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

April 28, 2006

Duke Energy Corporation
ATTN: Mr. G. R. Peterson
Vice President
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000369/2006002 AND 05000370/2006002

Dear Mr. Peterson:

On March 31, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your McGuire Nuclear Station. The enclosed report documents the inspection findings which were discussed on April 12, 2006, with you and 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.

Based on the results of this inspection, two findings of very low safety significance (Green) which were determined to be violations of NRC requirements were identified. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCV) consistent with Section VI.A of the NRC Enforcement Policy. Additionally, three licensee-identified violations, which were determined to be of very low safety significance (Green), are listed in Section 4OA7 of the enclosed inspection report. If you contest any non-cited violation in this 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, 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 the McGuire Nuclear Station.

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 *www.nrc.gov/reading-rm/adams.html* (the Public Electronic Reading Room).

Sincerely,

/RA/

D. Charles Payne, Acting 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 05000369/2006002 and 05000370/2006002
w/Attachment - Supplemental Information

cc w/encl: (See page 3)

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 *www.nrc.gov/reading-rm/adams.html* (the Public Electronic Reading Room).

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ADAMS: ☐ Yes ACCESSION NUMBER:_____

OFFICE	RII/DRP	RII/DRP	RII/DRP	RII/DRP	RII/DRS	RII/DRS	
SIGNATURE	CWR	JBB1	SAW	MFK	GWL	HJG1	
NAME	CRapp	JBrady	SWalker	MKing	GLaska	HGepford	
DATE	4/26/2006	4/26/2006	4/26/2006	4/27/2006	4/26/2006	4/27/2006	
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Report to G. R. Peterson of Duke Energy Corporation dated April 28, 2006

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000369/2006002 AND 05000370/2006002

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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.:	05000369/2006002, 05000370/2006002
Licensee:	Duke Energy Corporation
Facility:	McGuire Nuclear Station, Units 1 and 2
Location:	12700 Hagers Ferry Road Huntersville, NC 28078
Dates:	January 1, 2006 through March 31, 2006
Inspectors:	J. Brady, Senior Resident Inspector S. Walker, Resident Inspector M. King, Project Engineer G. Laska, Senior Operations Examiner (Section 1R11) H. Gepford, Project Engineer (Section 2PS1)
Approved by:	D. Charles Payne, Acting Chief Reactor Projects Branch 1 Division of Reactor Projects

SUMMARY OF FINDINGS

IR05000369/2006-002, IR05000370/2006-002; 01/01/2006 - 03/31/2006; McGuire Nuclear Station, Units 1 and 2; Fire Protection and Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems.

The report covers a three month period of inspection by resident inspectors and a health physicist. Two Green non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). 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," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A non-cited violation (NCV) was identified for failing to take adequate corrective action to ensure accuracy of all fire strategy plans in response to two previous multiple example NCVs. Permanent combustible storage locations were identified in the auxiliary building 733 elevation electrical penetration rooms for both units which were not identified in the fire strategy plans. The non-updated fire strategy plans affect the effectiveness of the fire brigade.

  This finding is more than minor because it affects the mitigating systems cornerstone objectives to ensure capability of features that respond to initiating events and the associated attributes of protection from external factors (including fire) and procedure quality. The finding was of very low safety significance because it only minimally diminished manual suppression effectiveness without affecting the low fire ignition frequency within the compartments or the previously established safe shutdown strategy for a fully developed fire within the applicable compartments. The cause of this finding is related to the cross-cutting element of problem identification and resolution. (Section 1R05)

Cornerstone: Public Radiation Safety

- Green. An NRC-identified non-cited violation (NCV) of 10 CFR 20.1302(a) was identified for failure to ensure surveys of particulate radioactive materials in effluents released to unrestricted areas by the unit vents were adequate to demonstrate compliance with dose limits for individual members of the public. Specifically, an evaluation of the effect of changes in the operational unit vent volumetric flow rates determined that isokinetic sampling conditions were not maintained during normal ventilation alignments for Unit 1 or maintenance-related ventilation alignments for Unit 1 and Unit 2. The licensee therefore was not assured that the unit vent particulate measurements obtained using 1/2-EMF-35 were accurate. This issue was initially identified as an Unresolved Item following an onsite inspection in January 2005.

The finding is more than minor because it is associated with the program and process attribute of the Public Radiation Safety Cornerstone and affected the cornerstone objective in that failure to maintain isokinetic sampling conditions for the Unit 1/Unit 2 plant ventilation effluent streams could result in inaccurate measurement and reporting of airborne particulate radionuclides in samples and resultant dose estimates. This finding is of very low safety significance because the licensee had other means by which dose from particulate releases could be assessed and the licensee did not exceed the limits in 10 CFR 50 Appendix I or 10 CFR 20.1301(d). (Section 2PS1)

B. Licensee-Identified Violations

Violations of very low safety significance, which 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 the 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 and continued at this level until the end of the period.

Unit 2 began the inspection period at approximately 100 percent rated thermal power and continued at this level until the end of the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns. The inspectors performed partial walkdowns of the following five systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. During these walkdowns, the inspectors observed system condition to identify any discrepancies that could impact the function of the system and potentially increase risk. The inspectors reviewed applicable operating procedures to verify that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also reviewed the licensee's corrective action program to verify that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers. In addition, the inspectors used the operator aid computer to determine whether system parameters were as expected for the system and plant conditions, and whether equipment status shown for inaccessible equipment supported operability of the system. Documents reviewed are listed in the Attachment.

