UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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April 22, 2002

Duke Energy Corporation
ATTN: Mr. H. B. Barron
Vice President
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 50-369/01-05 AND 50-370/01-05 AND INDEPENDENT SPENT FUEL STORAGE INSTALLATION INSPECTION REPORT 72-38/02-01

Dear Mr. Barron:

On March 23, 2002, the NRC completed an inspection at your McGuire Nuclear Station. The enclosed report documents the inspection findings which were discussed on March 26, 2002, with Mr. Bryan Dolan.

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.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green). This issue was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny any non-cited violation in the enclosed report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the McGuire facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of 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/

Robert C. Haag, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos. 50-369, 50-370, 72-38
License Nos. NPF-9, NPF-17

Enclosure: NRC Integrated Inspection Report 50-369/01-05, 50-370/01-05, 72-38/02-01
w/Attachment - Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-369, 50-370, 72-38
License Nos:	NPF-9, NPF-17
Report Nos:	50-369/01-05, 50-370/01-05, 72-38/02-01
Licensee:	Duke Energy Corporation
Facility:	McGuire Nuclear Station, Units 1 and 2
Location:	12700 Hagers Ferry Road Huntersville, NC 28078
Dates:	December 16, 2001 - March 23, 2002
Inspectors:	S. Shaeffer, Senior Resident Inspector E. DiPaolo, Resident Inspector G. Kuzo, Senior Health Physicist (Sections 2OS2, 4OA1.2, and 4OA1.3) D. Forbes, Health Physicist (Sections 2OS1 and 4OA7) A. Nielsen, Health Physicist (Sections 2PS2 and 4OA5.2) B. Crowley, Reactor Inspector (Section 1R08)
Approved by:	Robert Haag, Chief, Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR05000369-01-05, IR05000370-01-05, IR 07200038-02-01 on 12/16/01 - 03/23/2002, Duke Energy Corporation, McGuire Nuclear Station, Units 1 & 2 and Independent Spent Fuel Storage Installation. Refueling and outage activities.

The inspection was conducted by resident inspectors, a regional reactor inspector, and regional health physicists. The inspection identified one Green finding, which was a non-cited violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using the Significance Determination Process (SDP) found in Inspection Manual Chapter 0609. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website.

A. Inspector Identified Findings

Cornerstone: Mitigating Systems

- (Green) A Non-Cited Violation of Technical Specification (TS) 5.4.1.a. was identified for the inadequate performance of a surveillance inspection of the Unit 2 Emergency Core Cooling System (ECCS) sump. The licensee had completed this TS required inspection, but failed to identify or evaluate an abnormal amount of hardened boric acid deposits platted out within the sump.

  The finding was more than minor because it could have had a credible impact on safety by reducing the reliability of the ECCS pumps during accident scenarios when undissolved pieces of the boric acid could enter the suction of the pumps and cause possible damage to the pumps. The finding was of very low safety significance based on the determination that mitigation systems were previously capable of performing their safety function. (Section 1R20).

B. Licensee Identified Violations

Five violations of very low significance (Green) which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee appear reasonable. The violations are listed in section 4OA7 of this report.

Report Details

Summary of Plant Status:

Unit 1 began the inspection period at approximately 100 percent power. On March 4, 2002, operators manually tripped Unit 1 due to a loss of feedwater to steam generator 1A. The loss of feedwater was caused by a loss of power to the reactor protection system logic cabinets which control the feedwater regulating valve for the A steam generator. After repairs were completed, the unit was briefly taken critical on March 5; however, it was returned to Mode 3 due to problems with the 1B motor generator set output breaker remaining closed. The unit resumed power operations on March 6 and operated at approximately 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at approximately 100 percent power. On February 22, 2002, the operators reduced reactor power and initiated a planned manual reactor trip from 17 percent power to complete the unit shutdown for the end of cycle 14 (EOC 14) refueling outage. For the remainder of the inspection period, the unit progressed through refueling and outage activities. At the end of the inspection period, the unit was in Mode 5, with upper containment closeout inspections being completed and preparations underway to enter Mode 4.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

For the systems identified below, the inspectors reviewed plant documents to determine correct system lineup, and conducted walkdowns to verify that the systems were correctly aligned when the redundant trains were inoperable or out of service. For the residual heat removal (RHR) systems, the walkdowns were performed just prior to the unit entering the refueling outage.

- Emergency diesel generator (EDG) 2A during 24 hour surveillance testing of the 2B EDG (full system walkdown)
- Unit 1 and Unit 2 fueling water storage tank (FWST) level transmitters, associated engineered safeguards feature (ESF) required equipment, and heat tracing
- Unit 2 RHR systems (train A and B)

The inspectors assessed conditions such as equipment alignment (i.e., valve positions, damper positions, and breaker alignment) and system operational readiness (i.e., control power and permissive status) that could affect operability of these systems. The

inspectors also reviewed the licensee's corrective action system and component health database for previously identified conditions adverse to quality to assess the licensee's ability to identify and correct problems.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Protection Walkdowns

a. Inspection Scope

To assess the adequacy of the fire protection program implementation, the inspectors toured the following areas to assess transient combustible material control, visible material condition and lineup of fire detection and suppression systems, status of manual fire equipment, and condition of passive fire barriers:

- Unit 2 A and B EDG rooms
- 6.9kv turbine building switchgear rooms
- Unit 1 turbine drive auxiliary feed water (AFW) pump room
- Unit 2 spent fuel pool area
- Standby shutdown facility
- Unit 2 lower containment
- Unit 2 seal table vestibule
- Unit 2 RHR pump rooms

b. Findings

No findings of significance were identified.

.2 Fire Drill Observations

a. Inspection Scope

On February 2, 2002, the inspectors monitored an unannounced quarterly shift fire drill in the 6.9 kv switchgear area of the turbine building. The purpose of the inspection was to monitor the fire brigade's use of protective equipment and fire fighting equipment, to verify that fire fighting pre-plan procedures and appropriate fire fighting techniques were used, and to verify that the directions of the fire brigade leader were thorough, clear, and effective. The inspectors also attended the drill critique and reviewed final critique

evaluations to ensure they were critical and identified appropriate areas for licensee follow-up. The inspector also observed portions of a subsequent drill on February 10, 2002, involving a different shift in the same area to assess differences in shift response.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) (Unit 2)

a. Inspection Scope

The inspectors observed in-process ISI work activities and reviewed selected ISI records. The observations and records were compared to the Technical Specifications (TS) and the applicable Code (ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition, with no Addenda). In addition, steam generator (SG) tube inspection activities were compared with Nuclear Energy Institute (NEI) 97-06, Steam Generator Program Guidelines. This was the 6th outage of the 2nd interval (EOC 14). Portions of the following Unit 2 ISI examinations were observed:

- Ultrasonic (UT): Weld 2PZR-6 (Pressurizer Shell to Bottom Head Weld),Weld 2PZR-SKIRT (Pressurizer Skirt to Bottom Head Weld)

- Magnetic Particle (MT): Weld 2PZR-SKIRT (Pressurizer Skirt to Bottom Head Weld)

- Liquid Penetrant (PT): Welds 2SGD-INLET-W5SE and 2SGD-OUTLET-W6SE (Steam Generator (SG) Nozzle to Safe-End Welds), Welds 2NC2F-4-2 and 2NC2F-4-3 (SG Safe-End to Pipe Welds), Welds 2NC2FW15-26, 2NC2FW15-27, 2NC2FW15-28, 2NC2FW15-29, 2NC2FW15-30, 2NC2FW15-31, 2NV2FW230-1, 2NV2FW230-2, 2NV2FW230-3, 2NV2FW230-4, and 2NV2FW230-5 (2" reactor coolant system and chemical volume and control system welds)

In the process of observing these ISI activities, the inspectors also observed Flow Accelerated Corrosion (FAC) activities for components E2HW62A, E2HW61A, E2HW62D, Low Pressure Heater 2D2, Low Pressure Heater 2E2, E2CF03 and E2HS63.

The inspectors observed the following SG eddy current (ET) examination activities: data acquisition for a sample of SG tubes in SGs B and C, and data analysis and resolution for SG B Tubes R104C45, R88C49, R104C49, R106C49, R54C73, R64C77, and R47C80. The inspectors reviewed licensee SG inspection requirements relative to: in-situ pressure test criteria, ET scope and expansion criteria, plugging limits and repair criteria, appropriateness of ET equipment for expected types of degradation, and corrective action for loose parts.

Qualification and certification records for examiners, equipment, and consumables for the above ISI and FAC examination activities were reviewed. In addition, a sample of ISI issues in the licensee's corrective action program were reviewed. Specifically, Problem Investigation Process reports (PIPs) M-94-1233, G-01-0168, M-02-1204, and M-02-00734, including associated corrective action documentation were reviewed. Documentation for disposition of a flaw identified in a previous inspection (Unit 1 weld PZR-13 - inspected 9/30/99) was reviewed to verify appropriate acceptance for continued service.

The inspectors also reviewed ASME Section XI repair and replacement packages for the following: (1) Work Order (WO) 9812376 - Repair Seat Leak on Valve 2NV-151A, (2) WO 98280589 - Replace Valve 2RN21A, and (3) WO 98243461 - Replace Broken Steam Generator Primary Manway Stud.

In addition to the above observations and reviews for the current Unit 2 outage, radiographic film for the following reactor coolant (NC) system ASME pipe welds were reviewed: NC2FW19-10, NC2FW19-11, NC2FW19-12, and NC2FW19-34. Documents reviewed are included in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors reviewed licensed operator requalification performance and training and associated training documentation to verify that performance deficiencies had been addressed through the requalification training program. Specifically, the inspectors observed simulator training activities associated with Abnormal Procedure AP-35, ECCS Actuation During Plant Shutdown, on January 9, 2002.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

For the equipment issues described in the PIPs listed below, the inspectors reviewed the licensee's implementation of the Maintenance Rule (10 CFR 50.65) with respect to the characterization of failures, the appropriateness of the associated a(1) or a(2) classification, and the appropriateness of either the associated a(2) performance criteria or the associated a(1) goals and corrective actions.

PIP Number	Title/Description.
M-01-5018	Train B control room air handling unit bearing failure
M-02-0032	Containment spray system instrument power supply 2NSPY5490 (Acopian) failure
M-02-0167	Safety injection breaker shunt trip failure
M-02-0060	Instrument air compressor C jacket water failure
M-02-0369	Instrument air compressor F motor failure
M-02-0800	2NCLP-5920, D Loop wide range T-hot failed high
M-02-1039	Reactor protection system card failure initiating Unit 1 reactor trip

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's control of plant risk and configuration as related to removing from service, due to emergent or planned work activities, structures, systems, and components (SSCs) listed below which were within the scope of the maintenance rule or which were otherwise risk-significant. Emphasizing potential high risk configurations and high priority work items, the inspectors evaluated the following: (1) effectiveness of the work prioritization and control; (2) assessment of integrated risk of the work backlog; and (3) safety assessments and/or management activities performed when SSCs are taken out of service. The inspectors reviewed the licensee's implementation of Maintenance Rule (10 CFR 50.65) a(4), with respect to risk assessments for work activities.

PIP Number/ WO/Procedure	Title/Description
WO 98460899	Troubleshoot U2 containment pressure control system (CPCS) Train B power supply 2NSLP5490
M-02-0177/ WO 98438902	Bonnet stud torque check on Unit 1 boric acid tank to Unit 2 chemical and volume control (NV) system crosstie isolation valve 1NV 414
OP/1,2/A/6100/003	Controlling procedure for planned Unit 2 shutdown via manual reactor trip

M-02-0612	Junction box for 2NDPS-5040 and other safety-related components not environmentally sealed (E1 work request 98221254)
M-02-1043	Source range failed to energize during Unit 1 reactor trip response
WO 98476419	Closure of power-operated relief valve (PORV) block valve 2NC33

In addition to the above, the inspectors reviewed risk consequences of plant maintenance and testing evolutions as they relate to potential interaction with established physical security measures. During this review of security related documents, the inspectors identified several potential target set analysis issues which prompted the licensee to initiate a detailed review and provided interim compensatory measures. The licensee also initiated PIP M-02-0343 to track the resolution of this issue. Pending review of the licensee's analysis of the potential security target set issues, this matter will identified as Unresolved Item (URI) 369,370/01-05-01: Review of Potential Target Set Vulnerabilities.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions

a. Inspection Scope

The inspectors reviewed the operating crews' performance during the following non-routine evolutions and/or transient conditions to determine if the response was appropriate to the event and in accordance with procedures and training. Operator logs, plant computer data, and associated operator actions were reviewed. The inspectors also reviewed human performance issues associated with the July 16, 2001, Unit 2 reactor trip event.

