-0102	Interface with the Transmission System Operator	4
PAP-1407	Labels, Signs, And Operator Aids	5
PEI-SPI 1.3	Manual Rod Insertion	3
PEI-SPI 1.6	Increased Cooling Water DP	4
PEI-SPI 1.7	Single Rod Scram	1
PEI-SPI 2.1	Bypass of NCC [nuclear closed cooling] Isolation	0
PEI-SPI 2.9	HPCS Suction Override to CST	0
PEI-SPI 4.1	CRD Alternate Injection	2
PEI-SPI 4.2	RHR Loop B Flood Alternate Injection	1
PEI-SPI 4.4	Condensate Transfer Alternate Injection	0
PEI-SPI 4.6	Fast Firewater Alternate Injection	1
PEI-SPI 7.1	Preparation for Containment Venting	2
PEI-SPI 7.1	Preparation for Containment Venting	2
PEI-SPI 7.2	Containment Spray Logic Override	0
PEI-SPI 7.3	FPCC Containment Venting	2
PEI-SPI 7.4	RHR Containment Venting	1
PEI-SPI 7.5	Main Steam Line Containment Venting	0
PEI-SPI 8.1	RPV Venting Using Main Steam Lines	2
PEI-SPI 8.2	RPV Venting using RCIC	0
PEI-SPI 9.1	Opening the Inboard Main Steam Line Drain Valve	1
PEI-SPI Supplement	Special Plant Supplement PEI Figures, Operator Aids, and Commitments	12
QA Plan, App. P	Station Blackout	2
SOI-B21	Nuclear Steam Supply Shutoff, Automatic Depressurization, and Nuclear Steam Supply Systems	12
SOI-N27	Feedwater System	36
SOI-R42 (Div-2)	DIV-2 DC Distribution, Buses ED-1 and ED-2, Batteries, Chargers, and Switchgear	9

PROCEDURES

Number	Description or Title	Revision
SVI-C71-T1034-C	RPS Channel C Logic System Functional Test	10

SURVEILLANCES (COMPLETED)

Number	Description or Title	Date or Revision
0P54C0001	Diesel Fire Service Pump	11/22/07
1E21C0001	Full Spectrum Vibration-LPCS Pump (EQ)	9/16/07
1M17F0010	Containment Vacuum Relief Testable Check Valve	4/20/07
1M39B0006	Vibration Monitoring LPCS Room AHU	2/12/08
1M39B0006	Inspect and Lube LPCS Room AHU	11/3/03
ISI-C41T1100-2	Standby Liquid Control (SLC) A Loop Functional Pressure Test – Class 2	2/11/05
PTI-P54P0003	Fire Main Flow Test	4/18/00 12/17/03
PTI-P54P0036	Diesel Fire Pump Flow Data and Control Panel Functional Test	7/26/07
SVI-B21T0031C	RPV Steam Dome and RHR Cut-in Permissive High Pressure Channel C Calibration for 1B21-N078C	4/20/03 3/12/05 4/10/07
SVI-B21T0032C	Reactor Vessel Steam Dome Pressure and Reactor Pressure Vessel (RHR Cut-in Permissive) Channel C Functional for 1B21-N678C	12/12/07 3/4/08
SVI-B21T0034C	RPV Low Level 3 and High Level 8 RPS/RHR Shutdown Isolation Channel D Functional for 1B21-N680C	12/12/07 9/19/07 3/4/08
SVI-B21T0034D	RPV Low Level 3 and High Level 8 RPS/RHR Shutdown Isolation Channel D Functional for 1B21-N680D	4/1/08
SVI-B21T0035C	RPV Low Level 3 and High Level 8 RPS/RHR Shutdown Isolation Channel C Functional for 1B21-N680C	8/29/02 9/24/04 2/10/07
SVI-B21T0036C	RPV Low Level 3 and High Level 8 RPS/RHR Shutdown Isolation Channel C Calibration for 1B21-N080C	4/18/03 3/1/05 4/15/07
SVI-B21T0156B	ECCS/ADS RPV Low Level 3 and High Level 8 Channel B Calibration for 1B21-N095B	4/19/03 3/11/05 4/7/07
SVI-B21T0158B	ECCS/ADS RPV Low Level 3 and High Level 8 Channel B Calibration for 1B21-N695B	10/4/04 1/22/07 10/1/07

SURVEILLANCES (COMPLETED)

Number	Description or Title	Date or Revision
SVI-E21T2001	Low Pressure Core Spray Pump and Valve Operability Test	2/2/08, 11/26/07 5/15/08
SVI-M17T0410C	Containment Vacuum Breaker Differential Pressure Actuation Channel Functional for 1M17-N038	2/28/08
SVI-M17T0411C	Containment Vacuum Breaker Differential Pressure Actuation Channel Calibration for 1M17-N038	8/17/07
SVI-M17T8114	Type B Local Leak Rate Test of 1M17 Penetration P114 for the O-Ring Seal at 1M17-F010	3/4/05 4/7/07
SVI-P42T2001A	Emergency Closed Cooling “A” Pump and Valve Operability	2/16/08 1/6/08 11/28/07
SVI-R10T5228	On-Site Power Distribution System Verification (Modes 1, 2 & 3)	5/18/08
SVI-R42T5212	Service Test of Battery Capacity, Div. 2 (Unit 1)	6/9/04
SVI-R42T5216	Performance Test of Battery Capacity, Div.2 (Unit 1)	6/26/06
SVI-R42T5230	Unit 1, Div.2, Charger (EFD-1-B) Load Test	1/22/04
SVI-R43T1317	Diesel Generator Start and Load, Div. 1	3/17/08 4/14/08
SVI-R43T5367	LPCI B and C Initiation and Loss of EH12 Response Time Test	5/8/07
SVI-R45T2001	Div.1 Diesel Generator Fuel Oil Transfer Pump and Valve and Starting Air Check Valve Operability Test	3/18/08 11/26/07 10/2/07