- Unit 2 train B Emergency Diesel Generator (EDG) with train A out of service
- Unit 1 train B Component Cooling with train A out of service
- Unit 1 train A EDG with train B out of service
- Unit 2 train A EDG with train B out of service
- Unit 2 train A Motor Driven Auxiliary Feedwater (MDAFW) pump and Turbine Driven Auxiliary Feedwater (TDAFW) pump with train B MDAFW pump out of service

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Tours. For the six areas identified below, the inspectors reviewed the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures, to verify that those items were consistent with Updated Final Safety Analysis Report (UFSAR) Section 9.5.1, Fire Protection System, and the fire protection program as described in the Design Basis Specification for Fire Protection, MCS-1465.00-00-0008. The inspectors walked down accessible portions of each fire area and reviewed results from related surveillance tests and the associated pre-fire plan strategy to verify that conditions in these areas were consistent with descriptions of the areas in the Design Basis Specification. Documents reviewed are listed in the Attachment.

- Unit 1 733 Electrical Penetration Room (Fire Area 9)
- Unit 2 733 Electrical Penetration Room (Fire Area 10)
- Unit 1 ETB Switchgear Room (Fire Area 11)
- Unit 2 ETB Switchgear Room (Fire Area 12)
- Unit 1 Cable Spreading Room (Fire Area 19)
- Unit 2 Cable Spreading Room (Fire Area 20)

b. Findings

Introduction. A Green non-cited violation (NCV) was identified for failing to take adequate corrective action to ensure accuracy of all fire strategy plans in response to two previous multiple example NCVs. Permanent combustible storage locations were identified in the auxiliary building 733' elevation electrical penetration rooms for both units which were not identified in the fire strategy plans. The non-updated fire strategy plans affect the effectiveness of the fire brigade.

Description. The inspectors found, on January 21, that permanently stored combustible material in the Units 1 and 2, 733' elevation electrical penetration rooms were not identified on the pre-fire strategy plan for those areas (Fire Areas 9 and 10). The 733' penetration rooms contain the access point for entry to lower containment and the lower containment annulus. The fire plans indicated that fire potential is slight in the area and the only possible fuel supply is insulation on cables. The inspectors found the following combustibles that were not listed in the pre-fire plan:

- a permanent flammable storage cabinet (procedurally approved)
- a permanent radiation protection table with a roll of poly bags, tape, and paper tags
- a rack with numerous safety harnesses
- a combustibles storage cage in the Unit 2 room (procedurally approved)
- various prestaged drums containing combustibles such used protective clothing and hard hats

The licensee's fire protection program (MCS-1465.00-0008, Design Basis Specification for Fire Protection), Appendix B, section 5.d.1 stated that the strategies should as a minimum cover, in part, "identification of combustibles in each plant zone covered by the specific fire fighting procedures." The permanent combustible storage locations were procedurally approved and thus should have been included in strategy plans. The subject areas do not have automatic or manual sprinklers and rely on the fire brigade to mitigate and suppress fires. NCV 05000369,370/2004003-01, Failure to have pre-fire plans for interior and exterior doghouses; and NCV 05000369,370/2004004-01, Failure to update fire strategy plans, and a second example of the NCV in Inspection Report (IR) 05000369,370/2004005 were issued dealing with previous fire strategy plan inadequacies. The licensee issued Problem Investigation Process report (PIP) M-04-1114 in 2004 to globally correct the fire plan deficiencies through reviews and walkdowns to verify the adequacy of the fire plans. The 733' elevation fire areas in question had been reviewed and updated in response to the specified corrective actions, however, failed to identify the aforementioned combustibles.

Analysis. The fire fighting strategy plans are the fire brigade equivalent of abnormal/emergency procedures used by licensed operators, and similarly the strategy actions taken based on these strategy plans were time sensitive. Inaccurate plans could increase the response time of the brigade in putting out the fire resulting in an increase in fire damage. Consequently, the failure to have a comprehensive pre-fire strategy plan was considered a degradation for manual fire fighting effectiveness. This finding was determined to be greater than minor in that it affects the mitigating systems cornerstone objectives of protection from external factors including fire and procedure quality. This finding was determined to be of very low safety significance (Green) because manual suppression effectiveness was minimally diminished without affecting the low fire ignition frequency within the compartments or the previously established safe shutdown strategy for a fully developed fire within the applicable compartments. This finding directly involved the cross-cutting aspect of problem identification and resolution.

Enforcement. McGuire operating license condition 2.C.4, for Units 1 and 2, states that the licensee shall maintain in effect and fully implement all provisions of the approved fire protection program as described in the UFSAR for the facility and as approved in the NRC Staff's McGuire Safety Evaluation Report (NUREG-0422) and its supplements. McGuire UFSAR, section 9.5.1, states that the fire protection program is contained in document MCS-1465.00-0008, Design Basis Specification for Fire Protection. The Fire Protection Program states, in Appendix B, section 5, Fire Fighting Procedures, that the fire fighting procedures should identify the strategies established for fighting fires in all safety-related areas and areas presenting a hazard to safety-related equipment; and that the strategies should cover the identification of combustibles in each plant zone covered by the specific fire fighting procedures. Appendix B, Section 6.8, Corrective Action, stated that repetitive conditions are required to be corrected and include actions to prevent recurrence. Contrary to the above, prior to January 21, the licensee had not adequately implemented procedure control measures and adequate corrective actions to prevent recurrence, in that, fire strategy plans 9 and 10, for the Units 1 and 2 auxiliary building 733' electrical penetration rooms, did not identify combustibles such as a