PIP Number	Title/Description
M-02-0140	Entry into AP/1/A/5500/14, rod control malfunction mismatch condition during power range channel testing
M-02-0177	Entry into AP/2/A/5500/10, NC system leakage within the capacity of both chemical and volume control (NV) pumps, during operator response to a Unit 2 NC system leakage event (Notification of Unusual Event)
M-02-1039	Operator response to Unit 1 March 4, 2002, manual reactor trip due to low steam generator level when main feedwater regulating valve on SG A closed

In addition, the inspectors observed operator response to the preplanned Unit 2 manual reactor trip for refueling outage shutdown on February 22, 2002.

b. Findings

A licensee identified non-cited violation (NCV) (see Section 4OA7) was identified for a human performance error that resulted in a Unit 2 reactor trip, as discussed in Licensee Event Report (LER) 50-370/01-01, Unit 2 Reactor Trip and Auxiliary System Actuation.

On July 16, 2001, an automatic reactor trip occurred on Unit 2 which was caused by human error during calibration on the steam generator 'B' steam line pressure loop. The error completed the 2 out of 3 logic for the affected loop and a low steam line pressure signal closed all main steam line isolation valves (MSIVs), which caused an overtemperature delta-T reactor trip. Following the event, it was determined that maintenance personnel failed to follow IP/2/A/3001/002E when they improperly isolated the wrong channel and initiated the event. This issue was more than minor because it had an actual impact on safety, in that, it initiated a reactor trip. The LER for this event is closed.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting risk significant SSCs listed below to assess the technical adequacy of the evaluations. Where compensatory measures were involved, the inspectors also determined whether the compensatory measures were in place, would work as intended, and were appropriately controlled.

PIP Number	Title/Description
M-01-5153	NC PORVs may not close under spring pressure alone
M-02-1039	Apparent cause evaluation for Unit 1 reactor trip when steam generator A feedwater regulating valve failed closed
M-02-0734	Unit 2 train A and B safety injection (NI) piping below minimal wall thickness
M-01-5466	Nuclear service water (RN) system operability when various system motor operated valves are powered from alternate power supplies
M-02-0759	Main steam safety valve 2SV-21 failed set point testing
M-02-0164	1C NC pump partial discharge test results

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors evaluated the selected operator workarounds listed below for potential affects on the functionality of mitigating systems. The workarounds were reviewed to determine: (1) if the functional capability of the system or human reliability in responding to an initiating event was affected; (2) the affect on the operator's ability to implement abnormal or emergency procedures; and (3) if operator workaround problems were captured in the licensee's corrective action program.

- Auxiliary feedwater suction source monitoring (operator workaround 96-13). This workaround was eliminated following the Unit 2 shutdown for the refueling outage due to the incorporation of the increased capacity auxiliary feedwater tank.

- Steam generator level control at low power levels (operator workaround 01-01).

The inspectors also reviewed PIPs to verify the adequacy of planned and implemented corrective actions, including PIP M 02-0286, reactor coolant makeup flow counter problems.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modification to: (1) verify that the design bases, licensing bases, and performance capability of risk significant SSCs have not been degraded through the modification; and (2) verify that the modification performed during risk significant configurations did not place the plant in an unsafe condition. In addition, walkdowns were conducted for the new auxiliary feedwater system components and system readiness was evaluated during unit restart.

MG-22518	New Unit 2 auxiliary feedwater storage tank and connection
MM-12191	Replace actuator for valve 2ND58A

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (PMT)

a. Inspection Scope

The inspectors reviewed PMT instructions and/or observed testing activities for the equipment below to ensure the equipment was returned to service satisfactorily. The inspectors evaluated the PMT to ensure it properly addressed the work performed and that equipment functional capabilities were adequately verified. The inspectors also reviewed PIPs to verify the adequacy of planned and implemented corrective actions including PIP M 02-5402, safety-related instrument panel door interferences due to power supply installation.

WO Number	Title/Description
WO 98415095	Replace Unit 2 Train B power supply 2NSLP5490
WO 98046333	Replace Unit 1 A motor-driven auxiliary feedwater (CA) pump supply breaker
WO 98429349	Protective relay maintenance
WO 98220937	Unit 2 FWST Channel 1 heat trace repair
WO 98416905	EVCC Vital battery service test
WO 98049190	Standby Shutdown Facility (SSF) to CA system flush
WO 98471377	1NS12 B containment isolation valve isolation (1B component cooling heat exchanger outlet)

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

During the inspection period, the inspectors reviewed refueling and outage-related activities for the Unit 2 refueling outage. Unit shutdown, refueling and unit startup preparation parameters were monitored during increased risk periods. The inspectors observed just in time training (including classroom and simulator portions) for operators involved in the preplanned reactor trip to begin the refueling outage. Control rod drive mechanism (CRDM) time test results were reviewed. The inspectors observed training of the refueling activities and verified that adequate controls and communications were in place to control the core loading activities in accordance with the cycle-specific reload plan.

The inspectors also performed a walkdown of selected portions of the reactor building in preparation for reactor startup to verify that debris was not present which could affect operability of the containment sump for the emergency core cooling systems (ECCS). Walkdowns were also performed in all areas of the ice condensers to verify compliance with applicable TS surveillance requirements. The inspectors verified that appropriate equipment was available during reduced inventory and mid-loop operations (i.e., emergency power, sources of NC system make-up water, and NC system level instrumentation), and that outage risk control measures were implemented to prevent a loss of RHR. The inspectors also verified compliance with TS for low temperature overpressure protection (LTOP) requirements at different periods during the outage. The inspectors also reviewed PIPs to verify the adequacy of planned and implemented corrective actions. Included was PIP M 02-1456, debris covers on recirculation sump not installed and PIP M-02-0096, baffle jet damage to fuel assembly.

The following procedures were also reviewed during the shutdown, refueling, and restart preparation activities for Unit 2:

- OP/2/A/6100/003, Power Reduction
- OP/2/A/6100/SU-2, Draining the NC system
- OP/2/A/6100/SU-17, Aligning CA for standby readiness
- OP/2/A/6100/SU-20, Mode 1 and 2 checklist
- AP/2/A/5500/19, Loss of RHR or RHR system leakage
- OP/2A/6100/006, Reactivity Balance Calculation
- OP/2/A/6100/001, Controlling procedure for unit startup

b. Findings

A Green finding was identified and dispositioned as a NCV for an inadequately performed inspection of the Unit 2 ECCS recirculation sump.

On March 17, 2002, the inspectors performed an inspection of the containment recirculation sump. This was following the licensee's performance of PT/2/A/4700/055, which implemented TS requirement 3.5.2.8 for inspection of the ECCS sump area. The inspectors identified an abnormal amount of residual hardened boron deposits (approximately 1 to 2 inches thick) plated out within the ECCS sump. The deposits were located inside the containment sump fine mesh screens and trash racks and covered a portion of the floor interior of the sump. Although operability of the sump was not required at the time this finding was identified (Mode 5), the licensee had previously completed the sump inspection on March 14 and did not identify the boron deposits. Once the condition was identified, the licensee reperformed sump interior inspections and removed the boron deposits prior to unit restart from the refueling outage. The licensee identified the most likely source for the boron and evaluated its impact on the plant.

