UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

January 11, 2017

Ms. Tanya Hamilton
Site Vice President
Shearon Harris Nuclear Power Plant
M/C HNP01
New Hill, NC 276562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT – NRC TEAM INSPECTION REPORT 05000400/2016007

Dear Ms. Hamilton:

On December 16, 2016, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris Nuclear Power Plant. The enclosed report documents the inspection results, which were discussed on December 16, 2016, with you and other members of your staff.

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.

No NRC-identified or self-revealing findings were identified during this inspection.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document 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/

Bradley J. Davis, Acting Chief
Reactor Projects Branch 7
Division of Reactor Projects

Docket No.: 50-400
License No.: NPF-63

Enclosure:
IR 05000400/2016007
w/Attachment: Supplementary Information

cc: Distribution via ListServ

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NAME	R. Rodriguez	B. Davis	S. Rose	S. Freeman	P. McKenna	R. Alexander	
DATE	01/ 05 /2017	01/ 10 /2017	01/ 05 /2017	01/ 05 /2017	01/ 05 /2017	01/ 05 /2017	
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Letter to Tanya Hamilton from Bradley J. Davis dated January 11, 2017.

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT – NRC TEAM INSPECTION REPORT 05000400/2016007

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-400
License No.:	NPF-63
Report No.:	05000400/2016007
Licensee:	Duke Energy Progress, Inc.
Facility:	Shearon Harris Nuclear Power Plant, Unit 1
Location:	5413 Shearon Harris Road New Hill, NC 27562
Dates:	December 12 – 16, 2016
Inspectors:	S. Freeman, Senior Reactor Analyst, RII (Team Leader) R. Rodriguez, Senior Project Engineer, RII P. McKenna, Senior Resident Inspector, Surry R. Alexander, Senior Project Engineer, Region IV
Approved by:	Bradley J. Davis, Acting Chief Reactor Projects Branch 7 Division of Reactor Projects

Enclosure

SUMMARY

IR 05000400/2016007; 12/12/2016 – 12/16/2016; Shearon Harris Nuclear Power Plant Unit 1; Temporary Instruction 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 issued December 23, 2015.

The inspection covered a one week inspection by one senior reactor analyst, one senior resident inspector, and two senior project engineers. No NRC-identified or self-revealing findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

A. NRC-Identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

None

REPORT DETAILS

4. Other Activities

4OA5 Other Activities (TI 2515/191)

The objective of Temporary Instruction (TI) 2015/191, "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 that licensees have adequately implemented the mitigation strategies as described in the licensee's Final Integrated Plan, dated July 10, 2015 [non-public] as supplemented by letter dated June 29, 2016 [ADAMS Accession No. ML16182A047] and the NRC's plant safety evaluation (ADAMS Accession No. ML16217A449) and to verify that the licensees installed reliable water-level measurement instrumentation in their spent fuel pools. The purpose of this TI is also to verify the licensees have 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 that staffing is sufficient and communications can be maintained during such an event.

The inspection verifies that 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. ML12054A736) and EA-12-051, Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation (ADAMS Accession No. ML12054A679) are in place and are being implemented by the licensee. Additionally, the inspection verifies 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 team discussed the plans and strategies with plant staff, reviewed documentation, and where appropriate, performed plant walk downs to verify that 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 team examined the licensee's established guidelines and implementing procedures for the beyond-design basis mitigation strategies. The team 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 team 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 team verified that a preventive maintenance program had been established for the Diverse and Flexible Coping Strategies (FLEX) portable equipment and that periodic equipment inventories were in place and being conducted. Additionally, the team examined the introductory and planned periodic/refresher training provided to the Operations and Security staff most likely to be tasked with implementation of the FLEX mitigation strategies. The team 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 that the licensee satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittals and the associated safety evaluation and determined that the licensee was generally in compliance with NRC Order EA-12-049. The inspectors verified that the licensee satisfactorily:

- developed and issued FLEX Support Guidelines (FSG) to implement the FLEX strategies for postulated external events.
- integrated the FSGs into 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 its availability and capability.
- trained the staff to assure personnel proficiency in the mitigation of beyond-design–basis events.
- developed means to ensure that the necessary off-site FLEX equipment would be available from off-site locations.

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

c. Findings

No findings identified.

2. Spent Fuel Pool Instrumentation

a. Inspection Scope

The team 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 that the licensee satisfactorily installed and established control of the spent fuel pool (SFP) instrumentation as described in the plant specific submittals and the associated safety evaluation and determined that the licensee is generally in compliance with NRC Order EA-12-051. The inspectors verified that the licensee satisfactorily:

- installed the SFP instrumentation sensors, cabling and power supplies to provide physical and electrical separation as described in the plant specific submittals and safety evaluation.
- installed the SFP instrumentation display in the location, environmental conditions and accessibility as described in the plant specific submittals.
- trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation.
- developed and issued procedures for maintenance, testing, and use of the reliable SFP instrumentation.

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

c. Findings

No findings identified.