flammable storage locker; a permanent radiation protection storage table with a poly bag roll, tape, and tags; a rack with numerous safety harnesses; and a combustible storage cage in the Unit 2 room. The failure to identify combustible sources in the fire strategy plans as required by the fire protection program, and as required by PIP M-04-1114 corrective action 7 is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy and is identified as NCV 05000369,370/2006002-01: Failure to Take Adequate Corrective Action for Repetitive Fire Strategy Plan Deficiencies. This violation is in the licensee's corrective action program as PIPs M-06-0352 and M-06-0366.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Resident Inspection. The inspectors observed the performance test of the 1B containment spray heat exchanger, to verify that test results were appropriately categorized against the pre-established acceptance criteria described in procedure PT/1/A/4208/010B, NS 1B Heat Exchanger Heat Balance Test. The inspectors also reviewed the frequency of testing to verify it was sufficient to detect degradation prior to loss of heat removal capability below design basis values by comparing the current inspection results to the previous two performances that occurred January 8, 2003 and April 25, 2000.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

Resident Quarterly Observation. The inspectors observed licensed-operator performance during requalification simulator training for shift *D*, to verify that operator performance was consistent with expected operator performance, as described in Exercise Guide OP-MC-SRT-22. This training tested the operators' ability to perform abnormal and emergency procedures dealing with power instrumentation miscalibration, rapid downpower, steam leak and steam break, manual reactor trip, safety injection actuation and termination. 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 verify that the licensee identified deficiencies and discrepancies that occurred during the simulator training.

Annual review of Licensee Requalification Examination Results. On June 24, 2005, the licensee completed the requalification annual operating tests, required to be given to all licensed operators by 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating tests, and the crew simulator

operating tests. These results were compared to the thresholds established in Manual Chapter 609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

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) scoping in accordance with 10 CFR 50.65(b) of the maintenance rule (MR); (4) characterizing reliability issues for performance; (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 appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). Documents reviewed are listed in the Attachment.

- Standby Shutdown Facility (SSF) and System high unavailability
- TDAFW pump reliability

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 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 also verified that any increase in risk was promptly assessed, and that appropriate risk management actions were promptly implemented. In addition, the inspectors reviewed two PIPs listed in the Attachment to verify that the licensee identified and implemented appropriate corrective actions.

- Week of January 8 including planned work on the 2A EDG and emergent work on the Unit 1 primary power supply for control cabinet 5.
- Week of January 15, including emergent work on the Unit 1 Containment Floor and Equipment sump indication - probe failure; emergent work on Unit 2 Solid State

Protection System primary power supply failure; emergent work on Unit 2 A Steam Generator (S/G) level control Channel II failure.
- Week of January 22, including emergent work on the Unit 2 control room ventilation chiller that caused an additional yellow risk condition with some resulting rescheduling of work.
- Week of January 29, including emergent work on the 1B auxiliary building ventilation exhaust fan that caused a delay in a planned 1B auxiliary feedwater system outage from January 31 to February 1, and delay of planned work on Nuclear Instrumentation Channel 44 from February 1 to February 4, and a discovery of an unplanned orange risk that caused the stopping and restoration from a Unit 1 Containment Pressure Control Function surveillance.
- Week of February 5, including review of availability status of auxiliary feedwater (CA) systems, service water (RN) systems, and EDGs for both units, due to major inspection activities on the shared nuclear service water low level intake structure and standby nuclear service water pond suction piping.
- Week of February 12, including delays in completion of scheduled work on the SSF, the associated Unit 1 delay of the digital electro-hydraulic control servo card replacement, and Unit 1 main feed pump problems after beginning the servo card plan.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions

a. Inspection Scope

For the non-routine events described below, the inspectors reviewed operator logs, plant computer data, and strip charts to determine what occurred and how the operators responded, and to determine if the response was in accordance with plant procedures:

- On December 17, 2005, the inspectors observed the site response to an automatic reactor trip and auxiliary feedwater system actuation due to steam generator Hi-Hi water level.
- On February 17, the inspectors observed a down-power to 92% power to replace a servo card in the digital electrohydraulic control system associated with turbine throttle valve 3.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the five operability evaluations described in the PIPs listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that Technical Specification (TS) operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors verified that the operability determinations were made as specified by NSD 203, Operability. The inspectors reviewed the UFSAR to verify that the system or component remained available to perform its intended function. In addition, the inspectors reviewed compensatory measures implemented to verify that the compensatory measures worked as stated and the measures were adequately controlled. The inspectors also reviewed a sampling of PIPs to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations.

