



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

February 12, 2019

EA-19-010

Ms. Tanya Hamilton
Site Vice President
Shearon Harris Nuclear Power Plant
M/C HNP01
New Hill, NC 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT – NRC INTEGRATED
INSPECTION REPORT 05000400/2018004 AND EXERCISE OF
ENFORCEMENT DISCRETION

Dear Ms. Hamilton:

On December 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris Nuclear Power Plant, Unit 1. On January 9, 2019, and January 23, 2019, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

No NRC-identified or self-revealing findings were identified during this inspection. However, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

In addition, a finding and an associated violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified related to the licensee's failure to protect components associated with the 'A' Emergency Diesel Generator and Main Steam Safety Relief Valves from damage resulting from a potential tornado-generated missile in accordance with the plant's licensing basis. Because this finding and violation was identified during the discretion period covered by Enforcement Guidance Memorandum 15-002, Revision 1, "Enforcement Discretion for Tornado-Generated Missile Protection Non-Compliance," (Agencywide Documents Access and Management System Accession Number ML16355A286) and because the licensee was implementing compensatory measures, the NRC is exercising enforcement discretion by not issuing an enforcement action and is allowing continued reactor operation.

If you contest the violation or significance of the NCV, 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 the Regional Administrator, Region II; the Director, Office of Enforcement; and the NRC resident inspector at the Shearon Harris Nuclear Power Plant.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Lundy F. Pressley, Acting Chief
Reactor Projects Branch 4
Division of Reactor Projects

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

Enclosure:
IR 05000400/2018004
w/Attachment: Supplemental Information

cc: Distribution via ListServ

SUBJECT: SHEARON HARRIS NUCLEAR STATION – NRC INTEGRATED INSPECTION
REPORT 05000400/2018004 February 12, 2019

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 50-400

License Number: NPF-63

Report Number: 05000400/2018004

Enterprise Identifier: I-2018-004-0043

Licensee: Duke Energy Progress, LLC

Facility: Shearon Harris Nuclear Power Plant

Location: New Hill, NC 27562

Inspection Dates: October 1, 2018 to December 31, 2018

Inspectors: J. Zeiler, Senior Resident Inspector
A. Patz, Resident Inspector
M. Bates, Senior Operations Engineer (Section 71111.11 - Operator Exams)
C. Dykes, Health Physicist (Section 71151 - OR01, PR01)

Approved By: Lundy F. Pressley, Acting Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee's performance by conducting a quarterly integrated inspection at Shearon Harris, Unit 1 in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. A licensee-identified non-cited violation is documented in report section 71152.

List of Findings and Violations

No findings or violations were identified.

Additional Tracking Items

Type	Issue number	Title	Report Section	Status
LER	05000400/2018-004-00	Independent Trains of the Emergency Core Cooling System Inoperable During Testing	71153	Closed
LER	05000400/2016-001-00	Inadequate Protection from Tornado Missiles Identified Due to Nonconforming Design Conditions	71153	Closed

PLANT STATUS

The unit operated at or near 100 percent rated thermal power for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather (1 Sample)

The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold temperatures on November 16, 2018.

Impending Severe Weather (2 Samples)

The inspectors evaluated readiness for impending adverse weather conditions for:

- (1) Hurricane Michael on October 10-11, 2018
- (2) Extreme cold weather with snow/ice on December 9-10, 2018

71111.04 - Equipment Alignment

Partial Walkdown (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) 'A' train residual heat removal (RHR) system while 'B' train RHR was out of service for preventive maintenance on October 2, 2018
- (2) 'A' train motor-driven auxiliary feedwater (AFW) pump and turbine-driven AFW pump while 'B' train motor-driven AFW pump was out of service for instrumentation upgrades on October 10, 2018
- (3) 'B' train emergency diesel generator (EDG) while 'A' train EDG was out of service for preventive maintenance on October 16, 2018

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the emergency service water (ESW) system on November 19, 2018.

