UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

APR 0 2 1987

Report Nos.: 50-369/87-09 and 50-370/87-07

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

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

Facility Name: McGuire Nuclear Station

Inspection Conducted: March 16-20, 1987

Inspector: _____ 04/02/87
A. L. Cunningham Date Signed

Accompanying Personnel: D. H. Schultz
G. Wehmann

Approved by: _____ 4/2/87
T. R. Decker, Chief
Division of Radiation Safety and Safeguards Date Signed

SUMMARY

Scope: This special, announced inspection involved evaluation of the licensee's responses and corrective actions addressing the Weaknesses, Improvement Items, and Incomplete Items identified during the Emergency Response Facilities Appraisal conducted September 3-11, 1985.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. E. Harris, System Emergency Planner
*R. Leonard, Station Emergency Planner
*L. E. Parker, Nuclear Production Specialist
*S. Apple, Corporate Meteorologist
*R. Sharpe, Nuclear Engineer
F. Simpson, Applications Analyst
S. LeRoy, Nuclear Production Specialist
*M. Bolch, Station Emergency Planner (CNS)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 20,1987, with those persons indicated in the paragraph above. The inspector described the areas evaluated and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

No enforcement items were identified during the Emergency Response Facilities Appraisal.

4. Emergency Response Facility Appraisal Weaknesses (99027B)

This section addresses the status of corrective actions implemented by the licensee in response to Weaknesses identified during the Emergency Response Facility appraisal. The bracketed numbers in the following paragraphs correspond to the item numbers assigned in Appendix A to the letter of December 23, 1985, which transmitted NRC Report Nos. 50-369/85-29 and 50-370/85-28. All open items identified herein will be reviewed during subsequent inspections.

a. [1] (Closed) Weakness (50-369/85-29-17, 50-370/85-28-17): Meteorological data processed through the Operator Aid Computer was not validated. The licensee performed a functional check of the Operator Aid Computer (OAC) meteorological channels. An accuracy check of the OAC meteorlogical data available on OAC Units #1 and #2 was performed on November 21, 1985. The licensee reported on November 22, 1985, that meteorological data available on Units #1 and #2 OACs were approved for official use. The inspector reviewed the data and associated documentation. It appeared that the evaluation technique and results were acceptable.

b. [2] (Closed) Weakness (50-369/85-29-25, 50-370/85-28-25): There was no procedure for use of the OAC for calculating dose assessment. Inspection disclosed that Procedure NP/O/B/1009/05, "First Response Evaluation of a Reactor Coolant Leak Inside Containment," was revised to include instructions for use of the OAC for calculating dose assessment.

5. Emergency Response Facility Appraisal Open Items (99027B)

This section addresses the status of the licensee's response to Open Items identified during the Emergency Response Facility Appraisal. The bracketed numbers in the following paragraphs correspond to the item numbers assigned in Appendix B to the letter of December 23, 1985, which transmitted NRC Report Nos. 50-369/85-29 and 50-370/85-28. All open items identified herein will be reviewed during subsequent inspections.

a. [1] (Open) Open Items (50-369/85-29-01, 50-370/85-28-01): Definition of the extent of planned spatial and configuration changes to the Technical Support Center (TSC) and projected completion of same. Inspection disclosed that preliminary planning and design requisite to enlargement and reconfiguration of the TSC was in progress. Projected completion of facility modifications has not been established. This item will remain open until such time that TSC modification is completed and the facility is fully operational.