- M-06-0044, Non-safety cable running between junction box with two safety related cables
- M-06-0319, VC/YC Chiller train a cycling timer failed in closed position
- M-06-0403, 2RN-277B cutler hammer switch had internal electrical short
- M-06-0799, Through wall crack in the NS 1B Train piping in the RB Annulus
- M-06-0808, Vendor information received from Weir raises questions regarding MSIV weak link analysis

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

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

- PT/2/A/4350/002A, Emergency Diesel Generator 2A Operability Test (various maintenance on air start, jacket water, and lube oil systems)
- PT/1/A/4403/002D, RN Train A Valve Stroke Timing - Quarterly Plant Evolution Valves, Encl. 13.5, VST 1RN-89A, RN to KC HX control (following adjustment of limit switches)
- OP/1/A/6350/002A, Emergency Diesel (various maintenance on 1B EDG including replacing three fuel pumps)
- PT/1/A/4401/002B, KC Train B Valve Stroke Timing - Quarterly, Enclosure 13.7

(replacement of actuator for component cooling water outlet valve from the excess letdown heat exchanger)
- PT/1/A/4350/002A, Emergency Diesel Generator 1A Operability Test (various maintenance on air start, jacket water, and lube oil systems)

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the seven surveillance tests identified below, the inspectors witnessed testing and/or reviewed the test data to verify that the systems, structures, and components involved in these tests satisfied the requirements described in the TSs, the UFSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

- PT/2/A/4204/001B, 2B ND Pump Performance Test, Rev. 43*
- PT/2/A/4204/002B, ND Train B Valve Stroke Timing - Quarterly, Rev. 11
- PT/2/A/4252/001A, 2A CA Pump Performance Test, Rev. 78*
- PT/2/A/4252/001A, Enclosure 13.1, 2RN-166A VST ('A' CA Motor Cooler Control)
- PT/1/A/4600/001, RCCA Movement Test, Rev. 35
- PT/2/A/4403/001A, 2A RN Pump Performance Test*
- PT/1/A/4208/001B, 1B NS Pump Performance Test*

*Procedure included in-service testing requirements.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the two temporary modifications listed below, to verify that the modifications did not affect the safety functions of important safety systems, and to verify that the modifications satisfied the requirements of 10 CFR 50, Appendix B, Criterion III, Design Control.

- MD100680 - This modification changed a detector/encoder card to clear an alarm at 216 steps on shutdown bank C rod L13, for the B data system due to an open wire. The data system was verified to be accurate. Work order 98765609 installed the modification and verified that the alarm cleared after modification installation.
- MD100556 - This modification shifts the power supply for the non-safety containment

lower compartment ventilation air handling Unit 1C to the alternate power supply and bypasses the alternate power supply requirement to run in high speed. The safety function for this fan is to disconnect from the essential power supply. The alternate power supply (non-safety) is where it would be aligned on the initiation of a safety signal and be available to be run in high speed, if needed. The inspectors reviewed work request 98753897 and the associated operator training package.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed an emergency preparedness drill conducted on February 8 to verify licensee self-assessment of classification, notification, and protective action recommendation development in accordance with 10 CFR 50, Appendix E. The inspectors also attended the licensee critique of the drill to compare any inspector-observed weakness with those identified by the licensee in order to verify whether the licensee was properly identifying failures.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

Effluent Monitoring and Radwaste Equipment. This issue was previously documented as Unresolved Item (URI) 05000369,370/2005002-07, **Review Licensee Assessments and Vendor Evaluations for Observed U1/U2 Unit Vent Volume Flow Rate Changes to Assure Representative Sampling.** The inspectors reviewed documentation provided by the licensee, including PIP reports and an engineering calculation, associated with evaluating the adequacy of the Unit Vent particulate monitors to perform representative sampling. These documents were discussed in detail with cognizant licensee representatives.

b. Findings

Introduction. A Green, NRC-identified NCV of 10 CFR 20.1302(a) was identified for failure to ensure surveys of particulate radioactive materials in effluents released to unrestricted areas by the unit vents were adequate to demonstrate compliance with dose limits for individual members of the public.

Description. From review of current ventilation system operating conditions, the inspectors noted during the inspection in January 2005 that the unit vent effluent velocities did not correspond with those referenced in the UFSAR or the applicable design document for the 1/2-EMF-35 equipment. Specifically, on January 26, 2005, the Unit 1 and Unit 2 vent volumetric flow rates were observed to be approximately 98,000 cubic feet per minute (cfm), corresponding to vent effluent velocities of approximately 2,550 feet per minute (ft/min). From discussions with the system engineer and review of the manufacturer design drawing MCM 1346.05-0075.001, the inspectors determined the sample nozzles for the Unit Vent Monitors (1/2-EMF-35) were designed to ensure isokinetic sampling when the unit vent effluent velocities were 3,100 and 2,200 ft/min for Unit 1 and Unit 2, respectively. These values correspond with the maximum effluent velocities specified in Table 11-25 of the UFSAR for each vent. **From discussions with licensee personnel and review of applicable records, the inspectors determined that the identified changes in the unit vent effluent velocities had not been previously evaluated for their potential influence on maintaining representative sampling conditions.**

The licensee completed engineering calculation MCC-1346.05-004, Evaluation of Isokinetic Sampling for Unit Vent, in March 2006. This calculation determined the relationship between unit vent velocities and sample nozzle velocities for various alignments of ventilation systems which provide input to the unit vents. The licensee determined that the normal operational alignment consisted of both Auxiliary Building Ventilation (VA) and Fuel Pool Ventilation (VF) being in service, resulting in a nominal volumetric flow rate of 120,335 cfm and 112,900 cfm for Unit 1 and Unit 2 respectively. The calculation determined that under worst case conditions (nominal design flow rate minus 10%), the sampling was anisokinetic for Unit 1 because the 1-EMF-35 sampler velocity exceeded the unit vent velocity by 50%. The inspectors determined that for the normal operational alignment, Unit 1 was anisokinetic by 31%. The licensee's evaluation also determined that for infrequent alignments (e.g. VF out-of-service or VA out-of-service), significant non-conservative anisokinetic conditions existed on both Units 1 and 2. The inspectors noted that the observed unit vent effluent velocities and 1/2-EMF-35 sampler velocities were not in accordance with acceptable industry practices as outlined in American National Standards Institute (ANSI) N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities, which states that non-representative sampling of particulates can result when velocities are anisokinetic.

