



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

September 14, 2016

Mr. David Hamilton
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—NRC TEMPORARY INSTRUCTION
2515/191, MITIGATION STRATEGIES, SPENT FUEL POOL INSTRUMENTATION
AND EMERGENCY PREPAREDNESS INSPECTION REPORT 05000440/2016009**

Dear Mr. Hamilton:

On August 12, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed Temporary Instruction (TI) 2515/191, "Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans" inspection at your Perry Nuclear Power Plant. On August 12, 2016, the NRC inspection team discussed the results of this inspection with Mr. Frank Payne and other members of your staff. The enclosed report represents the results of this inspection.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with station personnel.

Based on the results of this inspection, the NRC has identified two findings that were evaluated under the risk significance determination process as having very low safety significance (green). These findings did not involve a violation of NRC requirements.

If you contest the findings or significance of these findings, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to: (1) the Regional Administrator, Region III; (2) the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) the NRC Resident Inspector at the Perry Nuclear Power Plant.

D. Hamilton

-2-

In addition, if you disagree with the cross-cutting aspect assignment to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Perry Nuclear Power Plant.

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

Sincerely,

/RA/

Ann Marie Stone, Team Leader
Technical Support Staff
Division of Reactor Projects

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

Enclosure:
Inspection Report 05000440/2016009

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000440/2016009

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Perry Nuclear Power Plant

Location: North Perry, Ohio

Dates: August 8 through August 12, 2016

Inspectors: S. Sheldon, Project Engineer (Team Lead)
B. Bartlett, Project Engineer
M. Jones, Reactor Inspector
J. Wojewoda, Reactor Engineer

Approved by: A. Stone, Team Leader
Technical Support Staff
Division of Reactor Projects

Enclosure

SUMMARY

Inspection Report (IR) 05000440/2016009, 08/08/2016 – 08/12/2016, Perry Nuclear Power Plant; Temporary Instruction 2515/191 Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans.

This inspection was performed by four NRC regional inspectors. Two findings were identified. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated July 2016.

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was identified by the inspectors for failing to establish a periodic replacement program for the high-temperature rated hoses used during a mitigating strategy for suppression pool cooling. Specifically, the licensee failed to create a periodic replacement program for high temperature FLEX hoses based on the vendor recommendation of a six year shelf-life or justify deviation from the recommendation. The licensee entered this issue into the corrective action program as CR-2016-09776 with an action to generate the appropriate repetitive task for periodic replacement of the high-temperature rated hose. No violation of NRC requirements were identified.

This performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage), and is therefore a finding. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," appendix M, "Significance Determination Process using Qualitative Criteria," informed by draft appendix O, "Significance Determination Process for Mitigating Strategies and Spent Fuel Pool Instrumentation (Orders EA-12-049 and EA-12-051)." The finding screened as very low safety significance, Green, because the inspectors answered no to all Appendix O questions. This finding had a cross-cutting aspect of Procedure Adherence in the area of Human Performance because the licensee failed to follow procedural guidance to replace hoses based on vendor recommendations. (H.8) (Section 4OA5.1)

Cornerstone: Emergency Preparedness

- Green. A finding of very low safety significance was identified by the inspectors for failing to establish period tasks to check the operation of recently installed FLEX related communications equipment in accordance with the Perry Nuclear Power Plant FLEX Final Integrated Plan Report. The licensee entered this issue into the corrective action program as CR-2016-09746 and 2016-09747 to develop the appropriate periodic maintenance tasks.

The finding was determined to be more than minor because it was associated with the Emergency Preparedness Cornerstone Attribute of Facilities and Equipment which includes Maintenance Surveillance and Testing of Facilities, Equipment and Communications Systems. Specifically, communications equipment, particularly batteries, degrade over time and without periodic checks to verify functionality, the equipment might not be available for response to a potential accident. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," appendix M, "Significance Determination Process using Qualitative Criteria," informed by draft appendix O, "Significance Determination Process for Mitigating Strategies and Spent Fuel Pool Instrumentation (Orders EA-12-049 and EA-12-051)." The finding screened as very low safety significance, Green, because the inspectors answered no to all Appendix O questions. This finding has a cross-cutting aspect in the area of Human Performance, Work Management because a task to create the activities was initiated, but the completion date was postponed well past the date at which the licensee declared compliance with mitigating systems orders. (H.5) (Section 40A5.3)