VENDOR DOCUMENTS

Number	Description or Title	Date or Revision
	Letter, from M. Eftychiou (Flowserve) to H. Conrad (Perry Plant), Subject: Minimum Flow Analysis-LPCS Pump	4/26/06
0160	Safety Related Indoor Secondary Unit Substations	39
0162	Indoor Medium Voltage Switchgear	35
0339	Instruction Manual, C.E.I. Order P-1327-S, Westinghouse Order PHY-2110-EU, Tab 1, Fan Data Sheets	None
10776-6-2	Nozzle Details for 4 Standby Diesel Generator Fuel Oil Storage Tanks	4
22A3125	Core Spray System	5
22A3125AM	Low Pressure Core Spray System	7
22A4622AR	Nuclear Boiler System	11
22A5709	GE Mark III Containment System	2

VENDOR DOCUMENTS

Number	Description or Title	Date or Revision
383HA992	GE Containment Vacuum Relief Capacity Requirements	0
Bulletin 8.2-1C	ITE Type HK Stored-Energy Metal-Clad Switchgear	None
Manual 721	Water Jet Eductors	0

WORK DOCUMENTS

Number	Description or Title	Date or Revision
960002153	1E21F0011 Static and Dynamic Test and PMT	5/15/97
99-002528-000	Degraded Voltage Testing of Buss EH-12 Feed Breaker EH1212	6/30/99
99-012512-000	Degraded Voltage Testing of Div. 2 , EDG Output Breaker EH1201	12/15/99
01-013277	Static Test F0048B	12/12/02
02-006887	Static & Dynamic Test MOV F0064B	12/12/02
200033413	10 Year ISI of SLC Tank	2/11/05
200034382	PY-1R23S0011-005, Overhaul Breaker EF1C05	4/3/05
200035235	PY-1R22S0006-E12, Breaker EH1212 Overhaul	4/3/05
200061140	LPCS Injection Valve 1E21F0005 Static Test	3/11/05
200065083	PY-1R23S0011-013, Overhaul Breaker EF1C12	4/2/05
200068968	Static MOV/RHR Pump B Min Flow Valve Test	10/11/04
200078569	PY-1R23S0011-003, Overhaul Breaker EF1C03	2/2/06
200081680	LPCS Pump Min Flow Valve 1E21F0011 Static Test	11/28/06
200121302	PY-1R22Q0735B, Cal 51B Device, Breaker EH1214	2/13/07
200121303	PY-1R22Q0735C, Cal 51C Device, Breaker EH1214	2/6/07
200121573	PY-1R22Q0736, Cal 51N Device, Breaker EH1214	2/7/06
200134235	PY-1R23S0011, Trans EHF-1-C Clean and Service	1/19/07
200143228	PY-1R22S0006-E01, Breaker EH1201 Overhaul	4/12/05
200146987	PY-1R22Q0728A, Cal 51A Device, Breaker EH1212	7/26/07
200146988	PY-1R22Q0728C, Cal 51C Device, Breaker EH1212	7/30/07
200147526	Static Test 1E12F0048B	9/14/05
200147559	PY-1R22Q0728B, Cal 51B Device, Breaker EH1212	7/26/07
200147560	PY-1R22Q0729, Cal 51N Device, Breaker EH1212	2/1/07
200170331	Clean/Flush AX 599'/574' Floor Drains	9/6/07
200251982	PY-1R22Q0735A, Cal 51A Device, Breaker EH1214	3/5/07
200254944	Evaluate IN 2007-11, Recent Operator Performance Issues at Nuclear Plants	4/17/08
200258544	PY-1R23S0011, Replace Transformer	10/30/07
200269899	(R/T) Audit Operator Aids	5/8/08

LIST OF ACRONYMS USED

AC	Alternating Current
ASME	American Society of Mechanical Engineers
ATWS	Anticipated Transient Without Scram
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DG	Diesel Generator
EDG	Emergency Diesel Generator
ESW	Emergency Service Water
GE	General Electric
HPCS	High Pressure Core Spray
IEEE	Institute of Electrical & Electronic Engineers
IMC	Inspection Manual Chapter
ISI	Inservice Inspection
kV	Kilovolt
LOOP	Loss of Off-site Power
MOV	Motor-Operated Valve
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
PM	Planned or Preventative Maintenance
RFP	Reactor Feed Pump
RHR	Residual Heat Removal
RPS	Radiation Protection Specialist
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
SBLC	Standby Liquid Control
SDP	Significance Determination Process
SLC	Standby Liquid Control
SW	Service Water
TS	Technical Specification
USAR	Updated Safety Analysis Report
Vac	Volts Alternating Current
Vdc	Volts Direct Current