



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 29, 2009

Mr. Bruce H. Hamilton
Vice President
Duke Energy Carolinas, LLC
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2009004 AND 05000370/2009004

Dear Mr. Hamilton:

On September 30, 2009, the US 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 October 1, 2009, with you and other members of your staff.

The inspection examined activities conducted under your licenses 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.

The report documents one NRC-identified finding of very low safety significance (Green) and one Severity Level IV violation that were determined to involve violations of NRC requirements. Additionally, a licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and categorization at Severity Level IV, and because they were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV, you should provide a written response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at McGuire. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at McGuire. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

DEC

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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 document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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 05000369/2009004 and 05000370/2009004
w/Attachment - Supplemental Information

cc w/encl: (See page 3)

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Letter to Bruce H. Hamilton from Jonathan H. Bartley dated October 29, 2009

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2009004 AND 05000370/2009004

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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: 05000369/2009004, 05000370/2009004

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station, Units 1 and 2

Location: Huntersville, NC 28078

Dates: July 1, 2009, through September 30, 2009

Inspectors: J. Brady, Senior Resident Inspector
R. Eul, Resident Inspector
J. Heath, Resident Inspector
R. Monk, Senior Resident Inspector, Watts Bar (Sections 1R20, 4OA3)
E. Stamm, Project Engineer
B. Collins, Reactor Inspector (Section 1R08, 4OA5)
A. Vargas, Reactor Inspector (Section 1R08)
L. Carson, Senior Health Physicist (Sections 2OS1, 2OS3, 2PS1, 2PS3)
H. Gepford, Senior Health Physicist (Sections 2OS1, 2OS3)
R. Hamilton, Senior Health Physicist (Sections 2PS3, 4OA1)
W. Loo, Senior Health Physicist (Section 2PS1)
A. Nielsen, Health Physicist (Sections 2OS1, 4OA1)

Accompanying
Personnel: J. Branley
J. Sowa

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

Enclosure

SUMMARY OF FINDINGS

IR05000369/2009004, IR05000370/2009004; 7/1/2009 – 9/30/2009; McGuire Nuclear Station, Surveillance Testing, and Radiation Monitoring Instrumentation and Protective Equipment.

The report covered a three month period of inspection by four Resident Inspectors, a project engineer, five health physics inspectors and two reactor inspectors. One Green finding which was determined to be a non-cited violation (NCV), and one Severity Level IV NCV were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects were determined using IMC 0305, "Operating Reactor Assessment Program." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. 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

- SL-IV. The inspectors identified a Severity Level IV non-cited violation (NCV) of 10 CFR 50.71(e) for failure to adequately update the Updated Final Safety Analysis Report (UFSAR) for a license amendment to the emergency diesel generator (EDG) fuel oil storage tank requirements. The licensee intends to revise the UFSAR to reflect the licensing basis described in the license amendment and is developing procedural guidance for cross-connecting the fuel oil storage tanks.

This finding was considered as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. The inspectors used the NRC Enforcement Policy, Supplement I, to determine that the issue was more than minor because not including the new licensing basis for the safety-related fuel oil storage tanks in the UFSAR would have a material impact on licensed activities associated with this equipment. This issue was considered a Severity Level IV violation because the inaccurate information was not used to make an unacceptable change to the facility. No cross-cutting aspect was identified. (Section 1R22)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 20.1501(b) for the licensee's failure to ensure that area radiation monitors (ARMs) used for quantitative measurements were calibrated. The licensee failed to complete the detector sensitivity verification with an appropriate radioactive source during the previous two calibrations of the reactor coolant (NC) filter area ARMs. The licensee initiated Problem Investigative Process (PIP) M-09-4036 to evaluate this issue.

The finding is greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Plant Facilities/Equipment and Instrumentation and adversely affected the cornerstone objective in that the failure to properly calibrate the ARMs could compromise the evaluation of radiological hazards causing unintended dose to radiation workers. The finding was determined to be of very low safety significance (Green) because it was not related to ALARA planning, did not involve an overexposure or substantial

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potential for overexposure, and did not compromise the ability to assess dose. The finding had a cross-cutting aspect of “maintaining long term plant safety” in the area of Human Performance, under the Resources component, because the licensee did not ensure procedures and other resources were available and adequate to assure nuclear safety by maintenance of design margins (i.e. appropriate calibration) and minimization of preventative maintenance deferrals (i.e. allowing for critical steps to be marked N/A, effectively deferring the calibration until the next calibration cycle) [H.2(a)]. (Section 2OS3).

Violations of very low safety significance or Severity Level IV that were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee’s corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent rated thermal power (RTP) and remained there for the rest of the period.

Unit 2 began the inspection period at approximately 100% RTP. Unit 2 was shutdown for a refueling outage on September 5 and remained shutdown for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Severe Weather Condition (Actual): The inspectors reviewed the effectiveness of the licensee's hot weather protection program pertaining to the hot weather conditions experienced during the following period. This included field walkdowns to assess the equipment that might be susceptible to hot weather conditions including the Unit 1 and 2 EDG rooms, in particular the Unit 2 EDG rooms during the 24 hour surveillance runs. The inspectors discussed specific hot weather preparation measures with the responsible system engineer and reviewed the applicable operations hot weather preparation and associated corrective action documents listed in the attachment. The inspectors also reviewed control room alarms and annunciators during this period to see how these may pertain to hot weather conditions. The inspectors attended the morning Site Direction Meeting where the station preparations for hot weather conditions were discussed. Documents reviewed are listed in the Attachment.

- August 1 to September 15

b. Findings

No findings of significance 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, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control systems components, and determined whether selected breakers, valves, and support equipment were in the correct position to support system operation. Documents reviewed are listed in the Attachment.

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- 2A train of chemical volume control system while 2B train was out for maintenance on July 7
- 1A EDG while 1B EDG was out for maintenance on July 14
- 2B train component cooling while 2A train was out for maintenance on July 21

1R05 Fire Protection

a. Inspection Scope

Fire Protection Walkdowns: The inspectors walked down accessible portions of the six plant areas listed below 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, fire fighting 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 1 auxiliary feedwater pump room (fire area 2)
- Unit 1 turbine driven auxiliary feedwater pump room (fire area 2A)
- Unit 2 auxiliary feedwater pump room (fire area 3)
- Unit 2 turbine driven auxiliary feedwater pump room (fire area 3A)
- Unit 2 reactor building pipe corridor (fire area 32 & 33 part II)
- Unit 2 reactor building lower containment (fire area 32 & 33 part III)

Drill Observation: The inspectors observed a fire drill on August 1 associated with the 1B main feed pump to evaluate the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient fire fighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of pre-planned strategies; (9) adherence to the pre-planned drill scenario; and (10) drill objectives.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flooding: The inspectors walked down the two areas listed below to determine if the area configuration, features, and equipment functions were consistent with the descriptions and assumptions used in UFSAR sections and in the supporting basis documents. The inspectors reviewed the operator actions credited in the flooding analysis, and contained in the licensee's flood mitigation procedures, to determine if the desired results could be achieved by the times credited in the flooding analysis. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Resident Inspection: The inspectors selected the one heat exchanger listed below based on its risk significance and reviewed the results to determine if the heat exchanger was available to perform its intended functions as described in the UFSAR. The inspectors evaluated if the frequency of inspection was sufficient to detect degradation prior to loss of heat removal capabilities below design requirements; that the inspection results were appropriately categorized against pre-established engineering acceptance criteria including the impact of tubes plugged on the heat exchanger performance; and that the licensee had developed adequate acceptance criteria for bio-fouling controls. Documents reviewed are listed in the Attachment.

- 2A Component Cooling Heat Exchanger

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities

a. Inspection Scope

Piping Systems ISI: The inspectors observed the following non-destructive examination to evaluate compliance with the ASME Code Section XI and Section V requirements and to determine if any indications and defects were dispositioned in accordance with the ASME Code or an NRC approved alternative requirement.

- Ultrasonic Testing (UT) of 2NC2FW43-1 Pipe-to-Nozzle weld (ASME Class 1)

The inspectors reviewed records of the following non-destructive examinations mandated by the ASME Section XI Code to evaluate compliance with the ASME Code Section XI and Section V requirements and if any indications and defects detected were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC approved alternative requirement.

- UT of 2NC2FW24-2 Pipe-to-Elbow weld (ASME Class 1)
- Liquid Penetrant Exam (PT) of CRDM F-8 Canopy Seal Repair weld (ASME Class 1; non-pressure retaining)

The inspectors reviewed the following examination records (volumetric or surface) with recordable indications accepted for continued service to determine if acceptance was in accordance with the ASME Code Section XI or an NRC approved alternative.

- Magnetic Particle Testing (MT) of 2PZR-W13B weld (ASME Class 1)

The inspectors reviewed records of the following pressure boundary welds completed for risk significant systems during the outage and during the last Unit 2 refueling outage to determine if the licensee applied the preservice non-destructive examinations and acceptance criteria required by the construction Code NRC approved Code Case, NRC approved Code relief request or the ASME Code Section XI, as applicable. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- 2NV1025 Pipe-to-Valve and Valve-to-Pipe welds (ASME Class 1)
- CRDM F-8 Canopy Seal Repair weld (ASME Class 1; non-pressure retaining)

Reactor Pressure Vessel Upper Head Penetration Inspection Activities: For the Unit 2 vessel head, a bare metal visual examination was required this outage pursuant to 10 CFR 50.55a(g)(6)(ii)(D). The inspectors reviewed records of the visual examination conducted on the Unit 2 reactor vessel head to determine 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). In particular, the inspectors confirmed that:

- the required visual examination scope/coverage was achieved and limitations (if applicable were recorded) in accordance with the licensee procedures,
- the licensee criteria for visual examination quality and instructions for resolving interference and masking issues were adequate, and
- if indications of potential through-wall leakage were identified, the licensee entered the condition into the corrective action system and implemented appropriate corrective actions.

The inspectors reviewed records of welded repairs on the upper head penetration CRDM F-8 completed during the last refueling outage to determine if the licensee applied the preservice non-destructive examinations and acceptance criteria required by

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NRC approved Code Case and ASME Code Section XI. Additionally, the inspectors reviewed the welding procedure specifications and supporting weld procedure qualification records to determine if the weld procedures used were qualified in accordance with ASME Code Section IX requirements.

Boric Acid Corrosion Control (BACC): The inspectors performed an independent walkdown of the Unit 2 containment, which had received a recent licensee boric acid walkdown and determined whether the licensee's BACC visual examinations emphasized locations where boric acid leaks can cause degradation of safety significant components. The inspectors reviewed the following licensee evaluations of reactor coolant system components with boric acid deposits to determine if degraded components were documented in the corrective action system. The inspectors also evaluated corrective actions for any degraded reactor coolant system components to determine if they met the ASME Section XI Code and/or NRC approved alternative.

- M-08-05720, Boric Acid Found on Valve 1ND-34
- M-08-05770, Corrosion of Valve 1NVVA0892
- M-08-07193, Pipe Plug Leak onto 1FWVA-0028

The inspectors reviewed the following corrective actions related to evidence of boric acid leakage to determine 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.

