UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

May 7, 2014

Mr. Ernest Harkness
Site Vice President
FirstEnergy Nuclear Operating Company
Perry Nuclear Power Plant
P. O. Box 97, 10 Center Road, A-PY-A290
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT COMPONENT DESIGN BASES INSPECTION 05000440/2014007

Dear Mr. Harkness:

On April 4, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed a Component Design Bases Inspection (CDBI) inspection at your Perry Nuclear Power Plant. The enclosed report documents the results of this inspection, which were discussed on April 4, 2014, with Mr. D. Reeves, 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.

No findings were identified during this inspection.

In accordance with Title 10, *Code of Federal Regulations (CFR)*, Section 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 05000440/2014007
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-440
License No:	NPF-58
Report No:	05000440/2014007
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Perry Nuclear Power Plant, Unit 1
Location:	Perry, Ohio
Dates:	March 3 – 7, 2014; March 17 – 21, 2014, and March 31, through April 4, 2014
Inspectors:	A. Dunlop, Senior Engineering Inspector, Lead J. Corujo-Sandin, Engineering Inspector, Mechanical C. Brown, Engineering Inspector, Electrical C. Moore, Operations Inspector S. Kobylarz, Electrical Contractor M. Yeminy, Mechanical Contractor
Approved by:	Ann Marie Stone, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000440/2014007, 03/03/2014 – 04/04/2014; Perry Nuclear Power Plant. Component Design Bases Inspection (CDBI)

The inspection was a 3-week onsite baseline inspection that focused on the design of components. The inspection was conducted by regional engineering inspectors and two consultants. No findings or violations of significance were identified by the inspectors. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using IMC 0609, "Significance Determination Process" dated June 2, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated January 28, 2013. 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

No findings of significance were identified.

B. Licensee-Identified Violations

No violations were identified.

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 the report.

.2 Inspection Sample Selection Process

The inspectors used information contained in the licensee's PRA and the Perry Standardized Plant Analysis Risk Model to identify a scenario to use as the basis for component selection. The scenario selected was a Loss of Condenser Heat Sink event. Based on this scenario, a number of risk significant components, including those with Large Early Release Frequency (LERF) implications, were selected for the inspection.

The inspectors also used additional component information such as a margin assessment in the selection process. This design margin assessment considered original design reductions caused by design modification, 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 actions, 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.

The inspectors also identified procedures and modifications for review that were associated with the selected components. In addition, the inspectors selected operating experience issues associated with the selected components.

This inspection constituted 20 samples as defined in Inspection Procedure 71111.21-05.

.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, preventive maintenance activities, system health reports, operating experience-related information, vendor manuals, electrical and mechanical drawings, 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 16 components, two with LERF implications, were reviewed:

- Residual Heat Removal (RHR) Pump B (1E12-C0002B): The inspectors reviewed hydraulic calculations to ensure design requirements for flow and pressure were translated as acceptance criteria for pump in-service testing (IST). The inspectors reviewed IST results to assess potential component degradation and impact on design margins. Surveillance procedures for the RHR pump were reviewed to ensure TS surveillance requirements were met. The inspectors reviewed start/stop pump control logic and the different modes of operation of the RHR pump to ascertain that the pump would operate as designed during accident and most limiting conditions. Pump protection logic and interlocks were reviewed to verify appropriate testing. Maintenance and calibration procedures were reviewed to ensure instrument setpoints were consistent with design basis assumptions. In addition, the licensee actions to NRC Bulletin 88-04, "Potential Safety-Related Pump Loss," were reviewed to ensure pump minimum flow requirements were addressed. The inspectors reviewed elementary diagrams to confirm that the pump operation conformed to the design requirements. The one-line diagram and the motor protective relay setting calculation were reviewed to confirm relay calibration testing verified the proper setting and operation for the protective relays. The inspectors also verified adequate control voltage was available for operation of the motor circuit breaker close circuit. Voltage drop

calculations were reviewed to determine whether the motors had adequate voltage for starting and running under degraded voltage conditions and the motor circuit cabling had adequate ampacity. The inspectors confirmed the adequacy of the motor size based on worse case design conditions affecting pump break horsepower.

- RHR Pump B Room Cooler (M39-B001B): The inspectors reviewed the analysis of the room coolers heat removal capability with respect to heat load, fouling factors, air flow rate, and water flow rate to verify the capability of the room cooler to maintain the room temperature at or below the design temperature of the safety-related components located in the room. The inspectors reviewed the modeling of the room cooler into the Aerofin computer program used to assess operation of the cooler at the design conditions. The inspectors also reviewed the cooler's test procedures, test frequency, and analyzed the validity of test results with respect to air flow rates and impact on the coolers fan motor. The elementary diagrams were reviewed to confirm that the fan operation conformed to the design requirements. The inspectors reviewed the one-line diagram and the motor overload protection selection calculation to confirm proper selection of the motor circuit and motor overload protection. The inspectors verified adequate control voltage was available for operation of the motor starter contactor. Voltage drop calculations were reviewed to determine whether the motors had adequate voltage for starting and running under degraded voltage conditions and the motor circuit cabling had adequate ampacity. The inspectors confirmed the adequacy of the motor size based on worse case design conditions affecting fan break horsepower.

- RHR Test Return Valve (1E12-F0024B): The inspectors reviewed motor-operated valve (MOV) calculations and analyses to ensure the valve was capable of functioning under design conditions. These included calculations for required thrust, maximum differential pressure (d/p), and valve weak link analysis. Diagnostic testing and IST surveillance results, including stroke time, seat leakage, and available thrust, were reviewed to verify acceptance criteria were met and performance degradation could be identified. Control logic and elementary diagrams were reviewed to confirm operation of the valve conformed to design requirements and operating procedures. The inspectors reviewed the circuit protection, the thermal overload application, and the environmental qualification of the motor operator to confirm the circuit was adequately protected and the valve was capable of performing its intended safety function. Voltage drop calculations were reviewed to verify the motor and associated control circuits had adequate voltage under degraded voltage conditions. The inspectors also inspected the valve for actuator orientation, proper greasing, and ability to be manually operated.