The licensee performed a past operability review for the identified boron. The primary concern was the ingestion of the boron into the ECCS pump suctions in an undissolved state, particularly to the high head injection pumps which have minimum clearances. Based on the amount of boron identified, testing of boron solubility, flow analysis to the ECCS pumps, and engineering judgement, the licensee determined that the boron identified in the sump would not have resulted in any operability concerns. The inspectors reviewed this evaluation and found it to be adequate.

The finding had a credible impact on safety by reducing the reliability of the ECCS pumps during accident scenarios when undissolved pieces of the boric acid could enter the suction of the pumps and cause possible damage to the pumps. The finding was of very low safety significance based on the determination that mitigation systems were previously capable of performing their safety function.

Technical Specification 5.4.1.a. requires that written procedures shall be implemented covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 requires procedures for surveillance tests. Contrary to this requirement, a violation of TS 5.4.1.a. was identified for failure to perform adequate inspections of the ECCS recirculation sump per PT/2/A/4700/055. The performance of PT/2/A/4700/055 on March 14 failed to identify the accumulation of boron in the ECCS sump until identified by the inspectors on March 17, 2002. Because the finding is of very low safety significance (Green) and is captured in the licensee's corrective action program as PIP M-02-1567, it is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. Accordingly, it is identified as NCV 50-370/01-05-02: Inadequate Performance of ECCS Recirculation Sump Inspection.

1R22 Surveillance Testing

.1 Routine Surveillance Testing

a. Inspection Scope

The inspectors witnessed surveillance tests and/or reviewed test data of selected risk-significant SSCs listed below, to assess, as appropriate, whether the SSCs met TS requirements, Updated Final Safety Analysis Report (UFSAR), and licensee procedure requirements. The inspectors also determined if the testing effectively demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. Compensatory measures, where applicable, were also verified.

Procedure	Title/Description
PT/0/A/4601/008A	Unit 2 solid state protection system (SSPS) Train A periodic test with NC system pressure >1955 PSIG
PT/0/A/4150/041	Rod control cluster assembly bank repositioning
PT/0/A/4550/003/C	Core verifications

PT/2/A/4350/002A EDG 2A operability test

PT/2/A/4700/055 Unit 2 containment building civil structures inspection

Additionally, the inspectors reviewed the operational history of relief valve 1NV488, which prematurely lifted below it's setpoint and initiated a reactor coolant system leak on January 15, 2002, to determine if the licensee had performed appropriate corrective actions and periodic testing on the valve (PIP M-02-177).

b. Findings

No findings of significance were identified.

.2 Inservice Surveillance Testing

a. Inspection Scope

The inspectors observed the performance of Periodic Test PT/1/A/4252/001, Unit 1 Turbine Driven CA Pump Performance Test. The inspectors evaluated the effectiveness of the licensee's American Society of Mechanical Engineers (ASME) Section XI testing program to determine equipment availability and reliability. The inspectors evaluated selected portions of the following areas: (1) testing procedures; (2) acceptance criteria; (3) testing methods; (4) compliance with the licensee's in-service testing program, Technical Specifications, Selected Licensee Commitments, and code requirements; (5) range and accuracy of test instruments; and (6) required corrective actions. The inspectors also verified that corrective actions were taken as applicable.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed temporary modification, MGTM-0235, Provide LTOP permissive for 2NC-34 during Unit 2 shutdown conditions, to determine whether system operability and availability were affected, that configuration control was maintained, and that post-installation testing was performed.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed the licensee's emergency preparedness training evolution conducted on February 20, 2002. The inspectors reviewed the drill scenario narrative to identify the timing and location of classification, notification, and protective action recommendation (PAR) development activities. During the drill the inspectors assessed the adequacy of event classification and notification activities. The licensee's drill critique was also reviewed. The inspectors assessed the licensee's evaluation of drill performance with respect to performance indicators. The inspectors verified that identified drill performance deficiencies were entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2OS1 Access Control To Radiologically Significant Areas

.1 Access Controls

a. Inspection Scope

During the weeks of February 25, 2002, and March 11, 2002, licensee activities for controlling and monitoring worker access to radiologically significant areas and tasks associated with the Unit 2, End-of-Cycle14 Refueling Outage (U2 EOC14) were evaluated. The inspectors evaluated procedural guidance; directly observed implementation of administrative and established physical controls; appraised radiation worker and technician knowledge of, and proficiency in implementing radiation protection activities; and assessed worker exposures to radiation and radioactive material.

The inspectors conducted observations of work in airborne radioactivity areas, radiation areas, high radiation areas (HRAs), locked high radiation areas (LHRAs), and very high radiation areas (VHRAs). The evaluated tasks included reactor head de-tensioning, reactor head removal and flood-up, pressurizer relief valve (2-NC1) replacement, fuel movement, steam generator maintenance, cavity decontamination, spent filter handling and storage, and reactor head reinstallation. The inspectors attended pre-job briefings, and reviewed radiation work permits (RWPs) to assess communication of radiological control requirements to workers. Occupational workers' adherence to selected RWPs and Health Physics (HP) technician proficiency in providing job coverage were evaluated

through direct observations and interviews with licensee staff. For HRA tasks involving significant dose gradients, the inspectors evaluated the use and placement of dosimetry to monitor worker exposure. Electronic dosimetry (ED) alarm set points and worker stay times were evaluated against area radiation survey results with a focus on steam generator activities and tasks in areas where dose rates could change significantly as a result of plant shutdown and refueling operations. Worker exposure as measured by ED and by licensee evaluations of skin doses resulting from discrete radioactive particle or dispersed skin contamination events during the current U2 EOC14 were reviewed and assessed independently.

Postings for access to radiological control areas (RCAs) and physical controls for Auxiliary Building (AB) locations designated as LHRAs and VHRAs were evaluated during facility tours. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys and results for U2 Steam Generators and AB radioactive waste storage areas. Results were compared to current surveys and assessed against established postings and controls.

Licensee controls for airborne radioactivity areas with the potential for individual worker internal exposures of greater than 30 millirem (mrem) Committed Effective Dose Equivalent (CEDE) were evaluated. For selected RWPs identifying potential airborne areas associated with refueling activities, e.g., flood-up following reactor head lift, the inspectors evaluated the effectiveness of administrative and physical controls including barrier integrity, engineering controls, and postings. Use of respiratory protective equipment during steam generator maintenance work was reviewed in detail. Licensee identification and assessment of potential radionuclide intakes by workers between February 25, 2002, through March 15, 2002, were reviewed and evaluated.