REPORT DETAILS

4. OTHER ACTIVITIES

4OA5 Other Activities (TI 2515/191)

The objective of Temporary Instruction (TI) 2515/191, "Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans," is to verify the licensee has adequately implemented the mitigation strategies as described in the licensee's Final Integrated Plan Revision 0 (ADAMS Accession No. ML13064A243), Revision 1 (ADAMS ML14268A214), Revision 2 (ADAMS ML15232A594), and the NRC's safety evaluation (ADAMS ML16056A560) and to verify the licensee installed reliable water-level measurement instrumentation in their spent fuel pool. The purpose of this TI was also to verify the licensee had implemented Emergency Preparedness (EP) enhancements as described in their site-specific submittals and NRC safety assessments, including multi-unit dose assessment capability and enhancements to ensure staffing is sufficient and communications can be maintained during such an event.

The inspection also verifies plans for complying with NRC Orders EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (ADAMS Accession No. ML12229A174) and EA-12-051, Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation (ADAMS Accession No. ML12056A044) are in place and are being implemented by the licensee. Additionally, the inspection verified implementation of staffing and communications information provided in response to the March 12, 2012, request for information letter and multiunit dose assessment information provided per COMSECY-13-0010, Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned, dated March 27, 2013, (ADAMS Accession No. ML12339A262).

The inspectors discussed the plans and strategies with plant staff, reviewed documentation, and where appropriate, performed plant walk downs to verify the strategies could be implemented as stated in the licensee's submittals and the NRC staff prepared safety evaluation. For most strategies, this included verification that the strategy was feasible, procedures and/or guidance had been developed, training had been provided to plant staff, and required equipment had been identified and staged. Specific details of the team's inspection activities are described in the following sections.

1. Mitigation Strategies for Beyond-Design Basis External Events

a. Inspection Scope

The inspectors examined the licensee's established guidelines and implementing procedures for the beyond-design basis mitigation strategies. The inspectors assessed how the licensee coordinated and documented the interface/transition between existing off-normal and emergency operating procedures with the newly developed mitigation strategies. The inspectors selected a number of mitigation strategies and conducted plant walk downs with licensed operators and responsible plant staff to assess: the adequacy and completeness of the procedures; familiarity of operators with the

procedure objectives and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios.

The inspectors verified a preventive maintenance program had been established for the Diverse and Flexible Coping Strategies (FLEX) portable equipment and periodic equipment inventories were in place and being conducted. Additionally, the inspectors examined the introductory and planned periodic/refresher training provided to the Operations staff most likely to be tasked with implementation of the FLEX mitigation strategies. The inspectors also reviewed the introductory and planned periodic training provided to the Emergency Response Organization personnel. Documents reviewed are listed in the attachment.

b. Assessment

Based on samples selected for review, the inspectors verified the licensee satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittal(s) and the associated safety evaluation and determined the licensee is generally in compliance with NRC Order EA-12-049. The inspectors verified the licensee satisfactorily:

- developed and issued FLEX Support Guidelines (FSG) to implement the FLEX strategies for postulated external events;
- integrated their FSGs into their existing plant procedures such that entry into and departure from the FSGs were clear when using existing plant procedures;
- protected FLEX equipment from site-specific hazards;
- developed and implemented adequate testing and maintenance of FLEX equipment to ensure their availability and capability;
- trained their staff to assure personnel proficiency in the mitigation of beyond-design basis events; and
- developed the means to ensure the necessary off-site FLEX equipment would be available from off-site locations.

The inspectors verified non-compliances with current licensing requirements, and other issues identified during the inspection were entered into the licensee's corrective action program as appropriate.

c. Findings

(1) Failure to Implement a Periodic Replacement Program for FLEX Hoses

Introduction: A finding of very low safety significance (Green) was identified by the inspectors for failing to establish a periodic replacement program for the high-temperature rated hoses used during a mitigating strategy for suppression pool cooling. Specifically, the licensee failed to create a periodic replacement program for high temperature rated FLEX hoses based on the vendor recommendation of a six year shelf-life or justify deviation from the recommendation.