71111.05AQ - Fire Protection Annual/Quarterly

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) 'A' and 'B' EDG day tank and ventilation rooms (fire zones 1-D-DTA, 1-D-DTB, 1-D-2-DGA-HVD, 1-D-2-DGB-HVD, 1-D-3-DGA-ES, 1-D-3-DGB-ES, 1-D-3-DGA-HVR, 1-D-3-DGB-HVR) on October 3, 2018
- (2) Main control room, termination cabinet room, auxiliary relay panel room, process instrumentation cabinet room, and rod control cabinet room (fire zones 12-A-6-CR1, 12-A-6-RT1, 12-A-6-ARP1, 12-A-6-PICR1, and 12-A-6-RCC1) on October 24, 2018
- (3) Steam tunnel (fire zone 1-A-46-ST) on October 30, 2018
- (4) Service water and safety injection pipe tunnel South and North (fire zone 1-A-2-PT) on November 1, 2018
- (5) 'A' and 'B' train process instrument cabinet rooms and surrounding areas (fire zones 1-A-5-COMA, 1-A-5-PICA, 1-A-5-PICB) on December 26, 2018

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated a simulator scenario for an operator requalification annual examination involving a small break loss-of-coolant-accident on October 23, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated a downpower and return to full power for main turbine valve testing on October 27, 2018.

Operator Exams (1 Sample)

The inspectors reviewed and evaluated requalification examination results on December 11, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Main turbine protective response for the inadvertent turbine runback that occurred on May 11, 2018

- (2) 'A' ESW strainer excessive backwashing and ability to perform function after being placed in continuous backwash on August 14, 2018
- (3) Loss of service water abnormal operating procedure entry due to clogging of normal service water strainer that occurred on October 25, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Elevated (Green) risk during planned unavailability of the 'B' RHR pump for heat exchanger outlet discharge control valve (1RH-66) and pump mini-flow protection valve (1RH-69) preventive maintenance on October 2, 2018
- (2) Elevated (Green) risk during planned unavailability of the 'B' motor-driven AFW pump for instrumentation upgrade on October 10 and 11, 2018
- (3) Elevated (Green) risk during unit downpower, turbine valve testing, and return to full power on October 27, 2018
- (4) Elevated (Green) risk during planned unavailability of the 'A' essential services chilled water (ESCW) system for preventive maintenance activities on November 13, 2018

71111.15 - Operability Determinations and Functionality Assessments (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Ejected cylinder #8 exhaust thermocouple during 24-hour surveillance testing of 'B' EDG on October 4, 2018 (Nuclear Condition Report (NCR) 02235192)
- (2) Broken bolts on 'B' EDG exhaust manifold seismic restraint bracket on October 18, 2018 (NCR 02237623)
- (3) Both 'A' train containment ventilation radiation monitors were deenergized causing containment ventilation isolation system actuation signal on November 20, 2018 (NCR 02244746)
- (4) Emergency service water pipe thinning on piping from plant air compressors on December 13, 2018 (NCR 02248615)

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following permanent modification:

- (1) Engineering Change (EC) 407011, Reactor Auxiliary Building High Energy Line Break Analysis on December 20, 2018

71111.19 - Post Maintenance Testing (6 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Operations Surveillance Test (OST)-1092, 1B-SB RHR Pump Operability Quarterly Interval Modes 1-2-3, following preventive maintenance on RHR valves 1RH-66 and 1RH-69 on October 2, 2018
- (2) Work Order 20227997 instructions for returning 'B' motor-driven AFW pump to service, following replacement of AFW pressure transmitter on October 11, 2018

- (3) OST-1013, 1A-SB Emergency Diesel Generator Operability Test Monthly Interval Modes 1-2-3-4-5-6, following scheduled fuel and lube oil instrumentation calibrations on October 16, 2018
- (4) Operations Procedure (OP)-156.02, AC Electrical Distribution, for returning the open phase protection system to service following upgrades to the system injection sources on November 7, 2018
- (5) OP-148, Essential Services Chilled Water System, following scheduled 'A' train chiller preventive maintenance activities on November 13, 2018
- (6) OST-1094, Sequencer Block Circuit and Containment Fan Cooler Testing Train 'A' Quarterly Interval, following repairs to post-accident air handling unit damper on November 28, 2018

