



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

January 25, 2013

Mr. Steven D. Capps
Site Vice President
Duke Energy Corporation
McGuire Nuclear Station
MG01VP/12700 Hagers Ferry Road
Huntersville, NC 28078

**SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2012005 AND 05000370/2012005 AND EMERGENCY
PREPAREDNESS INSPECTION REPORT 05000369/2012502 AND
05000370/2012502**

Dear Mr. Capps:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your McGuire Nuclear Station Units 1 and 2. The enclosed inspection report documents the inspection results which were discussed on January 14, 2013, with you 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 licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

One NRC-identified finding of very low safety significance (Green) was identified during this inspection. This finding was determined to involve a violation of NRC requirements. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy. If you contest the violations or significance of these NCVs, you should provide a written response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the McGuire Nuclear Station. If you disagree with a cross-cutting aspect assignment 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 II; and the NRC Resident Inspector at the McGuire Nuclear Station.

S. Capps

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

Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-369, 50-370
License Nos.: NPF-9, NPF-17

Enclosure: NRC Integrated Inspection Report 05000369/2012005 and 05000370/2012005 and
Emergency Preparedness Inspection Report 05000369/2012502 and
05000370/2012502 w/Attachment - Supplemental Information

cc w/encl: (See page 3)

S. Capps

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cc w/encl: (See page 3)

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Letter to Steven D. Capps from Jonathan H. Bartley dated January 25, 2013

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PREPARDNESS INSPECTION REPORT 05000369/2012502 AND
05000370/2012502

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-369, 50-370

License Nos.: NPF-9, NPF-17

Report Nos.: 05000369/2012005, 05000370/2012005
05000369/2012502, 05000370/2012502

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station, Units 1 and 2

Location: Huntersville, NC 28078

Dates: October 1, 2012, through December 31, 2012

Inspectors: J. Zeiler, Senior Resident Inspector
J. Heath, Resident Inspector
D. Berkshire, Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP5, and 4OA1)
R. Kellner, Health Physicist Inspector (Sections 2RS2, 2RS4, and 4OA1)
L. Lake, Senior Reactor Inspector (Section 1R08)
J. Laughlin, Emergency Preparedness Inspector (Section 1EP4)
W. Loo, Senior Health Physicist Inspector (Sections 2RS1, 2RS2, 2RS3, 2RS4, and 2RS5)
M. Meeks, Senior Operations Engineer (Section 1R11)
W. Pursley, Health Physicist Inspector (Sections 2RS1, 2RS2, and 2RS4)
J. Rivera, Health Physicist Inspector (Section 2RS1)
A. Sengupta, Reactor Inspector (Section 1R08)
M. Speck, Senior Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP5, and 4OA1)
R. Williams, Reactor Inspector (Section 4OA5.5)

Approved by: Jonathan Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR05000369/2012-005, 05000370/2012-005, 05000369/2012-502, 05000370/2012-502; 10/01/2012 – 12/31/2012; McGuire Nuclear Station, Units 1 and 2; Fire Protection.

The report covered a three month period of inspection by two resident inspectors, ten region based inspectors, and one headquarters inspector. One Green finding was identified that involved a violation of NRC requirements. The significance of inspection findings are indicated by their color (Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP), dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, Components Within The Cross-Cutting Areas, dated October 28, 2012. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated June 7, 2012. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, Reactor Oversight Process.

Cornerstone: Mitigating Systems

- **Green:** An NRC-identified Green non-cited violation (NCV) of the Unit 2 Facility Operating License, Condition 2.C.4, Fire Protection Program, was identified for failure to maintain pre-fire plans in areas that contain safety-related equipment. The inspectors identified that all copies of fire strategy plan view for the Unit 2 lower annulus and containment were missing from their pre-fire plans and unavailable to the Fire Brigade Leader and Operations personnel in the event of a fire in the Unit 2 reactor building. Corrective actions included replacement of the missing fire strategy plan views and additional review of the fire strategy books located in the Fire Brigade Leader's Kit, Control Room, and Emergency Preparedness office. This violation was entered into the licensee's corrective action program (CAP) as Problem Investigation Program (PIP) M-12-08270.

The performance deficiency (PD) was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events (Fire) and adversely affected the cornerstone objective, in that, it degraded the manual fire suppression capability. The finding was determined to be of very low safety significance (Green) because the fire brigade consisted of plant personnel familiar with the plant layout and associated fire hazards and appropriate fire-fighting equipment was available. The cause of the PD was directly related to the aspect of complete, accurate, and up-to-date procedures of the Resources Component in the cross-cutting area of Human Performance because the Fire Brigade Program Administrator failed to include all approved plan view updates into the fire brigade response strategies. [H.2(c)] (Section 1R05)

One violation of very low safety significance (Green), which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee has been entered into the licensee's CAP. This violation and corrective action tracking number are listed in Section 4OA7.

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REPORT DETAILS

Summary of Plant Status

Unit 1 operated at essentially 100 percent rated thermal power (RTP) for the entire inspection period.

Unit 2 began the inspection period shutdown for a refueling outage. The reactor was restarted and the unit entered Mode 1 on November 11, 2012. The unit was shut down to Mode 5 on November 14 to conduct repairs to the low pressure turbine #4 bearing. The reactor was restarted on November 22 and reached 15 percent RTP. On November 27, the unit was shut down to Mode 3 to repair a main feedwater valve problem. On November 30, the reactor was restarted and the unit was placed online. On December 1, an automatic turbine trip occurred from 31 percent RTP. On December 2, the turbine was returned to service. The unit attained 100 percent RTP on December 6, and operated at essentially 100 percent RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Readiness for Seasonal Extreme Weather Conditions: The inspectors reviewed the effectiveness of the licensee's cold weather protection program pertaining to their preparations for seasonal cold weather conditions experienced during the inspection period. The inspectors discussed the licensee's cold weather program with the assigned plant system engineer and verified that the licensee had implemented their cold weather preparation procedures. The inspectors walked down the Standby Shutdown Facility (SSF), the auxiliary inboard/outboard doghouses, and the refueling water storage tank for both units. This equipment was selected because their important to safety-related functions could be affected by adverse weather (freezing conditions). The inspectors observed plant conditions and evaluated those conditions against the criteria in the monthly equipment freeze protection checkout procedure. Documents reviewed are listed in the Attachment.

Readiness for Seasonal Extreme Weather Conditions: Using guidance in OpESS FY 2012-01, High Wind Generated Missile Hazards, the inspectors reviewed the licensee's severe weather actions for conditions involving high winds such as during a thunderstorm, tornado, or hurricane. The inspectors selected design features associated with the Standby Nuclear Service Water Pond (SNSWP), i.e., the site's ultimate heat sink, to review in detail to ensure that potential wind generated missile hazards were appropriately accounted for in the design. In addition, the inspectors conducted a walkdown of the SNSWP dam and overflow structure to ensure the missile hazard protection features were consistent with the design documentation descriptions

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and to verify there were no structural deficiencies that could challenge the continued operation of the ultimate heat sink during wind induced missile hazards. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdowns: The inspectors performed a partial walkdown of the following three systems to assess the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors focused on discrepancies that could impact the function of the system and potentially increase risk. The inspectors reviewed applicable operating procedures and walked down control systems components to verify selected breakers, valves, and support equipment were in the correct position to support system operation. Documents reviewed are listed in the Attachment.

- Unit 2 safety injection (NI) system flowpath alignment prior to entering Mode 6
- Unit 2 reactor coolant system (RCS) injection alignment, boration flowpath, and low temperature over-pressure (LTOP) alignment during reduced inventory conditions
- 1A motor driven auxiliary feedwater (MDCA) pump while the 1B MDCA pump was out-of-service for planned preventive maintenance and testing

Complete System Walkdown: The inspectors conducted a detailed review of the Unit 2 residual heat removal (ND) system. To determine the correct system alignment, the inspectors reviewed operating procedures, drawings, and the Updated Final Safety Analysis Report (UFSAR). Items reviewed during the inspection included: (1) valves are correctly positioned, do not exhibit leakage, and are locked as required; (2) electrical power is available, (3) system components are correctly labeled, cooled, lubricated, ventilated, etc.; (4) hanger and supports are correctly installed and functional; (5) essential support systems are functional; (6) system performance is not hindered by debris; and (7) tagging clearances are appropriate. To determine the effect of outstanding design issues on the operability of the systems, the inspectors reviewed the operator workaround list, the temporary modification list, system health reports, and other outstanding items tracked by the engineering department. In addition, the inspectors reviewed outstanding maintenance work requests and issues entered into the CAP database that could affect the ability of the system to perform its function. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Protection Walkdowns: The inspectors walked down accessible portions of the following five fire areas to determine if they were consistent with the UFSAR and the fire protection program for defense-in-depth features. The features assessed included the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, firefighting equipment, and passive fire features such as fire barriers. The inspectors also reviewed the licensee's compensatory measures for fire deficiencies to determine if they were commensurate with the significance of the deficiency. The inspectors reviewed the fire plans for the areas selected to determine if it was consistent with the fire protection program and presented an adequate fire fighting strategy. Documents reviewed are listed in the Attachment.