- Low Pressure Coolant Injection Valve (1E12-F0042C): The inspectors reviewed MOV calculations and analyses to ensure the valve was capable of functioning under design conditions. These included calculations for required thrust, maximum d/p, and valve weak link analysis. Diagnostic testing and IST surveillance results, including stroke time, seat leakage, and available thrust, were reviewed to verify acceptance criteria were met and performance degradation could be identified. The inspectors reviewed control logic and elementary diagrams to confirm operation of the valve conformed to design

requirements and operating procedures. This included the procedures used to override the actuator's seal-in circuit such that the valve could be throttled to control reactor vessel level to ensure the valve would continue to be able to perform its design functions in this mode of operation. In addition, the open permissive signals to the valve were reviewed to ensure the settings would protect the RHR piping from being over pressurized. The inspectors also reviewed the circuit protection, the thermal overload application, and the environmental qualification of the Limitorque motor operator to confirm that the circuit was adequately protected and that the valve was capable of performing its intended safety function during a design basis accident. Voltage drop calculations were reviewed to verify the motor and associated control circuits had adequate voltage under degraded voltage conditions. The inspectors reviewed the actuator for proper orientation, greasing and ability to be manually operated; and the procedures to prevent over torqueing in the manual mode.

- Emergency Service Water (ESW) Pump B (1P45-C0001B): The inspectors reviewed hydraulic calculations pump line up, capacity and IST to ensure that the pump was capable of performing its safety functions during the most limiting design conditions. The inspectors reviewed the pressure loss due to the discharge strainer and licensee actions in response to GL 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspectors reviewed elementary diagrams to confirm that the pump operation conformed to the design requirements. The one-line diagram and the motor protective relay setting calculation was reviewed to confirm that relay calibration testing verified the proper setting and operation for the protective relays. The inspectors also verified adequate control voltage was available for operation of the motor circuit breaker close circuit. Voltage drop calculations were reviewed to verify the motors had adequate voltage for starting and running under degraded voltage conditions and the motor circuit cabling was adequate. The inspectors confirmed the adequacy of the motor size based on worse case design conditions affecting pump break horsepower.

- ESW Pump Discharge Strainer (1P45-D0002B): The inspectors reviewed performance data provided in the design procurement specifications and vendor documents for the full-flow automatic backwash strainer to verify performance assumptions in the ESW Train B system flow balance and hydraulic calculation. Calculations for normal and design basis accident conditions were reviewed to verify sufficient ESW system flow was available and operators were capable of manually backwashing the strainer upon loss of offsite power. The inspectors also reviewed worst case plugging of the strainer and the capability of the system to operate under this condition. The power requirements for the strainer and backwash valves were reviewed to confirm operation of the automatic backwashing strainer conformed to design requirements and operating procedures. The inspectors also reviewed the available pressure instrumentation as well as the capability of operators to determine the pressure drop across the strainer in case of loss of offsite power. In addition, the inspectors verified the high pressure drop alarm was properly set and consistent with the value used in design calculations. Elementary diagrams were reviewed to confirm the pump operation conformed to the design requirements. The inspectors reviewed the one-line diagram and the motor protective relay setting calculation to confirm relay calibration testing verified the proper setting and operation for the protective

relays. The inspectors also verified that adequate control voltage was available for operation of the motor circuit breaker close circuit. Voltage drop calculations were reviewed to verify the motors had adequate voltage for starting and running under degraded voltage conditions and the motor circuit cabling was adequate. The inspectors confirmed the adequacy of the motor size based on worse case design conditions affecting break horsepower.

- ESW Pump B Discharge Check Valve (1P45-F501B): The inspectors reviewed vendor drawings system isometrics and operating procedures to determine whether system design basis conditions were accounted for in the design of the check valve. The IST procedure and test results were reviewed to verify valve freedom of motion and to ensure that the valve allowed required flow in the open position and limited backflow in the closed position to avoid air voids in the discharge piping.

- Automatic Depressurization System (ADS) Safety Relief Valve (F0051G) and Solenoid Valve (1B21-F444A): The inspectors reviewed the pneumatic requirements for operating the components, including the safety-related instrument air supply storage tank sizing calculations and appropriate component testing in order to ensure the system is allowed leakage requirements were met. The review included original design specifications and pre-operational testing of the safety relief valve (SRV) to ensure the component could operate under limiting design basis conditions. Testing was reviewed for compliance with applicable IST requirements and approved license amendments. In addition, the inspectors reviewed elementary diagrams to confirm SRV operation conformed to the design requirements. The inspectors reviewed 125Vdc voltage drop calculations to confirm the SRV solenoid valves received adequate voltage to operate during the most limiting battery conditions and the cabling to the solenoid valve had adequate ampacity. The inspectors also reviewed the preventive maintenance to confirm the solenoid coils were maintained in accordance with the equipment qualification requirements.

- Emergency Closed Cooling (ECC) Water System Pump B (1P42-C0001B): The inspectors reviewed the basis for the pump's performance test acceptance criteria, pump performance IST procedures and results of the most recent test to verify current performance. Part of the review included the testing of required interlocks during design basis events, adequate flow to the system loads, and adequate net positive suction head (NPSH) for the required mission time. The inspectors reviewed elementary diagrams to confirm pump operation conformed to the design requirements. The one-line diagram and the motor protective relay setting calculation were reviewed to confirm relay calibration testing verified the proper setting and operation for the protective relays. The inspectors also verified adequate control voltage was available for operation of the motor circuit breaker close circuit. The voltage drop calculations were reviewed to verify the motors had adequate voltage for starting and running under degraded voltage conditions and the motor circuit cabling ampacity was adequate. The inspectors confirmed the adequacy of the motor size based on worse case design conditions affecting pump break horsepower.

- Emergency Closed Cooling Heat Exchanger (1P42-B00011B): The inspectors reviewed recent thermal performance tests and associated calculations to ensure

the equipment was capable of removing the required heat under design basis conditions. Previously completed internal inspections results were also reviewed in order to evaluate for potential component degradation or fouling concerns. The heat exchanger's tube plugging limit, tube plugging criteria, and chemistry control procedures were reviewed to ensure the heat exchanger remained within its heat removal requirement.