3. Staffing and Communication Request for Information

a. Inspection Scope

Through discussions with plant staff, review of documentation and plant walk downs, the team verified that the licensee had implemented required changes to staffing, communications equipment and facilities to support a multi-unit extended loss of offsite power scenario as described in the licensee’s staffing assessment and the NRC safety assessment. The team also verified that the licensee had implemented 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 alternating current power (ELAP) to the site and impedes access to the site. The inspectors verified the following:

- Licensee satisfactorily implemented required staffing change(s) to support an ELAP scenario.

- EP communications equipment and facilities were sufficient for dealing with an ELAP scenario.
- Implemented dose assessment capabilities (including releases from spent fuel pools) using the licensee's site-specific dose assessment software and approach.

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

c. Findings

No findings identified.

4OA6 Exit

Exit Meeting Summary

On December 16, 2016, the inspectors presented the inspection results to Ms. Tanya Hamilton and other members of the site staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:
T. Hamilton, Site Vice President
P. Fisk, Plant Manager
S. Scott, Operations Manager
S. O'Conner, General Manager Engineering
B. Jones, Director Organizational Effectiveness
D. Corlett, Manager Procedures
J. O'Keefe, Assistant Operations Manager, Support
M. Weber, Manager of Fukushima Response
S. McDaniel, Regulatory Affairs Engineer
P. Houseworth, Senior Reactor Operator
T. Nietschmann, System Engineer
J. Robertson, Manager Regulatory Affairs
A. Goodman, Regulatory Affairs
T. Byrne, Regulatory Affairs
T. Toler, Manager Nuclear Oversight
R. Garner, Manager Operations Training
C. Simmons, Manager Emergency Preparedness
R. Rishel, Director Probabilistic Risk Assessment Group

NRC personnel:
C. Jones, Acting Senior Resident Inspector
W. Dean, Director, Office of Nuclear Reactor Regulation (NRR)
M. Franovich, Acting Director, Japan Lessons Learned Division, NRR

LIST OF REPORT ITEMS

Opened and Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

Procedures

EOP-ECA-0.0, Loss of All AC Power, Revision 6
FSG-001, Long Term RCS Inventory Control, Revision 0
FSG-002, Alternate TDAFWP Suction Source, Revision 0
FSG-003, FLEX Low Pressure Feedwater, Revision 0
FSG-003-BD, FLEX Low Pressure Feedwater Background/Step Deviation Document, Revision 0
FSG-004, ELAP DC Bus Load Shed/Management, Revision 0
FSG-005, Initial Assessment and FLEX Equipment Staging, Revision 1
FSG-005-BD, Initial Assessment and FLEX Equipment Staging Background/Step Deviation Document, Revision 0
FSG-006, Alternate CST Makeup, Revision 0
FSG-008, FLEX RCS Boration, Revision 0
FSG-011, Alternate SFP Makeup and Cooling, Revision 1
FSG-013, Transition from FLEX Equipment, Revision 0
FSG-020, FELX Electrical Distribution, Revision 0
FSG-021, FLEX Water Management, Revision 1
FSG-021, FLEX Water Management Background/Step Deviation Document, Revision 1
OP-126 (Sect. 8.2), Local Manual Operation of PORVs with Pressurized Accumulator, Revision 37
OP-125 (Sect. 8.3), Local Manual Operation of PORVs with the Hand Pump, Revision 37
OP-137 (Sect. 8.7), Local Manual Operation of the TDAFW Pump, Revision 45
ORT-1407, ACP/Safe Shutdown Materials Audit Semiannual Interval Modes 1-6, Revision 22
ORT-1421, FLEX Materials Audit, Revision 2
ORT-8002, Incident Stabilization Guidelines (ISG) Material Audit Semiannual Interval Modes 1-6, Revision 10
OST-1020, Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Check, Monthly Interval, Modes 1-2-3, Revision 26
OST-1022, Daily Surveillance Requirements Daily Interval Modes 3 and 4, Revision 84
OST-1023, Daily Surveillance Requirements Daily Interval Modes 5, 6, and Defueled, Revision 60
AD-LS-ALL-0007, Applicability Determination Process, Revision 2
AD-LS-ALL-0008, 10 CFR 50.59 Review Process, Revision 8
AD-LS-ALL-0010, Commitment Management, Revision 2
AD-PI-ALL-0100, Corrective Action Program, Revision 7
AD-EP-ALL-0202, Emergency Response Offsite Dose Assessment, Revision 2
CSD-EG-HNP-8888, Flexible Response to Extended Loss of All AC Power (FLEX), Revision 0
PLP-137, FLEX Strategies and Equipment Availability, Revision 0
PLP-137, FLEX Strategies and Equipment Availability, Revision 1

Drawings

CAR 2166-B-041, Sheet 651, Unit 1 Power Distribution & Motor Data 208/120V Power Panel PP-1&4B33-SB, Revision 11
CAR 2166-B-041, Sheet 650, Unit 1 Power Distribution & Motor Data 208/120V Power Panel PP-1&4A33-SA, Revision 10
CAR-2165-G-022, General Arrangement Fuel Handling Building Plans, Sheet 1, Revision 25
EC 89579, Fuel Pool Level Indication Schematic