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (3 Samples)

- (1) OST-1824, 1B-SB Emergency Diesel Generator Operability Test, 24 Hour Run, on October 3-4, 2018
- (2) Engineering Periodic Test (EPT)-811, HNP Dam/Dike/Retaining Wall Monitoring Procedure (for the Main Dam), on October 8, 2018
- (3) Technical Procedure (OPT)-1014, Turbine Valve Test, Semi-Annual Interval, Modes 1-5, on October 27, 2018

In-service (1 Sample)

- (1) OST-1411, Auxiliary Feedwater Pump 1X-SAB Operability Test Quarterly Interval Mode 1, 2, 3, on December 10, 2018

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification (4 Samples)

The inspectors verified licensee performance indicators submittals listed below:

- (1) MS08: MSPI – Heat Removal Systems (for the period October 2017 – September 2018)
- (2) MS10: MSPI – Cooling Water Support Systems (for the period October 2017 – September 2018)
- (3) OR01: Occupational Exposure Control Effectiveness (for the period June 2017 – September 2018)
- (4) PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) (for the period June 2017 – September 2018)

71152 - Problem Identification and Resolution

Semiannual Trend Review (1 Sample)

The inspectors reviewed the licensee's corrective action program for trends that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issue:

- (1) NCR 02221316, both subsystems of the Emergency Core Cooling System inoperable during surveillance testing

71153 - Follow-up of Events and Notices of Enforcement Discretion

Licensee Event Reports (2 Samples)

The inspectors evaluated the following licensee event reports which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) Licensee Event Report (LER) 05000400/2018-004-00, Independent Trains of the Emergency Core Cooling System Inoperable During Testing, on December 12, 2018.
- (2) LER 05000400/2016-001-00, Inadequate Protection from Tornado Missiles Identified Due to Nonconforming Design Conditions, on December 18, 2018

INSPECTION RESULTS

Licensee Identified Non-Cited Violation	71152 – Annual Follow-up of Selected Issues
<p>This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.</p>	
<p>Violation: Technical Specification (TS) 6.8.1.a required, in part, that written procedures be established, implemented, and maintained covering activities referenced in Regulatory Guide 1.33, Revision 2, dated February 1978, Appendix A, Section 8.b, which included procedures for TS surveillance testing.</p>	
<p>Contrary to the above, from October 5, 2016, to July 26, 2018, the licensee failed to establish adequate surveillance test procedures, i.e., Maintenance Surveillance Test (MST)-I0080, “Reactor Coolant System Wide Range Pressure (P-0402) Calibration,” and MST-I0081, “Reactor Coolant System Wide Range Pressure (P-0403) Calibration.” These procedures test the interlocks for isolation valves used in the residual heat removal system to isolate the suction source from the reactor coolant system as required by TS Surveillance Requirement 4.5.2.d. The testing sequence in both MST procedures rendered a single train of high head safety injection inoperable by injecting a test signal in place of a pressure transmitter that measures reactor coolant system pressure. Additionally, an isolation valve from the refueling water storage tank was shut, making the opposite train of low head safety injection inoperable, causing both subsystems of the emergency core cooling system (ECCS) to be inoperable while in Mode 1. For each test, both subsystems of ECCS were inoperable for less than one hour.</p>	
<p>Significance: The inspectors assessed the significance of the finding using IMC 0609, Appendix A, “SDP for Findings at-Power,” dated June 19, 2012. The finding was screened by Exhibit 2, “Mitigating Systems Screening Questions.” A detailed risk evaluation was performed by a regional senior reactor analyst because the inoperability of both subsystems of ECCS caused a complete loss of the system. A bounding analysis was performed in accordance with the requirements of IMC 0609 Appendix A using the NRC Harris standardized plant analysis risk (SPAR) model. The finding was modelled as a three-hour non-recoverable loss of the high-pressure recirculation function. The dominant sequences were losses of secondary heat removal, successful feed and bleed, recovery of secondary side cooling, and late failure of high pressure recirculation. The risk was mitigated by the short exposure period. The risk increase due to the violation was less than 1E-6 and represented a GREEN finding of very low safety significance.</p>	
<p>Corrective Action References: NCRs 02221316 and 02221295</p>	