Note that Items [1] through [4] listed under Paragraph 6 below, are directly related to the subject item, and are factored into planned facility expansion and reconfiguration. The referenced items will be closed as separate entities, but included under the subject Open Item (50-369/85-29-01, 50-370/85-28-01).

b. [2] (Open) Open Item (50-369/85-29-13, 50-370/85-28-13): Implementation of Regulatory Guide 1.97, monitoring with any exception confirmed by NRR. By letter dated February 12, 1986, NRR provided the licensee a Technical Report regarding the McGuire Station Compliance with Regulatory Guide 1.97. The licensee responded to the subject correspondence on April 14, 1986. The NRC response to the referenced correspondence is pending; therefore, this item remains open.

c. [3] (Closed) Open Item (50-369/85-29-21, 50-370/85-28-21): Submittal to NRC of complete documentation (descriptions of the technical basis) for the puff-advection atmospheric dispersion model and a complete description of the upgraded meteorological measurements program. Inspection disclosed that documentation for the puff-advection atmospheric dispersion model is contained in the licensee's document entitled "McGuire Nuclear Station Offsite Dose Assessment Computer Model," Volume 1. A copy of this document was transmitted to NRC Region II on June 6, 1986. A complete description of the upgraded meteorological measurements program is contained in the McGuire FSAR, Volume 1, Section 2.3.3.

d. [4] (Closed) Open Item (50-369/85-29-23, 50-370/85-28-23): Submittal to NRC of appropriate documentation required to complete evaluation of the Class A Model computerized dose assessment. Documentation to complete the evaluation of the Class A Model computerized dose assessment is contained in the licensee's document, "McGuire Nuclear Station Offsite Dose Assessment Computer Model," Volume 1. A copy of this document was transmitted to the NRC, Region II on June 6, 1986.

e. [5] (Open) Open Item (50-369/85-29-33, 50-370/85-28-33): Completion of construction and establishment of operational readiness of the consolidated Crisis Management Center (CMC). Inspection disclosed that construction of the consolidated CMC was in progress. This item will remain open until such time that construction is completed and the consolidated facility is fully operational.

f. [6] (Open) Open Item (50-369/85-29-36, 50-370/85-28-36): Establishment of dedicated communication lines between the CMC and VAX computers, and use of dial-up as backup. An inspector reviewed the licensees response and the current status of communication lines between the station VAX computer and the Crisis Management Center (CMC). It was determined that no changes were made since the appraisal. This item remains open.

It was noted however that the licensee was actively involved in planning and developing an upgraded data aquisition system. The effort also addressed several Improvement Items disclosed under Paragraph 6, below, namely: Item [7] regarding validation of OAC data; Item [8] involving automation of data transfer from the OAC to VAX computers; Item [28] regarding provision of continuous data, at or near real time, to the CMC; Item [29] concerning standardization of McGuire Station data sets to include all Regulatory Guide 1.97 parameters in an assigned format. Comments addressing Improvement Items [7], [8], [28], and [29] will reference the subject response to Open Item [6], above.

6. Emergency Response Facility Appraisal Improvement Items (99027B)

This section addresses the status of the licensee's response to Improvement Items identified during the Emergency Response Facility appraisal. The bracketed numbers in the following paragraphs correspond to the item numbers assigned in Appendix C to the letter of December 23, 1985, which transmitted NRC Report Nos. 50-369/85-29 and 50-370/85-28. All open itmes identified herein will be reviewed during subsequent inspections.

a. [1] (Closed) Improvement Item (50-369/85-29-02, 59-370/85-28-02): Expansion of the Technical Support Center (TSC) dose assessment area to approximately three times its present size or approximately 300 square feet to accomodate the expected staff. Refer to Item [1] under paragraph 5, above.

b. [2] (Closed) Improvement Item (50-369/85-29-03, 50-370/85-28-03): Sizing the Emergency Director's office - Room 913, to accommodate the personnel expected to staff the general area. Refer to Item [1] under paragraph 5, above.

c. [3] (Closed) Improvement Item (50-369/85-29-04, 50-370/85-28-04: Increasing the computer room by approximately two feet to provide additional walking and maintenance space. Refer to Item [1] under Paragraph 5, above.

d. [4] (Closed) Improvement Item (50-369/85-29-05, 50-370/85-28-05): Providing areas of the TSC with additional writing surfaces, document lay-down areas, and chairs. Refer to Item [1] under paragraph 5, above.