- Unit 2 reactor building pipe corridor (Fire Area 33, part II)
- Unit 2 annulus (Fire Area 33, part I)
- Unit 1 and Unit 2 vital battery rooms (Fire Area 13)
- Unit 2 MDCA and TDCA pump rooms (Fire Areas 3 and 3A)
- Unit 1 and Unit 2 auxiliary building 695 elevation (Fire Area 1)

b. Findings

Introduction: An NRC-identified Green NCV of the Unit 2 Facility Operating License, Condition 2.C.4, Fire Protection Program, was identified for failure to maintain pre-fire plans in areas that contain safety-related equipment. The inspectors identified that all copies of fire strategy plan view for the Unit 2 lower annulus and containment were missing from their pre-fire plans and unavailable to the Fire Brigade Leader and Operations personnel in the event of a fire in the Unit 2 reactor building.

Description: The inspectors identified that the fire strategy plan view, McGuire Fire Strategy Drawing (MFSD)-033 for the Unit 2 Lower Annulus/Containment was missing from the Fire Strategy books located in the Emergency Preparedness office. Further investigation revealed that the MFSD-033 plan view was also missing from the Fire Brigade Leader's Kit and the Control Room. Fire strategy plan views were part of licensee's Fire Brigade Response Strategies (Pre-Fire plans) and were developed and maintained by the Fire Brigade Program Administrator in accordance with NSD 112, Fire Brigade Organization, Training, and Responsibilities, Revision (Rev.) 10. The Fire Brigade Program Administrator was responsible for ensuring that the pre-fire plans were available in each Control Room and to the Fire Brigade members. The inspectors determined that in the event of a fire in the Unit 2 reactor building, the fire strategy plan view would have been unavailable to Fire Brigade leader which would have decreased the effectiveness of the fire brigade's response, actions, and coordination. For a fire in lower containment, the reduction in fire brigade effectiveness had the potential to impact trains of equipment that were necessary to achieve and maintain the reactor in a safe shutdown condition. The licensee determined that the MFSD-033 plan views for the Unit 2 lower annulus and containment were lost during an update of several fire strategies

approved on June 23, 2011. Immediate corrective actions included replacement of the missing fire strategy plan views and additional review of the fire strategy books located in the Fire Brigade Leader's Kit, Control Room, and Emergency Preparedness office. In addition to the missing MFSD-033 plan views, the licensee's review found several other missing fire strategy plan views and other plans views that were misplaced. The licensee corrected the problems identified with the fire strategy books.

Analysis: The licensee's failure to maintain pre-fire plans for the Unit 2 lower annulus and containment in accordance with fire protection program administrative control requirements was a PD. The PD was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events (Fire) and adversely affected the cornerstone objective, in that, it degraded the manual fire suppression (i.e., the fire brigade) capability. The finding was evaluated using IMC 0609, Appendix F, Fire Protection Significance Determination Process, Phase 1 Worksheet, dated February 28, 2005, and determined to be of very low safety significance (Green) because it represented a low degradation of the manual fire suppression function. Low degradation was assigned because the fire brigade consisted of plant personnel familiar with the plant layout and associated fire hazards and appropriate fire-fighting equipment was available. The cause of the PD was directly related to the aspect of complete, accurate, and up-to-date procedures of the Resources Component in the cross-cutting area of Human Performance because the Fire Brigade Program Administrator failed to include all approved plan view updates into the fire brigade response strategies. [H.2(c)]

Enforcement: McGuire License Condition 2.C.4 required the licensee to implement and maintain in effect all provisions of the approved Fire Protection Program (FPP) as described in Section 9.5.1 of the UFSAR as approved in Supplement 2 of the Safety Evaluation Report (SER), dated March 1, 1979. McGuire UFSAR Section 9.5.1 stated, in part, that the McGuire FPP was contained in design basis document MCS-1465.00-00-0008, Plant Design Basis Specification for Fire Protection. The FPP, Appendix B, required pre-fire plans as part of the administrative controls for the fire brigade response strategy. Fire strategy plan views were part of licensee's pre-fire plans and were developed and maintained in accordance with licensee procedure NSD 112, Rev. 10. Contrary to the above, from approximately June 23, 2011 to October 9, 2012, not all provisions of the approved FPP were maintained in that fire strategy plan views were not maintained in accordance with NSD 112. The fire strategy plan views for the Unit 2 lower annulus and containment were missing from their associated pre-fire plans and were unavailable to the Fire Brigade leader and Operations personnel in the event of an active fire in the Unit 2 reactor building. Because this violation was determined to be of very low safety significance and has been entered into the licensee's CAP as PIP M-12-08270, it is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy and is identified as NCV 05000370/2012005-01, Failure to Maintain Complete and Accurate Pre-Fire Plans.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flooding Reviews: The inspectors reviewed the UFSAR and the licensee's flooding analysis to determine which plant areas were subject to internal flooding and contained safety-related equipment. The inspectors walked down the area listed below to determine whether the area configuration and flood protection barriers and equipment were consistent with the descriptions and assumptions described in UFSAR and licensee flooding analysis. The inspectors examined the state of functional readiness of important flood protection equipment (i.e., flood barriers, sump pumps, and sump level instrumentation) and reviewed historical maintenance records to confirm that the equipment was being properly maintained in a state of functional readiness. The inspectors reviewed the operator actions credited in the flooding analysis, and contained in the licensee's flood mitigation procedure(s), to determine whether the desired results could be achieved by the times credited in the flooding analysis. Documents reviewed are listed in the Attachment.

- Unit 1 and Unit 2 auxiliary building interior and exterior doghouses

b. Findings

No findings were identified.

1R08 Inservice Inspection (ISI) Activities

a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities: The inspectors conducted a review of the implementation of the licensee's ISI Program for monitoring degradation of the reactor coolant system; emergency feedwater systems, risk-significant piping and components, and containment systems in Unit 2. The inspectors reviewed non-destructive examinations (NDEs) to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section XI (Code of record: 1998 Edition through 2000 Addendum), and to verify that indications and defects were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI, acceptance standards or an NRC approved alternative requirement.

The inspectors directly observed or reviewed records of the following NDE mandated by the ASME Code to evaluate compliance with the ASME Code Section XI and Section V requirements, and if any indications and defects were detected, evaluate if they were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement. The inspectors also reviewed evaluations of results that were dispositioned in accordance with applicable requirements.

- Ultrasonic (UT) examinations of Reactor Pressure Vessel Head (RPVH) Penetrations #52 and #22
- UT examination of RC safe-end welds, and documentation of the visual examination of the RPVH

The inspectors reviewed documentation for the repair/replacement of the following pressure boundary weld. The inspectors evaluated if the licensee applied the pre-service non-destructive examinations and acceptance criteria required by the applicable Construction Code. In addition, the inspectors reviewed the welding procedure specifications, welder qualifications, welding material certifications, and supporting weld procedure qualification records to evaluate if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section XI.

- Repair/Replacement of Unit 1 Nuclear Service Water (RN) System piping weld replaced in accordance with engineering change (EC) 102477

PWR Vessel Upper Head Penetration (VUHP) Inspection Activities: For the Unit 2 vessel head, a bare metal visual (BMV) examination was required this outage pursuant to 10 CFR 50.55a(g)(6)(ii)(D). The inspectors reviewed records of the visual examination and ultrasonic examination conducted on the Unit 2 reactor vessel head to evaluate if the activities were conducted in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). The inspectors evaluated if the required visual examination and ultrasonic examination scope/coverage was achieved and limitations (if applicable) were recorded in accordance with licensee procedures. Additionally, the inspectors evaluated if the licensee's criteria for visual and ultrasonic examination quality and instructions for resolving interference and masking issues were consistent with 10 CFR 50.55a. The inspectors observed the volumetric examinations conducted on RPVH penetrations #52 and #22.

The licensee did not identify any relevant indications that were accepted for continued service during the bare metal visual and ultrasonic exam. Additionally, the licensee did not perform any welded repairs to vessel head penetrations since the beginning of the preceding Unit 2 refueling outage. Therefore, no NRC review was completed for these inspection procedure attributes.