Enforcement Discretion	Enforcement Action (EA) 19-010: Design Basis Tornado Missile Protection Vulnerabilities to TS Equipment (EGM 15-002)	71153 – Follow-up of Events and Notices of Enforcement Discretion
<p><u>Description:</u> On July 7, 2016, the licensee identified non-conforming conditions in the plant design such that specific TS equipment did not meet current licensing basis for protection against potential tornado missile impacts. Two TS systems contained equipment affected to the extent that the TS operability was impacted. These specific system vulnerabilities included the following:</p>		

- 'A' EDG could be rendered TS inoperable due to potential tornado missile effects on exposed engine control and room damper circuitry conduit or fuel oil supply piping; and,
- Main steam safety relief valves (MSSVs) could be rendered inoperable due to potential tornado missile crimping the relief valve exhaust piping.

Corrective Actions: The licensee declared the 'A' EDG and MSSVs inoperable due to the potential tornado missile vulnerabilities and promptly restored operability by using the guidelines in NRC Interim Staff Guidance DDS-ISG-2016-01, "Clarification of Licensee Actions in Receipt of Enforcement Discretion," (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15348A202), per NRC Enforcement Guidance Memorandum 15-002, Revision 1, "Enforcement Discretion for Tornado-Generated Missile Protection Non-Compliance," dated February 7, 2017 (ADAMS Accession Number ML16355A286). Both systems were declared operable, but non-conforming, following the implementation of recommended interim compensatory measures described in EGM 15-002. The licensee reported the non-compliances associated with the EDG and MSSVs in LER 05000400/2016-001-00, dated September 1, 2016. As part of the inspector's review of this issue, the licensee's interim compensatory measures were validated to still be in effect. In accordance with the guidance provided in EGM 15-002 for restoring full compliance, on October 19, 2017, the licensee submitted a License Amendment Request (LAR) to incorporate the tornado missile risk evaluator methodology developed under the Nuclear Energy Institute (NEI) Technical Report 17-02, Revision 1, "Tornado Missile Risk Evaluator (TMRE) Industry Guidance Document," (ADAMS Accession Number ML17268A036) into the plant tornado missile protection licensing basis. This tornado missile protection evaluation methodology is intended to address plant conditions discovered where tornado missile protection is currently required but is not provided. By letter dated November 21, 2017 (ADAMS Accession Number ML17319A501), the NRC staff provided acceptance for reviewing this LAR. The inspectors determined that the licensee met the EGM 15-002 guidance for submitting an acceptable LAR before the discretion expiration date of June 10, 2018.

Corrective Action References: NCRs 02020044, 01999675, and 02002299

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis for those structures, systems, and components to which this appendix applies are correctly translated into specifications and drawings.

Contrary to the above, since original plant construction, the licensee failed to translate the appropriate tornado missile protection requirements into specifications and drawings that would result in structures adequately protecting the 'A' EDG and MSSV components.

Severity/Significance: As discussed in EGM 15-002, the NRC completed a generic risk analysis of the impact of potential tornado missile protection non-conformances. The results of this analysis concluded that this issue was not risk significant because the risk was bounded by an extremely low initiating event frequency for a tornado of 4E-4 per year even in the most severe tornado region. A bounding risk analysis was performed for the condition detailed in LER 05000400/2016-001-00. The issue was evaluated by a regional SRA in accordance with NRC IMC 0609 Appendix A using the NRC Shearon Harris SPAR model. The issue was modelled as a one-year condition assessment with a simultaneous non-

recoverable loss of the MSSVs and the 'A' EDG. The evaluation used the site-specific tornado frequency and the analysis result was less than 1.0E-6/ year, a condition of very low safety significance. The low tornado frequency and remaining mitigation capability mitigated the risk.