- WR 00947150, Repair Hand/Auto Lever Seal Leak on Valve 1ND-VA-0001B
- WR 00947151, Cut Out & Replace 2NV-841
- WR 01713164, Repair Seat Leak on 2NI-VA-0184B

Steam Generator (SG) Tube Inspection Activities: The inspectors observed acquisition of eddy current (ET) data for SG A - R56C126, R95C69, R75C120; SG B - R59C85, R58C135, R95C125; SG C - R89C45, R36C95, R65C125; SG D - R65C27, R45C31, R70C122, interviewed ET data analysts and reviewed documentation related to the SG ISI program to determine if:

- the numbers and sizes of SG tube flaws/degradation identified was bound by the licensee's previous outage Operational Assessment predictions;
- the SG tube ET examination scope and expansion criteria were sufficient to meet the Technical Specifications, and the EPRI 1003138, Pressurized Water Reactor Steam Generator Examination Guidelines: Revision 6;
- the 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 these SG tubes;
- the licensee implemented repair methods which were consistent with the repair processes allowed in the plant technical specification (TS) requirements and determined qualified depth sizing methods that were applied to degraded tubes accepted for continued service;
- the licensee implemented an appropriate "plug on detection" tube repair threshold;
- the licensee primary-to-secondary leakage was below 3 gallons-per-day

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- the ET probes and equipment configurations used to acquire data from the SG tubes were qualified to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI 1003138, Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 6;
- the licensee performed secondary side SG inspections for location and removal of foreign materials;
- the licensee implemented repairs for SG tubes damaged by foreign material;
- inaccessible foreign objects were left within the secondary side of the SGs, and the licensee implemented evaluations which included the effects of foreign object migration and/or tube fretting damage.

Identification and Resolution of Problems: The inspectors performed a review of ISI/SG related problems entered into the licensee's corrective action program and conducted interviews with licensee staff to determine if;

- the licensee had established an appropriate threshold for identifying ISI/SG related problems;
- the licensee had performed a root cause (if applicable) and taken appropriate corrective actions; and
- the licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification

a. Inspection Scope

On September 19, 2009, the inspectors observed operators in the plant's simulator during licensed operator requalification training to determine the effectiveness of licensed operator requalification training required by 10 CFR 55.59 and the adequacy of operator performance. The inspectors focused on clarity and formality of communication, use of procedures, alarm response, control board manipulations, group dynamics and supervisory oversight. The inspectors observed the post-exercise critique to determine whether the licensee identified deficiencies and discrepancies that occurred during the simulator training. The inspectors observed the shift crew's response to the scenario listed below. Documents reviewed are listed in the Attachment.

- Drain Down to Reduced Inventory and Midloop

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the two samples listed below for items such as: (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) adequacy of corrective actions; (4) scoping in accordance with 10 CFR 50.65(b) of the maintenance rule; (4) characterizing reliability issues against performance criteria; (5) trending key parameters for condition monitoring; (6) charging unavailability for performance; (7) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and (8) appropriateness of performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2); and/or (9) appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). For each item selected, 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.

- 1A EDG pedestal bearing oil sump foreign material exclusion
- Standby shutdown facility day tank pump failed to start

b. Findings

No findings of significance 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 six 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.

- Failure of the control room chillers resulting in elevated control room temperatures and control room instrumentation anomalies as well as entry into AP-39 for high control room temperatures on August 16.
- 2A EDG complex plan for various maintenance activities resulting in protecting redundant safety equipment and other risk management actions until the maintenance was completed on August 18.

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- Unit 2 Spent Fuel Pool Cooling system planned work the week of August 24 under a complex plan that removed both trains of spent fuel pool cooling for a limited period of time while a blind flange was installed to allow return of the 2A train and later when both trains were removed again to remove the blind flange.
- Emergent work on August 25-26 associated with the 1A auxiliary building filtered exhaust fan, which caused a delay of the planned work on low level intake suction valve 0RN-12AC, due to their interaction.
- Emergent issue on September 16 associated with loss of 1A busline remote control on Unit 1 when Unit 1 was also supplying the safety buses on Unit 2 through transformers SATA and SATB during the refueling outage. This issue was classified with different risks for the two units.
- Planned work on September 23 to move a loaded railcar across the service water pond.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the six operability evaluations listed below, the inspectors evaluated the technical adequacy of the evaluations to determine whether Technical Specification 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 whether the measures were in-place and adequately compensated for the degradation such that operability was justified. For the degraded SSCs, or those credited as part of compensatory measures, the inspectors reviewed the UFSAR to determine whether the measures resulted in changes to the licensing basis functions, as described in the UFSAR, and whether a license amendment was required per 10 CFR 50.59. Documents reviewed are listed in the Attachment.

- PIP M-09-3835, Possible Foreign Material Exclusion in Unit 2 refueling canal
- PIP M-09-2339, Portions of safety-related piping in the doghouses and EDG buildings may not be fully protected against tornado
- PIP M-09-2373, Portions of auxiliary feedwater (CA) recirculation piping in the Service and Turbine Buildings and Yard could compromise CA pump minimum flow protection
- PIP M-09-2290, Position indication for valve 1MSIV5581, inside containment isolation valve for EMF-38,39,40, failed to indicate valve position after valve stroking
- PIP M-09-4201, Fuel oil storage tank level indication inoperable
- PIP M-09-4362, some sprinkler heads in the Unit 2 CA Pump Room below top of cable trays

b. Findings

No findings of significance were identified.

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1R19 Post-Maintenance Testinga. Inspection Scope

For the eight maintenance tests listed below, the inspectors determined the safety functions described in the UFSAR and TS that were affected by the maintenance activity. The inspectors witnessed the post-maintenance test listed and/or reviewed the test data to determine whether the test results adequately demonstrated restoration of the affected safety functions. Documents reviewed are listed in the Attachment.

- PT/1/A/4350/002B, Diesel Generator 1B Operability Test, after several planned maintenance activities were completed on July 14
- PT/2/A/4403/002A, Nuclear Service Water Train A Valve Stroke Timing - Quarterly, after valve 2RN-89A had its travel stops readjusted for planned instrument calibrations on July 21
- PT/2/A/4350/002B, Diesel Generator 2B Operability Test, after several planned maintenance activities were completed on August 4
- PT/1/A/4401/002B, Component Cooling Water (KC) Train B Valve Stroke Timing - Quarterly after re-wiring limit switches on valve 1KC-18B on August 11
- PT/2/A/4350/002A, Diesel Generator 2A Operability Test, after several planned maintenance activities following the 24-hour surveillance run on August 18
- PT/2/A/4350/002A, Diesel Generator 2A Operability Test, after planned maintenance activities on the fuel oil system and governor during 2EOC19 September 22
- PT/2/A/4206/001A, 2A NI Pump Performance Test following maintenance on the pump bearing and seal on September 23
- PT/2/A/4350/002B, Diesel Generator 2B Operability Test, after several outage maintenance activities were completed on September 29

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activitiesa. Inspection Scope

Unit 2 began a refueling outage on September 5.

Prior to the outage, the inspectors reviewed the licensee's outage risk control plan to determine if the licensee had adequately considered risk in developing the outage schedule. The inspectors reviewed the licensee procedures listed in the attachment to determine if they contained mitigation/response strategies for losses of decay heat removal, inventory control, power availability, and containment.

The inspectors observed portions of the following activities when Unit 2 entered the refueling outage. Documents reviewed are listed in the Attachment.

- Observed the cooldown process to determine if TS cooldown restrictions were followed.
- Walked down containment shortly after the shutdown to determine if there was indication of previously unidentified leakage from components containing reactor coolant.
- Reviewed the licensee's responses to emergent work and unexpected conditions, to determine if configuration changes were controlled in accordance with the outage risk control plan.
- Observed outage activities to determine if the licensee maintained defense-in-depth commensurate with the outage risk control plan for the key safety functions and applicable TS.
- Assessed outage activities that were conducted during short time-to-boil periods.
- For those reduced inventory or mid-loop conditions, the inspectors reviewed the licensee's commitments to Generic Letter 88-17 to determine whether they were still in place and adequate and observed control room operations during this period to determine whether distractions were minimized.
- Observed fuel handling operations (removal and insertion) and other ongoing activities, to determine if those operations and activities were being performed in accordance with technical specifications and licensee procedures.
- Prior to mode changes, the inspectors reviewed selected system lineups and/or control board indications to determine if TSs, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant configurations.
- Reviewed reactor coolant system boundary leakage data, and observed the setting of containment integrity, to determine whether the reactor coolant system and containment boundaries were in place and had integrity when necessary.
- Reviewed the items that had been entered into the licensee's corrective action program, to determine if the licensee had identified problems related to outage activities at an appropriate threshold and had entered them into the corrective action program. For the significant problems, the inspectors reviewed the results of the licensee's investigations, to determine whether the licensee had determined the root cause and implemented appropriate corrective actions.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the ten surveillance tests identified below, the inspectors witnessed testing and/or reviewed the test data, to determine if the SSCs involved in these tests satisfied the requirements described in the Technical Specifications, the Updated Final Safety Analysis Report, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

Surveillance Tests

- PT/1/A/4600/001, RCCA Movement Test
- PT/1/A/4600/014D, NIS Power Range N-41 Channel Operational Test
- PT/0/A/4250/037, Main Steam Safety Valve Setpoint Test Using Set Pressure Verification Device for Unit 2 Steam Line 'D'
- PT/2/A/4350/004B, 2B DG Periodic and Load Sequencer Test

In-Service Tests

- PT/0/A/4200/002, Standby Shutdown Facility Operability Test
- PT/2/A/4350/002A, Diesel Generator 2A Operability Test
- PT/0/A/4200/002, Standby Shutdown Facility Operability Test
- PT/2/A/4350/036B, 2B EDG 24-hour run
- PT/2/A/4350/036A, 2A EDG 24-hour run

Ice Condenser Systems Testing

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

b. Findings

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.71(e) for failure to update the Updated Final Safety Analysis Report (UFSAR). The licensee did not include the specific conditions for a license amendment to the EDG fuel oil storage tank volume requirements.

Description: The inspectors identified a license amendment associated with the EDG fuel oil storage tank requirements that was not adequately incorporated into the UFSAR. License amendment 129 for Unit 1 and amendment 111 for Unit 2 were approved by the NRC on December 9, 1991, to correct an original design deficiency that the EDG fuel oil storage tanks were not adequately sized to operate each EDG at rated load for seven days as required by the licensee's commitment to American National Standards Institute (ANSI) Standard N195-1976. In the license amendment, the NRC approved a reduction in fuel oil storage tank capacity requirements to provide five days of continuous EDG operation at rated load based on several conditions. Two of these conditions were: 1) the licensee had procedures and the ability to procure fuel oil from diverse sources close to the plant on short notice (routinely within 24 hours); and, 2) because only one EDG was required for any accident scenario, the fuel oil storage tanks could be cross-connected to use the fuel oil from the opposite EDG providing a supply of fuel oil in excess of the original seven day requirement. The inspectors found that the five day requirement was transferred to the UFSAR; however, the conditions stated above that provided the complete accepted new licensing basis were not included in the UFSAR. The inspectors concluded that there were no provisions to fully implement the new licensing basis. For example, the operating or emergency procedures were not updated to utilize the tank cross-connection in the event of an accident. The licensee generated corrective actions under PIP M-09-4361 to address these deficiencies.

Analysis: The failure to adequately update the UFSAR as required by 10 CFR 50.71(e) is a performance deficiency. This issue was considered as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory

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function. The inspectors used the NRC Enforcement Policy, Supplement I, and determined that the issue was more than minor because not including the new licensing basis for the safety-related fuel oil storage tanks in the UFSAR would have a material impact on licensed activities associated with this equipment. The violation was considered a Severity Level IV violation because the inaccurate information was not used to make an unacceptable change to the facility. No cross-cutting aspect was identified.