Description: The licensee established Flex Support Guidelines (FSG) 30.3 and 30.4 to provide instruction for the use of the Alternate Decay Heat Removal (ADHR) Pump for Suppression Pool Cooling using Residual Heat Removal (RHR) A and B, respectively. These strategies utilize three 5" Nukflex high-temperature rated hoses that run from the connections on the discharge of the ADHR pump to the RHR system tie-in. The off-normal procedure for Station Blackout, ONI-R10-2, detailed that Suppression Pool Cleanup (SPCU) is the preferred method of cooling, however, both ADHR and SPCU are credited as viable strategies during a FLEX event.

Section 7.5 of the licensee's FLEX Final Integrated Plan Report stated the licensee will create maintenance and testing programs based on NEI 12-06 guidance. Section 11.5 of NEI 12-06, Rev 0, stated, preventative maintenance should be developed based on vendor recommendations, and that any deviations should be documented. In addition, licensee fleet procedure NORM-ER-3730, Rev 1, also provided guidance, stating, in part, "replace hose based on manufacturer's or industry standard shelf life limits for the applicable environment."

The inspectors questioned the licensee regarding the preventative maintenance of the hoses. The licensee determined there was not a periodic replacement program in place, per both NEI and licensee guidance, and the only testing done was periodic visual inspection of the hoses. The licensee also stated they were not originally aware the vendor had a recommended shelf-life. Due to the inspectors' questioning, the licensee contacted the vendor and was told the recommended shelf-life was six years. The hoses were approximately two years into their limited shelf-life; however, there was no replacement frequency specified and the licensee could not guarantee the hoses would be replaced and the strategy would be capable of fulfilling its function.

The licensee generated condition report CR-2016-09776 with a recommended action to generate the appropriate repetitive task for periodic replacement of the Nukflex high temperature hose.

Analysis: The inspectors determined the failure to establish a periodic replacement program based on vendor recommendations or justify deviations from the recommendations was contrary to the guidance in NEI 12-06, Rev 0, and the licensee's Final Integrated Plan, and therefore a performance deficiency.

The performance deficiency is more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, because the licensee was unaware of the vendor requirements and had no plans to periodically replace the hoses, the licensee did not ensure the reliability of the hoses; therefore, this performance deficiency is a finding.

Issues identified through TI-191 are evaluated through a cross-regional panel using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," as informed by draft Appendix O, "Post Fukushima Mitigation Strategies Significance Determination Process (Orders EA-12-049 and EA-12-051)" (ML16055A351). The finding was determined to be of very low safety significance (Green) because the inspector answered "no" to the 5 questions in the draft Appendix O. Specifically, this condition was not associated with Spent Fuel Pool Level instrumentation required by

order A-12-051 and did not result in a complete loss of function to maintain or restore core cooling, containment pressure control/heat removal and/or spent fuel pooling cooling capabilities.

This finding has a cross-cutting aspect in the area of human performance, procedure adherence, which states “individuals follow processes, procedures, and work instructions.” Specifically, the licensee did not follow NORM-ER-3730, which provides guidance to replace hoses based on vendor recommendations. (H.8)

Enforcement: This finding does not involve enforcement action because no violation of regulatory requirements was identified. Because the finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as **FIN 05000440/2016009-01; Failure to Implement a Periodic Replacement Program for FLEX Hoses.**

2. Spent Fuel Pool Instrumentation

a. Inspection Scope

The inspectors examined the licensee’s newly installed spent fuel pool instrumentation. Specifically, the inspectors verified the sensors were installed as described in the plant specific submittals and the associated safety evaluation and that the cabling for the power supplies and the indications for each channel are physically and electrically separated. Additionally, environmental conditions and accessibility of the instruments were evaluated. Documents reviewed are listed in the attachment.

b. Assessment

Based on samples selected for review, the inspectors determined the licensee satisfactorily installed and established control of the spent fuel pool (SFP) instrumentation as described in the plant specific submittal(s) and the associated safety evaluation and determined the licensee is generally in compliance with NRC Order EA-12-051. The inspectors verified the licensee satisfactorily:

- installed the SFP instrumentation sensors, cabling and power supplies to provide physical and electrical separation as described in the plant specific submittal(s) and safety evaluation;
- installed the SFP instrumentation display in the location, environmental conditions and accessibility as described in the plant specific submittal(s); and
- trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation.