- Emergency Closed Cooling Temperature Control Valve (1P42-F0665B): Inspectors reviewed for potential impacts to the plant based on postulated failures of the component. The established temperature setpoints and associated tolerances were reviewed to ensure they did not impact the design basis assumptions during an accident. Aspects of the seismic mounting for the component were also reviewed. The control logic and elementary diagrams were reviewed to confirm operation of the valve conformed to design requirements and operating procedures. The inspectors reviewed the circuit protection, the thermal overload application, and the environmental qualification of the valve operator to confirm the circuit was adequately protected and the valve was capable of performing its intended safety function during a design basis accident. Voltage drop calculations were reviewed to determine whether the motor and associated control circuits had adequate voltage under degraded voltage conditions.

- Emergency Closed Cooling Surge Tank B (A001B): The inspectors reviewed the component's design and associated testing to ensure it would be capable of meetings its required function under design basis events. Inspectors verified the adequacy of the tank's capacity, assumed initial volume, expected leakage during a design basis event, and associated system leakage testing. The component's available instrumentation, available operational guidance (under normal and accident conditions), and recent level setpoints modifications were also reviewed to ensure sufficient NPSH was maintained for the ECC pump. The inspectors discussed with licensee staff, and reviewed calculations, to determine if the seismic qualification would be impacted by the level setpoint modifications.

- 125Vdc Distribution Panel (ED1B08): The inspectors reviewed the one-line diagram, the short circuit current calculation, and the coordination calculation to confirm the short circuit duty and the proper coordination between the panel fuses and branch circuit cabling with the upstream protective device. The inspectors also reviewed the panel electrical loading and voltage drop calculations, and the branch circuit cabling, to confirm bus and circuit cable ampacity was adequate and branch circuits had adequate voltage.

- 4160Vac Bus (EH-12): The inspectors reviewed bus loading calculations to verify the 4160Vac system had sufficient capacity to support its required loads under worst case accident loading and grid voltage conditions. The inspectors reviewed the degraded voltage protection design scheme to determine whether it afforded adequate voltage to safety-related devices at all voltage distribution levels. This included review of degraded voltage relay setpoint calculations and voltage calculations for downstream equipment such as MOVs. The inspectors reviewed the overcurrent protection scheme for the 4160Vac buses including drawings and calculations to determine whether loads were adequately protected and immune from spurious tripping. The inspectors also reviewed maintenance frequencies and procedures for the 4160Vac bus, its associated circuit breakers,

and the system transformer to determine whether the equipment was being properly maintained. This included reviewing acceptance criteria in procedures for consistency with vendor recommendations and design calculations.

- 480Vac Motor Control Center (MCC) (EF-1-D): The inspectors reviewed bus and control circuit loading calculations to verify MCC 1D had sufficient capacity to support its required loads under worst case accident loading and grid voltage conditions. The overcurrent protection scheme for the MCC, including drawings and calculations, were reviewed to determine whether loads were adequately protected and immune from spurious tripping. The inspectors reviewed maintenance schedules and procedures for the 480Vac bus and its associated circuit breakers to determine whether the equipment was being properly maintained. This included reviewing acceptance criteria in procedures for consistency with vendor recommendations and design calculations.

- 480Vac Motor Control Center (EF-1D07): The inspectors reviewed bus and control circuit loading calculations to verify MCC 1D had sufficient capacity to support its required loads under worst case accident loading and grid voltage conditions. The overcurrent protection scheme for the MCC, including drawings and calculations, were reviewed to determine whether loads were adequately protected and immune from spurious tripping. The inspectors reviewed maintenance schedules and procedures for the 480Vac bus and its associated circuit breakers to determine whether the equipment was being properly maintained. This included reviewing acceptance criteria in procedures for consistency with vendor recommendations and design calculations.

b. Findings

No findings of significance were identified.

.2 Operating Experience

a. Inspection Scope

The inspectors reviewed four 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:

- GL 96-01, “Testing of Safety Related Circuits”;

- IN 2010-23, “Malfunctions of Emergency Diesel Generator Speed Switch Contacts”;

- Industry Operating Experience, “Molded Case Circuit Breaker Handle Degraded due to High Temperature Areas”; and

- Industry Operating Experience, “Manual Reactor Scram Following Loss of Division 1, 480Vac Safety-Related Busses.”

b. Findings

No findings of significance were identified.

.3 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:

- PERP 000805; "Equivalent Replacement of Limitorque S/N 1YFB01142A4 Motor to Limitorque Model R-302-E04-082100A20 Motor"; and
- ECP 02-0045, "EQ Zone Temperature Changes as a Result of ESW Piping Temperature Changes."

b. Findings

No findings of significance were identified.

.4 Operating Procedure Accident Scenarios

a. Inspection Scope

The inspectors performed a margin assessment and detailed review of three 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 the selected actions in the station's simulator and 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:

- Loss of Condenser Heat Sink;
- Alignment of Condensate Transfer Alternate Injection; and
- Operators Restore Instrument Air to SRVs following an Isolation.

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 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 sampled and reviewed by the inspectors are listed in the Attachment to this report.

The inspectors also selected five issues identified during previous CDBIs to verify the concern was adequately evaluated and corrective actions were identified and implemented to resolve the concern, as necessary. The following issues were reviewed:

- CR-2011-05510; "NRC CDBI SOI-P45/49 Incorrectly States ESW Strainer Backwash Starts at 2.75 psid";
- NCV 05000440/2006009-01, "ADS and Main Steam Isolation Valve Air Accumulators Stress Analysis Deficiencies";
- NCV 05000440/2006009-02; "Non-conservative Safety-Related Air Storage Tank Sizing Calculation";
- NCV 05000440/2008006-01; "Switchyard Voltage Found Outside Analyzed Maximum Limit"; and
- NCV 05000440/2011008-03; "Failure to Test Safety-Related Contactors at Degraded Voltage Conditions."

b. Findings

No findings of significance were identified.