e. [5] (Closed) Improvement Item (50-369/85-29-06, 50-369/85-28-06): Maintaining radiation monitors in the TSC in an operating mode on a continuous basis. Inspection disclosed that the radiation monitors located in the TSC were routinely serviced and calibrated in accordance with established procedures. Procedures governing activation of the TSC include activation of the monitors. It appears that this is a satisfactory alternative to operation on a continuous basis.

f. [6] (Closed) Improvement Item (50-369/85-29-07, 50-370/85-28-07): Using a different technique to alert control room operators that core temperature is outside of the expected range. Inspection disclosed that a program was implemented to provide a different method for alerting operators that core temperature is outside of the expected range. The technique uses Core Exit Themocouples (CET's) for range checks within the temperature regime of 32 F - 2300 F. An offnormal value is printed in red and thus indicates that the value is outside an assigned range. Based upon program modification, the subject item was closed.

g. [7] (Open) Improvement Item (50-369/85-29-08, 50-370/85-28-08): Validation of Operator Aid Computer (OAC) data through use of appropriate software algorithms. Inspection disclosed that the possibility of upgrading the system to validate data using software algorithms was scheduled for licensee evaluation. This item remains open (Refer to Open Item [6] under Paragraph 5, above).

h. [8] (Open) Improvement Item (50-369/85-29-09, 50-370/85-28-09): Automating the present manual transfer of data from the OAC to VAX computers, providing the VAX with continuous access to data, at or near real-time. Refer to Open Item [6] under paragraph 5, above.

i. [9] (Open) Improvement Item (50-369/85-29-10, 50-370/85-28-10): Providing graphic trending capability in the TSC, using a sampling frequency of trended data adequate to detect significant changes. Inspection disclosed that a computer-based transient monitoring

system is planned for installation. The subject monitor interfaced with the Station VAX will provide graphic trending capability of up to five parameters with dedicated communication lines. This item remains open until such time that the subject system is installed and operational.

j. [10] (Closed) Improvement Item (50-369/85-29-29-11, 50-370/85-28-11): Changing the OAC terminal keyboards, positioned in a nearly vertical orientation, to an ergonomically correct position to minimize mis-keying. Inspection disclosed that existing mounting position of the OAC terminal keyboards poses no significant impediment or delay to access of desired data.

k. [11] (Open) Improvement Item (50-369/85-29-12, 50-370/87-28-12): Providing procedures or instructions developed to describe the method for obtaining monitoring data from the OAC in the TSC. Inspection disclosed that the licensee developed procedure No. OP/O/B/6700/08 to describe the method for obtaining monitoring data from the OAC in the TSC. Review of the procedure addresses only normal data stream transmission via manually offloading the floppy disc from OAC to VAC computer. No reference was made to the subject of the original finding.

l. [12] (Open) Improvement Item (50-369/87-29-14, 50-370/85-28-14): Acquiring a dedicated line if trend plotting will be relied on to support critical plant safety analysis. Refer to comments provided for Improvement Item [9], above.

m. [13] (Closed) Improvement Item (50-369/85-29-15, 50-370/85-28-15): Evaluating locations of the meteorological towers to determine the quality of data, and the effects of the nearby warehouse buildings, proximity of major plant structures, and uneven terrain in the area on such data. Inspection disclosed that the licensee performed an analysis based on statistical relationships to determine the potential effects of warehouse buildings, major plant structures, and uneven terrain on meteorological data at Catawba. The analysis appeared to utilize acceptable statistical and analytical concepts. The results of the comparative analysis were reported to the NRC, Region 2, in a letter dated June 6, 1986. It appears that the structures affect winds from the northeast and southeast quadrants; however, the degree of non-conformity for both wind direction and wind speed appears to be within acceptable limits.