The inspectors verified non-compliances with current licensing requirements, and other issues identified during the inspection were entered into the licensee's corrective action program.

c. Findings

No findings were identified.

3. Staffing and Communication Request for Information

a. Inspection Scope

Through discussions with plant staff, review of documentation and plant walk downs, the inspectors verified the licensee has implemented required changes to staffing, communications equipment and facilities to support a multi-unit extended loss of AC power (ELAP) scenario as described in the licensee's staffing assessment and the NRC safety assessment. The inspectors also verified the licensee has implemented multi-unit dose assessment (including releases from spent fuel pools) capability using the licensee's site-specific dose assessment software and approach as described in the licensee's multi-unit dose assessment submittal. Documents reviewed are listed in the attachment.

b. Assessment

The inspectors reviewed information provided in the licensee's multi-unit dose submittal and in response to the NRC's March 12, 2012, request for information letter and verified that the licensee satisfactorily implemented enhancements pertaining to Near-Term Task Force Recommendation 9.3 response to a large scale natural emergency event that results in an extended loss of all AC power to all site units and impedes access to the site. The inspectors verified the following:

- the licensee satisfactorily implemented required staffing change(s) to support a multi-unit ELAP scenario;
- EP communications equipment and facilities are sufficient for dealing with a multi-unit ELAP scenario; and
- the licensee implemented multi-unit dose assessment capabilities (including releases from spent fuel pools) using the licensee's site-specific dose assessment software and approach.

The inspectors verified non-compliances with current licensing requirements, and other issues identified during the inspection were entered into the licensee's corrective action program.

c. Findings

(1) Failure to Establish a Periodic Maintenance Program for Communications Equipment Associated with FLEX

Introduction: A finding of very low safety significance (Green) was identified by the inspectors for failing to establish period tasks to check the operation of recently installed FLEX related communications equipment in accordance with the Perry Nuclear Power Plant FLEX Final Integrated Plan Report.

Description: The inspectors reviewed activities associated with communications equipment intended for use during a potential extended loss of offsite power. The licensee had installed an uninterruptable power supply (UPS) for onsite communications equipment, and control room satellite phones to facilitate offsite communications during a potential extended loss of offsite power. The inspectors requested a listing of periodic maintenance (PM) established for these new pieces of equipment and were informed

that there were no PMs established for this equipment. The inspectors were concerned that without PMs, the degradation of the equipment could go unnoticed and the equipment could be non-functional if ever required for an event.

The Perry Nuclear Power Plant (PNPP) FLEX Final Integrated Plan Report Section 12.2 states actions have been “completed to place PNPP in full compliance with the communication requirements of NEI 12-01.”

NEI 12-01 “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities” Section 4.8 “Quality and Maintenance-Related Requirements” states:

“Programmatic controls should be applied to all communications-related equipment to ensure availability and reliability, including the performance of periodic inventory checks and operability testing.”

Contrary to this, the licensee failed to establish periodic testing of FLEX related communications equipment.

In response to inspector concerns, the licensee initiated condition reports 2016-09746, “2016 NRC FLEX Inspection; PM Development for FLEX Communications System” and 2016-09747 “2016 NRC FLEX Inspection; Periodic Testing of FLEX Satellite Phones” to develop periodic maintenance tasks. Prior to the end of the inspection, the licensee developed periodic maintenance tasks for the UPS.

Analysis: The inspectors determined that failing to establish periodic testing of FLEX related communications equipment was contrary to NEI 12-01 and was a performance deficiency.

The performance deficiency was determined to be more than minor because it was associated with the Emergency Preparedness Cornerstone Attribute of Facilities and Equipment which includes Maintenance Surveillance and Testing of Facilities, Equipment and Communications Systems and adversely affect the associated cornerstone objective of ensuring the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, communications equipment, particularly batteries, degrade over time and without a period checks to verify functionality, the equipment might not be available for response to a potential accident.