Boric Acid Corrosion Control (BACC) Inspection Activities: The inspectors reviewed the licensee's BACC program activities to ensure implementation with commitments made in response to NRC Generic Letter 88-05, Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary, and applicable industry guidance documents. The inspectors performed an on-site record review of procedures and the results of the licensee's containment walkdown inspections performed during the current refueling outage. The inspectors also interviewed the BACC program owner, conducted an independent walkdown of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions such as boric acid leaks were properly identified and corrected in accordance with the licensee's BACC and CAP.

The inspectors reviewed the following evaluations and corrective actions related to evidence of boric acid leakage to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI.

- PIP M-12-05023, Excessive dry boron leaked on 2KF-FE-Instrument taps (plug) and orifice flange gasket
- PIP M-12-05509, Excessive boron accumulation on upstream of pressure switch 2-NS-PS-5090

Steam Generator (SG) Tube Inspection Activities: The NRC inspectors observed the following activities and/or reviewed the following documentation and evaluated them against the licensee's Technical Specifications (TS), commitments made to the NRC, ASME Section XI, and Nuclear Energy Institute (NEI) 97-06 (Steam Generator Program Guidelines):

- Reviewed the licensee's in-situ SG tube pressure testing screening criteria. In particular, assessed whether assumed NDE flaw sizing accuracy was consistent with data from the EPRI examination technique specification sheets (ETSS) or other applicable performance demonstrations
- Interviewed Eddy Current Testing (ET) data analysts and reviewed 3 samples of ET data
- Compared the numbers and sizes of SG tube flaws/degradation identified against the licensee's previous outage Operational Assessment
- Reviewed the SG tube ET examination scope and expansion criteria
- Evaluated if the licensee's SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in NRC generic industry operating experience applicable to the licensee's SG tubes
- Reviewed the licensee's implementation of their extent of condition inspection scope and repairs for new SG tube degradation mechanism(s)
- Reviewed the licensee's repair criteria and processes
- Reviewed primary-to-secondary leakage (e.g., SG tube leakage) during the previous operating cycle
- Evaluated if the ET equipment and techniques used by the licensee to acquire data from the SG tubes were qualified or validated to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Rev. 7
- Reviewed the licensee's secondary side SG Foreign Object Search and Removal (FOSAR) activities
- Reviewed ET personnel qualifications

The inspectors observed the Eddy Current examination of the following tubes:

- SG A Tubes R3, C108 and R10, C 11
- SG B Tube R20, C11
- SG C Tube R30, C31
- SG D Tube R40, C41

Problem Identification and Resolution: The inspectors reviewed a sample of ISI-related problems that were identified by the licensee and entered into the CAP. The inspectors reviewed the PIPs to confirm the licensee had appropriately described the scope of the problem and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, requirements. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification (LOR) Program and Licensed Operator Performance

a. Inspection Scope

LOR Activity Review: On December 13, 2012, the inspectors observed operators in the plant's simulator during licensed operator regualification training to determine the effectiveness of the training required by 10 CFR 55.59 and the adequacy of operator performance. The training scenario involved an anticipated transient without scram (ATWS) coincident with a faulted steam generator. The inspectors assessed overall crew performance, clarity and formality of communications, use of procedures, alarm response, control board manipulations, group dynamics and supervisory oversight. The inspectors observed the shift crew and training instructor post-training critique to determine whether the licensee identified deficiencies and weaknesses that occurred during the simulator training. Documents reviewed are listed in the Attachment.

Licensed Operator Performance Review: On November 11, 22, and 30, 2012, the inspectors observed operators in the main control room and assessed their performance during initial reactor startup activities from the Unit 2 refueling outage and two subsequent reactor startups following shutdowns to repair a failed main turbine bearing and a main feedwater valve problem. Documents reviewed are listed in the Attachment.

Annual Review of Licensee Regualification Examination Results: On July 5, 2012, the licensee completed the comprehensive biennial regualification written examinations and the annual regualification operating examinations required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure

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(IP) 71111.11, Licensed Operator Requalification Program. These results were compared to the thresholds established in IMC 0609, Significance Determination Process, Appendix I, Operator Requalification Human Performance Significance Determination Process, effective January 1, 2012.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the two issues listed below for items such as: (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) scoping in accordance with 10 CFR 50.65(b) of the Maintenance Rule; (4) characterizing reliability issues for performance; (5) charging unavailability for performance; (6) balancing reliability and unavailability; (7) trending key parameters for condition monitoring; (8) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and (9) appropriateness of performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). The inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. Documents reviewed are listed in the Attachment.

- Test acceptance failures of "A" and "B" auxiliary building ground water drainage sump pumps (PIP M-12-05756)
- RCS loop suction isolation valve to ND (2ND-1B) failure to open from control room during Unit 2 shutdown (PIP M-12-06899)

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's risk assessments and the risk management actions used to manage risk for the plant configurations associated with the four activities listed below. The inspectors assessed whether the licensee performed adequate risk assessments, and implemented appropriate risk management actions when required by 10 CFR 50.65(a)(4). For emergent work, the inspectors verified that any increase in risk was promptly assessed, that appropriate risk management actions were promptly implemented, and that work activities did not place the plant in unacceptable configurations. Documents reviewed are listed in the Attachment.

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- Orange risk on Unit 1 for planned opening of turbine building to auxiliary pressure boundary door to support replacement of the 2B RN suction strainer
- Orange risk on Unit 2 for planned RCS draindown to reduced inventory conditions to remove steam generator nozzle dams and install diaphragms and manways
- Yellow risk on Unit 1 and Unit 2 for planned activities to move train locomotive with replaced Unit 2 generator stator across the SNSWP dam
- Yellow risk on Unit 2 for planned emergent repair activities of main feedwater valve 2CF-31 resulting in unavailability of all four steam generators in Mode 3

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors reviewed the five technical evaluations listed below to determine if TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors reviewed any compensatory measures taken for degraded SSCs to determine if the measures were in-place and adequately compensated for the degradation. For the degraded SSCs, or those credited as part of compensatory measures, the inspectors reviewed the UFSAR to determine if the measures resulted in changes to the licensing basis functions, as described in the UFSAR, and if a license amendment was required per 10 CFR 50.59. Documents reviewed are listed in the Attachment.

- PIP M-12-06899, ND pump suction valve 2ND-1B failed to open from control room push button
- PIP M-12-08855, Unit 2 SSF standby makeup pump check valve failed testing
- PIP M-12-08892, New post seal cracks discovered on Vital Batteries EVCA, EVCB, and EVCD
- PIP M-12-08927, Emergency diesel generator (EDG) capability to field flash during hot rotor conditions
- PIP M-12-09547, ND pump discharge pressure increasing due to leak by valve 2NI-183B

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the five post-maintenance tests listed below to determine if procedures and test activities ensured system operability and functional capability. The inspectors reviewed the licensee's test procedures to determine if the procedures adequately tested the safety functions that may have been affected by the maintenance activities, that the acceptance criteria in the procedures were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedures had been properly reviewed and approved. The inspectors also witnessed the tests and/or reviewed the test data to determine if test results adequately demonstrated restoration of the affected safety functions. Documents reviewed are listed in the Attachment.

- 2A EDG overspeed 2/3 logic function verification testing following EDG outage maintenance work window
- 2A EDG starting air solenoid testing following EDG outage maintenance work window
- Leak rate test for containment penetration M-455 following maintenance on valve 2VP-13AB
- Unit 2 main turbine functional testing following replacement in the refueling outage
- Vital Battery EVCC testing following emergent replacement of battery cell #31

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors evaluated licensee outage activities associated with the Unit 2 refueling outage that began September 15, 2012, and completed November 30, 2012. The inspectors conducted portions of the following activities associated with the refueling outage. Documents reviewed are listed in the Attachment.

- Observed activities to verify that the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable TS when taking equipment out of service.
- Reviewed the licensee's responses to emergent work and unexpected conditions to verify that resulting configuration changes were controlled in accordance with the outage risk control plan.
- Periodically reviewed the setting and maintenance of containment integrity, to establish that the reactor coolant system and containment boundaries were in place and had integrity when necessary.