2167-G-3170, Diesel Fuel Oil Storage Tank Building Plan & Det's-Mas, Revision 3
2166-G-0651, Fukushima FLEX Diesel Generator One Line Diagram 480V System, Revision 0

Modifications

EC 87910, Fukushima 2.3 Seismic Inspection Documentation - HNP, Revision 2
EC 88160, Assimilation of Fukushima FLEX Equipment into HNP Inventory, Revision 1
EC 88887, FLEX Strategies and Implementation Plan, Revision 1
EC 91680, RCS Injection Evaluation for NTTF 4.2 (FLEX), Revision 5
EC 91692, Unit 2 DGB Tornado Door for NTTF 4.2 (FLEX), Revision 15
EC 91695, Flex Connections for NTTF 4.2 (FLEX), Revision 9
EC 91708, Diesel Generator Building Bay 2B-SB Mechanical Upgrades for NTTF 4.2 (FLEX), Revision 26
EC 92350, Fukushima NTTF 2.1 Seismic Reevaluation: Harris Develop 1.5 Year Response, Revision 1

Calculations

HNP-M/FLEX-008, ESW Pump and Hose Sizing for FLEX Strategies, Revision 1
NAI-1231-001, Best-Estimate GOTHIC Analyses to Time to Boil Curves for Shearon Harris Nuclear Plant, Revision 0

Condition Reports Reviewed

00754098	01940605	01940608	09161768	09161769	01967444
01977108	01989589	02066722	02022034	01990336	01983419
00748336	00609596				

Condition Reports Generated as part of the Inspection

2086588, Equipment Description in FSG different than in-field conditions

Letters

HNP-14-123, Response to March 12, 2012, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendation of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, Enclosure 5, Recommendation 9.3, Emergency Preparedness - Staffing, Requested Information Items 1, 2, and 6 - Phase 2 Staffing Assessment, dated November 25, 2014
HNP-15-027, Shearon Harris Nuclear Power Plant Flood Hazard Reevaluation Report, Revision 1, dated April 1, 2015
Shearon Harris Nuclear Power Plant – NRC Supplement to Staff Assessment of Response To 10 CFR 50.54(f) Information Request - Flood-Causing Mechanism Reevaluation (CAC No. MF1103), dated November 2, 2015
Shearon Harris Nuclear Power Plant, Unit 1 - Staff Assessment Of Response To 10 CFR 50.54(f) Information Request Flood Causing Mechanism Reevaluation (TAC No. MF1103), dated April 29, 2015

Other

Harris Nuclear Plant Final Integrated Plan, dated May 2016
WO 20076846-01, FLEX SFP Level Indication System Calibration, Completed December 8, 2016
WO 20076846-02, Replace Backup Batteries in FLEX SFP Level Control Panel, Completed October 2, 2016
WO 13306664, FLEX RCS Injection Pump Evaluation
WO 13502944, Functional Test of Portable FLEX Equipment, Revision 1
WO 20089566, Quarterly Functional Tests of FLEX Equipment, Completed December 1, 2016
WO 20066530, Quarterly Functional Tests of FLEX Equipment, Completed September 7, 2016
WO 20083777, Annual Operational Tests of FLEX Equipment, Completed June 1, 2016
WO 20118050, FLEX RCS and AFW Equipment Semi-Annual Standby Walkdown, Completed June 22 and December 1, 2016
PMID-105393, HNP FLEX Equipment Monthly Walkdown, Completed July 18 and October 4, 2016
Maintenance Needs Analysis 00885089A01, Spent Fuel Pool Level
PMR 671535-1, FLEX RCS Pump/Motor PM Evaluation, Revision 0
PMR 651508-1, FLEX AFW Pump/Motor PM Evaluation, Revision 0
HNP Position Paper for the Permanent Pre-Staging of Flex Diesel Generators, Revision 0
HNP FLEX Equipment Preventative Maintenance Overview, Revision 0
AREVA Document No. 38-9233751-000, SAFER Response Plan for Shearon Harris Nuclear Power Plant, Revision 2, dated February 2, 2015
Memorandum of Understanding between Harris Nuclear Plant and Wake County, dated July 14, 2016
Memorandum of Understanding between Harris Nuclear Plant and the State of North Carolina, dated June 19, 2014
EMP-410, Att. 6, Quarterly Sound Power Phone Test, 3rd. Quarter 2016
EMP-410, Att. 6, Quarterly Sound Power Phone Test, 4th. Quarter 2016
EMP-410, Att. 1, Monthly DEMNET Test, November 2016
EMP-410, Att. 1, Monthly DEMNET Test, December 2016
EMP-410, Att. 3, Emergency Telecommunication System Monthly Test, November 2016
EMP-410, Att. 3, Emergency Telecommunication System Monthly Test, December 2016
EMP-410, Att. 4, Main Control Room and Alternate Staging Area Satellite Phone Monthly Test, November 2016
EMP-410, Att. 4, Main Control Room and Alternate Staging Area Satellite Phone Monthly Test, December 2016