4OA6 Meeting(s)

.1 Exit Meeting Summary

On April 4, 2014, the inspectors presented the inspection results to Mr. D. Reeves, and other members of the licensee staff. The licensee acknowledged the issues presented. 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
E. Harkness, Site Vice-President
T. Brown, Performance Improvement Director
J. Ellis, Recovery Director
D. Reeves, Site Engineering Director
J. Veglia, Maintenance Director
R. Briggs, Design Engineering Supervisor
B. Coad, Design Engineering Supervisor
A. Frey, Mechanical/Structural Engineering
D. Lieb, Nuclear Engineering Analysis
D. Lockwood, Regulatory Compliance Engineer
C. Olivier, Operations Manager
D. Stoltz, Electrical/I&C Engineering
T. Watterson, Design Engineering
L. Zerr, Regulatory Compliance Supervisor
E. Zidow, BOP Systems Engineering

Nuclear Regulatory Commission
M. Marshfield, Senior Resident Inspector
J. Nance, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened, Closed and 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	Revision
CL-MOV-1E12-16	MOV 12F0024A/B Max Design Basis Differential Pressure	2
CL-MOV-1E12-3	MOV 12F0042A/B/C Max Design Basis Differential Pressure	2
CL-MOV-3	Generic Letter 89-10 Program	5
DI-155	ECC Water (P42) System Heat Exchanger Size, Operating Temperature and Outlet Temperature and P42 System Operating Temperatures	5
DI-166	P57 – Accumulator Volume Sizing Low-Low Valve Sizing Set Relief	0
E12-048	E12/LPCI System Adequacy in Accident Injection Mode	1
ECA-067	Estimation of EQ Zone Temperature Increases as a Result of Temperature Changes in ESW and ECCW System Piping	0
EQ-012	Qualified Life of Limitorque Valve Operators	3
EQ-202	Qualified Life of Valve Operators in Zone AB-4 With Removed Margin	0
FSPC-0030	Fuse Sizing and Overload Relay Selection for Class 1E 460V Motors (excluding MOVs)	1
M39-014	HPCS Pump Room Cooler Air Flow Rate and Performance Evaluations at Design Basis Conditions	1
M39-015	High Pressure Core Spray Pump Room Cooler Performance Test Results	2
M39-016	ECCS Pump Room Coolers Design Flows	0
MOVC-0073	AC MOV Actuator Degraded Voltage Torque/Thrust Capability using Commonwealth Edison (Com Ed) Method	9
P42-005, DCC 3	ECC Water System Surge Tank Sizing	4
P42-005, PIN 1	Expected Expansion Volume of ECC Surge Tank	4
P42-7	Atmospheric Surge Tank Vent (P-42)	0
P42-024	Maximum Allowable Leakage From P42 System	2
P42-030	Evaluation of the ECC Water Temperature Control Valve 1P42F0665A/B	0
P42-039	Design Basis Heat Load & Required ESW Flow for the ECC HXs	2
P42-039, PIN 1	Determination of Design Basis Fouling on ECC Heat Exchangers.	2
P42-039, PIN 10	Vendor Study Results for ESW Water Temperature Above 85°F	2
P42-047	Required Flowrate to the HXs Cooled by the ECCW System	1
P42-049	ECCS Pump Room Coolers Cooled by Emergency Closed Cooling Water Performance	0
P42-051	ECC Heat Exchanger “B” Loop Performance Test Evaluation	2
P42-T02	ECC Heat Exchanger Outlet Temperature Bistables 1P42N051A/B	2
P42-T04	ECC Surge Tank Level Hi/Lo Alarm	2

CALCULATIONS

Number	Description or Title	Revision
P42-T05	ECC Surge Tank Hi/Lo Make-Up Valve Interlock 1P42N0130A,B	
P42-T05, PIN 1	Calculation P42-TO5, Rev. 2, "Emergency Closed Cooling Surge Tank Hi/Lo Make-up Valve Interlock 1 P42N0130A,B", Contains Misleading Information	2
P45-54, DCC 1	ESW Makeup To ECC Surge Tank	0
P45-081	Evaluation of Net Positive Suction Head (NPSH) and Submergence Requirements for the Emergency Service Water System Pumps	0
P45-081, P-01	This PIN Identifies Altered Design Inputs and Clarifies the Precise Location of the 1st Stage Impeller	0
P45-081, P-02	Administrative Changes and Does Not Contain Any Technical Content	0
P45-081, P-03	2% Over-Frequency Condition	0
P57-013	Required Air Volume and Leakage Acceptance Criteria for the Division 1 and 2 Safety Related Instrument Air (P57) System	4
PMRV-0005	Residual Heat Removal Pump Motor Protection 1E12C002A, 1E12C000B, and 1E12C000C	2
PRDC-0002	Unit 1 Div 1, 2, 3 125VDC System Coordination	4
PRDC-0004	Class 1E 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
PRMV-0003	Emergency Service Water (1P45)	3
PSTG-0001	PNPP Class 1E Power Distribution System Voltage Study	6
SQ-0017	Qualification of 1E12F024B	2
SQ-0018	Qualification of 1E12F024A	1
SQ-0027	MOV Mod 1E12F005, 1E12F042A/B/C	1
SQ-0082	Seismic Qualification for Valves 1P42F665A/B	1

CORRECTIVE ACTION DOCUMENTS GENERATED DUE TO THE INSPECTION

Number	Description or Title	Date
CR-2014-01657	Error in PRA Documentation/Model	01/31/14
CR-2014-04352	Breaker F1D12 Panel Door Condition	03/05/14
CR-2014-04357	Verify Material in 1P42C0001B Motor is Grease	03/05/14
CR-2014-04375	Housekeeping Issue With Storage of 50 Gallon Drums In ESW Pumphouse	03/05/14
CR-2014-04512	Calculation M39-000 Incorrectly Classified as Active	03/07/14
CR-2014-04527	Breaker Nameplate Rating Information Not Clear	03/07/14
CR-2014-04530	Procedure Improvement for ESW Pump B Discharge Check Valve Exercised Closed Test in SVI-P45-T2002.	03/07/14
CR-2014-04650	Climbing Harnesses Left in Unapproved Storage Location	03/10/14
CR-2014-04772	Procedure Improvements Identified during 2011 CDBI Have Not Been Completely Resolved	03/12/14
CR-2014-04786	Permitted use of Valve Persuaders as listed in the ISTP	03/12/14