Issues identified through TI-191 are evaluated through a cross-regional panel using IMC 0609, Appendix M, “Significance Determination Process Using Qualitative Criteria,” as informed by draft Appendix O, “Significance Determination Process for Mitigating Strategies and Spent Fuel Pool Instrumentation (Orders EA-12-049 and EA-12-051)”, (ML16055A351). The finding screened as very low safety significance, Green, because the inspectors answered no to all Draft Appendix O questions. Specifically, this condition was not associated with Spent Fuel Pool Level instrumentation required by order A-12-051 and did not result in a complete loss of function to maintain or restore core cooling, containment pressure control/heat removal and/or spent fuel pooling cooling capabilities.

This finding has a cross-cutting aspect in the area of Human Performance, Work Management because the licensee did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, a task to create the activities was initiated, but the completion date was postponed well past the date at which the licensee declared compliance with mitigating systems orders. (H.5)

Enforcement:

This finding does not involve enforcement action because no violation of regulatory requirements was identified. Because the finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as **FIN 05000440/2016009-02, Failure to Establish a Periodic Maintenance Program for Communications Equipment Associated with FLEX.**

4OA6 Management Meeting

.1 Exit Meeting Summary

On August 12, 2016, the inspectors presented the inspection results to Mr. F. Payne and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspectors confirmed none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Hamilton, Site Vice-President
F. Payne, Plant General Manager
B. Blair, Operations Manager
P. Boissoneault, Programs and Technical Services Manager
L. Zerr, Regulatory Compliance Manager
D. Reeves, Site Engineering Director
D. Lockwood, Regulatory Compliance
B. Coad, Programs and Technical Services
M. Bensi, Design Engineering
R. Briggs, Design Engineering
V. Shukla, Design Engineering
E. Condo, Operations
D. Roniger, Operations

U.S. Nuclear Regulatory Commission

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000440/2016009-01	FIN	Failure to Implement a Periodic Replacement Program for FLEX Hoses (Section 4OA5.1)
05000440/2016009-02	FIN	Failure to Establish a Periodic Maintenance Program for Communications Equipment Associated with FLEX (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED

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

Condition Reports Initiated as a Result of the Inspection

- 2016-09739; 2016 NRC FLEX Inspection: High Temperature Hose Routing from ADHR; 8/10/16
- 2016-09746; 2016 NRC FLEX Inspection: PM Development for FLEX Communications System; 8/10/16
- 2016-09747; 2016 NRC FLEX Inspection: Periodic Testing of FLEX Satellite Phones; 8/10/16
- 2016-09750; 2016 NRC FLEX Inspection: Tool Storage Issues; 8/10/16
- 2016-09776; 2016 NRC FLEX Inspection: FLEX High Temperature Hose Replacement Frequency; 08/11/16
- 2016-09788; 2016 NRC Flex Inspection: Enhancement Opportunity for 744 Series Drawings; 08/11/2016
- 2016-09817; 2016 NRC FLEX Inspection: Improvement to PDB-R0003 Guidance; 08/12/16

Condition Reports Reviewed

- 2013-05625; Calculation for Minor Stream can not be Located; 04/11/2013
- 2014-18696; FLEX MOD Inadequate Cable Length; 12/26/2014
- 2015-02483; Operator Training FLEX Modification Classroom Training did not Meet Expectations; 2/26/2015
- 2015-05079; External Flooding During a Probable Maximum Flooding Event (West Side of Plant); 04/12/2015
- 2015-05714; NPS Work Group is not Implementing Flex Mod Work in Accordance Order Specifications; 4/24/2015
- 2015-07771; Order for TM 15-0212, Flood Barriers, not Issued but Barriers are in Place; 06/01/2015
- 2015-08036; PFA Needed for Site Flooding Issues; 06/08/2015
- 2015-08811; FLEX Generator 003 Maintenance Issues; 6/29/15
- 2015-08836; Vendor Equipment Failures During FLEX Generator Testing at Perry Site; 06/26/15
- 2015-11233; FLEX Equipment Being used for General Maintenance Work; 08/25/15
- 2015-14197; Perry FLEX Equipment Walkdown Issues; 10/19/15
- 2015-14436; FLEX Equipment for ADHR High Temperature Hoses Cannot be used as Designed; 10/22/15
- 2015-14436; FLEX Equipment for ADHR High Temperature Hoses cannot be used as Designed; 10/22/2015
- 2015-16185; Discrepancy with NRC Submitted FLEX Information; 12/2/15
- 2015-17257; Tracking FLEX Equipment Out of Service Time; 12/28/15
- 2016-02776; FLEX Equipment and Storage Concerns; 2/29/16
- 2016-03354; FLEX Exam Failures; 3/11/16
- 2016-04602; PA-PY-16-02: Flex Truck not Properly Restrained in Flex Bay 1; 04/05/16
- 2016-05681; Discrepancy with Docketed Information on FLEX Bay 1 Ventilation; 04/21/16
- 2016-06696; Enhancement Opportunities Identified During First Time Preventive Maintenance Walkdown; 5/12/16

