

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

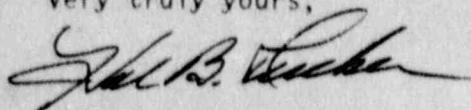
October 31, 1989

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

Subject: McGuire Nuclear Station
Docket Numbers 50-369 and -370
Annual Summary of Activities
Performed Under 10 CFR 50.59

Attached are summary descriptions of changes made to equipment and procedures which are described in the McGuire Final Safety Analysis Report. This report covers changes made during the calendar year 1988.

Very truly yours,



Hal B. Tucker

SAG

xc: Mr. Darl S. Hood, Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. S. D. Ebnetter
Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. P. K. VanDoorn
Senior Resident Inspector
McGuire Nuclear Station

8911090188 881231
PDR ADOCK 05000369
R FDC

TE 47
11

NUCLEAR STATION MODIFICATIONS
PERFORMED PURSUANT TO 10CFR50.59

NSM No.
(MG-)

- 11761
20593 These NSMs reroute the Post-Accident sample panel discharge from the waste drain tank to the containment sump. The waste drain tank is inadequate to handle the volume of sample effluent for more than 19 days following an accident. No unreviewed safety question (USQ) exists because the containment sump provides an equivalent closed (as required by NUREG-0737) system which has adequate capacity to handle post-accident sample effluent.
- 11894 This NSM adds test vents to the downstream side of each train's control, cable, and equipment room air conditioning condenser, and adds (Train A) or replaces (Train B) a drain valve on the upstream side. This provides a means to test the differential pressure across the condenser. No USQ exists. The vents and trains are nuclear safety related. Potential seismic interactions were examined and found not to exist.
- 12061 This NSM upgrades the steam generator (S/G) wide range level instrumentation pursuant to Regulatory Guide 1.97.
- The existing non-safety transmitters are replaced with environmentally and seismically qualified class 1E transmitters and relocated in the annulus. No USQ exists. No new penetrations in containment are needed, so no new leakage paths are created. Cable separation considers Appendix R criteria. The increased availability and reliability of information to operators will not increase the probability or consequences of any accident.
- 11683
20531 These NSMs to the Solid State Protection System allow the reactor operator to defeat the hi-hi containment pressure signal and open the main steam isolation valves (MSIVs) and PORVs. This will enable the plant to be cooled down from the control room by either steaming to the condenser or the atmosphere. No USQ exists. No hardware change or failure mode will increase the probability of any accident. The conditions assumed in the safety analysis are not changed, so no consequences of any accident will increase.
- 20490 This NSM provides qualified isolation devices to isolate post-accident indicators from non-qualified equipment, and replaces non-qualified recorders with seismically qualified recorders. The increased reliability of information available to the operator will serve to enhance safety. No USQ exists. This NSM was performed in response to RG 1.97.
- 12114
22114
12113 This NSM installs new vents and new cleaning connections on the shell side of the containment spray (NS) heat exchangers (HX). The modification does not change the operation or functional design of the heat