The licensee concluded that the anisokinetic sampling error associated with the non-conservative sampling was small because the majority of particulates exhausted from the unit vent were less than 5 microns in diameter. The licensee based this conclusion in part on exhaust from containment being filtered through high efficiency particulate air (HEPA) filters and a particle-size study performed at Pilgrim Nuclear Station, as

discussed in Attachment 5 of the calculation. The inspectors determined that the licensee failed to demonstrate the adequacy of particulate sampling of the unit vents under anisokinetic conditions. Specifically, the assumption of HEPA filtration of large particles did not address the statement in Attachment 2 of the calculation that the VF system is normally in service in the filter bypass mode. In addition, the Pilgrim particle-size study data cannot be applied directly to McGuire, as Pilgrim was a boiling water reactor and McGuire was a pressurized water reactor.

Analysis. The finding is more than minor because it is associated with the program and process attribute of the Public Radiation Safety Cornerstone and it affected the cornerstone objective in that the failure to maintain isokinetic sampling conditions for the Unit 1/Unit 2 plant ventilation effluent streams could result in inaccurate measurement and reporting of airborne particulate radionuclides in samples and resultant dose estimates. The finding was determined to be of very low safety significance (Green) because the licensee had other means to assess dose from particulate releases and the licensee did not exceed the limits in 10 CFR 50 Appendix I or 10 CFR 20.1301(d).

Enforcement. 10 CFR 20.1302(a) requires licensees to make surveys of radioactive materials in effluents released to unrestricted areas to demonstrate compliance with the dose limits for individual members of the public. Contrary to the above, an evaluation of the effect of changes in the operational unit vent flow rates from the vendor's design criteria determined that isokinetic sampling conditions were not maintained during normal ventilation alignments for Unit 1 or maintenance-related ventilation alignments for Unit 1 and Unit 2. The licensee therefore was not assured that the unit vent particulate measurements obtained using 1/2-EMF-35 were accurate. Because the failure to comply with 10 CFR 20.1302(a) was determined to be of very low safety significance (Green) and has been entered into the licensee's corrective action program (PIP No. M-05-00412), this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000369,370/2006002-02, Failure to Ensure Representative Sampling of Particulate Effluents Released from the Unit Vents. This action closes URI 05000369,370/2005002-07, Review Licensee Assessments and Vendor Evaluations for Observed U1/U2 Unit Vent Volume Flow Rate Changes to Assure Representative Sampling. This closes URI 05000369,370/2005002-07, Review Licensee Assessments and Vendor Evaluations for Observed U1/U2 Unit Vent Volume Flow Rate Changes to Assure Representative Sampling.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

For the performance indicators (PIs) listed below, the inspectors sampled licensee PI data for the period from January 2004 through December 2005. To verify 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".

Initiating Events Cornerstone
- Unplanned Scrams
- Scrams with Loss of Heat Removal
- Unplanned Power Changes

The inspector reviewed a selection of licensee event reports, operator log entries, daily reports (including the daily PIP descriptions), and PI data sheets to verify that the licensee had adequately identified the number of scrams and unplanned power changes greater than 20 percent that occurred during the previous four quarters. The inspectors compared this number to the number reported for the PI during the current quarter. The inspectors also reviewed the accuracy of the number of critical hours reported and the licensee's basis for crediting normal heat removal capability for each of the reported reactor scrams.

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution

.1 Daily Screening of Corrective Action Items

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 a daily screening of items entered into the licensee's corrective action program. This review was accomplished by reviewing hard copies of condition reports, attending daily screening meetings, and accessing the licensee's computerized database.

.2 Annual Sample: Review of Containment Spray Intergranular Stress Corrosion Cracking (IGSCC)

a. Inspection Scope

The inspectors selected PIP M-04-1294 for detailed review. This PIP addressed IGSCC of the Unit 2 train B containment spray line in the annulus which had exhibited boron buildup in the area of several welds. The inspectors reviewed this report to verify that the licensee identified the full extent of the issue, performed an appropriate evaluation, and specified and prioritized appropriate corrective actions. The inspectors evaluated the report against the requirements of the licensee's corrective action program as delineated in corporate procedure NSD 208, Problem Identification Process, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings of significance were identified.

4OA3 Event Follow-up

.1 (Closed) Licensee Event Report (LER) 05000369/2004-002-01, Main Steam Isolation Valve Inoperable. The technical issue discussed in this LER revision was addressed as NCV 05000369/2005002-09 and was identified as very low safety significance. The original LER 05000369/2004-002-00 was closed in IR 05000369,370/2005002. This current LER revision was submitted due to a determination that the simultaneous inoperability of MSIV 1SM-1 and MSIV 1SM-3 was for a time period longer than previously reported in Revision 0. The licensee's failure to report this condition was previously addressed as NCV 05000369/2005002-08. No additional findings of significance were identified. The inspectors reviewed the LER for accuracy and appropriateness of corrective actions. This condition was documented in PIP M-05-2000.