n. [14] (Closed) Improvement Item (50-369/85-29-16, 50-370/85-28-16): Incorporating the meteorological measurements program, as updated in 1983, into the FSAR. Inspection disclosed that a complete description of the upgraded meteorological measurements program was contained in the McGuire FSAR (1986 Update).

o. [15] (Open) Improvement Item (50-369/85-29-18, 50-370/85-28-18): Evaluating the representativeness of meteorological data from the

National Weather Service (NWS) station at Charlotte Airport and/or Catawba Station for real-time conditions at McGuire or installing of backup or redundant onsite meteorological measurements, including separate power supplies, cabling, and recorders. Inspection consisted of a review of the licensee evaluation of the representativeness of meteorological data from the National Weather Service (NWS) station at the Charlotte Airport and/or Catawba for real-time conditions at the McGuire facility. The evaluation appeared to utilize acceptable statistical and analytical concepts. The licensee arrived at the following conclusions from this study: (1) wind direction data at Catawba Station or the NWS Charlotte Airport yields distributions of direction differences with too much scatter to reliably estimate wind direction at McGuire Station; (2) wind Speed data from NWS Charlotte Airport yield wind speeds of half that at Catawba Station, thus, Catawba wind speed equals twice the NWS Charlotte Airport wind speed; (3) data from Catawba Station yields an acceptable substitute for wind speed at McGuire Station; (4) temperature difference: the NWS Charlotte Airport cannot provide temperature difference data; (5) data at Catawba Station yields distribution of temperature differences with too much scatter to reliably estimate the temperature difference at McGuire.

This item will remain open pending resolution of the programs compliance with guidance promulgated in Appendix 2 of NUREG-0654.

p. [16] (Open) Improvement Item (50-369/85-29-19, 50-370/85-28-19): Revising procedures which provide for use of meteorological data to reflect the hierarchy for data substitution, and specifying averaging period (e.g., 15 minutes) and valid time of the observations. Inspection disclosed that the licensee revised Procedures HP/0/B/1009/08 and HP/0/B/1009/09 to identify the hierarchy for meteorological data substitution and specified the averaging period. The hierarchy established is not consistent with the findings of the study performed by the licensee in response to Item [15] above. For example, the revised procedures required that if the wind speed at the McGuire Station is not available, the data should be obtained from the NWS, Charlotte Airport. However, the study concluded that the wind speed at the Charlotte Airport is not a suitable substitute for McGuire Station. This item will remain open until this discrepancy is resolved.

q. [17] (Closed) Improvement Item (50-369/85-29-20, 50-370/85-28-20): Specifying averaging period and valid time of observation for digital displays of meteorological data (e.g., via the OAC of the summary sheet provided through the VAX computer). The inspector reviewed a printout of the McGuire OAC Secondary System and observed that averaging period is being provided.

r. [18] (Closed) Improvement Item (50-369/85-29-22, 50-370/85-28-22): Identifying of regional and forecast meteorological information to be provided on request by the NWS Station in Charlotte. The licensee

maintains a staff of professional meteorologists and routinely receives meteorological data from NOAA. It appears that the licensee's expertise in this field permits its staff to adequately provide regional and forecast meteorological data during an emergency.

s. [19] (Open) Improvement Item (50-369/85-29-24, 50-370/85-28-24): Modifying the Dose Assessment Class A Model to include ingestion pathway dose calculations and making available to the NRC or submitting to the NRC documentation related thereto. Inspection disclosed that the licensee completed its investigation of commercially available dose assessment models. A final decision to include the capability to calculate ingestion pathway doses has not been made.

t. [20] (Closed) Improvement Item (50-369/85-29-26, 50-370/85-28-26): Evaluating the Nuclear-23 method to assure that both whole body and thyroid doses are appropriately considered in protective action recommendations. Inspection disclosed that the licensee evaluated the Nuclear-23 method to ensure that both whole body and thyroid doses are appropriately considered in protective action recommendations. The evaluation technique and results were documented.