- 22113 exchangers. No new failure modes are created, and the ability of the NS system to perform its function is not degraded; therefore, no USQ exists.
- 11101 This NSM installs auto/manual stations in the control room for valves 1RN89A and 1RN190B, and removes low flow protection interlock. This will allow better control of flow and component cooling (KC) system temperature. The ability of the HX to perform its design function is not degraded and no USQ exists. Adequate indications and alarms exist to allow the operator to control low flow administratively.
- 11628 This NSM provides class 1E power to containment isolation valves' position indication. This modification is an upgrade and is in response to a regulatory commitment. The modification affects valve position indication only and does not degrade the containment isolation capability of the valves.
- 20487
- 10850 This NSM reroutes piping for the reactor coolant pump (RCP) oil system to prevent oil from accumulating in piping low points and creating a fire hazard. The function of the system is not changed, and the operation of the RCPs is unaffected. The piping is seismically supported. Piping, valves and supports just inside and outside containment are safety-related to insure containment isolation.
- 12130 This NSM replaces the metal expansion joints on the inlet side of each Nuclear Service Water (RN) system pump. The replacement joints will be stronger and less susceptible to corrosion. The function of the expansion joint, to facilitate alignment of the piping to the pump, is unchanged. No USQ is involved, because no component is degraded and no new failure mode is introduced.
- 22006 This NSM adds solenoid valves to air-operated RN system valve air supplies. The solenoid valves are provided as backups to existing solenoids to improve reliability. The addition of the backup solenoid valves will decrease the probability that the RN system valves, which supply cooling water to the reactor coolant pumps, will fail and cause a malfunction of the RCPs. No new failure modes or accident sequences are created or safety limits reduced, so no USQs exist.
- 20614 This NSM replaces radiation monitor event recorders with microprocessor-controlled dataloggers. The only potential safety concern is possible seismic interaction of the datalogger with other control board items. The dataloggers were installed in a manner to preclude seismic interaction, so no USQ exists.
- 11140
- 20690 This NSM installs a test vent and valve in the containment air release and addition (VQ) system to facilitate testing. The function of the safety-related portions of the VQ system is to provide containment isolation upon receipt of an appropriate safety signal. The vent and valve have been installed as NRC Quality Class B. This NSM will not degrade containment integrity. No plant safety functions are affected, no new failure modes are created, and no margin of safety is reduced. No USQ exists.

- 11379 20287 This NSM replaces Honeywell Dialatrol indicators in the hydrogen recombiner panel with Westronics Digital meters. The only potential safety concern is seismic qualification. The qualification has been reviewed and found to be acceptable. No USQ exists.
- 20463 This NSM provides indication for excess letdown flow on Control Board 2MC5. This Human Engineering Discrepancy (HED) NSM was identified as a control room design review item. Installation is performed during shutdown, and failure during operation will not initiate any accident or produce unacceptable consequences. No USQ exists.
- 20609 This NSM revises the setpoints for the Fueling Water Storage Tank (FWST) in that: The automatic to recirculation setpoint is changed from 100 inches WC to 150 inches WC, and the lo-lo level setpoint is changed from 25 in to 16 in. The NSM will not change any failure modes, initial conditions of accident scenarios, or ability to mitigate accident consequences. The new setpoint levels are appropriate and do not reduce any margin of safety.
- 11887 20666 This NSM replaces valves RN-137A and RN-238B with a slightly different type of valve. The valves are changed from butterfly valves with butt-weld ends to butterfly valves with wafer ends (bolted flanges) to facilitate maintenance. The valves continue to have similar QA requirements, power sources, environmental and seismic qualification, etc., so no new failure modes are created. No probability or consequences of any accident are affected, and no margin of safety is decreased.
- 20702 11932 This NSM provides a control system for Anticipated Transient Without Scram (ATWS), as required by 10CFR50.62. ATWS Mitigation System and Actuation Circuitry supplements existing trip and auxiliary feedwater systems and will not degrade their operation or effectiveness. Redundancies in the AMSAC logic will prevent an increase in spurious trips or steam generator overfeed. No margin of safety is reduced by the addition of the AMSAC system.
- 12135 This NSM adds a 6-inch access port on the NS heat exchanger, for the purpose of obtaining samples from the shell side of the HX. Stress calculations show that the effect of the port on the structural integrity of the HX is negligible. The ability of the HX to perform its role in the overall system operation is not degraded, and the operation of the NS system is not affected. No new failure modes are created, and no USQ is involved.
- 351 This NSM adds drains to RN system piping, to facilitate draindown for maintenance. The operation and function of the RN system remain the same. The addition of the drains will not create any new accident initiators or failure modes which would increase the probability of any accident, or the ability to mitigate the consequences of an accident. No setpoint, tech spec limit, or safety margin is affected.
- 11021 Rev 1 20014 This NSM installs a new type of suction stabilizer in the inlet piping of the positive displacement charging pump (P.D. Pump). This modification only improves the reliability of the P.D. Pump suction dampener