Enforcement: 10 CFR 50.71(e) requires that licensees shall periodically update the Final Safety Analysis Report, originally submitted as part of the application for the operating license, to assure that the information included in the report contains the latest information developed. This submittal shall include all safety analyses and evaluations in support of approved license amendments. Contrary to the above, between December 1991 and September 2009, the licensee failed to update the UFSAR to include portions of the safety evaluation contained in License Amendment No. 129 (Unit 1) and No. 111 (Unit 2) approved on December 9, 1991, for reducing EDG fuel oil storage tank capacity requirements, in that, the licensee did not describe the reliance on procuring additional fuel oil on short notice from sources close to the plant, and the use of a cross-connection between the storage tanks to extend the effective capacity of the tanks to an excess of 7 days supply. The failure to adequately update the UFSAR as required by 10 CFR 50.71(e) is characterized as a Severity Level IV violation. However, because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's corrective action program as PIP M-09-4361, this violation is being treated as an NCV consistent with NRC Enforcement Policy and is identified as NCV 05000369,370/2009004-01: Failure To Adequately Update The UFSAR For Emergency Diesel Fuel Oil Storage Tank Requirements.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2OS1 Access Controls To Radiologically Significant Areas

a. Inspection Scope

Access Controls: The inspectors evaluated licensee performance in controlling worker access to radiologically significant areas and monitoring jobs in-progress. The inspectors directly observed implementation of administrative and physical radiological controls; evaluated radiation worker (radworker) and health physics technician (HPT) knowledge of and proficiency in implementing radiation protection requirements; and assessed worker exposures to radioactive material.

During facility tours, the inspectors directly observed postings and physical controls for radiation areas, high radiation areas (HRAs), and potential airborne radioactivity areas established within the radiologically controlled area (RCA) of the Unit 1 (U1) and Unit 2 (U2) auxiliary buildings, spent fuel pool areas, and radioactive waste (radwaste) processing and storage locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA

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areas. Results were compared to current licensee surveys and assessed against established postings and Radiation Work Permit (RWP) controls. Licensee key control and access barrier effectiveness were evaluated for selected U1 and U2 Locked High Radiation Area (LHRA) locations. Changes to procedural guidance for LHRA and Very High Radiation Area (VHRA) controls were discussed with health physics (HP) supervisors. Controls and their implementation for storage of irradiated material within the spent fuel pool were reviewed and discussed in detail. Established radiological controls were evaluated for selected tasks including U1 lower cavity work and steam generator eddy current testing. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations were reviewed and discussed.

For selected tasks, the inspectors attended pre-job briefings and reviewed RWP details to assess communication of radiological control requirements to workers. Occupational workers' adherence to selected RWPs and 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 for the selected tasks.

The inspectors reviewed and assessed licensee evaluations of skin dose and internal dose due to radworker contamination events. For HRA tasks involving significant dose rate gradients, e.g. shielding work near hot piping, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure.

Radiation protection activities were evaluated against the requirements of UFSAR Section 12; TS Section 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed twenty-one of the required line-item samples described in Inspection Procedure (IP) 71121.01.

Problem Identification and Resolution: Licensee Corrective Action Program (CAP) documents associated with access control to radiologically significant areas were reviewed and assessed. This included review of selected PIPs related to radworker and HPT performance. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure Nuclear System Directive (NSD)-208, Problem Investigation Process, Rev. 31. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope

Radiation Monitoring Instrumentation and Post-Accident Sampling Systems: During tours of the auxiliary building, RCA exit points, and administrative building areas, the inspectors observed installed radiation detection equipment including selected area radiation monitors, personnel contamination monitors (PCM), portal monitors (PM), small article monitors (SAM), and whole body counter (WBC) equipment. During the tours, the adequacy of the equipment's physical location and material condition were evaluated.

From a review of selected records and discussions with cognizant licensee representatives, the inspectors evaluated completion and adequacy of equipment calibrations and assessed system operability and reliability.

During equipment walk-downs, the inspectors observed functional checks of various fixed and portable radiation monitoring/detection instruments with a HPT. The observations included source checks of PCM, PM, SAM, and WBC equipment. The inspectors reviewed calibration records and discussed the functional testing and testing intervals for selected PCM and PM equipment located at the RCA and protected area exits. PCM equipment detection capabilities were demonstrated using a low-level mixed radionuclide source that was passed through the equipment. The operability and analysis capabilities of the WBC equipment were evaluated.

For selected portable survey instrumentation used in field tasks, the inspectors observed HPT selection of survey instruments, completion of required performance and/or functional checks, and use of instruments during selected task coverage. Availability of portable instruments for licensee use was evaluated through observation of instruments staged for issue and discussion with licensee personnel. For select frisker and portable survey instruments used in the field, the inspectors noted operability and verified calibration dates. Calibration data for selected portable instruments staged or recently used for coverage of radiation worker were also reviewed.

Operability and reliability of selected radiation detection instruments were reviewed against 10 CFR Part 20; TS Section 5.4, Procedures; Selected Licensee Commitments Manual Section 16.7; UFSAR Chapters 11 and 12; and applicable licensee procedures. Documents reviewed are listed in the Attachment.

Self-Contained Breathing Apparatus (SCBA) and Protective Equipment: Selected SCBA units staged for emergency use in the Control Room and other locations were inspected for material condition and adequate air pressure. The inspectors also reviewed the previous maintenance records for vital components for selected SCBA units. In addition, certification records associated with supplied-air quality were reviewed and discussed.

Qualifications for staff responsible for testing and repairing SCBA equipment were evaluated through a review of selected training records. Selected Control Room operators were interviewed to determine their knowledge of available SCBA equipment

locations, including corrective lens inserts if needed. In addition, respirator qualification records were reviewed for selected licensee personnel.

Licensee activities associated with maintenance and use of respiratory protection equipment were reviewed against 10 CFR Part 20; Regulatory Guide (RG) 8.15, Acceptable Programs for Respiratory Protection; ANSI-Z88.2-1992, American National Standard for Respiratory Protection; and applicable licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed the nine specified line-item samples detailed in IP 71121.03.

Problem Identification and Resolution: Selected CAP documents associated with instrumentation and protective equipment were reviewed and assessed. Inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NSD-208, Problem Investigation Process (PIP), Rev. 31. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) of 10 CFR 20.1501(b) for the licensee's failure to ensure that area radiation monitors (ARMs) used for quantitative measurements were calibrated. During the previous two calibrations of the reactor coolant (NC) filter area ARMs, the licensee failed to complete the detector sensitivity verification with an appropriate radioactive source.

Description: During a review of licensee calibration records for area radiation monitors, the inspectors identified that the licensee's procedure for calibration of the reactor coolant filter ARMs, IP/0/B/3005/011, Radiation Monitoring System NC Filter Channel Calibration, allowed the detector sensitivity verification steps 10.6.2, 10.6.3, and 10.6.5 through 10.6.8 to be marked not applicable (N/A) if the detector was inaccessible. Furthermore, although the procedure contained a note which stated "If Work Order calls for CHANNEL CALIBRATION, Sections 10.1 through 10.7 must be completed," the calibration was considered to have been completed satisfactorily even with the steps from Section 10.6 being marked N/A and the appropriate response of the RD-2A detector assembly to radiation not verified.

The condition that would warrant the steps being marked N/A was provided in the work orders. For example, the task description in WO 01752334-01 for calibration of 1EMF-18 in December 2007 stated "Entry into filter room is not required per procedure if dose rates are determined to be unacceptable. If entry into reactor coolant filter room is necessary, also perform PM on 1EMF-19." Words to this effect were contained in the work orders for calibration of each of the four monitors in question. The inspectors determined that the detector sensitivity verification steps had been marked N/A in the last two "calibrations" of the specified ARMs.

The licensee stated that the response of the detector to radiation was verified based on a correlation that had been made between the dose rates on the filters and the ARMs. However, inspector review of correlation data from January 2002 through July 2009 did not validate a consistent relationship between the dose rates measured on the filters

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using a survey instrument and the readings on the ARMs. Further, the inspectors concluded that the filter dose rates could not be used to calibrate the ARMs because the dose rate on the filter could not be construed as being a calibration source of known activity (gamma emission rate) and energy. Additionally, procedure HP/0/B/1006/011, Procedure for Changing, Logging, Segregating, and Storing Radiation Filters, clearly indicated that monitors 1EMF-18, 1EMF-19, 2EMF-5, and 2EMF-6 were used for quantitative measurements in that procedure step 4.1.8 stated, in part, “make arrangements to have NC filters taken out of service before their associated EMFs reach trip 2” and “when an EMF trip 1 alarm is received, perform trending using EMF until trip 2 occurs.”

The inspectors also reviewed ANSI N323D-2002, American National Standard for Installed Radiation Protection Instrumentation. ANSI N323D is the industry standard for the calibration of radiation monitoring instrumentation installed in fixed locations. ANSI N323D specifies instruments should be calibrated with appropriate sources traceable to National Institute of Standards and Technology (NIST). In addition, ANSI N323D states that when doing field calibrations, source placement should be within close proximity to the detector to reduce uncertainties due to scatter. The ANSI standard clearly indicates that using the NC filters as a calibration source would be inappropriate even if the isotopic content of the filters at the time of calibration was precisely known, because the filters are housed in an underground, shielded location with respect to the ARMs.

The inspectors concluded that the instruments were not properly calibrated as required by 10 CFR 20.1501(b), because the licensee had failed to calibrate the reactor coolant filter area radiation monitors with an appropriate NIST-traceable calibration source in at least the previous two 18-month calibration cycles. The licensee initiated Problem Investigative Process (PIP) M-09-4036 to evaluate this issue.

Analysis: The failure to properly calibrate radiation monitoring instrumentation is a performance deficiency. The finding is greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Plant Facilities/ Equipment and Instrumentation and adversely affected the cornerstone objective in that the failure to properly calibrate the ARMs could compromise the evaluation of radiological hazards causing unintended dose to radiation workers. The finding was evaluated using IMC 0609, Appendix C, “Occupational Radiation Safety Significance Determination Process,” and was determined to be of very low safety significance (Green) because it was not related to ALARA planning, did not involve an overexposure or substantial potential for overexposure, and did not compromise the ability to assess dose. The finding had a cross-cutting aspect of “maintaining long term plant safety” in the area of Human Performance, under the Resources component, because the licensee did not ensure procedures and other resources were available and adequate to assure nuclear safety by maintenance of design margins (i.e. appropriate calibration) and minimization of preventative maintenance deferrals (i.e. allowing for critical steps to be marked N/A, thereby effectively deferring the calibration until the next calibration cycle) [H.2(a)].

Enforcement: 10 CFR 20.1501(b) states that the licensee shall ensure that instruments and equipment used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation measured. Contrary to the above, between May 2006 and August 2009, the licensee failed to ensure ARMs 1EMF-18, 1EMF-19, 2EMF-5 and 2EMF-6, used for quantitative radiation measurement in the reactor coolant filter rooms, were calibrated correctly for the radiation measured. Specifically, for calibrations performed since May 2006, the licensee had not calibrated the identified ARMs with an appropriate calibration source. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as PIP M-09-4036, this violation is being treated as an NCV, consistent with Section VI.A of the Enforcement Policy: NCV 05000369,370/2009004-02, Failure to Properly Calibrate Area Radiation Monitors.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

Effluent Monitoring and Radwaste Equipment: During inspector walk-downs, accessible sections of the U1 and U2 liquid radwaste system including Waste Monitor Tanks, system piping and valves, and Waste Liquid and Containment Ventilation Unit Condensate monitors were assessed for material condition and conformance with current system design diagrams. Inspected components of the gaseous effluent process and release system included Waste Gas Decay Tanks, U1/U2 unit vent air particulate/noble gas/iodine monitor system and steam generator blowdown monitors, and associated effluent sample lines. The inspectors interviewed radiation protection supervision regarding radwaste equipment configuration, effluent monitor operation, and system modifications.