Radiation protection activities were evaluated against UFSAR, TS, and 10 Code of Federal Regulations (CFR) Parts 19 and 20 requirements. Specific assessment criteria included UFSAR Section (§) 11, Radioactive Waste Management and § 12, Radiation Protection; 10 CFR 19.12; 10 CFR 20, Subparts B, C, F, G, H, and J; TS § 5.4.1, Procedures, and §5.7, High Radiation Area Controls; and procedures listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Licensee PIPs associated with access controls, personnel monitoring instrumentation, and respiratory protection activities were reviewed. Licensee PIPs reviewed and evaluated in detail during inspection of this program area are identified in the Attachment to this report. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

.1 As Low As Reasonably Achievable (ALARA)

a. Inspection Scope

During the weeks of February 25, 2002, and March 11, 2002, ALARA program guidance and its implementation for ongoing U2 EOC14 activities were evaluated. Development of dose expenditure goals for the outage and for selected tasks estimated to exceed one man-rem were reviewed and discussed with site management and responsible tasks sponsors. The inspectors reviewed applicable ALARA Committee meeting details, ALARA Plans, and ALARA Planning Work Sheets associated with the following U2 EOC14 activities:

- Installation and Removal of Temporary Lead Shielding
- Reactor Head Removal/Reinstallation
- Steam Generator - Eddy Current Testing
- ISI Weld Inspection
- Reactor Coolant Pump Maintenance Activities,

Dose rate and cumulative dose expenditure data trends associated with selected systems, equipment, and tasks were discussed and reviewed for the current outage and relative to data from previous U2 refueling outages. The inspectors evaluated selected data associated with dose reduction initiatives including shutdown chemistry and cleanup, improved planning and sequencing of work activities, improved dose estimation techniques and concurrent reduced ED alarm setpoints, system equipment flush controls, temporary shielding, and cobalt reduction for selected valve replacement.

Knowledge of ALARA program guidance and staff proficiency in program implementation were appraised through observation of selected work activities, comparison of estimated and current dose expenditure data for selected tasks, and discussions of selected outage tasks with responsible supervisors and managers.

Program implementation and results were reviewed against the facility's ALARA work plans, UFSAR, 10 CFR Part 20 requirements, and procedural guidance documented in the Attachment of this report.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Licensee PIPs associated with dose reduction initiatives and ALARA activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues. Specific PIP documents reviewed and evaluated are listed in the Attachment of this report.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation

.1 Waste Processing and Characterization

a. Inspection Scope

During the week of February 25, 2002, the operability and configuration of selected liquid and solid radioactive waste (radwaste) processing systems and equipment were evaluated. Inspection activities included document review, interviews with plant personnel, and direct inspection of processing equipment and piping.

The inspectors directly observed radwaste processing equipment material condition and configuration for liquid and solid radwaste systems. Liquid radwaste equipment was inspected for general condition and licensee staff were interviewed regarding equipment function and operability. The licensee's ALARA policy regarding abandoned radwaste equipment was reviewed. The following components of the liquid radwaste system were inspected:

- Waste hold-up tanks
- Boron recycle evaporator control system
- Purification filters and resin beds

The solid radwaste processing system components between the resin batching tank and the shipping container fill-head were walked-down. The piping and system components were inspected for material condition and for configuration compliance with the UFSAR. A chemistry technician was interviewed to assess knowledge of resin sluicing processes and solid radwaste system operations. Procedural guidance involving transfer of resin and filling of waste packages was reviewed for consistency with the licensee's Process Control Program (PCP) and UFSAR. In the Attachment to this report is a listing of the documents reviewed.

Licensee radionuclide characterizations of each major waste stream were evaluated. For dry active waste (DAW), primary resin, secondary resin, and filters, the inspectors evaluated PCP and licensee procedural guidance against 10 CFR 61.55 and the Branch Technical Position (BTP) on Radioactive Waste Classification details. Comparison data between the licensee's waste sample gamma-emitter concentrations and those of a

vendor laboratory were evaluated for the years 1998 - 2001. The licensee's analysis for, and the use of scaling factors for hard-to-detect nuclides were assessed. DAW stream radionuclide data were reviewed for the period 1992-2001 to determine if known plant changes, including recent steam generator replacement modifications, had an effect on radionuclide composition and were assessed by the licensee.

b. Findings

No findings of significance were identified.

.2 Transportation

a. Inspection Scope

The inspectors evaluated licensee's activities related to transportation of radioactive material. The evaluation included review of shipping records and procedures, assessment of worker training and proficiency, and direct observation of shipping activities.

The inspectors assessed three shipping-related procedures for compliance to applicable regulatory requirements. Selected shipping records were reviewed for consistency with licensee procedures and for completeness and accuracy. An additional procedure was reviewed for consistency with vendor recommended protocols. Training records for five individuals qualified to ship radioactive material were checked for completeness. In addition, training curricula provided to these workers were assessed.

On March 14, 2002, the inspectors observed the loading of contaminated trash into a sea-land container and interviewed a technician regarding packaging controls and contamination controls. In addition, the inspectors directly observed radiation surveys of two containers being prepared for shipment.

Transportation program guidance and implementation were reviewed against regulations detailed in 10 CFR 71, and 49 CFR 170-189 and applicable licensee procedures listed in the Attachment to this report. In addition, training activities were assessed against 49 CFR 172 Subpart H, and the guidance documented in NRC Bulletin 79-19.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

Licensee PIP reports and self-assessments associated with radwaste processing and transportation were reviewed. Three PIPs and two self-assessments reviewed and

evaluated in detail during inspection of this program area are listed in the Attachment to this report. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Reactor Safety PI Verification

a. Inspection Scope

The inspectors reviewed data for the following three Reactor Safety PIs for the period of January 1, 2001, through December 31, 2001, to verify the accuracy of the PIs reported during that period. Performance indicator definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Rev. 1, were used while assessing the accuracy in reported data.

Cornerstone	**PI**
Initiating Events	Unplanned Scram Rate
Initiating Events	Unplanned Power Changes >20% per 7,000 Critical Hours
Initiating Events	Scrams with Loss of Normal Heat Removal

To verify the PI data, the inspectors reviewed control room and chemistry logs, TS Action Item Log entries, system availability information, and maintenance rule data for the aforementioned time frame.

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety PI Verification

a. Inspection Scope

The Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone were reviewed for the period March 1, 2001, through February 25, 2002. For the review period, the inspectors reviewed data reported to the NRC, and sampled and evaluated applicable PIPs and selected Health Physics Program

records. The reviewed records included selected health physics shift logs, contamination occurrence logs and assessments, internal exposure evaluations, and exposure reports. In addition, associated PIPs (listed in the Attachment to this report) were reviewed and evaluated.

b. Findings

No findings of significance were identified.