CORRECTIVE ACTION DOCUMENTS GENERATED DUE TO THE INSPECTION

Number	Description or Title	Date
CR-2014-04834	Design Interlock for ESW Pump B Not Tested	03/12/14
CR-2014-04837	Design Interlock for RHR 1E12F027B Manual Operation Not Tested	03/12/14
CR-2014-04862	Drawing 302-0621-00000 Discrepancy	03/13/14
CR-2014-04868	Potential Non-Conformance With IEEE Standard 450 Requirements	03/13/14
CR-2014-05166	Minor Drawing Error in ADS Valve 1B21F005G, B Channel Logic Circuit	03/18/14
CR-2014-05204	Inadequate Response to Fire Trouble Indications	03/19/14
CR-2014-05220	Calculation P42-007 References Historical Setpoints	03/19/14
CR-2014-05226	SOI-P45/49 Revision 20 Was Not Updated to Incorporate Entire Scope of DCR 600720456	03/19/14
CR-2014-05229	Inconsistencies Noted in Calculation E12-T01, R4	03/19/14
CR-2014-05292	Evaluate Need to Protect DC Buses During System Outages	03/20/14
CR-2014-05336	Extension of "ComEd" Methodology for AC MOV Motors	03/20/14
CR-2014-05370	Overload for RHR B Room Cooler 1M39B0001B Set Higher than NEC Guidance	03/21/14
CR-2014-05543	Vendor Drawing for SRV Solenoids not in Vendor Manual G30	03/24/14
CR-2014-05838	Lack of Procedure Guidance for Monitoring ECC Surge Tank Post Accident	03/28/14
CR-2014-05964	Misleading Statement in the USAR Regarding Closed Cooling Pumps	03/31/14
CR-2014-05972	Evaluation on the Acceptability of Spring-Charging Motor Control Switch Protection Not Found	03/31/14
CR-2014-05977	Calculation M39-016 Did Not Consider Worst Case Condition for Brake Horsepower and Used Incorrect Voltage to Calculate Brake Horsepower	03/31/14
CR-2014-06048	Historical Airflows Measured for RHR B Room Cooler Appear Excessive	04/01/14
CR-2014-06051	Inconsistencies Within Design Input DI-224 for the High Pressure Core Spray Pump Room Cooler	04/01/14
CR-2014-06054	Misleading Use of Fouling Factors Calculated for the High Pressure Core Spray Pump Room Cooler	04/01/14
CR-2014-06058	Minor Documentation Error in Tech Specs Bases SR 3.5.1.7	04/01/14
CR-2014-06114	Incorrect Brake Horsepower used in ETAP Calculation PSTG-0001	04/02/14
CR-2014-06211	Incorrect CA Purpose Provided in CR 2013-17081 ODMI	04/03/14
CR-2014-06273	Observation Regarding use of NUREG-1482 in IST Program	04/04/14
CR-2014-06432	Observation Related to Gaps in Knowledge Transfer	04/07/14
CR-2014-06473	Freedom Series MCC Contactor Voltage Concern	04/08/14

CORRECTIVE ACTION DOCUMENTS REVIEWED DURING THE INSPECTION

Number	Description or Title	Date
CR-2004-02598	ESW Pump A Failure	05/01/04
CR-2006-00815	NRC ID, Maximum Drywell Temperature Affects ADS Accumulator Pressure	02/17/06
CR-2006-00817	NRC ID, Affects Drywell Backpressure Not Addressed in Calculation P57-13	01/17/06

CORRECTIVE ACTION DOCUMENTS REVIEWED DURING THE INSPECTION

Number	Description or Title	Date
CR-2006-00866	Error Found In Calculation p52-003 Revision 1	02/22/06
CR -2008-38977	CALC PSTG-0030 Adequacy for Min Pickup Voltages for Motor Starters	04/23/08
CR-2008-40964	CDBI Concern Grid Voltage Above Maximum Limit	05/28/08
CR-2008-40969	High Pressure Core Spray Inoperable	05/28/08
CR-2008-44840	NRC NCV, Switchyard Voltage Outside Analyzed Max Limit	08/15/08
CR-2009-53436	Condensation on ESW Pump B Motor Cooling Pipe with the Pump Shutdown	02/12/09
CR-2009-54497	Emergency Service Water	03/02/09
CR-2009-56880	SRV F0051G Solenoid Coil B Doesn't Fit Well	04/07/09
CR-2009-65802	Motor Fire Pump Discharge Piping Leakage in ESW Pump House	
CR-2009-65957	ESW "B" Motor Rigid Conduit is Noted to be Full of Water	10/15/09
CR-2009-65972	ESW Pump B Tripped	10/15/09
CR-2009-65981	ESW Insulation Resistance Anomaly	10/15/09
CR-2010-69818	Chirping Noise Coming From EEC "B" Motor	01/11/10
CR-2010-72234	Elevated Bus and Equipment Voltages	03/01/10
CR-2010-86672	Slight CO2 Leak Noted During ISLT	
CR-2011-05484	NRC CDBI Identified Procedure Enhancements May Be Needed	11/16/11
CR-2011-05505	Test/Analysis Report 95-089 Appears to Provide Inconsistent Data	11/16/11
CR-2011-05507	NRC Identified – Repetitive Maintenance Plan Not Revised as Required	11/16/11
CR-2011-05510	SOI-P45/49 Incorrectly States ESW Strainer Backwash Starts at 2.75 psid	11/16/11
CR-2011-06244	NRC CDBI 2011 – Potential Green Non-Cited Violation (NCV)	12/02/11
CR-2011-91479	Vendor Not Approved on Suppliers List	03/22/11
CR-2011-93769	Motor Operated Valve Stem Nut Found to be Worn	04/27/11
CR-2011-94294	ECC "B" – Pump Seals	05/07/11
CR-2012-08324	Emergency Closed Cooling Pump-B Motor Making Noise	05/20/12
CR-2012-01197	Failure to Test Safety-Related Contactors at Degraded Voltage Conditions	01/24/12
CR-2012-13700	PTI-P42-P0002, ECC B Heat Exchanger Performance Test	09/06/12
CR-2012-16824	PA-PY-2012; Closure of Corrective Action CR 2012-05154-3 did not Meet the Intent of the Corrective Action	10/24/12
CR-2012-17544	Cooling Lines Need Recoated	11/05/12
CR-2012-17545	RHR "B" Pump Motor has an Unused Conduit Fitting with a Cutoff Cable Hanging Out	11/05/12
CR-2013-04908	ECC Heat Exchanger "B" Divider Plate Thickness	04/01/13
CR-2013-12036	Molded Case Circuit Breaker Handle Degradation Due to High Temperature Areas	09/23/13
CR-2013-17081	ODMI: Options to Lower Voltage on Safety Related Plant Buses to Allow Exit of Off Normal Instruction, ONI-S11, Hi/Low Voltage	10/24/13
CR-2014-04402	EQ Life on Several Exceeded for Several MOVs	03/06/14
CR-2014-00426	125VDC Bus D-1-B Maintenance Requirements	01/10/14