The operability, availability, and reliability of selected effluent process sampling and detection equipment used for routine and accident monitoring activities were reviewed and evaluated. The inspectors reviewed results of calibrations and/or performance surveillances for selected process monitors, flowmeters, and air filtration systems. For selected effluent monitors, the inspectors reviewed technical bases for Offsite Dose Calculation Manual (ODCM) and/or design-related changes. The most recent surveillances on the Auxiliary Building Ventilation and Spent Fuel Pool High Efficiency Particulate Air/charcoal air treatment systems for both units were also reviewed. The inspectors evaluated out-of-service effluent monitors and compensatory action data for the period January 2008 to June 2009.

Installed configuration, material condition, operability, and reliability of selected effluent sampling and monitoring equipment were reviewed against details documented in the following: 10 CFR Part 20; RG 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials In Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants, June 1974; ANSI-N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities; TS Section 5; the ODCM, Rev. 48; and UFSAR, Chapter 11. Documents reviewed are listed in the Attachment.

Effluent Release Processing and Quality Control (QC) Activities: The inspectors reviewed with cognizant licensee representatives their processes and procedures for the collection of particulate, iodine, noble gas, and tritium grab samples from the unit vent. The inspectors reviewed selected gaseous and liquid release permits from January 2008 through June 2009.

QC activities regarding gamma spectroscopy and beta-emitter detection were discussed with count room technicians and radiation protection supervision. The inspectors reviewed selected daily QC control chart data for the high purity germanium detectors. In addition, results of the radiochemistry cross-check program were reviewed from the first quarter of 2008 and through the first quarter of 2009.

Selected procedures for effluent sampling, processing, and release were evaluated for consistency with licensee actions. Selected liquid and gaseous release permits were reviewed against ODCM specifications for pre-release sampling and effluent monitor setpoints. The ODCM was reviewed and discussed with responsible licensee representatives to identify and evaluate any changes made since January 1, 2008. The inspectors also reviewed 2007 and 2008 annual effluent reports for effluent release data trends and anomalous releases.

Observed task evolutions, count room activities, and offsite dose results were evaluated against details and guidance documented in the following: 10 CFR Part 20 and Appendix I to 10 CFR Part 50; ODCM; RG 1.21; RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I, October 1977; and TS Section 5.

The inspectors discussed current and future programs for onsite groundwater monitoring with radiation protection supervisors, including number and placement of monitoring wells and identification of plant systems with the most potential for contaminated leakage. The inspectors also reviewed procedural guidance for identifying and assessing onsite spills and leaks of contaminated fluids. In addition, the inspectors reviewed records of historical contaminated spills retained for decommissioning purposes as required by 10 CFR Part 50.75(g). Documents reviewed are listed in the Attachment. The inspectors completed six of the specified line-item samples detailed in IP 71122.01.

Problem Identification and Resolution: Eight licensee PIPs associated with effluent release activities or process monitors were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve selected issues in accordance with NSD-208, Problem Investigation Process (PIP), Rev 31. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Implementation: The inspectors reviewed the licensee's most recent Annual Radiological Environmental Operating Reports for 2007 and 2008 which described implementation of the REMP and provided an assessment of the program results. Information regarding surveillance results, analysis of data, land use census, the interlaboratory comparison program, and permitted program deviations were evaluated.

The inspector also reviewed and discussed implementation of the REMP with respect to sampling locations, monitoring and measurement frequencies.

The inspectors observed collection of air particulate filters at eight air sampling stations, drinking water sample collection at five municipal water treatment facilities and two surface water sampling locations and assessed sample collection methodology and techniques. Calibration procedures and records for the air sampling and water sampling stations were reviewed. The inspectors also observed thermoluminescent dosimeters placement at selected locations as described in the ODCM. The inspectors used a handheld GPS unit to verify that environmental sample locations were as described in the ODCM.

Calibration procedures and records for the two most recent calibrations of the meteorological monitoring instruments for air temperature, wind speed and direction were also reviewed. The inspectors evaluated the operability of instruments and determined the availability of current meteorological conditions in the Control Room for the primary tower.

Through the above reviews and observations, the licensee's practices and implementation of their radiological monitoring program, meteorological monitoring program and radioactive material control program were evaluated by the inspectors for consistency with the ODCM, the UFSAR, TS and 10 CFR Part 20 requirements. Documents reviewed are listed in the Attachment

Meteorological Monitoring Program: The inspectors reviewed the operability of the meteorological monitoring equipment and operator access to meteorological data. Current meteorological monitoring equipment performance and calibration were reviewed with licensee representatives. Licensee representatives responsible for equipment maintenance and surveillance were interviewed by the inspectors concerning equipment performance, reliability, and routine inspections.

Meteorological monitoring program implementation and results were reviewed against TS, ODCM guidance, and procedures. Documents reviewed are listed in the Attachment.

Unrestricted Release of Materials from the Radiologically Controlled Area: The inspectors reviewed, evaluated, and discussed with cognizant licensee representatives, radiation protection program activities associated with the unconditional release of

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licensed materials from the main RCA and satellite RCA locations. In addition, the inspectors observed personnel and equipment released from the main RCA access point and satellite RCA locations. Licensee guidance and implementation of RCA exit-monitoring activities were evaluated against 10 CFR Part 20 requirements and applicable procedures. The inspectors discussed the operation of the sites State of North Carolina permitted landfill. Documents reviewed are listed in the Attachment. The inspectors completed ten of the specified line-item samples detailed in IP 71122.03.

Problem Identification and Resolution: The inspectors reviewed audits, and selected PIPs associated with REMP operations and the program for unrestricted release of materials from the RCA. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with licensee procedure NSD-208, Problem Investigation Process (PIP), Rev.31. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported PI data for the indicators during periods listed below for both Unit 1 and Unit 2. To determine the accuracy of the PI data reported during that 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.

Mitigating Systems Cornerstone

- Mitigating Systems Performance Index (MSPI) - Emergency Power
- MSPI - High Pressure Injection
- MSPI - Secondary Heat Removal
- MSPI - Residual Heat Removal
- MSPI - Cooling Water

The inspectors reviewed the documents listed in the Attachment for the period July 1, 2008, to June 30, 2009 to determine if the licensee had correctly calculated and reported the data for the above PIs. In addition, the inspectors reviewed any changes made in MSPI risk coefficients that were greater than 25% since the last review.

- Safety System Functional Failures (Units 1 and 2)

The inspectors reviewed Licensee Event Reports and Maintenance Rule records, to determine whether the licensee had adequately accounted for functional failures that the subject systems had experienced during the previous four quarters. Documents reviewed are listed in the Attachment.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

The inspectors reviewed the Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone from March 2008 to June 2009. For the assessment period, the inspectors reviewed ED alarm logs and selected PIPs 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 (PS) Cornerstone

- Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

To evaluate the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences PI the inspectors reviewed data from January 2008 through April 2009. In addition, the inspectors reviewed out-of-service effluent monitor logs and effluent release permits. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

a. Inspection Scope

Routine Review: As required by Inspection Procedure 71152, "Identification and Resolution of Problems," 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 database. Documents reviewed are listed in the Attachment.

Selected Issue Follow-Up Inspection: The inspectors selected the following item for detailed review. The inspectors reviewed the associated documents to determine whether the licensee identified the full extent of the issue, performed an appropriate evaluation, and specified and prioritized appropriate corrective actions. The inspectors evaluated the licensee documents against the requirements of the licensee's corrective action program and implementing procedures, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

- Seismic qualification of new ice in the ice condenser. PIPs M-07-5016 (which contained an apparent cause evaluation and programmatic corrective actions) and M-07-5265 (which contained a current operability evaluation and specific corrective

actions) were associated with fusion of new ice in the ice condenser. This issue was identified in NCV 05000369,370/2007004-01.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

.1 (Closed) Licensee Event Report (LER) 05000369/2007-02, Failure of Containment Floor and Equipment (CFAE) Sump Discharge Outside Containment Isolation Valve.

On March 22, 2007, valve 1WL-65B failed the Isolation Valve Leak Rate Test (LRT) conducted during the Unit 1 end of cycle 18 refueling outage. Follow-up investigation and testing determined the leakage exceeded acceptance criteria for total reactor building bypass leakage and the containment was therefore inoperable during Unit 1 Cycle 18 operation due to the valve not being fully closed. This valve was one of two redundant containment isolation valves for the CFAE discharge line. The period of inoperability exceeded that allowed by TS. This 1WL-65B inoperability was caused by manual handwheel operation of the valve on October 3, 2005, which affected the limit switch adjustments so that the valve did not close fully when subsequently closed electronically using the hand switch. The requirement to LRT the valve following manual operation was waived. A similar issue was previously addressed by the licensee and dispositioned in NRC IR 05000369,370/2005004.

The inspectors reviewed the licensee's root cause evaluation and corrective actions which included a change to the LRT program to ensure all unit specific Rotork motor operated diaphragm valves are leak tested prior to entering Mode 4 following refueling outages, performance of valve stroke testing on all unit specific Rotork motor operated diaphragm valves prior to entering Mode 4 following refueling outages, and installation of positive controls (locks) to the hand/auto levers of all Rotork diaphragm valves following the successful LRT. The inspectors determined that the licensee's corrective actions were appropriate. The enforcement aspects of this licensee-identified violation are discussed in Section 4OA7 of this report. This LER is closed.

.2 Personnel Performance

a. Inspection Scope

Operator performance was evaluated in the two planned and unplanned non-routine events and transients listed below. For unplanned events, the initiating cause was examined as well as the response to determine if the response was appropriate and in accordance with procedures.

- During valve manipulations for changing the seal water return filter a leak occurred that required entry into procedure AP-10, NC system leakage within capacity of both chemical volume control system pumps
- Unit 2 shutdown for refueling outage on September 5

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b. Findings

No findings of significance were identified.

4OA5 Other Activities.1 Quarterly Resident Inspector Observations of Security Personnel and Activitiesa. 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 of significance were identified.

.2 Reactor Coolant System Dissimilar Metal Butt Welds (TI 2515/172, Revision 1)a. Inspection Scope

The inspectors conducted a review of the licensee's activities regarding licensee dissimilar metal butt weld (DMBW) mitigation and inspection implemented in accordance with the industry self imposed mandatory requirements of Materials Reliability Program (MRP) 139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines." Temporary Instruction (TI) 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds," was issued February 21, 2008, to support the evaluation of the licensee's implementation of MRP 139. Based on the schedule of dissimilar metal butt weld examinations under MRP 139, no examinations were required for the current Unit 2 refueling outage (EOC 19). Additionally, the licensee had not made any changes to the MRP 139 inspection program since the NRC had previously reviewed this program. Therefore, the specific questions identified in TI 2515/172 were not applicable. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified. In accordance with requirements of TI 2515/172, Revision 0, the inspectors evaluated and answered the following questions:

(1) Implementation of the MRP 139 Baseline Inspections

1. a. Have the baseline inspections been performed or are they scheduled to be performed in accordance with MRP 139 guidance?
- b. Were the baseline inspections of the pressurizer temperature DMBWs completed?

Yes. The licensee has performed all required baseline inspections at the time of this review. This reporting requirement was addressed previously in inspection report 2008004; no new information was noted during this inspection.

2. Is the licensee planning to take any deviations from the MRP 139 baseline inspection requirements of MRP 139? If so, what deviations are planned, what is the general basis for the deviation, and was the NEI 03-08 process for filing a deviation followed?