- Rev 1 and, in turn, the P.D. Pump. No new failures of the P.D. Pump are anticipated, and the use and operating characteristics of the P.D. Pump are unchanged; therefore, no USQ exists.
- 22049 This NSM installs a pressure switch in the annulus sprinkler header,
12049 which will provide Appendix R required monitoring of the pipe. The modification will increase the reliability of the system and will not introduce any new failure modes or reduce any margins of safety. No USQ exists.
- 20462 This NSM replaces Key-lock switches with selector switches, in accordance with HED commitments, for various sampling (NM) and ventilation (VA & VC/YC) systems. The Key-lock switches were deemed unnecessary for their applications, with the selector switches providing appropriate assurance of proper switch position. Indication is provided to ensure proper switch position. No new failure modes are created, nor safety margins decreased.
- 11168 This NSM routes a pipe from the polishing demineralizer backwash pump discharge header to the turbine building basement loading area. This pipe will allow transfer of contaminated resin from the polisher backwash tanks to a container. This process will not create the possibility of an accident or decrease a margin of safety. Failure of this 2½ inch diameter line could lead to a small spill of contaminated water/resin mixture within the turbine building. No significant risk to the public will be created.
- 52092 This NSM adds an auxiliary radwaste transfer pump in parallel with the primary transfer pump. This will enable radwaste transfer operations to be completed on schedule despite primary pump breakdowns. No equipment important to safety will be affected.

McGUIRE NUCLEAR STATION
Summary of Procedure Changes, Tests, and
Experiments Completed Under 10CFR50.59 for 1988

- HP/O/B/1003/02 The procedure describes the proper method of sampling, initiating, and documenting a radioactive release from a Waste Monitor Tank (WMT), Recycle Monitor Tank (RMT), Containment Ventilation Unit Condensate Drain Tank (CVUCDT), Turbine Building Sump to the Condenser Circulating Water (RC) System, or Unwatering the RC piping to the Waste Water Collection Basin. The re-issue of the procedure includes a change to omit Unit 1 unwatering sampling following a WMT or CVUCDT release, due to valve RC-21 not being a viable pathway for leakage of radioactive liquid. The change does not involve an unreviewed safety question.
- PT/O/B/4600/18 The procedure describes the establishment of a program for periodically sampling and analyzing radioactive liquid effluents as required by Technical Specifications. The procedure re-issue includes a change to omit Unit 1 unwatering sampling following a WMT or CVUCDT release, due to valve RC-21 not being a viable pathway for leakage of radioactive liquid. The change does not involve an unreviewed safety question.
- IP/O/A/3219/13 The purpose of the procedure is to measure the diaphragm force of Fisher type 667 actuators. The procedure assesses the ability of the actuator to meet the required force output to close under design basis system conditions. The new procedure issue involves a test not addressed in the FSAR but does not involve an unreviewed safety question.
- MP/O/A/7150/39 The procedure describes reactor coolant pump seal removal and replacement according to instructions of the manufacturer. The re-issue incorporates 36 previous changes and does not involve an unreviewed safety question.
- OP/O/A/6550/11 Change 15 to OP/O/A/6550/11, Internal Transfer of Fuel Assemblies, replaces an administrative limit that required freshly discharged fuel assemblies be transferred from Spent Fuel Pool Region 1 to Region 2 60 days after shutdown with the actual Tech. Spec. limit of 16 days. The change also adds a conservative Region 2 qualification curve as an administrative limit. The curve is added to account for increasing axial reactivity bias at fuel assembly average burnup of 28 GWD/MTU and greater. The change affects components addressed in the FSAR but does not involve an unreviewed safety question.

OP/1/A/6150/09
OP/2/A/6150/09

Equipment associated with the procedure for Boron Concentration Control was revised per NSM MG-20693 to reroute Boric Acid Transfer Pump suction piping. The subject changes, #31 for OP/1/A/6150/09 and #11 for OP/2/A/6150/09, involve the addition and deletion respectively, of valve 2NV-928 to the valve checklist of each procedure. The valve is a component contained in a system addressed in the FSAR but the change does not involve an unreviewed safety question.

OP/1/A/6350/02
OP/2/A/6350/02

Change #34 for Unit 1 and #19 for Unit 2 direct the changing of position of several Diesel Starting Air System valves to ensure that the Diesels will maintain control air during a seismic event and also allow for supplying the Instrument Air header from the Starting Air System during a Loss of Control Room in conjunction with a Loss of Offsite Power. The change was found to represent a change to procedures as described in the FSAR, but does not involve an unreviewed safety question.