DRAWINGS

Number	Description or Title	Revision
022-0010-00000	Environmental Conditions for Control Building	03/11/13
22-0140-00002	Emergency Closed Cooling Heat Exchanger Loop “B” Tube Sheet Drawing	A
39EA35-C893-7	HPCS Pump Room Cooling Air Handling Unit	F
39EA35-C893-3	RHR A Cooling Air Handling Unit	F
206-0010-00000	Main One-Line Diagram 13.8kV & 4.16kV	BB
206-0017-00000	Electrical One Line Diagram Class 1E 4.16KV Bus EH11 & EH12	EE
206-0027-00000	Electrical One Line Diagram Class 1E 480V Bus EF1D	BBBB
206-0051-00000	Electrical One Line Diagram Class 1E DC System	AAA
208-011	Electrical Elementary Diagram Automatic Depressurization System ADS Valves, Sh. C11	K
208-0011-00004	Electrical Elementary Diagram Automatic Depressurization System Power Distribution Thermocouple Identification	M
208-0011-00012	Electrical Elementary Diagram Automatic Depressurization System ADS Valves	R
208-0039-00004	Electrical Elementary Diagram Remote Shutdown System Division 2 Switch Development and Locations	L
208-0055-00018	Electrical Elementary Diagram Residual Heat Removal System RHR Pump C002B	CC
208-0131-00005	Electrical Elementary Diagram Pump Room Cooling System RHR Pump ‘B’ Heat Exchanger Cooler 1M39-B001B	R
208-0173-00002	Electrical Elementary Diagram Emergency Closed Cooling System Pump B C0001B	P
208-0176-00002	Electrical Elementary Diagram Emergency Service Water System “B” Emergency Service Water Pump C001B	FF
208-0176-00005	Electrical Elementary Diagram Emergency Service Water “B” Emergency Service Water Pump Discharge Valve F130B	Y
302-00004	Nuclear Boiler System	M
302-0215-00000	Service water and Emergency Service Water Chlorination System	T
302-0271-00000	Safety Related Instrument Air System	R
302-0605-00000	Nuclear Boiler System	X
302-0621-00000	Emergency Closed Cooling System	SS
302-0719-00000	Emergency Service Water System	VV
302-0792-00000	Emergency Service Water System	NN
304-0649-00101	Residual Heat Removal System Reactor Building	F
304-0644-00105	Residual Heat Removal System Auxiliary Building and Reactor Building	D
304-0808-00103	Emergency Service water System Pump House Sheet 1	F
304-0808-00103	Emergency Service water System Pump House Sheet 2	F
304-0808-00103	Emergency Service water System Pump House Sheet 3	F
304-0808-00103	Emergency Service water System Pump House Sheet 4	F
304-0808-00103	Emergency Service water System Pump House Sheet 5	F
304-0808-00103	Emergency Service water System Pump House Sheet 6	F
304-0808-00103	Emergency Service water System Pump House Sheet 7	F
912-0616-00000	ECCS Pump Rooms Cooling Systems	K
912-0630-00000	Emergency Service Water Pump House Ventilation System	L

DRAWINGS

Number	Description or Title	Revision
912-0648-00000	Misc. HVAC Design Data	G
IC-3386	Seal Piping Diagram (RHR Pump)	E
IC-3640	Dual Coil Heat Exchanger Flow Path Diagram (RHR Pump)	A

MISCELLANEOUS

Number	Description or Title	Date or Revision
1E12F0024B-005	MOV Test Report - 1E12F0024B	0, 1
1E12F0042C-004	MOV Test Report - 1E12F0042C	0, 1
1P42B0001B-0360-002A	Vendor Manual for ECC Hear Exchanger (P42-B0001B)	03/31/77
1P42C0001B-0504-004A	Vendor Manual for ECC Pump (1P42-C0001B)	10/02/79
1P42F0665B-1268-001	Vendor Manual for 3-Way Diverting Valve With ITT Barton Model NH93 Actuator.	04/19/95
1P42N0051B	Alarm Card – ECC HT Exch 1P42B001B Outlet Temp Hi/Lo	n/a
1P42N0130B	Switch Level Setpoint (1P42N0130B)	n/a
1P42N0131B	Switch Level Setpoint (1P42N0131B)	n/a
1P42N130A & 1P4N130B	Vendor Manual for Magnetrol Level Switches on ECC Surge Tank	01/17/01
22A4622AR	Design Spec Data Sheet: Nuclear Boiler System	11
22A6490	Specification: Plant Air	0
30DX20CKXH2 – 3STG VMT	Byron Jackson Pump Curve	07/21/77
4408081750	Strainer Backwash Required Torque	06/18/02
6400-D2008	Carrier Corporation Fan Performance Curve for item SM-10	04/30/78
DI-224	HPCS Pump Room Cooler Design Input	07/26/12
G471-6/125.04:10	DIKKERS Nuclear Safety/Relief Valve Instruction Manual Part A Sec. 4	09/17/79
GAI 4549-60A-104-1-0	Motor Data Form Reliance Electric Company	07/28/77
GAI 4549-69-270-0	Carrier Fan Performance Curve 6400D2008	02/07/78
N-1148	Ingersoll-Rand Pump Curve	05/31/79
OE 2014-0303	Industry Operating Experience Report – Clinton	03/13/14
P-1360-K	Installation and Maintenance Instructions Manual Duo-Check Valves	11/06/80
PY-CEI/NRR-2041L	Testing of Safety Related Logic Circuits, Generic Letter 96-01	04/17/96
SMRF 00-5018	ECCW System Surge Tank Magnetrol Level Switches Replacement with Similar Level Switches With Narrower Ranges	11/02/00
SMRF 05-02122	EQ Zone Temperature Changes as a Result of ESW Piping Temperature Changes	0
SP-501-4549-00	Large Emergency Service Water Pumps	33
TAF 81834	Pump Curve 26: Emergency Closed Cooling Pump	6
TC-10108	Johnston Pump Company Curve and Test Data Sheet	11/06/01
VR-2	10 CFR 50.55a Request	0