Discretion Basis: Because this finding and violation was identified during the discretion period covered by EGM 15-002, Revision 1, and because the licensee was implementing adequate interim compensatory measures to address tornado missile protection vulnerabilities and had submitted a LAR to implement a revised methodology for addressing tornado missile protection that was acceptable to the NRC staff in order to restore full compliance, the NRC is exercising enforcement discretion by not issuing an enforcement action associated with the aforementioned violation and is allowing for continued reactor operation.

The disposition of this violation closes LER 05000400/2016-001-00.

EXIT MEETINGS AND DEBRIEFS

The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

- On January 9, 2019, and on January 23, 2019, the inspectors presented the quarterly resident inspector inspection results to Ms. Tanya Hamilton, Site Vice President, and other members of the licensee staff.

THIRD PARTY REVIEWS

Inspectors reviewed Institute on Nuclear Power Operations National Academy for Nuclear Training report that was issued March 14, 2018, during the inspection period.

LIST OF DOCUMENTS REVIEWED

Section 71111.01: Adverse Weather Protection

Seasonal Extreme Weather

AD-WC-ALL-0230, Seasonal Readiness, Rev. 0
AD-EG-ALL-1523, Temporary Ignition Source Control, Rev. 1
AP-301, Seasonal Weather Preparations and Monitoring, Rev. 85
OP-161.01, Operations Freeze Protection and Temperature Maintenance Systems, Rev. 46
ORT-1415, Electric Unit Heater Check Monthly Interval – September Through March Mode: All,
Rev. 14

Impending Severe Weather

AP-300, Severe Weather Response, Rev. 33
CSD-WC-ALL-0390-1, Severe Weather Preparations and Considerations, Revs. 1 and 2

Section 71111.04: Equipment Alignment

Partial Walkdown

OP-111, Residual Heat Removal System, Rev. 62
OP-137, Auxiliary Feedwater System, Rev. 45
OP-155, Diesel Generator Emergency Power System, Rev. 87

Complete System Walkdown

OP-139, Service Water System, Rev. 136
DBD-128, Service Water System, Traveling Screens, and Screen Wash System, Waste
Processing Building Cooling Water System, Rev. 31
Drawing 2165-S-0547, Simplified Flow Diagram Circulating and Service Water Systems,
Rev. 63

Section 71111.05: Fire Protection Annual/Quarterly

Quarterly Inspection

FPP-001, Fire Protection Program Manual, Revs. 43 and 44
FPP-013, Fire Protection – Minimum Requirements, Mitigating Actions and Surveillance
Requirements, Revs. 98 and 99
AD-EG-ALL-1520, Transient Combustible Control, Rev. 11
AD-OP-ALL-1000, Conduct of Operations, Rev. 13
CSD-HNP-PFP-DGB, Diesel Generator Building Pre-Fire Plan, Rev. 1
CSD-HNP-PFP-RAB-305-324, Reactor Auxiliary Building Elevations 305 and 324 Pre-Fire Plan,
Rev. 3
CSD-HNP-PFP-RAB-261, Reactor Auxiliary Building Elevation 261 Pre-Fire Plan, Rev. 1
CSD-HNP-PFP-RAB-190-216, Reactor Auxiliary Building Elevations 190 and 216 Pre-Fire Plan,
Rev. 1
CSD-HNP-PFP-RAB-286, Reactor Auxiliary Building Elevation 286 Pre-Fire Plan, Rev. 1

Section 71111.11: Licensed Operator Regualification Program and Licensed Operator Performance

Operator Regualification

AD-TQ-ALL-0420, Conduct of Simulator Training and Evaluation, Rev. 12
AOP-003, Malfunction of Reactor Makeup Control, Rev. 29
AOP-019, Malfunction of RCS Pressure Control, Rev. 25
EOP-E-0, Reactor Trip or Safety Injection, Rev. 11
EOP-ES-0.1, Reactor Trip Response, Rev. 4