.2 (Closed) LER 05000369/2005-002-01, Main Steam Isolation Valve Inoperable Due to Internal Binding. The technical issue discussed in this LER revision was addressed as NCV 05000369/2005002-09. The original Licensee Event Report, LER 05000369/2005-002-00 was closed in IR 05000369,370/2005003. This current LER revision was submitted due to the licensee's root cause analysis identifying additional causal factors contributing to the inoperability of MSIV 1SM-1 other than what was previously reported in Revision 0. No additional findings of significance were identified. The inspectors reviewed the LER for accuracy and appropriateness of corrective actions. This condition was documented in PIPs M-04-5043, M-04-5315, and M-05-5615.

.3 (Closed) LER 05000369/2005-003-00, Containment Closure Requirements Not Met During Core Alterations. The licensee reported that a violation of TS 3.9.4 occurred because an engineering safety evaluation documented in calculation MCC-1503.13-00-0201, had incorrectly determined that blowing ice into the ice condenser during core alterations met TS requirements, but failed to consider an ice blower bypass line that exhausted to the auxiliary building. This evaluation resulted in procedures PT/1&2/A/4200/002C, Containment Closure/Integrity, and MP/0/A/7150/092, Installation and Operation of Ice Blowing Equipment and Penetration, being inadequate. This licensee identified finding involved a violation of TS 5.4.1, Procedures. This violation is greater than minor because the change in operation of the facility could only be implemented after a license amendment was received. The enforcement aspects of this violation are addressed in Section 4OA7. The inspectors reviewed the LER for accuracy and appropriateness of corrective actions. This condition was documented in PIP M-05-4128.

.4 (Closed) LER 05000369/2005-004-00, Ice Condenser Lower Inlet Door Failed Surveillance Testing. On September 17, 2005, the licensee performed as-found torque testing on the 48 Unit 1 Ice Condenser Lower Inlet Doors (LID) to satisfy TS Surveillance Requirement (SR) 3.6.13.6. Two of the 48 LIDs failed to meet the test acceptance criteria. Subsequently, the licensee determined that these two doors could have been previously inoperable in Modes 1-4 for a period longer than allowed by TS. This violation is more than minor because it affected the operability of the doors as required by TSs. This in turn affects the equipment operability and function objectives of the Mitigating Systems Cornerstone. The violation was determined to be of very low safety significance due to industry and licensee calculations

and analyses that demonstrate that given the sufficient redundancy of the doors, 1/3 of the LIDs can be blocked shut without impeding the overall mitigating function of the Ice Condenser and with no adverse affects on containment. The enforcement aspects are discussed in Section 4OA7. The inspectors reviewed the LER for accuracy and appropriateness of corrective actions. This condition was documented in PIP M-05-4227.

.5 (Closed) LER 05000369/2005-005-00, Inoperable Source Range Neutron Flux Monitors During Mode 6 and Core Alterations. The licensee reported that a violation of TS 3.9.3 occurred because of an inadequate operator aid computer alarm response procedure and because there is a common alarm circuitry for the high flux at shutdown alarm. This violation is greater than minor because it affected the mitigating system cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences through the equipment performance attribute. The enforcement aspects are addressed in Section 4OA7. The inspectors reviewed the LER for accuracy and appropriateness of corrective actions. This condition was documented in PIP M-05-4437.

.6 (Closed) LER 05000369/2005-006-00, Automatic Reactor Trip And Auxiliary Feedwater System Actuation Due To Steam Generator Hi-Hi Water Level. On December 17, 2005, the controlling main feedwater channel for Unit 1A Steam Generator failed low. The resulting Hi-Hi Steam Generator water level caused an automatic main feedwater isolation, turbine trip, reactor trip and auxiliary feedwater system actuation. The licensee determined the cause to be an intermittent degraded voltage to the 1A Steam Generator Channel 1 flow loop (1CFFT5000) which caused the controlling channel for main feedwater flow to the 1A S/G to fail low. Additionally, the licensee identified two contributing causes which were related to human performance. The human performance aspect of this LER is addressed in Section 1R14 of this report. The corrective actions identified in the root cause evaluation adequately addressed the primary root cause and the contributing causes. The LER was reviewed by the inspectors and no additional findings of significance were identified. This condition was documented in PIP M-05-5989.

.7 (Closed) LER 05000370/2005-007, Power Reduction Due to Entry into LCO 3.0.3 Caused by Inoperable Control Room Area Cooling Water System. In Inspection Report 05000369, 370/2005005, this item was addressed and left open pending submission to the NRC of a license amendment request (LAR) for long term corrective actions to address operability requirements for shared and unit designated equipment in respective modes of applicability. The licensee submitted a docketed letter dated March 7 which withdrew the temporary McGuire specific LAR and committed to a long term LAR that will address both McGuire and Catawba and would be submitted by December 31, 2006. This condition was documented in PIP M-05-4906.

4OA5 Other Activities

.1 Initial Cask Loading and Storage Observation (IP 60855.1)

a. Inspection Scope

The inspectors reviewed the Unit 2 documentation package for the casks listed below that were created using procedure XSM-006, Workplace Procedure For Selecting Spent Fuel For Use Of NAC-UMS System at McGuire, and Regulatory Guide 3.54, Spent Fuel Heat Generation, to verify that the selected fuel assemblies and burnable poison inserts met the requirements for insertion in dry cask storage.