OP/2/A/6400/06

Change #37 to the Nuclear Service Water System procedure adds motor cooler isolation valves to the valve checklist of the procedure, which were added to the system as a result of modifications to changeout carbon piping with stainless steel. The piping changeout included motor coolers in the Component Cooling, Spent Fuel Cooling, Residual Heat Removal, and Containment Spray systems. It was determined that there were no unreviewed safety questions associated with the procedure change.

PT/0/A/4150/21

The re-issue of the Post-Refueling Controlling Procedure for Criticality, Zero-Power Physics, and Power Escalation Testing, incorporates 37 previously approved changes. The only operations involved in the performance of this procedure are the checkout of the reactivity computer, the obtaining of nuclear instrumentation overlap data and the determination of the point of adding heat. Performance of the procedure was determined to not involve an unreviewed safety question.

PT/0/A/4550/23

The procedure is used for conducting eddy current examination of Rod Control Cluster Assemblies (RCCAs). The RCCA examination is bounded by the fuel handling accident evaluated in the FSAR, which consists of the dropping of a fuel assembly in the fuel building. Since movement of the RCCAs is conducted under existing approved operating procedures, the probability and consequences of an accident will not be increased. No unreviewed safety question was found to exist as a result of conducting the activities of this re-issued procedure.

- PT/0/A/4550/030 The procedure for ultrasonic testing of fuel assemblies controls testing performed by a vendor as part of total core unload and fuel assemblies stored in the Spent Fuel Pool. The new procedure issue describes activities bounded by the fuel handling accidents evaluated in the FSAR, which consist of the dropping of a fuel assembly in the Reactor Building and the Spent Fuel Pool. Since fuel movement is conducted under approved operating procedures, the probability or consequences of these accidents will not be increased. No unreviewed safety question was found to exist as a result of conducting the activities of this new procedure.
- PT/0/A/4550/031 The procedure provides control of the reconstitution of fuel assemblies in the Spent Fuel Pool by vendor personnel. Fuel reconstitution associated with this procedure is bounded by the FSAR fuel handling accident, consisting of a breach of all fuel rods in an assembly. The accident assumptions remain valid since reconstitution is performed on only one assembly at a time. It was determined that this new issue of the procedure does not present any unreviewed safety questions.
- PT/0/A/4550/032 The purpose of the new issue of B&W Post-Irradiation Examination Controlling procedure is to obtain data after cycle irradiation of B&W fuel assemblies in order to evaluate the performance and behavior of these fuel assemblies. The B&W Fuel Assembly Repair and Inspection Station (FARIS) is used to obtain the specified data. The FARIS System does not manipulate or support the fuel assemblies in any way. Because fuel handling is performed using approved fuel handling procedures and equipment as described in the FSAR and no modifications to equipment are involved, it was determined that no unreviewed safety questions exist in the performance of this procedure.
- PT/1/A/4350/36A
PT/1/A/4350/36B The procedures for Diesel Generator 1A & 1B 24-hour run were re-written and re-issued upon Operations accepting responsibility for the periodic test from the Performance Group. Changes made were to place procedure steps and wording in a manner consistent with other Operations Diesel Generator procedures. The editorial changes did not result in creation of any unreviewed safety questions.
- PT/1/A/4550/19 Change #08 to the performance procedure for "Inspection and Storage of New Fuel" addresses a license amendment in which it has been resolved that the storing of new fuel in the new fuel vault of up to 4.0 w/o U-235 enrichment has been analyzed for criticality. This has been cited in regard to new fuel received for Unit 1 Cycle 5 which has a nominal enrichment of 3.6 w/o U-235. This was necessary due to a previous FSAR criticality analysis assumption of 3.5 w/o U-235 enrichment. The appropriate section of the

FSAR has been scheduled to be changed to reflect the license amendment.