EOP-E-1, Loss of Reactor or Secondary Coolant, Rev. 5

Operator Performance

AD-OP-ALL-1000, Conduct of Operations, Rev. 13

AP-002, Plant Conduct of Operations, Rev. 72

AD-NF-ALL-0201, Reactivity Manipulation Plan Development, Rev. 3

OMM-001, Operations Administrative Requirements, Rev. 113

GP-005, Power Operation (Mode 2 to Mode 1), Rev. 106

GP-006, Normal Plant Shutdown from Power Operation to Hot Standby (Mode 1 to Mode 3),
Rev. 87

Section 71111.12: Maintenance Effectiveness

Routine Maintenance Effectiveness

NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear
Power Plants, Rev. 4A

AD-EG-ALL-1210, Maintenance Rule Program, Rev. 1

HNP-F/PSA-0065, HNP PRA – System Notebooks, Rev. 8

HNP-F/PSA-0020, HNP PRA Evaluation of Risk Significant SSCs for Maintenance Rule, Rev. 1

DBD-128, Service Water System, Traveling Screens, and Screen Wash System, Waste
Processing Building Cooling Water System, Rev. 31

Drawing 2166-B-401, Sheet 2221, Control Wiring Diagram, Emergency Service Water Pump
1A-SA Strainer, Rev. 9

NCR 01947387, A ESW Strainer backwashing excessively

NCR 02224541, ESW strainer is backwashing, blowing down below setpoint

NCR 02239266, AOP-022 entry for clogged NSW strainer

NCR 02205669, AOP-015 Secondary load rejection

EC 284243, Turbine control system upgrade

AD-EG-ALL-1122, Failure Modes and Effects Analysis and Single Failure Analysis, Rev. 1

1121879-HNP-811-001, Failure Mode and Effects Analysis, Rev. 0

Section 71111.13: Maintenance Risk Assessments and Emergent Work Control

AD-WC-ALL-0200, On-Line Work Management, Rev. 13

AD-WC-ALL-0410 Work Activity Integrated Risk Management, Rev. 7

AD-NF-ALL-0501, Electronic Risk Assessment Tool (ERAT), Rev. 1

AD-OP-ALL-1000 Conduct of Operations, Rev. 13

AD-OP-ALL-0201, Protected Equipment, Revs. 4 and 5

OMM-001, Conduct of Operations, Rev. 113

WCM-001, On-Line Maintenance Risk Management, Rev. 28

Work Order (WO) 20013804, Replace valve operator diaphragm on 1RH-66 and conduct
diagnostic testing

WO 20158870, Lubricate stem on valve 1RH-69

WO 20204943, Replace low water temperature switch on 'A' ESCW chiller

WO 20153779, Electrical PMs for 6.9 kilovolt motors

Section 71111.15: Operability Determinations and Functionality Assessments

AD-OP-ALL-0105, Operability Determinations and Functionality Assessments, Rev. 4

ODP Reference Guide, Rev. 6

AD-OP-ALL-0202, Aggregate Operator Impact Assessment, Rev. 2

DBD-201, Emergency Diesel Generator System, Rev. 18

WO 20285972, Repair ejected thermocouple on cylinder #8 of 'B' EDG

EC 414384, Service water minimum wall evaluations for cycle 22

Section 71111.18: Plant Modifications

NEI 96-07, Guidelines for 10CFR50.59 Evaluations Endorsed by Regulatory Guide 1.187, Rev. 1

Regulatory Guide 1.187, Guidance for Implementation of 10CFR50.59, dated November 2000

AD-EG-ALL-1103, Procurement Engineering Products, Rev. 3

AD-EG-ALL-1110, Design Review Requirements, Revs. 5 and 6

AD-EG-ALL-1130, Activation of Engineering Changes, Rev. 2

AD-EG-ALL-1132, Preparation and Control of Design Change Engineering Changes, Rev. 11