- Observed fuel handling operations during reactor core reload including review of the videotape core loading verification and alignment to verify that those operations and activities were being performed in accordance with TS and procedural guidance.
- Observed the reinstallation of the reactor vessel core barrel, upper internals, and head to ensure the lifts were conducted in accordance the station procedures and heavy lift guidance.
- Reviewed system lineups and/or control board indications to substantiate that TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant configurations.
- Conducted containment walkdowns to inspect for overall cleanliness and material condition of plant equipment after the licensee completed their closeout inspection prior to restart.
- Observed the approach to criticality, placing the main generator on-line which completed the refueling outage and portions of the power ascension activities.
- Reviewed the items that had been entered into the CAP to verify that the licensee had identified outage related problems at an appropriate threshold.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the six surveillance tests identified below, the inspectors witnessed testing and reviewed the test data, to determine if the SSCs involved in these tests satisfied the requirements described in the TS, UFSAR, and applicable licensee procedures. In addition, the inspectors verified that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

Surveillance Tests

- PT/2/A/4200/009A, Engineered Safety Features Actuation Periodic Test Train A (Safety Injection portion), Rev. 97
- PT/2/A/4200/009B, Engineered Safety Features Actuation Periodic Test Train B, Rev. 9

In-Service Tests

- PT/2/A/4252/001, #2 TD CA Pump Performance Test, Rev. 112

Reactor Coolant System Leakage Testing

- PT/1/A/4150/001B, Reactor Coolant Leakage Calculation, Rev. 80

Containment Isolation Valve Testing

- PT/2/A/4200/001C, Isolation Valve Leak Rate Test, Rev. 102 (Enclosure 13.6 for Containment Penetration M-221)

Ice Condenser Systems Testing

- PT/0/A/4200/032, Periodic Inspection of Ice Condenser Lower Inlet Doors, Rev. 21

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System (ANS) Evaluationa. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing the ANS in accordance with IP 71114, Attachment 02, Alert and Notification System Evaluation. The inspectors also observed conduct of a daily siren polling. The applicable planning standard, 10 CFR Part 50.47(b)(5) and its related 10 CFR Part 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Rev. 1, were also used as a reference. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation Systema. Inspection Scope

The inspectors reviewed the licensee's ERO augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions. The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The Nuclear Security and Incident Response (NSIR) headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan listed in the Attachment. The licensee determined that, in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection. This inspection activity satisfied one inspection sample.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. The licensee's 10 CFR 50.54(q) change process and selected evaluations of Emergency Preparedness document revisions were reviewed to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. In addition, the inspectors reviewed licensee procedures and training for the evaluation of changes to the emergency plans. The applicable 10 CFR 50.47(b) planning standards and related 10 CFR 50, Appendix E requirements were used as reference criteria. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample.

b. Findings

No findings were identified.

1EP6 Drill Evaluation

a. Inspection Scope

Licensed Operator Simulator Emergency Preparedness Training: On December 13, 2012, the inspectors observed the performance of a simulator-based licensed operator requalification examination that required implementation of emergency preparedness

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actions for the declaration of a Site Area Emergency in accordance with procedure RP/0/A/5700/000, Classification of Emergency, Rev. 19. The simulator examination scenario involved an anticipated transient without scram coincident with a faulted steam generator. The inspectors assessed emergency procedure usage, emergency plan classifications, notifications, and protective action recommendation development. The inspectors evaluated the adequacy of the licensee's conduct of the simulator examination and critique performance and verified that, as appropriate, emergency preparedness performance weaknesses were captured in the licensee's operator training program or CAP.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope

Hazard Assessment and Instructions to Workers: During plant tours, the inspectors observed labeling of radioactive material and postings for radiation areas, high radiation areas (HRA), and contaminated areas established within the radiologically controlled area (RCA) of the Unit 1 and Unit 2 Auxiliary Buildings, Unit 2 lower containment, and radioactive waste processing and storage locations. The inspectors independently measured radiation dose rates or observed conduct of licensee radiation surveys for selected RCA areas, including the Independent Spent Fuel Storage Installation (ISFSI). The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, airborne radioactivity, and pre-job surveys for upcoming tasks. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. For selected outage work, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers.

Hazard Control and Work Practices: The inspectors evaluated access barrier effectiveness for selected Locked High Radiation Area (LHRA) and Very High Radiation Area (VHRA) locations. Changes to procedural guidance for LHRA and VHRA controls were discussed with health physics (HP) supervisors. Controls and their implementation for storage of irradiated material within the spent fuel pool (SFP) were reviewed and discussed in detail. Established radiological controls (including airborne controls) were evaluated for selected tasks, including fuel transfer canal/blind flange work, VR ductwork, and a Unit 1 at-power entry. In addition, licensee controls for areas where dose rates could change significantly as a result of refueling operations were reviewed and discussed.

Occupational workers' adherence to selected RWPs and HP technician (HPT) proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. Electronic dosimeter (ED) alarm set points and worker stay times were evaluated against area radiation survey results. Worker responses to select ED dose rate alarms were evaluated. For HRA tasks involving significant dose rate gradients, the use and placement of whole body and extremity dosimetry to monitor worker exposure was discussed with the licensee.

Control of Radioactive Material: The inspectors observed surveys of material and personnel being released from the RCA using small article monitors (SAM), personnel contamination monitors (PCM), and portal monitor (PM) instruments. The inspectors reviewed the last two calibration records for selected release point survey instruments and discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors also reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with licensee staff.

Problem Identification and Resolution: PIPs associated with radiological hazard assessment and control were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NSD-208, Problem Investigation Program, Rev. 35. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.

Radiation protection (RP) activities were evaluated against the requirements of UFSAR Section 12; TS Section 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls

a. Inspection Scope

Work Planning and Exposure Tracking: The inspectors reviewed work activities and their collective exposure estimates for the previous Unit 1 End-of-Cycle 21 (1EOC21) and current Unit 2 End-of-Cycle 21 (2EOC21) outages. ALARA planning packages were reviewed for the following high collective exposure tasks: reactor head bare metal inspection (1EOC21); Reactor Building temporary shielding (1EOC21); Remove/Replace Reactor head and upper internals (1EOC21 and 2EOC21); fiber insulation replacement project (1EOC21); MSIP walkdowns (1EOC21). For the selected tasks, the inspectors reviewed established dose goals and discussed assumptions regarding the bases for the current estimates with responsible ALARA planners. The inspectors evaluated the incorporation of exposure reduction initiatives and operating experience, including historical post-job reviews, into RWP requirements. Day-to-day collective dose data for

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the selected tasks were compared with established dose estimates and evaluated against procedural criteria (trigger points) for additional ALARA review. Where applicable, changes to established estimates were discussed with ALARA planners and evaluated against work scope changes or unanticipated elevated dose rates.

Source Term Reduction and Control: The inspectors reviewed the collective exposure three-year rolling average (TYRA) from 2009 - 2011 and reviewed historical outage collective exposure trends since the first outage on each unit. The inspectors reviewed historical dose rate trends during post shutdown crudburst/cleanup since steam generator replacement and initiation of zinc injection (End-of-Cycle 11). Source term reduction initiatives were reviewed and discussed with HP staff.

Radiation Worker Performance: Radiation worker performance was observed and evaluated as part of IP 71124.01 and is documented in Section 2RS1. While observing job tasks, the inspectors evaluated the use of remote technologies to reduce dose including teledosimetry and remote visual monitoring. In addition, inspectors observed daily update briefings for high risk (SOER 01-1) work associated with reactor head repair activities.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with ALARA program implementation. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with licensee procedure NSD-208, Problem Investigation Program, Rev. 35. The inspectors also evaluated the scope and frequency of the licensee's self-assessment program and reviewed recent assessment results.

ALARA program activities were evaluated against the requirements of UFSAR Section 12, RP; TS Section 5.4, Procedures; 10 CFR Part 20; and approved licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation

a. Inspection Scope

Engineering Controls: The inspectors reviewed the use of temporary and permanent engineering controls to mitigate airborne radioactivity during 2EOC21. The inspectors observed the use of high efficiency particulate air ventilation and vacuums to control contamination during surface disturbing work. Use of containment purge to reduce airborne levels in general areas was reviewed. The inspectors evaluated the effectiveness of continuous air monitors and air samplers placed in work area to provide indication of increasing airborne levels.

Respiratory Protection Equipment: The inspectors reviewed the use of respiratory protection devices to limit the intake of radioactive material. This included review of devices used for routine tasks and devices stored for use in emergency situations. Selected Self-Contained Breathing Apparatus (SCBA) units and negative pressure respirators (NPR)s staged for routine and emergency use in the Main Control Room (MCR) and other locations were inspected for material condition, SCBA bottle air pressure, number of units, and number of spare masks and air bottles available. The inspectors reviewed maintenance records for selected SCBA units for the past two years and evaluated SCBA and NPR compliance with National Institute for Occupational Safety and Health certification requirements. The inspectors also reviewed records of air quality testing for supplied-air devices and SCBA bottles.