- 2016-06963; FLEX Generator Preventive Maintenance Missing Level of Detail to Perform Tasks; 5/21/16
- 2016-07715; Alternate Closed Loop Containment Cooling FLEX Strategy Not Available; 6/13/16

Calculations

- X11-001; Support Establishment of FLEX Coping Times; 9/22/14
- X11-003; Transient Thermal Analysis of Unit 1 Auxiliary Building During a BDBEE; 6/5/15
- X11-008; Evaluation of Bay 1 Missile Barrier Door; 4/16/15

Drawings

- 206-0010-00000; Main One Line Diagram 13.8KV & 4.16KV; Rev DD
- 206-0014-00000; Non-Class 1E 13.8KV Bus L11 & L12; Rev Y
- 206-0041-00000; Non-Class 1E 480V Bus F1F; Rev ZZ
- 206-0042-00000; Non-Class 1E 480V Bus F1F; Rev HHH
- 206-0057-00000; Non-Class 1E 120V AC Panels K-1-D, K-1-E & K-1-F; Rev BBB
- 220-0744-00000; Lighting Panel R71P043; Rev R
- 256-0014-00000; Non-Class 1E 13.8KV Bus L21 & L22; Rev T
- 256-0035-00000; Non-Class 1E 480V Bus F-2-C; Rev S
- 256-0036-00000; Non-Class 1E 480V Bus F-2-C; Rev LL
- 743-0003; Catch Basin Storm Drainage System; Rev G
- 743-0013; Topography and Storm Drain; Rev G
- EPI-B8; 10-Mile Emergency Planning Zone and Evacuation Routes; attachment 2; Rev 18
- ONI-R10-1; Loss of Off-site Power; Rev A
- ONI-R10-2; Off Normal Instruction for Station Blackout (SBO); Rev B

Miscellaneous Documents

- 022-0047-00000; Environmental Conditions: Heater Bay Fan Room and Outside Around Condensate Storage Tank; Rev F
- NORM-LP-7303; Perry Nuclear Power Plant FLEX Final Integrated Plan Report; Rev 4
- Purchase Order 45461162; FLEX Pumps; 11/10/2014
- SN-SA-2016-0355; Pre-NRC Flex/Mitigating Strategies/SFPI Readiness Assessment; 5/18/2016
- TXI-427; FLEX Lake Water Pump X11-0001 Pre-Operational Testing; 04/12/15

Modifications

- ECP No. 12-0835-007; Fukushima Spent Fuel Pool Level Instrumentation Design; Rev 6
- ECP No. 13-0802-000; Minor Stream Modification; Rev 1
- ECP No. 14-0564-001; Installation of Battery Equipment and Protective Devices; Rev 9
- ECP No. 15-0212-001; Site Flooding Sandbags; Rev 1

Procedures

- EOP-01; RPV Control; Rev 6
- NOP-CC-2003; Engineering Changes; Rev 20
- NOP-LP-5413; Perry MIDAS Multiple Accident Dose Assessment Software; Rev 0
- NOP-LP-7300; FLEX Program for the Perry Nuclear Power Plant; Rev 1
- NORM-ER-3730; FLEX Equipment; Rev 1
- NORM-LP-7305; Perry FLEX Validation Process Report; Rev 0
- NORM-LP-7309; Perry Specifications for FLEX Equipment Out of Service; Rev 0
- ONI-R10; Loss Of AC Power; Rev 13
- ONI-R10; Loss of AC Power; Rev 13