PT/2/A/4200/09A

Change #49 to "ESF Actuation Periodic Test" reflects the deletion of several Nuclear Service Water System valves as a result of Nuclear Station Modification MG-20668/0. The changes were determined to not involve an unreviewed safety question.

PT/2/A/4252/01

Change #29 to the "Auxiliary Feedwater Pump No. 2 (Turbine-driven) Performance Test" is a change restricted to the end-of-cycle 4 Mode 3 pump run which allows Operations to feed the steam generators as necessary to obtain the 900 gpm Tech. Spec. recirculation flow requirement. The change was necessary because a modification (POVATS) to the Aux. Feedpump No. 2 mini-flow control valve decreased the stroke of the valve and did not allow the required 900 gpm recirculation flow. Instead, individual feed flow loop valves to the steam generators are to be throttled in order to obtain the required flow. Additionally, to minimize cooldown of the Reactor Coolant System while in Mode 3, the pump stabilization time of 15 minutes has been shortened to 5 minutes, still in compliance with IWP-3500. Because of the ability of all valves involved to fail safe has not been affected, it was determined that no unreviewed safety questions exist as a result of this change.

TT/1/A/9100/231

The procedure describes a temporary test to be conducted as post-modification testing for NSM 1-1848/00. The modification consisted of new circuitry for the steam generator level NIS hi select feature. The procedure verifies both the hi select feature for 7300 and the control board defeat capability of the new switch. Performance of this procedure does not involve any unreviewed safety questions.

TT/1/A/9100/232

The procedure provides a means of post-modification testing the new Rod Control/Power Mismatch circuitry and new control board dual bargraph meter. The new circuitry and meter were added under NSM 1-1849/00. The test is conducted by simulating Hi T-ave, Hi T-ave/T-ref temperature error and power mismatch error output signals to verify the corresponding circuits. No unreviewed safety questions were found to be involved with the performance of this test.

TT/1/A/9100/254

The procedure involves functional verification of the newly installed solenoid control/indicating circuitry for Nuclear Service Water System containment isolation valves which handle the reactor coolant pump motor cooling water flow. The circuits for these valves were modified under NSM MG-12006. The test consists of cycling these valves several times during modes 5, 6, or no-mode. It was

determined that no unreviewed safety questions were involved with implementation of this procedure.

- TT/1/A/9100/265 NSM MG-11626 adds 1E power supply to valve indications for several Ice Condenser Cooling System valves. This procedure is to functionally verify proper installation/operation cycling of these valves with the appropriate operational precautions. An unreviewed safety question is not involved.
- TT/1/A/9100/287 The purpose of this test is to functionally verify the proper operation of valve open interlocks associated with Containment Spray Pump Suction Valves from the Refueling Water Storage Tank and the Containment Sump (1NS-18A, 1NS-1B, 1NI-185A, and 1NI184B). To perform the test, a jumper is installed in the actuator wire bung of these valves to simulate an open position. Their corresponding interlocks will be functionally verified using a continuity check which will verify proper connection of these interlocks. The consequences of valves inadvertently changing position were evaluated and no unreviewed safety question was found to exist.
- TT/1/A/9100/288 The purpose of this temporary test is to verify the proper connections of the interlock associated with 1NV-221A (Centrifugal Charging suction from Refueling Water) which has been modified by the addition of the torque switch bypass. The interlock of 1NV-141A (Charging suction from Volume Control Tank) with 1NV-221A will be tested to verify its ability to perform its designated function. The test will consist of continuity checks on links. No unreviewed safety question was found to exist.
- TT/1/A/9100/288 Changes 1 and 2 to the above procedure involve the added precaution of opening the breaker for 1NV-141A and a corresponding change to the original 50.59 evaluation. With the said breaker open, the corresponding valve will be unable to close to isolate the non-safety portion of the Chemical and Volume Control System in the event of a Safety Injection signal. For this reason, the valve will be logged in the Tech. Spec. Action Item Logbook and the appropriate action statement followed during conduct of the test.
- TT/1/A/9100/289 The purpose of the procedure is to verify the interlocks associated with containment sump valves 1NI-184B and -185A. The breakers for the valves will be opened to perform the test. The test consists of lifting a lead in the respective valve actuator and verifying continuity is lost in the appropriate Containment Spray (NS) System valve. All consequences of performing the test were evaluated and no unreviewed safety question was found to exist.