The inspectors reviewed interviewed radworkers and MCR operators on the use of respiratory protection devices including SCBA bottle change-out and use of corrective lens inserts. Respirator qualification records and medical fitness cards were reviewed for several MCR operators and emergency responder personnel in the Maintenance and RP departments. In addition, qualifications for individuals responsible for testing and repairing SCBA vital components were evaluated through review of training records.

Problem Identification and Resolution: CAP documents associated with airborne radioactivity mitigation and respiratory protection were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NSD-208, Problem Investigation Program, Rev. 35.

Licensee activities associated with the use of engineering controls and respiratory protection equipment were reviewed against 10 CFR Part 20; UFSAR Chapter 12; Regulatory Guide 8.15, Acceptable Programs for Respiratory Protection; and applicable licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment

a. Inspection Scope

External Dosimetry: The inspectors reviewed National Voluntary Laboratory Accreditation Program certification data (including thermoluminescent dosimeter testing for neutron, gamma, and beta exposures) and discussed program guidance for storage, processing, and results for active and passive personnel dosimeters currently in use. Licensee procedures for shallow and deep dose assessments for workers with identified skin contaminations were reviewed and discussed. Comparisons of ED and personnel dosimeter data were reviewed and discussed in detail. In addition, inspectors reviewed procedural requirements for extremity dosimetry, multi-badging, and re-positioning of whole body dosimetry.

Internal Dosimetry: Program guidance (including Derived Air Concentration-hour tracking), instrument detection capabilities, and assessment results for internally deposited radionuclides were reviewed in detail. The inspectors discussed with licensee staff the station's passive monitoring program in use for routine in vivo (Whole Body Counting) analyses. In addition, capabilities for collection and analysis of special bioassay samples were reviewed and evaluated.

Special Dosimetric Situations: The inspectors evaluated the licensee's use of multi-badging, extremity dosimetry, and dosimeter relocation within non-uniform dose rate fields and discussed worker monitoring in neutron areas with licensee staff. The inspectors reviewed monitoring records for declared pregnant workers (DPW) since December 2011 and discussed DPW monitoring guidance with licensee staff. In addition, the adequacy of shallow dose assessments for selected Personnel Contamination Events occurring between January 1, 2011, and July 31, 2012, were reviewed and discussed.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with occupational dose assessment. The inspectors evaluated the licensee's ability to identify and resolve the identified issues in accordance with procedure NSD-208, Problem Investigation Program, Rev. 35. The inspectors also discussed the scope of the licensee's internal audit program and reviewed recent assessment results.

Occupational dose assessment program activities were evaluated against the requirements of FSAR Section 12, Radiation Protection; TS Section 5.4, Procedures; 10 CFR Parts 19 and 20; RG 8.40, Methods for Measuring Effective Dose Equivalent from External Exposure; and approved licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

Introduction: An unresolved item (URI) was identified concerning the evaluation of the occupational radiation dose to be assigned to a worker whose hand was punctured by a piece of contaminated wire.

Description: While working in the reactor building an individual received a puncture wound in their hand from a piece of contaminated wire. Licensee attempts to decontaminate the wound were unsuccessful and the radioactive material from the contaminated wire remained inside the individual's hand. The licensee was reviewing that data and determining what dose to assign to the individual. The NRC will review the methodologies used once the licensee has completed its assessment to determine if a violation of regulatory requirements existed. This issue is identified as URI 05000369,370/2012005-02, Evaluation of the Occupational Radiation Dose Assigned to a Worker from a Piece of Contaminated Wire.

2RS5 Radiation Monitoring Instrumentation

a. Inspection Scope

Radiation Monitoring Instrumentation: During walk-downs of the Reactor and Auxiliary Buildings, SFP areas, Unit 2 containment, and the RCA exit point, the inspectors observed installed radiation detection equipment. These included area radiation monitors (ARMs), liquid and gaseous effluent monitors, PCMs, SAMs, and PMs. The inspectors observed the physical location of the components and noted their material condition. Setpoint methodologies for selected radiation monitors were evaluated for correct alarm setpoint determination based on Offsite Dose Calculation Manual (ODCM) requirements. The inspectors observed the physical location of the components, noted the material condition, and compared sensitivity ranges with UFSAR details.

In addition to equipment walk-downs, the inspectors observed functional checks alarm set-point testing of various portable and fixed detection instruments, including ion chambers, telepoles, PCMs, SAMs, PMs, and a whole body counter (WBC). For the portable instruments, the inspectors observed the use of a high-range calibrator and discussed periodic output value testing with a HPT. The inspectors reviewed calibration records and evaluated alarm setpoint values for selected PCMs, PMs, effluent monitors, ARMs, SAMs, and a WBC. This included a sampling of instruments used for post-accident monitoring such as a containment high-range radiation monitor and effluent monitors for noble gas and iodine. The radioactive source used to calibrate an effluent monitor was evaluated for traceability to national standards. In addition, during the inspection, the inspectors observed licensee personnel perform an analog channel operational test on 1EMF-33. Calibration stickers on portable survey instruments were noted during inspection of the storage area for ready-to-use equipment. The most recent 10 CFR Part 61 analysis for dry active waste was reviewed to determine if calibration and check sources are representative of the plant source term. The inspectors also reviewed countroom calibration records for a gamma spectroscopy germanium detector and a liquid scintillation detector.

Effectiveness and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; UFSAR Chapters 11 and 12; and applicable licensee procedures. Documents reviewed are listed in the Attachment.

Problem Identification and Resolution: The inspectors reviewed selected CAP documents in the area of radiological instrumentation. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NSD-208, Problem Investigation Program, Rev. 35. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

b. Findings

No findings were identified.

40A1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported PI data for the following nine indicators. To determine the accuracy of the PI data reported for the specified review period, the inspectors compared the licensee's basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Rev. 6, as well as the licensee's procedural guidance for reporting PI information. Documents reviewed are listed in the Attachment.

Barrier Integrity Cornerstone

- Reactor Coolant System (RCS) Specific Activity (Units 1 and 2)
- RCS Leak Rate Performance Indicator (Units 1 and 2)

The inspectors sampled licensee submittals relative to the PIs listed above for the period October 1, 2011, through September 30, 2012. The inspectors compared the licensee-reported performance indicator data with records developed by the licensee that contained daily calculated values for RCS activity and leak rates. The inspectors interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. The inspectors also reviewed the corrective action documents associated with these areas to determine whether the licensee identified and implemented appropriate corrective actions.

Emergency Preparedness Cornerstone

- Drill/Exercise Performance (DEP)
- Emergency Response Organization Drill Participation (ERO)
- Alert and Notification System Reliability (ANS)

The inspectors sampled licensee submittals relative to the PIs listed above for the period July 1, 2011, and September 30, 2012. The inspectors examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

The inspectors sampled licensee submittals relative to the PIs listed above for the period May 1, 2011, through June 30, 2012. For the assessment period, the inspectors reviewed ED alarm logs and selected CRs related to controls for exposure significant areas. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in the Attachment.

Public Radiation Safety Cornerstone

- Radiological Effluent Technical Specification/ODCM Radiological Effluent Occurrences

The inspectors sampled licensee submittals relative to the PIs listed above for the period May 1, 2011, through June 30, 2012. The inspectors reviewed CAP documents, effluent dose data, and licensee procedural guidance for classifying and reporting PI events.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

a. Inspection Scope

Review of Items Entered into the Corrective Action Program: As required by IP 71152, Problem Identification and Resolution, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed screening of items entered into the licensee's corrective action program. This was accomplished by reviewing copies of condition reports, attending some daily screening meetings, and accessing the licensee's computerized CAP database.

Semi-Annual Review to Identify Trends: As required by IP 71152, the inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screenings, licensee trending efforts, and licensee human performance results. This review nominally considered the six month period of July 2012 through December 2012 although some examples expanded beyond those dates when the scope of the trend warranted. The review also included issues documented outside the normal CAP in major equipment problem lists, focus area reports, system health reports, self-assessment reports, and department PIP trending reports. The inspectors compared and contrasted their results with the results contained in the licensee's latest quarterly trend reports. Documents reviewed are listed in the Attachment.

Annual Sample Reviews: The inspectors reviewed the issue listed below in detail to evaluate the effectiveness of the licensee's corrective actions for important safety issues.