- ONI-ZZZ-1; Tornado High Winds; Rev 22
- ONI-ZZZ-1; Tornado or High Winds; Rev 26
- PDB-R0003; FLEX Specifications; Rev 1
- SOI-X11, Section 1; FLEX Systems Operations; Rev 1
- WNA-TP-04709-GEN; Spent Fuel Pool Instrumentation System Calibration Procedure; Rev 4
- NORM-ER-3730; Nuclear Operating Reference Material, FLEX Equipment; Rev 1
- ONI-ZZZ-1; Tornado or High Winds; Rev 26
- ONI-SPI H-1; Security Actions; Rev 3
- OAI-1703; FLEX Generator Prestart Checks Hardcard; Attachment 27; Rev 28
- OAI-1703; FLEX Generator Hardcard; Attachment 28; Rev 28
- ONI-SPI D-6; Containment Closure; Rev 2
- REC-0104; Chemistry Specifications (for Diesel Fuel Oil); Rev 38
- NOP-OP-1002; Conduct of Operations; Rev 11
- ONI-R36-2; Extreme Cold Weather; Rev 6
- FSG-40.1; Supplying Alternate Power to Vital Unit 1 Busses; Rev 0
- FSG-40.3; Supplying Alternate Power to Vital Unit 2 Busses; Rev 2
- FSG-40.5; FLEX Generator Loading and Plant System Operations; Rev 2
- FSG 70.1; Supplying Fuel Oil to DG Building Flex Generators; Rev 0
- FSG 70.2; Supplying Fuel Oil to the ESWPH Flex Generator; Rev 0
- FSG 80.1; Establishing Flex Travel Paths; Rev 1
- FSG 80.2; Establishing Staging Areas A and B; Rev 0
- FSG-90.1; Reading Instrumentation Locally During Station Blackout; Rev 0
- FSG 90.4; Alternate Power to SFPLI; Rev 1
- FSG 90.5; Flex Communications; Rev 1
- FSG-30.3; ADHR Pump Suppression Pool Cooling using RHR A; Rev 2
- EOP-04-4; RPV Flooding; Rev 4
- FSG-30.4; ADHR Pump Suppression Pool Cooling using RHR B; Rev 2
- EOP-SPI 3.2; SPMU Initiation; Rev 1
- FSG 10.1; RCIC Flex Operation; Rev 2
- ONI-R10-1; Loss of AC Power; Rev A
- ONI-R10-2; Station Blackout; Rev B

Training Documents

- Advanced FLEX Training
- Basic FLEX Training
- ESPC-FLEX PY-FLEX; ESP FLEX Training; Rev 0
- IC 3314-05; SFPLI Training; Rev 5
- IC-C-F001; Flex Spent Fuel Pool Instrumentation Training; Rev 0
- OAI-1703; FLEX Equipment Hardcards; Rev 25
- OTLC3058201607; OPS FLEX Training May 2016

Work Orders

- WO 200539430; PY-P67 Storm Drain and Sewer; 08/13/14
- WO 200579446; FLEX Electrical Modification and Testing; 04/22/15
- WO 200657240; FLEX Generator 1 PM; 06/15/16
- WO 200674418; FLEX Elect Water Transfer Pump PM; 07/21/16

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access Management System
ADHR	Alternate Decay Heat Removal
AR	Action Request
CAP	Corrective Action Program
CFR	Code of Federal Regulations
ELAP	Extended Loss of AC Power
EP	Emergency Preparedness
FLEX	Diverse and Flexible Coping Strategies
FSG	FLEX Support Guidelines
IMC	Inspection Manual Chapter
IR	Inspection Report
NRC	U.S. Nuclear Regulatory Commission
OE	Operating Experience
PARS	Publicly Available Records System
PI&R	Problem Identification and Resolution
PM	Periodic Maintenance
PNPP	Perry Nuclear Power Plant
RHR	Residual Heat Removal
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SPCU	Suppression Pool Cleanup
TI	Temporary Instruction
UPS	Uninterruptable Power Supply
WO	Work Order

D. Hamilton

-2-

In addition, if you disagree with the cross-cutting aspect assignment to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Perry Nuclear Power Plant.

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

Sincerely,

/RA/

Ann Marie Stone, Team Leader
Technical Support Staff
Division of Reactor Projects

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