.3 Public Radiation Safety PI Verification

a. Inspection Scope

The inspectors reviewed and discussed the Radiological Control Effluent Release Occurrences PI indicator results for the Public Radiation Safety Cornerstone. For the review period of March 1, 2001, through February 25. 2002., the inspectors reviewed data reported to the NRC and evaluated selected radiological liquid and gaseous liquid and gaseous effluent release data, out-of-service process radiation monitor and compensatory sampling data, abnormal release results, and PIPs documented in the Attachment of this report.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

a. Inspection Scope

The inspectors reviewed the following events, to evaluate plant status and the adequacy of mitigating actions and to determine the need for additional NRC response based on risk significance. The inspectors also evaluated the licensee's use of emergency classification levels and the timeliness of required notifications.

Unit 2 Unidentified NC System Leakage - At 9:55 a.m., on January 15, 2002, the licensee declared a Notification of Unusual Event (NOUE) due to Unit 2 NC system leakage exceeding 10 gpm. The leak was initiated when valve 1NV414, located in the NV charging pump suction piping, was opened to support ongoing maintenance efforts. This valve isolates the infrequently used crosstie between the Unit 2 NV pump suction line and the Unit 1 Boric Acid Storage Tank. When the valve was opened, at about 9:02 a.m., the crosstie line was pressurized to Unit 2 volume control tank (VCT) pressure (approximately 21 psig). The pressurization caused the relief valve which protects the crosstie line (1NV488), to prematurely lift below it's setpoint of 30 psig. The open relief valve resulted in an 18 gpm leak from the Unit 2 VCT to the Unit 1 boric acid tank. Operators readily identified the decreasing VCT level and entered Abnormal Procedure (AP) 2/A/5500/10, NC system leakage within the capacity of both NV pumps, and shut 1NV414 to isolate the leak at 9:36 a.m.

This event was determined to be of very low safety significance because the leak was within the capacity of makeup flow to the VCT and the source of the leak was promptly isolated by operators. Therefore, no additional inspection response was warranted. A licensee identified NCV was identified (see Section 4OA7).

Unit 1 Reactor Trip on Loss of Feedwater - On March 4, McGuire Unit 1 was manually scrammed from 100% power in response to decreasing levels in the 1A SG. The SG levels were decreasing due to the associated main feedwater regulating valve failing closed due to an electrical failure in the RPS 7300 racks. Following the trip the inspector observed the event recovery. Other equipments problems or indications observed included the failure of source range N-31 to indicate a neutron count, an indication of high temperature on a pressurizer tailpipe indication, and the unexpected transfer of the pressurize master controller from automatic to manual. The operators quickly responded to the unanticipated pressure master controller manual operation. All of the equipment problems identified during the event were either linked to the RPS electrical failure or resolved prior to restart.

The licensee determined that the cause of the electrical failure in the 7300 rack was the loss of the primary power supply (24 VDC) to process control cards. The loss of the primary power was due to the failure of a card capacitor or the blowing of a card or a panel rack protective fuse. No additional inspection response was warranted.

b. Findings

NCV 50-370/01-05-05 (addressed in Section 4OA7) was identified.

4OA5 Other

.1 Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles (TI 2515/145)

a. Inspection Scope

The inspectors reviewed licensee activities for Unit 2 in response to NRC Bulletin 2001-01, Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles, in accordance with NRC Temporary Instruction 2515/145, Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles (NRC Bulletin 2001-01), dated September 20, 2001.

b. Findings

The licensee's response to the subject bulletin did not include plans for a visual examination of the reactor pressure vessel head due to McGuire Units 1 and 2 low susceptibility (Category IV) to primary water stress corrosion cracking (PWSCC) of the penetration nozzle. However, in response to NRC Bulletin 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity", issued on March 18, 2002, the licensee performed a 100 percent visual inspection of the Unit 2 vessel head. The inspection, performed on March 20, 2002, required removal of reflective metal insulation from the top of the reactor vessel head area.

The visual inspection was conducted in accordance with procedure QAL-14, Inservice Inspection (ISI) Visual Examination, VT-3 and VT-3C and the guidance detailed in Electric Power Research Institute (EPRI) Update: Visual Examination for Leakage of PWR Reactor Head Penetration in Top Head, Revision 1. The inspectors verified that the examiner who completed the vessel head examination was properly qualified. Prior to performing the inspection, the examination team performed a detailed review of EPRI training material regarding the subject. The inspectors considered the examination guidance and acceptance criteria to be adequate for identification, disposition, and resolution of deficiencies .

Due to the accessibility restrictions of the vessel head area during the examination (vessel head installed, missile shields in place, and shroud installed), the inspectors reviewed a video documenting the examination performed by the licensee. The quality and resolution of the video was considered good by the inspectors; small debris and dirt could be easily distinguished. The inspectors observed that the vessel head was free of any evidence of boron leakage. The examinations did identify small amounts of debris (insulation, grit, and scale) which had collected at the base of numerous CRDM nozzles. This debris was easily removed and was not considered to impose any adverse effects. The majority of the vessel head penetrations were documented by video; some of the vessel head penetrations were obstructed by camera view by insulation that could not be easily removed. All vessel head penetrations were satisfactorily visually examined by the licensee. No material deficiencies were identified that required repair. The inspectors observed no items that could impede effective examination of the vessel head.

.2 Operation of an Independent Spent Fuel Storage Installation

a. Inspection Scope

The inspectors evaluated radiation protection program activities and results associated with the Independent Spent Fuel Storage Installation (ISFSI) area. On March 14, 2002, the inspectors toured the ISFSI facilities and evaluated established radiation protection postings and barricades. The area was surveyed by a technician accompanied by an inspector. The radiation levels were compared with the most recent routine survey. Both neutron and gamma radiation levels were measured at points on all four sides of the roped off area, as well as at the owner controlled fence bordering Lake Norman. Records of radiation surveys conducted during the previous year were reviewed for adherence to procedures and compliance with applicable requirements. Reviewed documents are listed in the Attachment of this report.

Radiation protection activities were reviewed against 10 CFR 72.104 requirements.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. B. Dolan, Manager, McGuire Nuclear Station Safety Assurance, at the conclusion of the inspection on March 26, 2002. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Annual Assessment Meeting

On March 21, 2002, the NRC Division of Reactor Projects Branch Chief and the Senior Resident Inspector assigned to McGuire met with Duke Energy Corporation, to discuss the NRC's Reactor Oversight Process (ROP) and the McGuire annual assessment of safety performance for the period of April 1, 2001 - December 31, 2001. The major topics addressed were: the NRC's assessment program, the results of the McGuire assessment, and the NRC's Agency Action Matrix. Attendees included McGuire site management, members of site staff, members of the public, and news media personnel.