- NAC-UMS TSC-MNZ-010 (Document Control NO MCEI 0400-163),
- NAC-UMS TSC-MNZ-011 (Document Control NO MCEI 0400-164),
- NAC-UMS TSC-MNZ-012 (Document Control NO MCEI 0400-165),
- NAC-UMS TSC-MNZ-013 (Document Control NO MCEI 0400-166)

The inspectors reviewed the cask loading verification video tapes for each of the above casks to verify that the alpha-numeric identification numbers stamped on the loaded fuel assemblies and burnable poison assemblies matched the identification numbers used in the documentation package as required by procedure OP/0/A/6550/028, NAC UMS Fuel Assembly Loading/Unloading Procedure. The casks were loaded on January 23, February 2, March 6, and March 20, 2006 respectively. The inspectors reviewed selected licensee activities as specified in procedure MP/0/A/7650/212, Loading Spent Fuel Assemblies Into NAC-UMS Casks, to verify that activities were being accomplished in accordance with procedural requirements.

The inspectors reviewed Special Report 2005-01, dated January 11, 2006, to determine if the corrective actions identified in items 3 and 4 had been completed. The inspectors reviewed the associated procedure revisions identified in the attachment, reviewed the briefing sheet, and the table top discussion training material. Documents reviewed are listed in the attachment.

b. Observations and Findings

The inspectors observed that for NAC Cask MNZ-010, the license's verification tape was not clear enough to verify that one of the burnable poison assemblies was the correct number, although the technicians and engineer that did the verification were able to perform the verification because they were using the monitor directly in real time, as opposed to the video. For NAC Cask MNZ-011, the inspector found that the orientation schematic from procedure OP/0/A/6550/028, enclosure 4.5, which documents the fuel and burnable poison assemblies loaded in the cask, did not match the design package or video tape for position D-3. The licensee initiated PIP M-06-0851 for this transposition error that was not caught by the checker and verifier. Additionally, the licensee initiated PIP M-06-1039 to identify possible areas for improvement in nuclear fuel activities and to identify any possible trends associated with numerous NAC and nuclear fuel related PIPs created from January 1, 2005 to March 8, 2006. Overall, the

licensee established and maintained adequate oversight for the dry cask storage evolution.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

On April 12, 2006, the resident inspectors presented the inspection results to Mr. G. Peterson and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

.2 Annual Assessment Meeting Summary

On April 26, the NRC's Acting Chief of Reactor Projects Branch 1 and the Resident Inspectors assigned to the McGuire Nuclear Station (MNS) met with Duke Energy Corporation to discuss the NRC's Reactor Oversight Process (ROP) and the NRC's annual assessment of CNS safety performance for the period of January 1, 2005 - December 31, 2005. The major topics addressed were: the NRC's assessment program and the results of the MNS assessment. This meeting was open to the public. A listing of meeting attendees and information presented during the meeting are available from the NRC's document system (ADAMS) as accession number ML061160109. ADAMS is accessible from the NRC Web site at *www.nrc.gov/reading-rm/adams.html*.

4OA7 Licensee-Identified Violations

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

- TS 3.9.4 requires that during core alterations or movement of irradiated fuel assemblies within containment, each penetration providing direct access from the containment atmosphere to the outside atmosphere either be closed by a manual or automatic isolation valve, blind flange, or equivalent, or exhausting through an operable Containment Purge exhaust System HEPA filter and carbon absorber. TS 5.4.1(a) requires that written procedures be established, implemented and maintained covering applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, including Surveillance Procedures and Maintenance Procedures. Contrary to the above, from 1989 until September 2005, ice blowing during core alterations was conducted in accordance with surveillance and maintenance procedures with the five-inch diameter ice blowing penetration open and a bypass line exhausting to the auxiliary building. This item is of very low safety significance because there were no instances of loss of decay heat removal during ice blowing conditions, and because the five-inch penetration was capable of being manually isolated with adequate time available due to the 23 feet of water above the fuel in the vessel during core alterations.

- TS 3.6.13 requires the Ice Condenser Doors be operable in Modes 1-4. If one or more doors are found to be inoperable, the door shall be restored in 14 days. If this cannot be met, the unit shall be in Mode 3 in six hours and Mode 5 in 36 hours. Contrary to this, following performing the surveillance test to satisfy TS SR 3.6.13.6 for the Unit 1 inlet door torque test on September 17, 2005, it was discovered two doors were inoperable since the previous verification in April 2004. This was identified in the licensee's corrective action program as PIP M-05-4227. This finding is of very low safety significance because analyses demonstrate that 1/3 of the inlet doors can be completely blocked closed with no adverse affects on the mitigating function.

- TS 3.9.3 requires that two source range neutron flux monitors shall be operable in Mode 6. Action A required that core alterations be suspended immediately. Contrary to the above, from September 22, 2005 until September 23, 2005, the licensee had an inoperable annunciator power supply that prevented the source range high flux at shutdown alarm from functioning and commenced core alteration activities. This item is of very low safety significance because all the control room source range monitors were giving proper indication during this period.