No. The licensee has not submitted any requests for deviation from MRP 139 requirements.

(2) Volumetric Examinations

Follow-on inspections of all previously overlaid welds were performed in October 2008 for Unit 1 and March 2008 for Unit 2. The answers to the following three questions apply to those follow-on inspections.

1. Were the examinations performed in accordance with the MRP 139, Section 5.1 guidelines and consistent with NRC staff relief request authorization for weld overlaid welds?

Yes. All examinations were performed in accordance with applicable guidelines.

2. Were examinations performed by qualified personnel? (Briefly describe the personnel training/qualification process used by the licensee for this activity.)

Yes. All examinations were performed by personnel qualified under the Performance Demonstration Initiative program to PDI-UT-8 requirements.

3. Were examinations performed such that deficiencies were identified, dispositioned, and resolved?

Yes. No deficiencies were identified.

(3) Weld Overlays

This portion of the TI was not inspected during the period of this report. All overlay activities were addressed previously in inspection report 2008004; no new information was noted during this inspection.

(4) Mechanical Stress Improvement (SI)

There were no stress improvement activities performed or planned by this licensee to comply with their MRP 139 commitments.

(5) Application of Weld Cladding and Inlays

There were no weld cladding or inlay activities performed or planned by this licensee to comply with their MRP 139 commitments.

(6) Inservice Inspection Program

This portion of the TI was not inspected during the period of this report. All overlay activities were addressed previously in inspection report 2008004; no new information was noted during this inspection.

4OA6 Meetings, Including Exit

On October 1, 2009, the resident inspectors presented the inspection results to you and other members of your staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

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 meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for being dispositioned as a NCV.

- TS 3.6.3 specifies that each containment isolation valve be operable in Modes 1, 2, 3, and 4. TS 3.6.3, Condition A specifies if one containment isolation valve is inoperable, the flow path must be isolated within 4 hours and verified isolated once per 31 days. TS 3.6.3, Condition B specifies if two containment isolation valves are inoperable, the affected penetration flow path shall be isolated within 1 hour. TS 3.6.1 specifies that the containment shall be operable in Modes 1, 2, 3, and 4. TS 3.6.1, Condition A specifies that if the containment is not operable, it should be returned to operable status within 1 hour. Condition B specifies that if Condition A is not met, the plant shall be shut down to Mode 3 within 6 hours and Mode 5 with 36

Enclosure

hours. Contrary to the above, from October 3, 2005, to March 22, 2007, containment isolation valve 1WL-65B was not operable and the licensee failed to isolate the flow path within 4 hours, failed to restore the containment to an operable condition, and failed to shut down the reactor within the prescribed time limits. In addition, on ten occasions between October 3, 2005, and March 22, 2007, two containment isolation valves, 1WL-65B and 1WL-64A, were inoperable and the affected containment penetration flow path was not isolated within 1 hour. This issue was determined to be of very low safety significance based on the screening criteria found in MC 0609, Appendix H, Containment Integrity Significance Determination Process, approach for assessing Type B findings at power. The issue was screened as having very low safety significance (Green) because the failure of 1WL-65B to fully close did not affect the likelihood of core damage and did not represent a contributor to the large early release frequency (LERF). This violation was documented in the licensee's corrective action program as PIP M-07-02178.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

Ashe, K., Manager, Regulatory Compliance
Black, D., Manager, Security
Bradshaw, S., Manager, Training
Branch, R., Inspection Services Manager (ISI/Welding/MRP 139)
Brewer, D., Manager, Safety Assurance
Bryant, J., Licensing
Capps, S., Manager, Engineering
Correll, J., Radiation Protection
Crane, K., Regulatory Compliance
Downing, P., SG Manager
Cutri, G., BACCP Program Owner
Gallman, W., BACCP Program Owner
Hamilton, B., Site Vice President, McGuire Nuclear Station
Hicks, J., Superintendent, Maintenance
Keller, P., System Engineer
Mooneyhan, S., Manager, Radiation Protection
Moore, T., RPVH Inspection Program Owner
Nolin, J., Manager, Mechanical and Civil Engineering
Parker, R., Superintendent, Work Control
Repko, R., Station Manager, McGuire Nuclear Station
Scott, W., Manager, Chemistry
Shuping, J., Materials and NDE Services Manager
Simril, T., Superintendent, Plant Operations
Sloan, H., General Supervisor, Radiation Protection
Smith, J., General Supervisor, Radiation Protection
Snider, S., Manager, Reactor and Electrical Systems Engineering
Underwood, G., Section XI Inspection Program
Zimmerman, D., NDE Supervisor

NRC personnel

Collins, B., Reactor Inspector, RII
Stamm, E., Project Engineer, RII
Thompson, J., Project Manager, NRR
Vargas-Mendez, A., Reactor Inspector, RII

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000369,370/2009004-01	NCV	Failure to adequately update the UFSAR for Emergency diesel fuel oil storage tank requirements (Section 1R22)
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Attachment

05000369,370/2009004-02, NCV Failure to Properly Calibrate Area Radiation Monitors (Section 2OS3)

Closed

05000369/2007-02 LER Failure of Containment Floor and Equipment Sump Discharge outside Containment Isolation Valve (Section 4OA3.1)

Discussed

05000369,370/2515/172 TI Reactor Coolant System Dissimilar Metal Butt Welds (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PIP M-09-3229, 2C1 HD pump
PIPs M-09-3544 and 3547, 2B EDG ventilation malfunction alarm
PT/0/B/4700/039, Warm Weather Equipment Checkout

Section 1R04: Equipment Alignment

2A Chemical and Volume Control System

Drawing MCFD-2554-01.00, Flow Diagram of the Chemical and Volume Control System
Drawing MCFD-2554-02.00, Flow Diagram of the Chemical and Volume Control System
Drawing MCFD-2554-03.00, Flow Diagram of the Chemical and Volume Control System

1A EDG

Drawing MCFD-1609-04.00, Flow Diagram of the Diesel Generator Starting Air System
Drawing MCFD-1609-03.00, Flow Diagram of the Diesel Generator Engine 1A Fuel Oil System
Drawing MCFD-1609-02.00, Flow Diagram of the Diesel Generator Engine Lube Oil System
Drawing MCFD-1609-01.00, Flow Diagram of the Diesel Generator Engine Cooling Water System
OP/1/A/6350/002, Diesel Generator, Enclosure 4.7, Valve Checklist

2B train Component Cooling

MCFD-2573-01.00, -01.01, -02.00, and -03.00, Flow Diagram of Component Cooling System
DBD MCS-1573.KC.00-001, Design Basis Document for Component Cooling System

Section 1R05: Fire Protection

MCS-1465.00-00-0008, Design Basis Specification for Fire Protection
Fire Impairments 2006-145 and 2007-115
Selected Licensee Commitments 16.9.1 through 16.9.6 including bases
Procedures for TRs 16.9.5.8 and 16.9.5.9
PT/0/A/4250/004, Fire Barrier Inspection, performance for 4/22/09,10/31/07, 1/8/08, 6/23/09, 12/06/07, 3/31/09, and 10/16/07

Fire Strategy #2 and #3
Fire Strategy RB 2-1
NFPA 13, Installation of Sprinkler Systems, 1978
PIPs generated from this inspection: M-09-4362, Unit 2 AFW room fire sprinklers obstructed
Fire Strategy TB1 Mezzanine
RP/0/A/5700/025, Fire Brigade Response
MNS 3rd Qtr 2009 Fire Drill
Critique of 3rd Quarter Fire Drill conducted on August 1, 2009

PIPs generated from this inspection:

PIP M-09-5461, Fire Strategy Deficiency
PIP M-09-6455, Review problems with functionality assessment performed in M-09-4362

Section 1R06: Flood Protection Measures

UFSAR Sections

7.6.19, Main Feedwater Isolation on High Doghouse Water Level Instrumentation
9.3.3, Equipment and Floor Drainage System

Design Basis Documents

MCS-1154.00-00-004, Design Basis Specification for the Auxiliary Building Structures, section
30.2.1.3.4.1, Internal Flooding
MCS-1581.WZ-00-0001, Design Basis Specification for the WZ System

Calculations

MCC-1139.01-00-0268, Turbine Building and Auxiliary Building, Sec. 10.8, Rev. 6
MCC-1206.47-69-1001, Auxiliary Building Flooding Analysis, Sec.9.2-9.2.1, Rev. 11

Procedures

AP/0/A/5500/44, Plant Flooding
IP/0/A/3215/004, Magnetrol Liquid Level Control Switch Calibration
PT/0/A/4600/029, Doghouse Water level Trip Actuating Device Functional Test

Work Orders

93045301
93045299

PIP M-09-2809

Other

MCID-1499-CF.16, Instrument Detail Inboard and Outboard Doghouse Level Switches
Magnetrol A103 Vendor Manual

Section 1R07: Heat Sink

PIP M-09-05244, Indication of fouling and increased frequency in super flushes required on the
2A KC HX

Section 1R08: Inservice Inspection Activities**Procedures**

22164-9, Revision 004, Eddy Current Guidelines for Duke Energy Company's CFR-80 Steam Generators

McGuire Engineering Support Document: Boric Acid Corrosion Program, Rev. 4

MP-0-A-7150-153, Rx Vessel Head Bare Metal Inspection, Rev. 007

MP-0-A-7700-080, Inspection and Cleanup of Boric Acid on Plant Materials, Rev. 012

NDE-35A, Liquid Penetrant Examination Report for F-8 Canopy Seal Weld, dated 10/05/08

NDE-35A, Liquid Penetrant Examination Report for F-8 Canopy Seal Weld, dated 10/08/08

NDEMAN-NDE-25, Magnetic Particle Examination, Rev. 024

NDEMAN-NDE-35, Liquid Penetrant Examination, Rev. 022

NDEMAN-NDE-600, Ultrasonic Examination of Similar Metal Welds in Ferritic and Austenitic Piping, Rev. 017

NDEMAN-NDE-62, Visual Examination (VT-1 and VT-3) of Bolting, Rev. 001

NDEMAN-NDE-66, Visual Examination (VT-3) of Hangers, Restraints, Supports and Snubbers, Rev. 002

NDEMAN-NDE-66-FC08-06, Visual Examination (VT-3) of Hangers, Restraints, Supports and Snubbers, Rev. 000

NDEMAN-NDE-68, Visual Examination for Leakage and Boric Acid Corrosion Control, Rev. 2

NDEMAN-PDI-UT-1-FC08-05, Generic Procedure for the Ultrasonic Examination of Ferritic Pipe Welds PDI-UT-1 Revision D Field Change 08-05, Rev. 0

NDEMAN-PDI-UT-2-FC08-04, Generic Procedure for the Ultrasonic Examination of Ferritic Pipe Welds PDI-UT-1 Revision C Field Change 08-04, Rev. 0

NSD-322, Duke Energy Boric Acid Corrosion Program, Rev. 1

PT-0-A-4150-046, Containment Walkdown, Rev. 003

QAP 9.6, Welding Services, Inc. Liquid Penetrant Inspection Procedure, Rev. 11

CFR-80 Steam Generator Site Technical Validation for Catawba Units 1 & 2 and McGuire Units 1 & 2, Revision 8

Corrective Action Documents

09-05919, Erosion found in the 2A SG secondary separator bottom plate, dated 9/29/09

09-05920, Dents discovered in 16 tubes in SG A, dated 9/29/09

09-05932, One foreign object could not be retrieved from SG A secondary side, dated 9/29/09

09-05934, Two foreign objects could not be retrieved from SG D secondary side, dated 9/29/09