This meeting was open to the public. Information used for the discussions of the ROP is available from the NRC's document system (ADAMS) as accession number ML020600179. ADAMS is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm/adams.html* (the Public Electronic Reading Room).

4OA7 Licensee Identified Violations

The following findings of very low significance were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for being dispositioned as NCVs.

NCV Tracking Number

50-369/01-05-03 Technical Specification 5.4.1.a requires that written procedures shall be implemented covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 requires procedures for surveillance tests. On January 14, 2002, maintenance technicians failed to follow surveillance procedure PT/1/A/4600/014D, NIS Power Range N-41 Analog Channel Operational Test, by bypassing the incorrect power mismatch channel. As a result of this error and the performance of the procedure, Unit 2 control rods inserted until plant operators terminated the rod movement. This finding had a credible impact on safety because the maintenance technicians' error caused a reactivity change which resulted in a challenge to plant operators. This issue was determined to be of low safety significance because of prompt operator action and because it did not result in

a significant plant transient. This issue was entered into the licensee's corrective action program as PIP M-02-0140. (Green)

50-370/01-05-04 Technical Specification 5.4.1.a requires that written procedures shall be implemented covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 requires procedures for surveillance tests. On July 16, 2001, maintenance technicians failed to follow surveillance procedure IP/2/A/3001/002E and improperly isolated the wrong channel, initiating a Unit 2 reactor trip. This issue was more than minor because it had a actual impact on safety, in that, it initiated a reactor trip. This issue was determined to be of low safety significant because although it did initiate a reactor trip, it did not affect mitigating equipment and the impact of the reactor trip was minimal. This event is in the licensee corrective action program as PIP M-01-3139. (Green)

50-370/01-05-05 Technical Specification 5.4.1.a requires that written procedures shall be established covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 requires procedures for maintenance. On January 15, 2002, work procedures for maintenance on valve 1NV414 were performed that did not contain adequate precautions to control plant conditions. This resulted in a Unit 2 reactor coolant system leak. This issue had a credible impact on safety because the leak exceeded TS allowed values. This issue was determined to be of very low safety significance because the source of the leak was promptly isolated by operators, the leak was within the capacity of makeup flow to the VCT, leakage was directed to a boric acid tank, and the leak did not disable any mitigating systems. This issue was entered into the licensee's corrective action program as PIP M-02-0177. (Green)

50-369,370/01-05-06 Contrary to TS 5.7.2, during fuel movement on March 2, 2002, two areas were identified with general area dose rates exceeding 1000 mrem/hr which were not controlled as locked high radiation areas and were accessed by individuals. This issue was determined to be of very low safety significance based on the location of the elevated dose rates relative to the individuals' work areas, appropriate worker actions including exiting the area when elevated dose rates were initially detected, and monitoring results which indicated no significant unexpected exposures were received by the workers. This issue is documented in the licensee's corrective action program as PIPs M-02-01017 and M-02-01018. (Green)

50-369,370/01-05-07	Contrary to TS 5.7.1, on February 27, 2002, an individual worker in the Unit 2 Reactor Building, posted as a high radiation area, failed to respond appropriately to his Electronic Dosimeter (ED) integrated dose alarm. This issue was determined to be of very low safety significance based on monitoring results which indicated the worker was in low dose rate areas within the posted high radiation area when the alarm sounded and no over-exposures occurred. This issue is documented in the licensee's corrective action program as PIP M-02-00907. (Green)

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Barron, B., Vice President, McGuire Nuclear Station
Bradshaw, S., Superintendent, Plant Operations
Bramblett J., Chemistry Manager
Brenton D., Shift Operations Manager
Bryant, J., Licensing Engineer
Correll J. , Radiation Protection (RP) Support Supervisor
Dolan, B., Manager, Safety Assurance
Edgemon M. , Field Operations Supervisor
Evans W., Security Manager
Geer, T., Manager, Reactor Electrical Systems Engineering
Hanes L. , General Office, Health Physicist
Jamil, D., Station Manager, McGuire Nuclear Station
Loucks L. , Radiation Protection Manager
Patrick, M., Superintendent, Maintenance
Peele, J., Manager, Engineering
Sheffield, R., NDE Supervisor
Sloan H. , RP Shift/Effluent Controls Supervisor
Thomas, J., Manager, Regulatory Compliance
Thomas, K., Superintendent, Work Control
Travis, B., Manager, Mechanical Civil Engineering
Warlick, J., Manager, Inspection Welding Services

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-369,370/01-05-01	URI	Review of Potential Target Set Vulnerabilities (Section 1R13)

Opened and Closed

50-370/01-05-02	NCV	Inadequate Performance of ECCS Recirculation Sump Inspection (Section 1R20)
50-369/01-05-03	NCV	Failure to Follow Power Ranger Test Procedure (Section 4OA7)

50-370/01-05-04	NCV	Failure to Follow Steam Pressure Loop Instrument Test Resulting in Reactor Trip (Section 4OA7)
50-370/01-05-05	NCV	Inadequate Maintenance Procedure Resulted in NC System Leakage Event (Section 4OA7)
50-369,370/01-05-06	NCV	Failure to Control Two Areas as Locked High Radiation Areas (Section 4OA7)
50-369,370/01-05-07	NCV	Failure of an Individual to Respond Appropriately to an Alarming ED (Section 4OA7)
Closed		
50-370/01-01	LER	Unit 2 Reactor Trip and Auxiliary System Actuation Caused by Human Error During Calibration on the S/G 'B' Steam Line Pressure Loop (Section 1R14)
TI 2515/145 (Unit 2)	TI	Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles - NRC Bulletin 2001-01 (Section 4OA5.1)

LIST OF ACRONYMS

ALARA	-	As Low As Reasonably Achievable
AP	-	Abnormal Procedure
ASME	-	American Society of Mechanical Engineers
BTP	-	Branch Technical Position
CA	-	Auxiliary Feedwater
CEDE	-	Committed Effective Dose Equivalent
CFR	-	Code of Federal Regulations
CRDM	-	Control Rod Drive Mechanism
CPCS	-	Containment Pressure Control System
DAW	-	Dry Active Waste
DRPI	-	Digital Rod Position Indication
ECCS	-	Emergency Core Cooling System
ED	-	Electronic Dosimetry
EDG	-	Emergency Diesel Generator
EOC	-	End Of Cycle
EP	-	Emergency Procedure
EPRI	-	Electric Power Research Institute
ESF	-	Engineered Safeguards Feature
EVCC	-	Vital Battery C
FAC	-	Flow Accelerated Corrosion
FWST	-	Fueling Water Storage Tank
HP	-	Health Physics