MISCELLANEOUS

Number	Description or Title	Date or Revision
VR-6	10 CFR 50.55a Request	0

MODIFICATIONS

Number	Description or Title	Revision
PERP 000805	Equivalent Replacement of Limitorque S/N 1YFB0U42A4 Motor to Limitorque Model R-302-E04-082100A20 Motor	0, 1
ECP 02-0045	EQ Zone Temperature Changes as a Result of ESW Piping Temperature Changes	0
ECP 02-0213	Separation of the ECCW “B” Loop from the NCCW System	0

PROCEDURES

Number	Description or Title	Revision
ARI-H13-P601-0016-D1	ESW to Diesel Heat Exchanger Flow Low	17
ARI-H13-P601-0017	RHR B & C	13
ARI-H13-P601-0020-G1	ESW Pump A Discharge Pressure Low	17
EOP-04-2	Emergency Depressurization	B
EOP-SPI 2.3	Bypass MSIVs and ECCS Interlocks	2
EOP-SPI 4.4	Condensate Transfer Alternate Injection	1
IOI-6	Cooldown – Main Condenser Not Available	15
ISI-P45-T1103-3	ESW To RHR Emergency Cross-Tie System Functional Pressure Test	3
NOBP-ER-3603A	Check Valve Condition Monitoring Program	0
NOP-ER-2006	Service Water Reliability Management Program	2
NOP-ER-3603	Check Valve Program	2
NOP-OP-1014	Plant Status Control	2
ONI-B21	Nuclear Steam Supply Shutoff, Automatic Depressurization and Nuclear Steam Supply Systems	17
ONI-B21-1	SRV Inadvertent Opening/Stuck Open	11
PAP-0205	Operability Of Plant Systems	20
PAP-1910	Fire Protection Program	31
PMI-0030	Maintenance of Limitorque Valve Operators	19
PTI-E12-P0012B	RHR Loop B Shutdown Cooling Interlock Testing	2
PTI-P42-P0011	ECC B Loop Total Leakage Verification	4
PTI-P45-P0002	ESW System Loop B Flow and Differential Pressure Test	15
PYBP-POS-2-2	Protected Equipment Posting	12
REC-0104	Chemistry Specifications	37
SOI-P42	Emergency Closed Cooling System	21
SOI-P45/P49	Emergency Service Water and Screen Wash Systems	24
SOI-P45/P49	Emergency Service Water and Screen Wash Systems	25

PROCEDURES

Number	Description or Title	Revision
SOI-P54/56 (FPM)	Fire Protection System – Fire Protection Monitoring	4
SOI-P57	Safety Related Instrument Air System	17
SVI-B21-T2012	SRV Uncoupled Stroke Testing with GMI-0017A	4
SVI-E12-T1196-B	LPCI Pump B Discharge Flow-Low (BYPASS) Channel Functional for 1E12-N652B	12
SVI-E12-T1406-B	ECCS/LPCI B RPV Low Pressure Channel Functional for 1E12-N658B	6
SVI-E12-T2002	RHR B Pump and Valve Operability Test	31
SVI-E12-T9407	Type C Local Leak Rate Test of 1E12 Penetration P407	8
SVI-GEN-T2000	ASME Code Check Valve Disassembly Testing	7
SVI-P45-T2002	ESW Pump B and Valve Operability Test	32
SVI-P57-T2200	Safety Related Test 1P57-F555A And 1P57-F556A Leak Rate Test	2
SVI-R43-T7000-B	Division 2 ECCS Integrated Test	0
VLI-P57	Safety Related Instrument Air System	8

TRAINING DOCUMENTS

Number	Description or Title	Revision
OT-3701-P11-001NLO	Condensate Transfer Alternate Injection	0
OTLC-3058201407-PY-SGF	CDBI NRC Inspection Support Scenario F	0

WORK DOCUMENTS

Number	Description or Title	Date
200040464	PY-1P42 ECC Loop Calibration – Temperature	06/23/05
200097274	The P42 B Inboard Motor Bearing is Making a Light Squealing Noise	11/16/04
200146569	ESW to RHR Emergency Cross Tie System Functional Pressure Test	03/11/09
200160761	Replace The Circuit Boards for HX 'B' Temperature Transmitter 1P42N0052B, and Perform a Loop Calibration Check	02/01/07
200167933	Buss EF-1-D Clean and Service	05/23/11
200169608	Replace Solenoid Assemblies SRV S/N 160863 (EQ)	03/30/07
200169609	Replace All Non-Metallic Materials SRV S/N 160863 (EQ)	03/30/07
200218408	Replace Tech Pacs and Power Supplies	02/03/10
200238394	RHR B Rm Cooler has Damaged Conduit Covering by Grating on Floor	12/04/06
200260150	Type C Local Leak Rate Test of 1E12 Penetration P407	04/30/11
200274377	At 2315, RHR B Pump Tripped for no Reason	07/12/07
200318399	Replace CUB EH1202/XH1201 PT PRI Fuses	05/15/11
200327573	Performance Monitor Flow Test	11/04/08
200341892	Replace Motor on RHR B Test Valve to Suppression Pool	05/01/11
200342060	Inspect and Clean P42B ECC Heat Exchanger	05/05/11
200342620	LPCI C Injection Valve	04/30/13
200347947	Emergency Service water Pump Discharge	12/02/08