M-08-05600, White Residue on CRDM Penetration F-8, dated 09/24/2008

M-08-05720, Boric Acid Found on Valve 1ND-34, dated 9/27/2008

M-08-05770, Corrosion of 1NVVA0892, dated 09/28/2008

M-08-07193, Pipe Plug Leak onto 1FWVA-0028, dated 11/10/2008

M-09-05942, 4 tubes to be repaired in SG C and one in SG D, dated 9/29/09

M-09-7225, Eddy Current Testing results, dated 9/29/09

WR 00590831, Disassemble and Inspect Check Valve 2FW-28, dated 03/13/2008

WR 00947150, Repair Hand/Auto Lever Seal Leak on Valve 1ND-VA-0001B, dated 3/12/2008

WR 00947151, Cut Out & Replace 2NV-841, dated 3/18/2008

WR 00947186, PM 2NS-19 Remove Valve and Perform Setpoint Test, dated 01/22/2008

WR 01713164, Repair Seat Leak on 2NI-VA-0184B, dated 03/12/2008

Other

04907, Welder Performance Qualification (Givens), dated 9/12/1997
09371, Welder Performance Qualification (Serna), dated 8/25/2007
106645-01, Welding Services, Inc. Certificate of Compliance for NX5213TK, dated October 02, 2008
106656-TR-001, Welding Services Inc. Weld Traveler for F-8 CRDM Canopy Seal Weld Repair, Rev. 1
108, Procedure Qualification Record, Rev. 1
109, Procedure Qualification Record, Rev. 0
110D, Procedure Qualification Record, Rev. 0
112, Procedure Qualification Record, Rev. 0
138, Procedure Qualification Record, Rev. 0
148C, Procedure Qualification Record, Rev. 0
2008Q4 Steam Generators Health Report
51-9114679-000, Revision 9/30/08, McGuire 2EOC19 ECT Inspection Plan
A08165, Welding Procedure Specification for F-8 Weld, Rev. F
A08202.3-1, Procedure Qualification Record, dated 10/28/88
A08202.3-2, Procedure Qualification Record, dated 10/28/88
A08202.3-3, Procedure Qualification Record, dated 1/8/91
Duke Energy Visual Acuity Record (Dean), dated 7/15/09
Duke Energy Visual Acuity Record (Ellis), dated 6/24/09
Duke Energy Visual Acuity Record (Ransom), dated 6/23/09
Duke Energy Welder Qualification Record (Earle), dated 9/17/09
Duke Energy Welder Qualification Record (Harris), dated 9/17/09
Duke Energy Welder Qualification Record (Hayes), dated 9/17/09
Duke Energy Welder Qualification Record (Hickman), dated 9/17/09
DZ Atlantic Certification Record for Liquid Penetrant Testing (Duplechain), dated 08/28/07
DZ Atlantic Eye Exam Record (Duplechain), dated 09/07/08
G-08-00163, Implementing Code Case N-722 and Code Case N-729-1, dated 02/18/2008
G-08-01118, Implementing Code Case N-729-1, dated 11/24/2008
GTSM0808-1, Welding Procedure Specification, Rev. 8
M1.Q1.1.0001. Duke Energy UT Pipe Weld Examination Report for 1NC1FW53-NW6, dated 10/17/2008
M1.Q1.1.0002. Duke Energy UT Pipe Weld Examination Report for 1NC1FW5-NW1, dated 10/17/2008
M1.Q1.1.0003. Duke Energy UT Pipe Weld Examination Report for 1NC1FW5-NW2, dated 10/17/2008
M1.Q1.1.0004. Duke Energy UT Pipe Weld Examination Report for 1NC1FW5-NW4, dated 10/17/2008
M1.Q1.1.0005. Duke Energy UT Pipe Weld Examination Report for 1NC1FW5-NW3, dated 10/17/2008
M1.Q1.1.0006. Duke Energy UT Pipe Weld Examination Report for 1NC1FW49-NW5, dated 10/17/2008
M2.G3.1.0007. Duke Energy UT Pipe Weld Examination Report for 2NC2FW24-2, dated 9/15/2009
M2.G3.1.0008. Duke Energy UT Pipe Weld Examination Report for 2NC2FW24-3, dated 9/15/2009

M2.Q1.1.0001. Duke Energy UT Pipe Weld Examination Report for 2NC2FW2-NW6, dated 3/16/2008

M2.Q1.1.0002. Duke Energy UT Pipe Weld Examination Report for 2NC2FW61-NW4, dated 3/16/2008

M2.Q1.1.0003. Duke Energy UT Pipe Weld Examination Report for 2NC2FW53-NW1, dated 3/16/2008

M2.Q1.1.0004. Duke Energy UT Pipe Weld Examination Report for 2NC2FW53-NW2, dated 3/16/2008

M2.Q1.1.0005. Duke Energy UT Pipe Weld Examination Report for 2NC2FW53-NW3, dated 3/16/2008

M2.Q1.1.0006. Duke Energy UT Pipe Weld Examination Report for 2NC2FW13-NW5, dated 3/16/2008

M2.R1.11.0050. Duke Energy UT Pipe Weld Examination Report for 2NCWE2FW-43-1, dated 9/17/2009

MCC-2201.37-00-0005, Revision 0, MNS2 CFR-80 Steam generator Tube Integrity Assessment McGuire Unit 1 & 2 Model CFR-80 Tri-Pitch Steam Generators Secondary Side Integrity Plan MD200467/2NV1025, Work Order: Install New Valve 2NV1025, Rev. 0

PDI-UT-2 Certificate of Qualification (Dean), dated 9/17/08

PDI-UT-2 Certificate of Qualification (Ellis), dated 3/16/06

PDI-UT-2 Certificate of Qualification (Griebel), dated 8/12/98

SGMEP 105, Revision 9, McGuire Unit 2 CFR-80 Specific Assessment of Degradation Mechanisms

Steam Generator Management program, Rev. 16

Third Interval Steam Generator Inservice Inspection Plan McGuire Nuclear Station Unit 2, Rev 1

URS Washington Group Visual Acuity Examination Record (Griebel), dated 9/8/09

Welding Services, Inc. Certificate of Qualification for Liquid Penetrant Testing (Folan), dated 10/02/08

Welding Services, Inc. Visual Acuity Examination Record (Folan), dated 9/24/2008

Section 1R11: Licensed Operator Requalification

OP-MC-CP-PRO, Pre-Refueling Outage lesson Plan

OP/2/A/6100/SO-1, Maintaining NC System Level

PT/2/A/4600/003G, Reduced Inventory Surveillance Items

Section 1R12: Maintenance Effectiveness

PIP M-09-3378

PIP M-09-0801

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

PIPs generated from this inspection:

M-09-5508, Shutdown Risk not consistently applied to U2 impact as a result of U1 switchyard busline 1A control problem

M-09-5713, Shutdown Risk not consistently applied to U2 and U1 from impact of planned railcar movement across SNSWP

Section 1R15: Operability Evaluations

1. PIP M-09-2978, UFSAR section 6, TSs 3.5.2, 3.5.3, 3.6.6, 3.6.15 and their bases
2. UFSAR 3.6, RIS 2008-14, RIS 2005-20

3. UFSAR 3.6, GDC 2, TS 3.7.5
4. TS 3.6.3, SLC 16.11.7 and 16.7.6
5. UFSAR 9.5.4, TS 3.8.3, PIP M-09-
6. UFSAR 9.5.1, SLC 16.9.2

Section 1R20: Refueling and Outage Activities

MC-INOS-09-011, Independent Review Team review of 2EOC19 outage schedule.
 NSD-403, Shutdown Risk Management
 OP/1/A/6100/SO-1, Maintaining NC System Level
 AP/1/A/5500/019, Loss of ND or ND System Leakage
 AP/1/A/5500/007, Loss of Electrical Power
 AP/1/A/5500/020, Loss of RN
 AP/1/A/5500/021, Loss of KC
 AP/1/A/5500/025, Spent Fuel Damage
 AP/1/A/5500/041, Loss of Spent Fuel Cooling or Level
 OP/2/A/6100/SD-2, Cooldown to 400 degrees F
 OP/2/A/6100/SD-4, Cooldown to 240 degrees F
 OP/2/A/6100/SO-1, Maintaining NC System Level
 OP/2/A/6100/SO-2, Filling the Refueling Cavity
 MCEI-0400-41, McGuire 2 Cycle 17 Final Core Map, Rev. 12
 PT/0/A/4150/033, Core Verification, Rev. 15
 PT/0/A/4150/033, Total Core Reloading, Rev. 43
 MP/2/A/7150/073, Rod Cluster Control Assembly Heavy Drive Rod Unlatching and Latching,
 Rev. 14
 OP/2/A/6100/003, Controlling Procedure for Unit Operation
 MCEI-0400-47, Unit 2 Cycle 19 Core Operating Limits Report
 OP/2/A/6100/SU-3, Mode 5 Checklist
 OP/2/A/6100/SD-22, Removal of Reactor Vessel Head
 MP/2/A/7150/057A, Reactor Vessel Head Removal
 UFSAR 9.1.5
 MP/2/A/7150/057B, Reactor Vessel Head Installation

Section 1R22: Surveillance Testing

TS SR 3.1.4.1 & SR 3.1.4.2
 NSD-704, Technical Procedure Use and Adherence, Appendices S & T, Rev. 016
 PIP M-09-04014, Acceptance criteria not met

Section 2OS1: Access Controls to Radiologically Significant Areas

Procedures, Manuals, and Guidance Documents

HP/1/B/1006/024, Refueling Outage Controls and Surveillance, Revision (Rev.) 9
 NSD-208, Problem Investigation Process, Rev. 31
 RPMP 7-1, Radiological Key Control, Rev. 10
 RPMP 7-15, Supplemental Guidelines for Establishing Locked High and Very High Radiation
 Areas, Rev. 3
 SH/0/B/2000/004, Taking, Counting, and Recording Surveys, Rev. 9
 SH/0/B/2000/005, Posting of Radiation Control Zones, Rev. 7
 SH/0/B/2000/007, Placement of Personnel Dosimetry for Non-uniform Radiation Fields, Rev. 1
 SH/0/B/2000/008, Operational Alpha Program, Rev. 5

SH/0/B/2000/011, Alpha Radiation Characterization Program, Rev. 2
 SH/0/B/2000/012, Access Controls for High, Locked High, and Very High Radiation Areas,
 Rev. 10

Records and Data Reviewed

Air Sample 081007067, U1 D S/G Platform
 ALARA Key Issue Log
 Cranes and Hoist Key Issue Log
 Locked High Radiation Area Key Issue Log (< 10 R/Hr)
 Non-Active Key Issue Log
 Personnel Contamination Log, 10/2/08 - 10/30/08
 Personnel Contamination Summaries, 08-163, 08-164, 08-175
 Radiation Protection Manager Key Issue Log
 RWP 1951, U1 Rx Bldg; Transfer Tube Blind Flange Removal and
 Replacement, Rev. 5
 RWP 1227, U1 Dry Cask Storage ISFSI Work, Rev. 5
 RWP 1713, U1 Rx Bldg S/Gs; Install and Remove Nozzle Dams on A and D S/G, Rev. 4
 RWP 5003, Aux Building Setup and Removal of Fuel Cleaning System, Rev. 08
 RWP 5047, Access Into U1 and U2 Aux Bldg Pipechase, Rev. 2
 Radiological Survey M-072809-7, U1 Aux Pipechase
 Radiological Survey M-101808, U1 Deep End Refueling Canal
 Radiological Survey M-092508, U1 Upper Containment
 Radiological Survey M-100508-34, U1 A and D S/G Platform Overhead
 Radiological Survey M-092208-33, U1 Primary Sample Lab
 Radiological Survey M-070808-11, Room 602E Pipechase
 Radiological Survey M-070808-14, Room 647W Pipechase
 Very High Radiation Area and Locked High Radiation Area Key Issue Log (>10 R/Hr)