- TT/1/A/9100/289 Change #1 was made to the above procedure to improve the clarity of the procedure. The original intent of the procedure was not changed by the revision. The conclusion regarding an unreviewed safety question remains unchanged.
- TT/1/A/9100/289 Change #2 to the above procedure was made to ensure control of all valves and components involved be restored to their operable status in a timely manner if the need arose. The conclusion regarding an unreviewed safety question remains unchanged.
- TT/2/A/9100/246 The purpose of this temporary test is to verify the proper operation of interlocks between 2NI-185A (Decay Heat Removal Pump Suction from Sump) and 2ND-19 (Decay Heat Removal Pump Suction from Refueling Water Storage Tank) as well as the corresponding 'B' Train valves. The method of functional verification is to cycle the sump valves and observe the refueling water valves and take measurement of continuity across specific terminal links to verify proper switch activation. The test is conducted in 'no-mode' status and therefore cannot impact plant conditions. No unreviewed safety question is involved in the performance of the test.
- TT/2/A/9100/267 The purpose of the procedure is to control the grid repair of the sixth spacer grid of fuel assembly Q54 under the Babcock and Wilcox Fuel Grid Repair Procedure. The grid repair associated with this procedure is bounded by the fuel handling accident evaluation in the FSAR, where a breach of all fuel rods in an assembly is assumed. The assumption remains valid since only one assembly is to be repaired. All handling of fuel assemblies is in accordance with existing, approved operating procedures. No unreviewed safety question is foreseen in the conduct of this repair.
- TT/2/A/9100/284 The purpose of this test is to functionally verify the proper operation of valve open interlocks associated with Containment Spray Pump Suction Valves from the Refueling Water Storage Tank and the Containment Sump (1NS-18A, 1NS-1B, 1NI-185A, and 1NI184B). To perform the test, a jumper is installed in the actuator wire hung of these valves to simulate an open position. Their corresponding interlocks will be functionally verified using a continuity check which will verify proper connection of these interlocks. The consequences of valves inadvertently changing position were evaluated and no unreviewed safety question was found to exist.
- EP/2/A/5000/01 Change #4 to the emergency procedure for Safety Injection was made to ensure that one train of H₂ Skimmer Fans remain operable during a loss of power² to the other train following a LOCA. The change directs operators, following an Sp signal, to close a Skimmer Fan inlet valve if the

respective fan fails to run. This instruction was provided to prevent reverse air flow through the idle fan while its inlet valve is open. Because of this direction for operator action plus an electrical modification to improve the operator's capability to cope with failed components, it was determined that no unreviewed safety question exists.

PT/1/A/4200/01C

The subject procedure describes Containment Penetration Leak Rate Testing. Change #52 was made, in part, to correct various typographical errors. Correction of the errors did not affect the test method or safety of the plant. The change also included the addition of Containment Air Release & Addition System valve 1VQ-14 to Penetration M-243 per NSM Work Request #95693. The purpose of the addition of the valve in the Auxiliary Building between two existing VQ System valves is to allow testing the containment isolation valves from the Aux. Building side. An appropriate FSAR change will be made to reflect a change in test flow direction. No unreviewed safety question was found to exist.

PT/1/A/4550/06

The purpose of the procedure is to provide directions to perform the unloading of an entire core of fuel assemblies in a safe and orderly manner. The procedure re-issue included some minor editorial changes. Core unloading is bounded by the fuel handling accidents evaluated in the FSAR. It was determined that no unreviewed safety question exists in the performance of this procedure.

MP/1/A/7150/42

The procedure describes the method of removal and replacement of the Unit 1 Reactor Vessel Head. The re-issue of the procedure includes changes to address the concerns of IE Information Notice 88-36 dealing with a potential loss reactor coolant system inventory during low coolant level operation as related to the use of hot-leg nozzle dams. The changes require that a hot-leg manway be removed prior to removing any cold-leg manway. Also, requirements were provided such that one hot-leg will remain open any time the reactor vessel head is in place.