TRAINING DOCUMENTS

Number	Description or Title	Revision
200358911	ESW to RHR Emergency Cross-Tie System Functional Pressure Test	04/22/13
200360842	Replace Worn ESW Screen Wash Strainer Drive Shaft	03/04/14
200365830	SRV Uncoupled Stroke Testing with GMI-0017 (SVI-B21T2012)	05/25/11
200366346	SRV Accumulators Air Supply Check Valve Exercise Close	05/23/11
200380798	ECC B Loop Total Leakage Verification	08/14/11
200391129	Engineering Change 09-726-001 Shall Provide for Drainage Weep Holes to be Installed in Safety Related Conduit 1P45H3B	10/28/09
200410738	Cal 50/51A Relay ESW Pump “B” Bkr EH1205	08/12/12
200410739	Cal 50/51B Relay ESW Pump “B” Bkr EH1205	08/12/12
200410780	Cal 50/51C Relay ESW Pump “B” Bkr EH1205	08/12/12
200410781	Cal 50A-C Device ESW Pump “B” Bkr EH1205 (EQ)	08/12/12
200414069	RHR B Test Valve to Suppression Pool	04/29/11
200415910	Emergency Closed Cooling B Heat Exchanger Performance Testing	03/15/13
200436628	Evaluation of IN 2010-23, Malfunctions of EDG Speed Switch Circuits	02/02/11
200438857	Exercise and Service Breaker EF1D04 to (1P42C0001B) (EQ)	11/06/12
200456908	RHR B Cold Shutdown Valve Operability Test	04/20/13
200458668	LPCI C Containment Injection Valve Leak Rate Test	04/28/13
200461423	SRV Accumulators Air Supply Check Valve Exercise Close	04/21/13
200461492	SRV Uncoupled Stroke Testing with GMI-0017 (SVI-B21T2012)	04/19/13
200471779	Relay 1FC66K 50/51A RHR Pump B 1E12C00	08/07/13
200471780	Relay 1FC66K 50/51B RHR Pump B 1E12C00	08/07/13
200471835	Relay 1FC66K 50/51C RHR Pump B 1E12C00	08/09/13
200472712	ECC B Loop Total Leakage Verification	08/10/13
200457499	Support Trouble Shooting Identified During 1R22S0006 Maintenance	05/01/11
200477114	Replace All Elastomers S/N 160899 (EQ)	03/05/13
200487564	Loop Check, EDG1 Digital Tach ‘A’	11/23/13
200548443	ESW System Loop B Flow and Differential Pressure Test	09/10/13
200548472	ESW System Loop B Flow and Differential Pressure Test	12/07/13
200548812	ECCS/LPCI A RPV Low Pressure Channel Functional for 1E12-N658A	01/03/14
200549756	ESW Pump B and Valve Operability Test	08/10/13
200549758	ESW Pump B and Valve Operability Test	02/06/14
200549844	LPCI Pump B Discharge Flow-Low (BYPASS) Ch. Functional 1E12-N652B	08/07/13
200549859	ECCS/LPCI B RPV Low Pressure Channel Functional for 1E12-N658B	08/07/13
200549861	ECCS/LPCI B RPV LOW Pressure Channel Functional for 1E12-N658B	02/05/14
200549896	ECC System B Pump and Valve Operability	02/09/14
200552130	RHR LOOP B Shutdown Cooling Interlock Testing	03/09/13
200561466	RHR B Cold Shutdown Valve Operability Test	04/26/13
200591397	ECC Flow Balance	01/25/14

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ADS	Automatic Depressurization System
ASME	American Society of Mechanical Engineers
CDBI	Component Design Bases Inspection
CFR	Code of Federal Regulations
CR	Condition Report
d/p	Differential Pressure
EC	Engineering Change
ECC	Emergency Closed Cooling
ECCS	Emergency Core Cooling System
ECP	Engineering Change Package
EOP	Emergency Operating Procedure
EQ	Equipment Qualifications
ESW	Emergency Service Water
FENOC	FirstEnergy Nuclear Operating Company
GL	Generic Letter
HX	Heat Exchanger
IEEE	Institute of Electrical & Electronic Engineers
IMC	Inspection Manual Chapter
IN	Information Notice
IP	Inspection Procedure
IR	Inspection Report
IST	Inservice Testing
LERF	Large Early Release Frequency
LOOP	Loss of Off-site Power
LPCI	Low Pressure Coolant Injection
MCC	Motor Control Center
MOV	Motor-Operated Valve
NCV	Non-Cited Violation
NPSH	Net Positive Suction Head
NRC	U.S. Nuclear Regulatory Commission
OE	Operating Experience
PARS	Publicly Available Records System
PRA	Probabilistic Risk Assessment
psid	Pounds Per Square Inch Differential
RHR	Residual Heat Removal
RIS	Regulatory Issue Summary
SDP	Significance Determination Process
SPAR	Standardized Plant Analysis Risk
SRV	Safety Relief Valve
TS	Technical Specification
USAR	Updated Safety Analysis Report
Vac	Volts Alternating Current
Vdc	Volts Direct Current
WO	Work Order

Mr. Ernest Harkness
Site Vice President
FirstEnergy Nuclear Operating Company
Perry Nuclear Power Plant
P. O. Box 97, 10 Center Road, A-PY-A290
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT COMPONENT DESIGN BASES INSPECTION 05000440/2014007

Dear Mr. Harkness:

On April 4, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed a Component Design Bases Inspection (CDBI) inspection at your Perry Nuclear Power Plant. The enclosed report documents the results of this inspection, which were discussed on April 4, 2014, with Mr. D. Reeves, 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.

No findings were identified during this inspection.

In accordance with Title 10, *Code of Federal Regulations (CFR)*, Section 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
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Inspection Report 05000440/2014007
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Letter to Ernest Harkness from Ann Marie Stone dated May 7, 2014.

SUBJECT: PERRY NUCLEAR POWER PLANT COMPONENT DESIGN BASES INSPECTION 05000440/2014007

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