Attachment: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
D. Black, Security Manager
S. Bradshaw, Superintendent, Plant Operations
P. Hull, Chemistry Manager
S. Brown, Manager, Engineering
K. Crane, Regulatory Compliance
J. Nolin, Manager, Mechanical and Civil Engineering (MCE)
T. Harrall, Station Manager, McGuire Nuclear Station
J. Kammer, Manager, Safety Assurance
S. Mooneyhan, Radiation Protection Manager
K. Evans, Superintendent, Maintenance
G. Peterson, Site Vice President, McGuire Nuclear Station
J. Thomas, Manager, Regulatory Compliance
S, Snider, Manager, RES Engineering
R. Parker, Superintendent, Work Control

NRC personnel
M. Ernstes, Chief, Reactor Projects Branch 1
J. Stang, Project Manager, NRR

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000369/370/2006002-01	NCV	Failure to Take Adequate Corrective Action to Ensure Accuracy of All Fire Strategy Plans in Response to Two Previous Multiple Example NCV's (Section 1R05)
05000369,370/2006002-02	NCV	Failure to Ensure Representative Sampling of Particulate Effluents Released from the Unit Vents (Section 2PS1)

Closed

05000369,370/2005002-07	URI	Review Licensee Assessments and Vendor Evaluations for Observed U1/U2 Unit Vent Volume Flow Rate Changes to Assure Representative Sampling (Section 2PS1)
05000369/2004-002-01	LER	Main Steam Isolation Valve Inoperable (Section 4OA3.1)
05000369/2005-002-01	LER	Main Steam Isolation Valve Inoperable Due to Internal Binding (Section 4OA3.2)
05000369/2005-003-00	LER	Containment Closure Requirements Not Met During Core Alterations (Section 4OA3.3)
05000369/2005-004-00	LER	Ice Condenser Lower Inlet Door Failed Surveillance Testing (Section 4OA3.4)

05000369/2005-005-00	LER	Inoperable Source Range Neutron Flux Monitors During Mode 6 and Core Alteration. (Section 4OA3.5)
05000369/2005-006-00	LER	Automatic Reactor Trip and Auxiliary Feedwater System Actuation Due to Steam Generator Hi -Hi Water Level (Section 4OA3.6)
05000370/2005-007-00	LER	Power Reduction Due to Entry into LCO 3.0.3 Caused by Inoperable Control Room Area Cooling Water System (Section 4OA3.7)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Partial System Walkdown

Drawing MCFD-2609-04.00, Flow Diagram of the Diesel Generator Starting Air System
Drawing MCFD-2609-03.01, Flow Diagram of the Diesel Generator Engine 2B Fuel Oil System
Drawing MCFD-2609-02.01, Flow Diagram of the Diesel Generator Engine Lube Oil System
Drawing MCFD-2609-01.01, Flow Diagram of the Diesel Generator Engine Cooling Water System
Drawing MCFD-1573-01.00, Flow Diagram of the Component Cooling System (KC)
Drawing MCFD-1573-01.01, Flow Diagram of the Component Cooling System (KC)
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
Drawing MCFD-2609-04.00, Flow Diagram of the Diesel Generator Starting Air System
Drawing MCFD-2609-03.00, Flow Diagram of the Diesel Generator Engine 2B Fuel Oil System
Drawing MCFD-2609-02.00, Flow Diagram of the Diesel Generator Engine Lube Oil System
Drawing MCFD-2609-01.00, Flow Diagram of the Diesel Generator Engine Cooling Water System
Drawing MCFD-2592-01.00, Flow Diagram of Auxiliary Feedwater System
Drawing MCFD-2592-01.01, Flow Diagram of Auxiliary Feedwater System
Drawing MCFD-2592-02.00, Flow Diagram of Auxiliary Feedwater System

Section1R12: Maintenance Effectiveness

System Health Report; Maintenance Rule status for Reliability and Unavailability;
PIP M-05-3881, Possible emerging trend for high unplanned unavailability for the SSF;
System Health Report; Maintenance Rule status for Reliability and Unavailability;
PIPs M-05-00776, M-05-1897, M-05-3859;
Procedure MP/0/A/7200/005, Auxiliary Feedwater Pump Turbine Corrective Maintenance

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

PIPs M-05-5880 and M-06-0515

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

Data and Records

Calculation MCC-1346.05-00.0004, Evaluation of Isokinetic Sampling for Unit Vent, 3/8/06

Drawing MCM 1346.05-0075.001, Installation Isokinetic Nozzle Unit Vent Particulate, Iodine, Gas Monitor, Rev D1
Unit 1 Vent Stack Flow data, 12/27/04 - ½6/05
PIP M-05-0412, Concern over modification/plant configuration change processes overlooking ANSI N13.1-1969, 1/31/05

Section 4OA2: Identification and Resolution of Problems

Text from Lessons 6 and 7 of Metals Engineering Institute Course on Corrosion
Volume 3 Metals Handbook, 9th Edition, p60-62
Volume 1 Metals Handbook 10th edition, P706-707
Duke Power Nuclear Generation Materials Engineering & Lab Services Memorandum dated September 2, 2005 concerning MNS 2 - Leaks in NS Piping
Regulatory Guide 1.44, Control of the Use of Sensitized Stainless Steel

Section 4OA5: Other Activities

COC No. 1015, Amendment 3, For The NAC International UMS Universal Storage System, Effective 3/31/04, including Appendix A, Technical Specification for the NAC-UMS System
Final Safety Analysis Report for the UMS Universal Storage System, May 2004, Revision 3C
Procedure Revisions for future cask loading per Special Report 2005-01:
MP/0/A/7650/148, Revision 20, Operation of Fuel Building Manipulator Crane
PT/0/A/4150/048, Revision 9, Internal Transfer Development
OP/0/A/6550/011, Revision 47, Internal Transfer
OP/0/A/6550/028, Revision 1, NAC UMS Fuel Assembly Loading/Unloading Procedure
PT/0/A/4150/034, Revision 7, Fuel Assembly - Component Verification