HRA	-	High Radiation Area
IR	-	Inspection Report
ISI	-	In Service Inspection
LHRA	-	Locked High Radiation Area
KC	-	Component Cooling Water
KV	-	Kilo Volt
LER	-	Licensee Event Report
LTOP	-	Low Temperature Overpressure Protection
MGTM	-	Temporary Modifications
MT	-	Magnetic Particle
MSIV	-	Main Steam Line Isolation Valves
NC	-	Reactor Coolant
NOUE	-	Notice of Unusual Event
NS	-	Containment Spray
NV	-	Chemical and Volume Control
OTDT	-	Over Temperature Delta Temperature
PAR	-	Protective Action Recommendation
PCP	-	Process Control Program
PI	-	Performance Indicators
PIP	-	Problem Investigation Process
PMT	-	Post-Maintenance Testing
PORV	-	Power Operated Relief Valve
PT	-	Liquid Penetrant
PWSCC	-	Primary Water Stress Corrosion Cracking
RCA	-	Radiological Control Area
RHR	-	Residual Heat Removal
RWP	-	Radiation Work Permit
SG	-	Steam Generator
SSC	-	Structures, Systems, Components
SSF	-	Standby Shutdown Facility
SSPS	-	Solid State Protection System
TS	-	Technical Specifications
TSSR	-	Technical Specifications Surveillance Requirement
UFSAR	-	Updated Final Safety Analysis Report
UT	-	Ultrasonic
VCT	-	Volume Control Tank
VHRA	-	Very High Radiation Area

LIST OF DOCUMENTS REVIEWED

(For Section 1R08)

NDE-A, Preparation and Issue of Nondestructive Examination Procedures, Revision 23
NDE-B, Training, Qualification and Certification of Nondestructive Examination Personnel, Revision 24

NDE-C, Control of Nondestructive Examination Equipment, Revision 8
NDE-35, Liquid Penetrant Examination, Revision 19
NDE-25, Magnetic Particle Examination, Revision 20
NDE-10, General Radiography Procedure, Revision 22
NDE-90, Reference System for Layout and Marking of Welds, Revision 3
NDE-91, Reporting Coverage During Preservice and Inservice Inspection, Revision 2
NDE-952, Ultrasonic Examination of Pressurizer Support Skirt Welds, Revision 0
PDI-UT-6, PDI Generic Procedure for the Manual Ultrasonic Examination of Reactor Pressure Vessel Welds, Revision E
NDE-701, Multifrequency Eddy Current Examination of Steam Generator Tubing at Catawba, MCGuire and Oconee Nuclear Stations, Revision 3
NDE-702, Automated Eddy Current Data Analysis Program, Revision 1
NDE 703, Evaluation of Eddy Current Data Analysis Program, Revision 1
M2EOC14 Steam Generator Inspection Plan
Mp/0/B/7700/103, Erosion/Corrosion Component Inspection, Revision 01
Steam Generator Management Program Manual, Revision 4
SGMP 105, CFR80 Specific Assessment of Potential Degradation Mechanisms (for McGuire Unit 2 EOC 14), Revision 3

(For Section 2OS1)

Procedures, Instructions, Lesson Plans, and Manuals

HP Procedure, HP/O/B/1006/009, Requirements and Controls for Entry into the Reactor Building, Revision (Rev). 07, 10/18/01
HP/O/B/1006/012, Controls for Radiological Status and Areas of Radiological Significance, Rev. 09, 12/06/01
HP/O/B/1006/014, Radiation Controls for Steam Generator Primary Side Access, Rev. 06, 02/15/01
HP/O/B/1006/021, Diving Operations, Rev 00, 10/10/97
HP/O/B/1006/024, RP Field Operations Outage Controls and Surveillance, Rev. 07, 03/07/01
Shared (SH) Procedure, SH/O/B/2000/002, Planned Special Exposures, Rev. 000, 11/05/97
SH/O/B/2000/003, Use of the Radiation Permit, Rev. 002, 11/05/97
SH/O/B/2000/004, Taking, Counting, and Recording Surveys, Rev. 5, 03/20/01
SH/O/B/2000/005, Posting of Radiation Control Zones, Rev. 001, 11/09/98
SH/O/B/2000/007, Placement of Personnel Dosimetry for Non-Uniform Fields, 09/22/09
SH/O/B/2000/009, Neutron Dose Tracking, Rev. 0, 11/05/97
SH/O/B/2000/012, Access Controls for High, Extra High, and Very High Radiation Areas, Rev.001, / 05/11/99
RP-MC-RESP-01, Respiratory Lesson Plan, Revision 0, 02/14/01

RWPs

RWP-2705, Install and Remove Nozzle Dams in B and C Steam Generators
RWP-2714, Primary Manway and Diaphragm Removal and Replacement
RWP-2725, Reactor Head De-tension, Remove, Replace, and Tension Reactor Head Studs

RWP-2727, Reactor Head: Clean RV Flange
RWP-2728, Reactor Head Remove and Replace Head and O-Rings
RWP 2751, ISI Weld Preparation and Inspection
RWP 2804, Work on Air Operated Valves (CV) in Areas Affected by ND
RWP 2809, Work on Manual Valves on Top of Pressurizer
RWP-2874, Remove and Replace In-core Thimble Guide Tubes
RWP-2894, Replace 2B ND Pump Motor,
RWP-2905, Areas Controlled as Extra High Radiation Areas
RWP-2953, Up-ender Maintenance
RWP-2997, Material and Equipment Handling
RWP-5024, Reactor Coolant Filter Transfer

Records and Data

Contamination Occurrence Logs and Selected Skin Dose Assessments, February 25, 2002, through March 15, 2002.
2EOC14 Radiation Dose Update Sheets, February 25, 2002, through March 15, 2002.

PIPs

M-01-05089, Workers carried bag unescorted to green table that was >100mr/hr, 12/11/01
M-01-02854, Containment Emergency Hatch Divider Barrier Integrity Compromised, 06/21/01
M-01-00537, Technician Identified step missing in procedure, 02/07/01
M-01-00521, Failure to Implement Routine Access Control Measures For Unit 2 Annulus VE Doors During Flux Mapping, 02/06/01
M-02-01323, Loss of Air While Wearing A PAPR, 03/11/02
M-02-01059, Worker Released From Site With Hot Particle In Shoe, 03/04/02
M-02-01294, Radiation Survey Instrument Failed During Filter Survey, 03/11/02
M-02-01017, Dose Streaming from Fuel Transfer, 03/02/2002
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