- PIP M-11-00329, Unit 1 and Unit 2 RN System Inoperability Due to Macro-fouling of Suction Strainers

The inspectors assessed whether the issues were properly identified; documented accurately and completely; properly classified and prioritized; adequately considered extent of condition, generic implications, common cause, and previous occurrences; adequately identified root causes/apparent causes; and identified appropriate and timely corrective actions. The inspectors evaluated the licensee documents against the requirements of the licensee's CAP and implementing procedures, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion

a. Inspection Scope

Unit 2 Turbine Trip: On December 1, 2012, the inspectors evaluated the licensee's response to a Unit 2 turbine trip. The automatic turbine trip occurred from 31 percent RTP due to unexpected actuation of the ATWS Mitigation System Actuation Circuitry (AMSAC). As appropriate, the inspectors: (1) observed plant parameters and status, including mitigating systems/components required to maintain the plant in a safe configuration and in accordance with TS requirements; (2) evaluated whether alarms/conditions preceding and following the trip were as expected; (3) evaluated the performance of plant systems and operator actions; and, (4) confirmed proper NRC classification and reporting of the event.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings were identified.

.2 Independent Spent Fuel Storage Installation

a. Inspection Scope

The inspectors reviewed all revisions to the NAC-TN-32 and NAC-UMS spent fuel storage cask FSARs and any revisions to the 10 CFR72.212 SER made since the last inspection period (i.e., since December 2011) to assess their impact on the licensee's ISFSI program. The inspectors reviewed all revisions to the operating, maintenance, and radiation protection procedures for the two licensed cask designs since December 2011, to ensure that the procedures still fulfilled the commitments and requirements specified in the cask FSAR, SER, and Certificate of Compliance. The inspectors also reviewed a sample of recent CAP documents pertaining to the ISFSI program to ensure that issues were being identified and addressed in a manner commensurate with their significance. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.3 Review of Institute of Nuclear Power Operations (INPO) Biennial Evaluation Interim Report

a. Inspection Scope

The inspectors reviewed the October 2012, interim report of the INPO biennial evaluation of site activities conducted July – August, 2012. The inspectors reviewed the report and PIPs generated from the evaluation to ensure that issues identified were consistent with the NRC perspectives of licensee performance and if any significant safety issues were identified that warranted further NRC follow-up.

b. Findings

No findings were identified.

.4 (Discussed) NRC Temporary Instruction (TI) 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

a. Inspection Scope

Inspectors conducted independent walkdowns to verify that the licensee completed the actions associated with the flood protection feature specified in paragraph 03.02.a.2 of this TI. Inspectors are performing walkdowns at all sites in response to a letter from the NRC to licensees, entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340).

Enclosure 4 of the letter requested licensees to perform external flooding walkdowns using an NRC-endorsed walkdown methodology (ADAMS Accession No. ML12056A050). Nuclear Energy Industry (NEI) document 12-07 titled, "Guidelines for Performing Verification Walkdowns of Plant Protection Features," (ADAMS Accession No. ML12173A215) provided the NRC-endorsed methodology for assessing external flood protection and mitigation capabilities to verify that plant features, credited in the CLB for protection and mitigation from external flood events, and are available, functional, and properly maintained.

b. Findings

Any findings or violations associated with this TI will be documented in the 2013 1st quarter integrated inspection report.

.5 (Closed) TI 2515/188, Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

On August 21, August 23, August 27-28, September 6-7, and September 11, 2012, the inspectors accompanied the licensee on their seismic walkdowns of the following components:

- "A" train vital batteries, battery chargers, and inverters, located in the control complex
- Unit 1 600 volt AC essential motor control center (MCC) panels 1EMXB and 1EMXB-1, located in the auxiliary building
- Unit 1 "A" train 4.16 essential power switchgear (1ETA), located in the auxiliary building
- Unit 1 SSF standby makeup pump, suction isolation valve, and pulsation dampener, located in the containment annulus
- 1A and 1B spent fuel pool cooling (KF) pumps and heat exchangers, located in the auxiliary building
- "B" train solid state protection system (SSPS) output & logic cabinet 2-IPE-CA-9020, located in the Control Room

- 2A ND and 2A NS pumps, located in the auxiliary building
- 600 volt AC MCC panel 1EMXE, located in the 1A EDG room
- 1B1 and 1B2 EDG starting air receiver tanks, located in the 1B EDG room
- Air start solenoid valve 1VG-066, located in the 1B EDG room
- Control panel DGCP1B, located in the 1B EDG room

For the above components, the inspectors verified that the licensee confirmed that the following seismic features were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware, more than mild surface corrosion; and visible cracks in the concrete near the anchors
- Anchorage configuration was consistent with plant documentation
- SSCs will not be damaged from impact by nearby equipment or structures
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment
- Attached lines have adequate flexibility to avoid damage
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area or could cause a fire in the area
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding)

On October 11-12, 2012, using the same review/evaluation criteria above, the inspectors independently performed a seismic verification walkdown of the following components located in the Unit 1 and Unit 2 auxiliary building:

- Control room (CR) outside air pressure filter trains and inlet dampers
- CR area air handling units
- 1A MDCA pump and associated auxiliary shutdown control panel
- Containment ventilation outboard containment isolation valve to the containment ventilation unit condensate drain tank (VUCDT)
- 1B and 2B RN suction strainer backwash pumps, 1B RN strainer, and 1B RN strainer automatic backwash valve

The inspectors verified that observations that could not be determined to be acceptable were entered into the licensee's CAP for evaluation. Additionally, the inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the Seismic Walkdown Equipment List (SWEL) and these items were walked down by the licensee.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exits

On January 14, 2013, the resident inspectors presented the inspection results to Mr. Steven Capps and other members of his staff. The inspectors confirmed that any proprietary information provided or examined during the inspection period had been returned.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which met the criteria of the NRC Enforcement Policy for being dispositioned as a NCV.

- Technical Specification 5.7, High Radiation Area, required areas with radiation levels greater than 1,000 millirem (mrem) per hour at 30 centimeters (cm) from the radiation source or from any surface which the radiation penetrates to be provided with locked or continuously guarded doors to prevent unauthorized entry. Contrary to the above, on September 23, 2011, an area with radiation levels greater than 1,000 mrem per hour at 30 cm from the radiation source or from any surface which the radiation penetrates was not locked or continuously guarded to prevent unauthorized entry. The locking method for a LHRA door leading to the reactor head stand did not prevent unauthorized entry. The padlock used to secure retaining bolts on the doors was supposed to be installed through openings in the bolts preventing them from being removed. Instead, the padlock was installed around the bolts allowing them to be removed. Corrective actions included identifying other HRA, LHRA, and VHRA barriers with the unique locking mechanism, photographing the proper locking method, providing proper instructions to individuals during key issuance, and clarifying procedural guidance on the proper use of the locking mechanism. The corrective actions were documented under PIP M-11-07009. The violation was evaluated using the Occupational Radiation Safety Significance Determination Process and was determined to be not more than very low safety significance (Green) because this finding did not have a substantial potential for over-exposure because of additional controls and warnings present such as personal ED alarming devices and LHRA posting.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

R. Abbott, Acting Regulatory Compliance Manager
D. Brenton, Superintendent of Operations
D. Brewer, Organizational Effectiveness Manager
S. Capps, Vice President, McGuire Nuclear
K. Crane, Senior Licensing Specialist
J. Gabbert, Chemistry Manager
J. Hicks, Maintenance Superintendent
N. Kunkel, Work Control Superintendent
S. Mooneyhan, Radiation Protection Manager
C. Morris, Station Manager
J. Nolin, Design Engineering Manager
S. Russ, Security Manager
P. Schuerger, Training Manager
S. Snider, Engineering Manager

LIST OF REPORT ITEMS

Opened and Closed

05000370/2012005-01	NCV	Failure to Maintain Complete and Accurate Pre-Fire Plans (Section 1R05)
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Opened

05000369,370/2012005-02	URI	Evaluation of the Occupational Radiation Dose Assigned to a Worker from a Piece of Contaminated Wire (Section 2RS4)
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Discussed

2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.4)
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Closed

2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5.5)
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MCC-1161.00-00-0001, Reservoir Outlet Works Overflow Spillway for SNSWP, Rev. 2
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Section 1R04: Equipment Alignment

Partial System Walkdown

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OP/1/A/6250/002, Auxiliary Feedwater System, Rev. 117