CAP Documents

PIP M-08-04065, HRA doors discovered tied open
 PIP M-08-05524, Door to U1 primary sample lab found propped open
 PIP M-08-05989, U1 reactor cavity filtration discovered to have chain attached
 PIP M-08-05018, Fuel Cladding Defects and Alpha Radiation Program
 PIP M-08-07386, In-Core Detector Probe Radiation Barriers
 PIP M-09-00782, Modification request for LHRA boundaries in containment
 PIP M-09-01443, HRA identified on U2 dry cask welding platform
 PIP M-09-04007, Errors in electronic dose capture system
 RPS-SA09-01, 1 Trimester 2009 Dose Rate Alarm Assessment
 RPS-SA08-10, Outage (1EOC19) Personnel Contamination Event Assessment

Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment

Procedures, Guidance Documents, and Manuals

EnRad Laboratories 803, Operation and Standardization of the Merlin Gerin CDM 21 Calibrator,
 Rev. 1
 EnRad Laboratories 821, Radiation Protection Electronic Dosimeter Data, Rev. 2
 HP/0/B/1001/035, Operation of the Gamma Spectroscopy System, Rev. 8
 HP/0/B/1001/041, Calibration and Quality Assurance of Whole Body Counter, Rev. 1
 HP/0/B/1001/043, Operation of the Body wwBurden Analysis System, Rev. 6

HP/0/B/1003/008, Determination of Monitor Setpoints (EMF), Rev. 38
 HP/0/B/1005/066, Response Checks of Personnel Monitoring Equipment, Rev. 17
 HP/0/B/1005/079, Source Check of Inservice Radiation Protection Portable survey Instruments,
 Rev. 9
 HP/0/B/1005/052, Calibration of the Thermo Electron Small Articles Monitors, (SAM), Rev. 5
 HP/0/B/1005/066, Response Checks of Personnel Monitoring Equipment, Rev. 17
 HP/0/B/1005/083, Calibration of GEM-5 Portal Monitor, Rev. 1
 HP/0/B/1006/011, Procedure for Changing, Logging, Segregating and Storing Radioactive
 Filters, Rev. 13
 HP/0/B/1008/006, Respiratory Protective Equipment Maintenance and Storage, Rev. 16
 Procedure 801, Portable Instrumentation Data Management, Rev. 1
 Procedure 807, Calibration of RO-20 Portable Ion Chambers, Rev. 1
 Procedure 824, Calibration of SAM-9/SAM-11 Small Article Monitors, Rev 1
 Procedure 835, Calibration of MGPI Telepole, Rev. 2
 SH/0/B/2000/006, Control of Radioactive Material and Use of Radioactive Material Tags, Rev. 6
 SH/0/B/2000/013, Removal of Items from RCA/RCZs, Rev. 1
 SH/0/B/2003/001, Respiratory Protection, Rev. 2
 SH/0/B/2008/001, Calibration and Quality Assurance of Canberra ARGOS-4AB Contamination
 Monitors, Rev. 1
 SH/0/B/2008/003, Operation of Radiation Protection Portable Survey Instruments, Rev. 3
 SH/0/B/2008/005, Radiation Protection Support Equipment Issue and Return, Rev. 2

Records and Data Reviewed

Argos-4AB Contamination Monitor No. 27509, Calibration Date 01/08/09
 Argos-4AB Contamination Monitor No. 27510, Calibration Date 01/09/09
 Electric Alarming Dosimeter No. 201356, Calibration Date 04/29/09
 Electric Alarming Dosimeter No. 203529, Calibration Date 06/03/09
 Electric Alarming Dosimeter No. 210040, Calibration Date 06/02/09
 Electric Alarming Dosimeter No. 218944, Calibration Date 04/28/09
 Electric Alarming Dosimeter No. 043558, Calibration Date 04/30/09
 Electric Alarming Dosimeter No. 043827, Calibration Date 04/30/09
 EMF Radiation Monitoring Health Reports for 2008Q1, 2008Q2, 2008Q3, 2008Q4, 2009Q1,
 and 2009Q2
 GEM-5 Portal Monitor No. 27701, Calibration Date 06/18/09
 GEM-5 Portal Monitor No. 27703, Calibration Date 01/09/09
 GEM-5 Portal Monitor No. 27705, Calibration Date 08/07/08
 GEM-5 Portal Monitor No. 27707, Calibration Date 08/07/08
 Grade D Breathing Air Certification, Fire Brigade Compressor, Dated 05/08/07, 07/16/07,
 10/08/07, 12/17/07, 03/07/08, 06/19/08, 09/11/08, 12/08/08, 02/24/09, and 05/19/09
 Grade D Breathing Air Certification, MOC Training Compressor, Dated 05/09/07, 07/17/07,
 10/09/07, 12/17/07, 03/19/08, 06/17/08, 09/11/08, 12/04/08, 02/25/09, and 05/19/09
 McGuire 10 CFR Part 61 Dry Active Waste and Waste Stream Analysis, 03/04/09
 Memo: Verification of the SCRAM program used for Calibration of the J.L. Shepherd Model 89
 Shielded Calibration Range Irradiator at the Central Calibration Facility, Serial Number
 (S/N) 8129, Dated 12/01/08
 PMLP-PM Model Technical Basis Report, 1-EMF-9, Reactor Building Incore ARM,
 dated 10/04/03

Portable Instrument Calibration Certificates: REM-500, S/N 103, dated 04/01/08 and 01/9/09; AMP 100, S/N S004-063, dated 02/25/08 and 09/24/08; Bicron Microrem, S/N 1460, dated 12/10/08 and 06/04/09; Ludlum Model 3, S/N 235278, dated 09/17/08 and 06/02/09; Telepole, S/N 6604-107, dated 10/28/08 and 02/11/09; Eberline RO-20, S/N 1443, dated 10/02/08 and 02/27/09; and Eberline RO-20, S/N 1382, dated 10/13/08 and 03/13/09

SCBA History Log/Records, Regulator 27031, dated 02/01/92-10/21/08
 SCBA History Log/Records, Regulator 27032, dated 02/01/92-10/21/08
 SCBA History Log/Records, Regulator 27050, dated 03/01/93-2/24/09

Small Articles Monitor No. 27526, Calibration Date 12/17/08
 Small Articles Monitor No. 27529, Calibration Date 06/11/09
 Small Articles Monitor No. 27530, Calibration Date 06/11/09

Whole Body Counter No. 26809, Calibration Date 07/07/09

WO 98749557-01, Channel Calibration of 1-EMF-9, dated 03/13/06
 WO 98294358-01, Channel Calibration of 1-EMF-9, dated 03/12/01
 WO 01793758-01, Channel Calibration of 2-EMF-4, dated 06/11/08
 WO 01731525-01, Channel Calibration of 1-EMF-36HH, dated 12/05/07
 WO 01751108-01, Channel Calibration of 2-EMF-51A, dated 03/13/08
 WO 01752334-01, Channel Calibration of 1-EMF-18, dated 12/20/07
 WO 00581121-01, Channel Calibration of 1-EMF-18, dated 05/13/06
 WO 01759270-01, Channel Calibration of 1-EMF-19, dated 01/31/08
 WO 00579335-01, Channel Calibration of 1-EMF-19, dated 06/29/06

CAP Documents

PIP S/N M-08-3176, RP telepole instruments not operating as designed
 PIP S/N M-08-3836, Detector end of telepole separated from meter
 PIP S/N M-08-4086, Defects were identified in two air-supplied Delta suits
 PIP S/N M-08-7815, RP-SA08-11 RP Group Assessment Report documentation
 PIP S/N M-09-0283, Shepard calibrator door interlock pin is periodically sticking

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures, Guidance Documents, and Manuals

HP/0/B/1001/035, Operation of the Gamma Spectroscopy System, Rev. 8
 HP/0/B/1001/038, Quality Assurance Of Count Room Equipment, Rev. 9
 HP/0/B/1001/044, Operation of Packard Tri-Carb 2900 TR Series Liquid Scintillation Counter, Rev. 2
 HP/0/B/1003/001, Unit Vent Calculations, Rev. 8
 HP/0/B/1003/008, Determination of Radiation Monitor Setpoints (EMFs), Rev. 38
 HP/0/B/1003/015, EMF-53 (Waste Handling Area), EMF-52 (Waste Management Facility), and 2EMF-59 (Equip. Staging Building) Vent Calculations, Rev.5
 HP/0/B/1003/036, Unit Vent, Rev. 24
 HP/0/B/1003/039P, VP/Incore Release Procedure, Rev. 17
 HP/0/B/1003/039Q, VQ Release Procedure, Rev. 19
 HP/0/B/1003/049, WMT Release, Rev.12
 HP/0/B/1003/050, Waste Gas Decay Tank Sampling and Release, Rev. 14
 HP/0/B/1003/052, Waste Management Facility (0EMF-52), Rev. 13
 HP/0/B/1003/053, Waste Handling Area (EMF-53), Rev. 11
 HP/0/B/1003/059, Equipment Staging Building (EMF-59), Rev. 11

McGuire Nuclear Station Offsite Dose Calculation Manual 2009, Rev. 50
 NSD-208, Problem Investigation Process (PIP), Rev. 31
 OP/0/A/6200/019, Waste Gas Decay Tank Release, Rev. 30
 OP/0/B/6200/106, Liquid Waste Release - WMT A with WMT Pump A, Rev. 21
 PT/0/B/4600/025, Cumulative Offsite Dose from Liquid & Gaseous Effluents, Rev. 7
 RP Policy V-01, Interlaboratory Cross Check Program, Rev. 2
 SH/0/B/2008/002, Operation of Smear Counters, Rev. 2