u. [21] (Closed) Improvement Item (50-369/85-29-27, 50-370/85-28-27): Making the "Nuclear-23" available for periodic use during exercises to assure control room personnel proficiency in use of the program. Licensee representatives stated that use of "Nuclear-23" is prevented by interlock or relay until such time that an emergency occurs. Inspection disclosed that the "Nuclear-23" dose assessment program was available to Control Room personnel during simulator training.

v. [22] (Open) Improvement Item (50-369/85-29-28, 50-370/85-28-28): Providing an uninterrupted power supply for all necessary components of the data acquisition and display system (e.g., the VAX computer, the dose assessment terminal, the Mohawk data link, etc.). Inspection of the current status of power source to data acquisition and data transmission systems disclosed that no changes were made since the appraisal. This item remains open.

w. [23] (Closed) Improvement Item (50-369/85-29-29, 50-370/85-28-29): Verifying that the Crisis Management Center (CMC) does not exercise priority to the VAX; thus requiring the Station to conduct manual calculation of dose assessments. Inspection disclosed that dose assessment programs may be run in parallel on the VAX by both the TSC and the CMC. The limitation is that only one user (the TSC or CMC) may release an on-line report. This may be a desirable situation, dependent upon whether the TSC or CMC has responsibility for assessment.

x. [24] (Closed) Improvement Item (50-369/85-29-30, 50-370/85-28-30): Inserting into procedures the actual levels at which emergency action is required for event classification, in lieu of referencing "Exceeds Technical Specification" or "Exceeds 10 x Tech Spec." The inspector reviewed RP/O/A/5700/01, "Notification of Unusual Event", and RP/O/A/5700/02, "Alert" for adequacy of defined Emergency Action Levels (EAL"S) to make emergency classification. The EAL's are specific values that reference the specific instrumentation for an emergency classification. The inspector concluded that the EAL's meet the guidance and requirements promulgated in NUREG-0654 and Appendix E to 10 CFR 50.

y. [25] (Closed) Improvement Item (50-369/85-29-31, 50-370/85-85-28-31): Providing emergency lighting in the OSC. Inspection confirmed that three emergency lights sources were installed which automatically actuate following loss of power to normal OSC lighting system.

z. [26] (Closed) Improvement Item (50-369/85-29-32, 50-370/85-28-32): Improving the quality of drawings to include phone locations, phone numbers, air supply headers, etc. Inspection disclosed that plant mimic diagrams were available in the OSC for conducting plant emergency team briefings. The diagrams now include distinctive markings of phone locations, phone numbers, and air supply connections.

a-1 [27] (Closed) Improvement Item (50-369/85-29-34, 50-370/85-28-34): Providing site emergency planning zone maps for the McGuire Station. Inspection disclosed that 10 mile Plume Pathway EPZ, and 50 mile ingestion Pathway EPZ maps were available in the interim CMC and the plant site.

b-1 [28] (Open) Improvement Item (50-369/85-29-35, 50-370/85-28-35): Providing the CMC with a continuous data stream at, or near, real time. Refer to comments listed for Open Item [6] under paragraph 5, above.

c-1 [29] (Open) Improvement Item (50-369/85-29-37, 50-370/85-29-37): Standardizing McGuire Station data sets to include all Regulatory Guide 1.97 parameters in the standard format. Refer to comments listed for Open Item [6] under paragraph above.

d-1 [30] (Closed) Improvement Item (50-369/85-29-38, 50-370/85-28-38): Improving the method of data transmission to the CMC such that data is real-time, or near real-time data. In view of the apparent redundancy of Improvement Item [28], above, this item is closed.

e-1 [31] (Closed) Improvement Item (50-369/85-29-39, 50-370/85-28-39): Reviewing Enclosure 5.5 to procedure HP/O/B/1009/13 regarding source term "corresponds to" to ensure that its intended purpose is understood. Following a detailed review of this item, the inspector determined that this item pertained solely to the Catawba Station.