Complete System Walkdown

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UFSAR Section 6.3, Emergency Core Cooling System
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OP/2/A/6100/SU-14, Removing ND from Service, Rev. 28
OP/2/A/6100/SU-16, Aligning ND System for Standby Readiness, Rev. 10
EP/2/A/5000/ES-1.4, Transfer to Hot Leg Recirculation, Rev. 4

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OP/0/A/6400/002B, Halon Fire Protection System, Rev. 17
MP/0/A/7400/049, Diesel Generator Halon Cylinder Pressure and Weight Test, Rev. 32
MP/0/A/7200/013, Auxiliary Feedwater Turbine Halon Cylinder Pressure and Weight Test,
Rev. 18
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Section 1R06: Flood Protection

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Boric Acid Corrosion Control Program, McGuire Nuclear Station, Rev. 65

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MP/0/A/770/080, Inspection, Assessment and Cleanup of Boric Acid on Plant Materials, Rev. 15

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54-ISI-30-017, Written Practice for the Qualification and Certification of NDE Personnel, dated 1/25/12

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 Posi3 USB Test Results, Complete SCBA Test, Firehawk M7 Air Mask, 4500 PR14, EnRad IDs 04321, dated 6/14/11 and 7/09/12; 04041, dated 7/09/12 and 12/14/10; 04186, dated 12/13/10 and 1/12/12; and 04217, dated 1/12/11 and 2/06/12
 ProCheck3 Test Results, Facepiece Test, Units 04041, dated 7/09/12 and 8/12/12; 04042, dated 7/07/12 and 8/10/12; 04186, dated 1/12/12 and 7/23/12 and 9/01/12; 04217, dated 8/18/12 and 9/01/12; and 04321, dated 7/09/12 and 8/10/12
 PIPs M-10-02531, M-11-06972, and M-11-07846

Section 2RS4: Occupational Dose Assessment

RPMP 3-2, Electronic Dosimeter Alarms, Rev. 2
 RPMP 7-9, Management's Expectations for Investigation of Portal and Whole Body Monitor Alarms
 SH/0/B/2000/001, Operational Beta Program, Rev. 2
 SH/0/B/2000/008, Operational Alpha Program, Rev. 8
 SH/0/B/2000/010, Beta Radiation Characterization Program, Rev. 1
 SH/0/B/2000/011, Alpha Radiation Characterization Program, Rev. 2
 SH/0/B/2001/002, Investigation of Unusual Dosimetry Occurrence or Possible Overexposure, Rev. 7
 SH/0/B/2001/003, Investigation of Skin and Clothing Contaminations, Rev. 11
 SH/0/B/2002/003, Declared Pregnant Worker, Rev. 5
 SRPMP 2-1, ED Alarms, Rev. 3
 SRPMP 10-3, Annual Radiation Protection Source Term Data, Review, Rev. 1
 Electronic Dosimeter Calibrator Bias Setup, dated 8/22/12
 Memo, McGuire Difficult to Detect Radionuclides, dated 2/18/09
 Memo to File, File No.: GS-754.20, 10 cm² Particle Dose Factors, dated 2/08/06
 MNS 2011 Alpha Characterization, dated 3/05/12
 NVLAP Scope of Accreditation to ISO/IEC, 4/01/12 – 3/31/13
 Pregnancy Exposure Agreements for two Declared Pregnant Workers, dated 4/26/12 and 8/22/12
 Skin Dose assessment for PCE 10-006, dated 3/16/10
 Skin Dose assessment for PCE 11-030, dated 7/11/11
 Skin Dose assessment for PCE 11-059, dated 10/08/11
 TLD ED Correlation Data, Undated
 TLD Lab On-Site NVLAP Assessment, dated 8/18/10
 Whole Body Counter (WBC) Control Chart Records and Weekly Performance Review, Instrument # MCHPS 26809, for the period 10/20/10 to 10/19/11
 WBC Radionuclide Libraries for Ingestion, Inhalation, and Medical, dated 11/28/10
 WBC Calibration Record, Instrument # MCHPS 26809, dated 6/30/11
 WBC Calibration Record, Instrument # MCHPS 26809, dated 7/31/12
 PIPs M-10-01714, G-11-00106, G-11-00250, M-11-04797, M-11-07666, M-12-07331, M-12-07796, and M-12-05949
 Self Assessment Report (SAR), G-RPS-SA-11-01, 2nd Biannual 2010 TLD Data Review
 SAR, G-RPS-SA-12-01, 1st Biannual 2012 TLD Data Review
 SAR, G-RPS-SA-12-11, 2012 Dosimetry Lab Peer Assessment

Section 2RS5: Radiation Monitoring Instrumentation

EnRad-Proc-807, Calibration of Eberline RO-20 Ion Chamber, Rev. 1
 EnRad-Proc-823, Calibration of Rotameters and Air Sampling Equipment, Rev. 5
 EnRad-Proc-835, Calibration of the MGPI Telepole, Rev 5
 EnRad-Proc-842, Calibration of Ludlum Model 3 (mR/hr), Rev. 0
 HP/0/B/1001/041, Calibration and Quality Assurance of Whole Body Counter, Rev. 1
 HP/0/B/1001/045, Calibration of Packard Tri-Carb 2900 TR Series Liquid Scintillation Counter, Rev. 2
 HP/0/B/1001/048, Calibration of the Apex Gamma Spectroscopy System, Rev. 0
 HP/0/B/1005/052, Calibration of the Thermo Electron Small Articles Monitor (SAM), Rev. 5
 HP/0/B/1005/066, Response Checks of Personnel Monitoring Equipment, Rev. 21

HP/0/B/1005/083, Calibration of Canberra GEM-5 Portal Monitor, Rev. 1
 IP/1/B/3006/033Q, 1EMF33 RP-86A Process Monitor Channel Operational Test, Rev. 2
 SH/0/B/2008/001, Calibration and Quality Assurance of Canberra Argos-4AB Contamination Monitors, Rev. 2
 DAW, Filters, Secondary Bead Resin, and UNIT 2 Cavity Vacuum Filters, Data Records, dated 1/10/12
 EnRad Laboratories, Central Calibration Facility, Certificates of Calibration, Eberline RO-20, S/N 1331, EnRad ID 01065, dated 3/27/12 and 8/29/12
 EnRad Laboratories, Central Calibration Facility, Certificates of Calibration, Ludlem Model-3 (mR/hr), S/N 235257, EnRad ID 02509, dated 2/24/12 and 8/27/12
 EnRad Laboratories, Central Calibration Facility, Certificates of Calibration, RADECO Lo-Vol Air Sampler, S/Ns 6418, EnRad ID 01576, dated 7/13/11 and 1/05/12; and 6419, EnRad ID 01577, dated 8/24/11 and 8/01/12
 EnRad Laboratories, Central Calibration Facility, Certificates of Calibration, ROTEM Telepole, S/N 6605-077, EnRad ID 02715, dated 3/28/12 and 6/06/12
 HP/0/B/1001/041, Calibration and Quality Assurance of Whole Body Counter, Rev. 1, dated 6/30/11 and 7/31/12
 HP/0/B/1001/045, Calibration of Packard Tri-Carb 2900 TR Series Liquid Scintillation Counter, Rev. 2, MCHPS No. 27490, dated 5/04/11 and 5/01/12
 HP/0/B/1001/048, Calibration of the Apex Gamma Spectroscopy System, Rev. 0, MCHPS No. 27602, dated 9/15/11 and 7/25/12
 HP/0/B/1005/052, Calibration of the Thermo Electron Small Articles Monitor (SAM), Rev. 5, MCHPS No. 27527, dated 1/07/11 and 1/06/12
 HP/0/B/1005/066, Response Checks of Personnel Monitoring Equipment, Rev. 21, Enclosure 5.3, Daily Response Checklist, Instrument Type: GEM-5, Daily Response Checklist for Week of 10/01 – 10/07/12
 HP/0/B/1005/066, Response Checks of Personnel Monitoring Equipment Rev. 21, Enclosure 5.3, Daily Response Checklist, Instrument Type: SAM, Daily Response Checklist for Week of 10/01 – 10/07/12
 HP/0/B/1005/066, Response Checks of Personnel Monitoring Equipment, Rev. 21, Enclosure 5.4, Weekly Response Checklist, Instrument Type: Argos Contamination Monitors, Daily Response Checklist for Month/Year September 2012
 HP/0/B/1005/083, Calibration of Canberra GEM-5 Portal Monitor, Rev. 1, MCHPS No. 27703, dated 1/08/11 and 1/05/12
 McGuire Nuclear Station (MNS), Quality Assurance Report, Detector DET02L, dated 9/17/12
 MNS, Units 1 and 2, Offsite Dose Calculation Manual, Rev. 53
 SH/0/B/2008/001, Calibration and Quality Assurance of Canberra Argos-4AB Contamination Monitors, Rev. 2, MCHPS No. 27509, dated 11/15/10 and 11/06/11
 ThermoFisher Scientific, Calibration Certificate, Report No. 84299-252008, Ludlum Model 12-4, S/N 252008, dated 9/28/11 and 5/14/12
 Work Order (WO) Nos. 01731525 01 and 01928624 01, PT 1EMF-36HH, Unit Vent Hi Hi Range Rad Monitor, dated 12/04/07 and 8/19/11, respectively
 WO Nos. 01762420 01 and 01895454 01, PM 0EMF-49L, Waste Liquid Rad Monitor, dated 5/08/09 and 9/02/10, respectively
 WO Nos. 01869669 01 and 01967502 01, PT EMF-50L, Waste Gas Radiation Monitor, dated 1/28/10 and 2/11/11, respectively
 WO Nos. 01869787 01 and 01956709 01, PM 1EMF-16, RX Building Refueling Bridge Rad Monitor, dated 3/07/10 and 8/25/11, respectively