AD-EG-ALL-1155, Post Modification Testing, Rev. 4

AD-LS-ALL-0008, 10 CFR 50.59 Review Process, Rev. 0

EQDP-0807, Environmental qualification package for 3150-N Series Rosemount Transmitters, Rev. 1

NCR 00693919, Environmental qualification program does not address all high energy line breaks outside containment

Section 71111.19: Post Maintenance Testing

PLP-400, Post Maintenance Testing, Revs. 63 and 64

WO 20013804, Replace valve operator diaphragm on 1RH-66 and conduct diagnostic testing

WO 20158870, Lubricate stem on valve 1RH-69

WO 20204943, Replace low water temperature switch on 'A' ESCW chiller

WO 20153779, Electrical PMs for 6.9 kilovolt motors

Section 71111.22: Surveillance Testing

Routine

WO 20249800, Visual examinations of main and auxiliary dams (quarterly)

OPT-1508, DEHC standby pump, N2 accumulator and non-return valve test, Rev. 23

GP-005, Power Operation (Mode 2 to Mode 1), Rev. 106

GP-006, Normal Plant Shutdown from Power Operation to Hot Standby (Mode 1 to Mode 3), Rev. 87

In-Service

OST-1411 completed procedures on June 13, 2018 and September 21, 2018

Section 71151: Performance Indicator Verification

NEI 99-02, Regulatory Assessment Performance Indicator Guideline

AD-LS-ALL-0004, NRC Performance Indicators and Monthly Operating Report, Rev. 3

AD-EG-ALL-1217, Mitigating System Performance Index (MSPI), Rev. 0

HNP-F/PSA-0068, NRC Mitigating System Performance Index Basis Document for Harris Nuclear Plant, Rev. 11

HNP-M/MECH-1231, Mitigating System Performance Index Basis Document, Rev. 2

MSPI Derivation Reports

Selected operator logs, tagouts, WOs, and NCRs related to heat removal and cooling water systems

AD-RP-ALL-1101, Performance Indicators (PI) for the Occupational and Radiation Safety Cornerstones, Rev 0

AD-RP-ALL-1101 Attachment 2: Monthly Review and Evaluation of Occupational Radiation Safety Cornerstone Data for NRC Performance Indicators Worksheet, July 2017 – September 2018

RST-203, Liquid and Gaseous Radioactivity Dose Surveillance, Attachment 1: Radioactive Liquid and Gaseous Effluent Dose Surveillance Test Data Sheet, 3rd Quarter 2018.

Harris Dose Rate Alarm Logs, 06/01/2017-10/29/2018

Section 71152: Problem Identification and Resolution

AD-PI-ALL-0100, Corrective Action Program, Rev. 18
AD-PI-ALL-0102, Apparent Cause Evaluation, Rev. 4
AD-PI-ALL-0103, Quick Cause Evaluation, Rev. 4
AD-PI-ALL-0104, Prompt Investigation Response Team, Rev. 4
AD-PI-ALL-0200, Performance Trending, Rev. 7
AD-PI-ALL-0300, Self-Assessment and Benchmark Programs, Rev. 4
AD-PI-ALL-1000, Conduct of Performance Assessment, Rev. 7

Section 71153: Follow-up of Events and Notices of Enforcement Discretion

Licensee Event Reports

NRC Enforcement Guidance Memorandum 15-002, Revision 1, Enforcement Discretion for Tornado-Generated Missile Protection Non-Compliance, dated February 7, 2017
Duke Energy License Amendment Request to incorporate tornado missile risk evaluator in licensing basis, dated October, 19, 2017
Calculation HNP-F/PSA-0106, HNP TMRE PRA Application Support, Rev. 3
NRC Letter dated November 21, 2017, Acceptance of Pilot Application of Tornado Missile Risk Evaluator Methodology
Duke Energy License Amendment Request Supplemental Response, dated September 19, 2018, to address NRC Request for Additional Information