Records and Data Reviewed

Duke Power Company, Interlaboratory Cross Check Program, Sample Analysis Forms, dated 03/05/08, 03/26/08, and 04/23/08
 Gaseous Waste Release 090718002 (U-2 Vent) dated 07/18/09
 Gaseous Waste Release 090718005 (U-2 Vent) dated 07/18/09
 Gaseous Waste Release 090725009 (U-2 Vent) dated 07/25/09
 Gaseous Waste Release 090725009 (U-2 Vent) dated 07/25/09
 Liquid Waste Release ID 090730006 Waste Monitor Tank "A", dated 07/30/09
 HP/0/B/1003/001, Rev. 8, Unit Vent Calculations, dated 06/02/09
 HP/0/B/1003/036, Unit Vent, Rev. 24, dated 07/06/09
 HP/0/B/1003/049, WMT Release, Rev.12, dated 05/19/09, 05/21/09, and 06/11/09
 HP/0/B/1003/070, Liquid and Gaseous Composite Preparation, Effluent Sampling and Analysis Documentation, Rev. 11, dated 06/12/09
 McGuire Nuclear Station 2007 Annual Radiological Effluents Release Report, dated 04/24/08
 McGuire Nuclear Station 2008 Annual Radiological Effluents Release Report, dated 04/28/09
 PT 0EMF-49L, Waste Liquid Rad Monitor, dated 05/06/08
 PT 1EMF-31, 2Y (Cal) CNV W/WTR/TRB Bld Smp to RC, dated 08/28/06 and 12/17/08
 PT 1EMF-33 Channel and Transfer Calibration, dated 05/05/09
 PT 1EMF-33/Cond Air Ejector Radiation Monitor, dated 04/27/07
 PT 1EMF-34L, Steam Generator Sample Monitor Cal, dated 11/08/07
 PT 1EMF-35L/Unit Vent Particulate Channel, dated 08/13/07 and 06/03/09
 PT 1EMF-36L, Unit Vent Gas Radiation Monitor, dated 12/19/07
 PT 1EMF-37, Unit Vent Iodine Monitor, dated 10/16/07
 PT 1EMF-38L/Cntmnt Prtcl Rad Mntr Lo Range, dated 09/10/07
 PT 1EMF-39L, Containment Gas Rad Mntr Lo Range, dated 07/31/07 and 06/01/09
 PT 1EMF-40, Containment Iodine Rad Monitor, dated 12/08/07
 PT 1EMF-42, Spent Fuel Bldg Vent Rad Monitor, dated 12/12/06 and 09/11/08
 PT 1MIFT7310, Unit Vent Rad Mon Flow Devices, dated 10/25/07
 PT EMF-43A, Control Rm Air Rad Monitor/Loop Cal, dated 04/27/07 and 01/12/09
 PT EMF-43B, Control Rm Air Rad Monitor/18 Month, dated 04/18/07 and 01/26/08
 PT EMF-52, Interim Radwaste Fac Vent Rad Mntr, dated 05/22/06 and 12/31/07
 PT EMF-53, Contaminated Prts Whse Vent Rad Monitor, dated 06/07/06 and 01/04/08
 PT/1/A/4450/001B, Rev. 13, VA HEPA/Damper and Carbon Adsorber Filters In-Place Leak Test, dated 09/14/07
 PT/1/A/4450/001D, Rev. 12, VF HEPA/Damper and Carbon Adsorber Filters In-Place Leak Test, dated 05/30/08
 PT/1/A/4450/012B, Rev. 14, Auxiliary Building Filter Train Air Flow Measurement, dated 02/05/09
 PT/1/A/4450/012B, Rev. 13, Auxiliary Building Filter Train Air Flow Measurement, dated 02/02/09, 02/03/09, and 02/04/09

PT 2EMF-31, 2Y (Cal) CNV W/WTR/TRB Bld Smp to RC, dated 10/25/08
 PT 2EMF-33/Condensor Air Ejector Rad Monitor, dated 08/22/07 and 03/31/09
 PT 2EMF-34L, Steam Generator Sample Monitor Cal, dated 01/08/07
 PT 2EMF-35L/Unit Vent Particulate Monitor, dated 07/27/07 and 04/17/09
 PT 2EMF-36L, Unit Vent Gas Radiation Monitor, dated 11/16/06 and 06/09/08
 PT 2EMF-37, Unit Vent Iodine Monitor, dated 10/08/07
 PT 2EMF-38L/Containment Particulate Radiation Monitor Lo Range, dated 06/13/07 and 02/02/09
 PT 2EMF-39L, Containment Gas Rad Mntr Lo Range, dated 04/03/07 and 01/20/09
 PT 2EMF-40, Containment Iodine Rad Monitor, dated 04/30/07 and 01/20/09
 PT 2EMF-42, Spent Fuel Bldg Radiation Monitor, dated 10/27/06 and 09/16/08
 PT 2MIFT7310, Unit Vent Radiator Monitor Flow, dated 05/17/07 and 04/01/09
 PT/2/A/4450/001B, Rev. 12, VA HEPA/Damper and Carbon Adsorber Filters In-Place Leak Test, dated 11/21/07
 PT/2/A/4450/001D, Rev. 11, VF HEPA/Damper and Carbon Adsorber Filters In-Place Leak Test, dated 10/15/07
 PT/2/A/4450/001D, Rev. 12, VF HEPA/Damper and Carbon Adsorber Filters In-Place Leak Test, dated 06/13/08
 PT/2/A/4450/001D, Rev. 13, VF HEPA/Damper and Carbon Adsorber Filters In-Place Leak Test, dated 03/18/09
 PT/2/A/4450/012B, Rev. 13, Auxiliary Building Filter Train Air Flow Measurement, dated 11/13/08, 05/01/09
 Radiological Certificate of Analysis for Anion Resin, Carbon Resin, Cation Resin, DAW Smear, Primary Resin, and Zeolite Resin, dated 03/04/09
 U-1 and U-2 Vent, Miscellaneous Sampling Records, July 09
 VMS Quality Assurance Report V1.3 for Detectors Nos. 1, 2 and 4, dated 07/28/09
 Waste Gas Decay Tank Discharge Record from 07/01-07/31/09
 WMF (EMF52) and WHA (EMF53) Ventilation Records from 07/01-07/31/09
 WMT Sampling and Analysis Record from 07/01-07/31/09

CAP Documents

PIP S/N M-08-00379, Gas released from WGDT B while releasing WGDT E, dated 01/22/08
 PIP S/N M-08-02610, Unplanned TSAIL entry for 2EMF-44L due to higher than expected Countrate, dated 04/12/08
 PIP S/N M-08-04296, RP has identified a possible emerging trend involving human errors when performing routine counting room and effluent control tasks, Dated 07/22/08
 PIP S/N M-08-07570, 2008 MNS Radiological Effluent Controls Audit 08-22 (INOS)(REC)(MNS), dated 12/03/08

Section 2PS3: Radiological Environmental Monitoring Program (REMP)

Procedures and Guidance Documents

HP/0/B/1003/021, Landfilling of Very Low Level Radioactive Waste, Rev. 5
 HP/0/B/1005/052, Calibration of the Thermo Electron Small Articles Monitors (SAM), Rev. 5
 HP/0/B/1005/066, Response Checks of Personnel Monitoring Equipment, Rev. 17
 HP/0/B/1005/083, Calibration of GEM-5 Portal Monitor, Rev. 1
 McGuire Nuclear Station Units 1 and 2 Off-site Dose Calculation Manual (ODCM), 2009
 NSD-208, Problem Investigation Process (PIP), Rev. 31
 Procedure 52, Preparation of Samples for Gamma Analysis, Rev. 3

Procedure 53, Preparation of Samples for Gross Alpha and Gross Beta Analysis, Rev. 15
 Procedure 54, Preparation and Counting Of Samples for Low Level I-131 Analysis, Rev. 11
 Procedure 62, Preparation of Tritium Samples, Rev. 1
 Procedure 106, Calculation & Determination of Lower Limits of Detection for Radiological Laboratory Instrumentation, Rev. 3
 Procedure 109, Initial and Final Review of Data Using the Lab Manager Laboratory Information Management System, Rev.3
 Procedure 111, Routine QC Using the Countroom Analysis System (CAS), Rev. 2
 Procedure 112, Routine Quality Control on Tennelec Series 5 Low Background Counting Instruments Using Eclipse Software, Rev.5
 Procedure 113, Routine Quality Control of the Packard 2550 Liquid Scintillation System, Rev.2
 Procedure 114, Routine Quality Control of the Perkin Elmer 2900tr Liquid Scintillation System, Rev. 0
 Procedure 205, Calibration of the Gamma Spectroscopy System Using the Countroom Analysis System (CAS), Rev. 3
 Procedure 206, Calibration of Tennelec Series 5 Low Background Counting Instruments Using Eclipse Software, Rev. 4
 Procedure 207, Configuration and Set Up Of the ISCO 3710 Water Sampler, Rev. 2
 Procedure 208, Calibration of the Packard 2550 Liquid Scintillation System, Rev. 1
 Procedure 209, Calibration of the Perkin Elmer 2900TR Liquid Scintillation System, Rev. 0
 Procedure 315, Operation of the Packard 2550 Liquid Scintillation Systems, Rev. 4
 Procedure 319, Manual Result Entry Using the Lab Manager Laboratory Information Management System, Rev. 2
 Procedure 321, Sample Login and/Or Counting Using the Countroom Analysis System (CAS), Rev. 2
 Procedure 700, Airborne Radioiodine and Airborne Particulate Sampling at McGuire Nuclear Station, Rev. 2
 Procedure 729, Milk Sampling At McGuire Nuclear Station, Rev. 1
 Procedure 730, Airborne Radioiodine and Airborne Particulate Sampling at McGuire Nuclear Station, Rev. 2
 Procedure 731, Water Sampling At McGuire Nuclear Station, Rev. 1
 Procedure 732, Broadleaf Vegetation Sampling At McGuire Nuclear Station, Rev. 4
 RPMP 7-9, Management's Expectation for Investigation of Portal and Whole Body Monitor Alarms, Rev. 4
 SH/0/B/2000/006, Control of Radioactive Material and Use of Radioactive Material Tags, Rev. 6
 SH/0/B/2000/013, Removal of Items from RCA/RCZs, Rev. 1
 SH/0/B/2007/001, Radiological Environmental Monitoring Program Data, Rev. 1
 SH/0/B/2008/001, Calibration and Quality Assurance of Canberra ARGOS-4AB Contamination Monitors, Rev. 1

Instrument Calibration and Environmental Data Records

Air Sample Collection Form for samples collected on 07/27/09

Annual Radiological Environmental Operating Reports, McGuire Nuclear Station Units 1 and 2, 2007 and 2008

Calibration Due Date Database Printout For Environmental Air And Water Samplers

Calibration documentation package containing listing of REMP air samplers and calibration due dates generated on 06/29/09: applicable calibration records for the past 2 years were attached.

Calibration documentation package containing listing of REMP ISCO water samplers and calibration due generated on 06/29/09: applicable calibration records for the past 2 years were attached

HPGe Detector 3 (ADC-3) Calibration Records, dated 02/17/09

HPGe Detector 6 (ADC-6) Calibration Records, dated 02/23/09

HPGe Detector 9 (ADC-9) Calibration Records, dated 10/10/08

Interlaboratory Comparison Program 2007 Cross-Check Results for EnRad Laboratories, From 2007 and 2008 AEOR Table 5.0-A

Table 5.0-B 2007 and 2008 environmental dosimeter cross-check results

Transmittal of Environmental Samples form for water and air samples collected on 07/27/09

CAP Documents

PIP M-08-04349, Duke Energy Corporate EH&S recommendation for meteorological tower due to lightening event at Lee Nuclear on July 9, 2008

PIP M-08-04462, Meteorological temperature 1EEBLP9140 has failed, causing an unplanned TSAIL entry

PIP M-08-06507, PIP documents Radiation Protection Group Assessment RP-SA07-05

PIP M-08-06746, Second formatting problem discovered with the meteorological data used to develop the LOCA AST LAR

PIP M-08-07314, An arithmetic error was made in computing the atmospheric dispersion factors for sources and receptors with less than 10 meters of separation as part of the McGuire LOCA AST License Amendment

Section 40A1: Performance Indicator (PI) Verification

MSPI basis document

Procedures

SRPMP 10-1, NRC Performance Indicator Data Collection, Validation, Review and Approval, Rev. 3

Records and Data

Electronic Dosimeter Alarm Log, 01/18/09 - 07/27/09

CAP Documents

PIP M-08-01893, Evaluate MNS control of LHRA keys against recent OE

PIP M-09-02883, Individual entered room 638 on wrong RWP

Section 40A2: Identification and Resolution of Problems

PIPs M-07-5016, M-07-5265, M-08-2137

License amendment 246/226 on Seismic qualification of Ice

UFSAR section 6.2.2.8.1

RP/0/5700/007, Earthquake

MP/0/A/7150/190, Ice Condenser Inspection for Ice Fallout due to Seismic Disturbance

Section 40A3: Event Follow-up

OP/2/A/6100/003, Controlling Procedure for Unit Operation