WO Nos. 01874837 01 and 01966980 01, PT 2EMF-36L, Unit Vent Gas Radiation Monitor, dated 1/25/10 and 8/29/11, respectively
 WO No. 02051615 01, PT 1EMF-33/Condenser Air Ejector Radiation Monitor, dated 10/02/12
 PIP M-11-05051

Section 40A1: Performance Indicator (PI) Verification

Barrier Integrity Cornerstone

NSD 225, NRC Performance Indicators, Rev. 5
 SRPMP 10-1, NRC Performance Indicator Data Collection, Validation, Review and Approval, Rev. 4
 Chemistry Daily Status Reports between October 2011 through September 2012
 Chemistry ChemDesk database between October 2011 through September 2012

Emergency Preparedness Cornerstone

Emergency Planning Functional Area Manual, Section 3.7 Performance Indicator Guideline – Emergency Preparedness Cornerstone, Rev. 19
 Documentation of Performance Indicator data from July 1, 2011 through September 30, 2012 for DEP, ANS, and ERO
 PIPs M-12-09447, M-12-09501, and M-12-09522

Occupational and Public Radiation Safety Cornerstone

Duke Energy Nuclear Generation, Standard Radiation Protection Management Procedures for Oconee, McGuire and Catawba Nuclear Stations, SRPMP 10-1, NRC Performance Indicator Data Collection, Validation, Review and Approval, Rev. 5
 Gaseous Waste Release No. 2012050, dated 9/15/12
 Liquid Waste Release No. 2012140, dated 9/03/12
 List of Dose and Dose Rate alarms for the periods 1/01 - 12/31/11 and 1/01 - 8/05/12
 McGuire Nuclear Station Dose Commitment Datasheet for September 2012, dated 10/20/12
 Performance indicator data for Occupational and Public Radiation Safety Performance Indicators From 4/01/11 through 6/30/12
 PIPs M-11-00394, M-11-01875, M-11-07009, and M-12-02542

Section 40A2: Problem Identification and Resolution

NSD 202, Reportability, Rev. 23
 NSD 208, Problem Investigation Program (PIP), Rev. 37
 NSD 212, Cause Analysis, Rev. 27
 NSD 220, UFSAR Revision Process, Rev. 14
 NSD 223, PIP Trending Program, Rev. 7
 NSD 607, Self-Assessments and Benchmarking, Rev. 17

Section 40A5: Other Activities

ISFSI Documents

NSD 211, 10 CFR 72.48 Process, Rev. 7
 10 CFR 72.212 Evaluation Report, NAC-TN-32, Rev. 4
 10 CFR 72.212 Evaluation Report, NAC-UMS, Rev. 4

TI 2515/187 Documents

MC-1022-2, Earthwork & Drainage Grading Plan Discharge Canal & Intake Channel, Rev. 17
 MC-1022-3, Earthwork & Drainage Sections & Details, Rev. 17
 MC-1022-12, Earthwork & Drainage Spoil Area West of Plant Yard, Rev. 5
 MC-1022-13, Earthwork & Drainage Slope Protection – Intake & Discharge Area, Rev. 3
 MC-1040-7, General Arrangement Roof Plan, Rev. 12
 MC-1209-04.00, Auxiliary Building Architectural Roof Plan Unit 1, Rev. 40
 MC-1209-05.00, Auxiliary Building Architectural Roof Plan Unit 2, Rev. 40
 MC-1209-06.00, Auxiliary Building Architectural Ladder/Roofing Details, Rev. 27
 MC-1209-06.02, Auxiliary Building Architectural Roof Details, Rev. 2
 MC-1209-06.08, Auxiliary Building Architectural Roof Details, Rev. 0
 MC-1315.01.04-001, Diesel Generator Building Unit 1 & 2 Fire, Flood, & HVAC Boundaries, Rev. 0
 MC-1385-02.00, Misc. Yard Structures Reactor Refueling Water Storage Tank Foundation Pipe Trench to Tanks Concrete and Reinforcing, Rev. 22
 MC-1385-02.00, Misc. Yard Structures Covers for Pipe Trench to Refueling and Make-up Tanks Concrete and Reinforcing, Rev. 16
 MCM-1100.00-0002-001, Topographical Survey of McGuire Nuclear Station, dated 5/9/12
 MCC-1100.00-00-0002, McGuire Probable Maximum Precipitation Flood Analysis, Rev. 0
 MCS-1465.00-00-0012, Design Basis Specification for Flooding From External Sources, Rev. 2

TI 2515/188 Documents

MC-1902-03.01, Electrical Equipment Layout Auxiliary Building Plan Below 750+0 Sections and Details, Rev. 35
 MC-1908-01.01, Electrical Equipment Layout Seismic Mounting Auxiliary Building Equipment, Rev. 45
 MCC-1381.05-00-0017, Anchor Analysis for Nelson MCCs and Panelboards, Rev. 8
 MC-1710-04.01, Plan Battery & Equipment Room Elevation 733+0, Rev. 54
 MC-1907-04.00, Auxiliary Building Unit 1 Electrical Equipment Layout Penetration and Switchgear Room Sections and Details Below 767+, Rev. 14
 MC-1204-05.0A, Auxiliary Building Units 1 & 2 General Arrangement, Rev. 22
 MCC-1381.05-00-0031, Auxiliary Building Electrical Equipment Mounting Vital Battery Chargers, Rev. 3
 MCM-1201.04-0224.001, Standby Makeup Pump Suction Dampener, Rev. 1
 MCM-1201.04-0230.001, Standby Makeup Pump Suction Pulsation Dampener, Rev. 1
 MCM-1201.05-0326.001, Standby Makeup Pump, Rev. 0
 MCC-1381.05-00-0016, Anchor Analysis of 4160 Volt Switchgear, Rev. 2
 MCC-1381.05-00-0025, Auxiliary Building Electrical Equipment Mounting 600 VAC Switchgear, Rev. 4
 MCC-1381.05-00-0030, Auxiliary Building Electrical Equipment Mounting Vital Battery Chargers, Rev. 4
 MC-1222-3, Auxiliary Building Unit 1 Plan at El. 716' + 0" Concrete Sh. 3, Rev. 23
 MC-1680-4.0, Heating-Ventilation-Air Conditioning Control Rm. Area Air Handling Units Seismic Anchoring, Rev. 2
 MC-1687-01.85, Equipment Base for 1B & 2B RN Backwash Pump & Motor Skids, Rev. F
 MCM-1201.05-0063.001, Skid Ass'y, Rev. D13
 MCM-1211.00-0172.001, Skid Ass'y, Rev. DE

MCM-1211.00-0679.001, Equipment Rm. El. 767+0 Units CR-AHU-1&2 Support Plan & Details,
Rev. D6

Completed Area Walk-By Checklists (AWC) for components: 0VCFL0012, 0VCFL0011,
0VCAH0001, 0VCAH0002, 0VCDO0001, 0VCDO0005, 1CA-56A, 1WL322B, 1CAPU0001,
1CAPNAFPA, 1RNST0002, 1RNPU0008, 2RNPU0008, 2RN-25B

Completed Seismic Walkdown Checklists (SWC) for components: 0VCFL0012, 0VCFL0011,
0VCAH0001, 0VCAH0002, 0VCDO0001, 0VCDO0005, 1CA-56A, 1WL322B, 1CAPU0001,
1CAPNAFPA, 1RNST0002, 1RNPU0008, 2RNPU0008, 2RN-25B