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October 12, 1988

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 1987.

Very truly yours,

A handwritten signature in cursive script that reads "Hal B. Tucker".

Hal B. Tucker

SAG/143/nmf

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McGUIRE NUCLEAR STATION
Summary of Nuclear Station
Modifications

MG-11627
MG-20492 These NSMs added a neutron flux meter and associated cabling to the auxiliary shutdown panel for each unit. This modification is in response to Regulatory Guide 1.97.

The ASP is safety related although this neutron flux meter and some other display instruments are non-safety. The meter is seismically mounted to ensure no adverse interaction with the safety-related switches on the ASP.

Accordingly, this modification will have no effect on the probability, consequences or possibility of new accidents evaluated in the FSAR. Nor will it affect the probability or consequences of malfunctions of equipment important to safety evaluated in the FSAR. The margin of safety defined in the bases of the Tech. Specs. is unaffected. The answer to each of the 10CFR50.59 unreviewed safety questions is "no". There are no unreviewed safety questions resulting from this modification.

MG-11724 This NSM replaced an inoperable composite sampler in the Ventilation Unit Condensate Drain Tank (VUCDT). The sampler is located in a 3/4" line of the radioactive liquid waste (WL) system. The VUCDT subsystem collects condensation from the containment and auxiliary building ventilation units. Normally, the activity in this tank is well below permissible levels for discharge. The replacement sampler will improve the sampling capabilities over the present sampler and will not create or increase the probability of any accident.

No consequences of any accident will be increased, because the function of the system is not changed and the ability of detect activity in the ventilation condensate is improved. No margin of safety is affected.

MG-10609 This NSM added a "Hi ΔP " alarm on the entire outside air pressure filter trains in the control room ventilation (VC) system. The old design had one ΔP gauge for the prefilter and HEPA filter, and a second for the carbon adsorber. The new design retains the pre/HEPA filter ΔP gauge, while the second now spans the entire prefilter/HEPA/adsorber train. This modification will not increase or create the probability or consequences of any accident, because failure of the gauge and/or tubing will not initiate any accident, nor will any seismic interaction with the gauge and/or tubing cause additional failures.

MG-11895
MG-20673 These NSMs added test vents in the nuclear service water (RN) system to allow testing of differential pressure across the diesel generator cooling water (KD) system heat exchanger, for each unit. The vent line has the same pipe material, class, and design considerations as the adjoining pipe.

These modifications are not related to the cause or mitigation of any accident previously evaluated in the FSAR or different than previously evaluated in the FSAR. The initial conditions of the core and reactor coolant system will not be affected by this modification. Due to proper design considerations for the vent line, the probability or consequence of a malfunction of equipment important to safety will not be increased. No margins of safety as defined in the bases to any Technical Specifications are affected.

MG-01678

This NSM adds a rupture disk assembly in the fire protection system (RF) piping serving the control room pressurization filter trains. Failure of the non-seismic RF piping could result in an uncontrolled pathway into the control room, possibly resulting in control room doses greater than general design criteria 19 values. The rupture disk in the RF piping will provide a barrier to air entering the control room via the piping in the event of piping failure. The disk will rupture upon pressurization of the RF system. No safety question, according to the criteria stated in 10 CFR 50.92, is created or involved as a result of this NSM. No safety system has been degraded nor will any functional changes take place.

MG-11790
Rev. 1
MG-20609
Rev. 1

These NSMs changed the setpoints for Refueling Water Storage Tank (RWST) level setpoints in accordance with: 1) new emergency procedure switchover sequence; 2) new data on RWST depletion rate; and 3) current valve stroke time acceptable criteria.

This modification is not related to the initiation of any accidents or equipment malfunctions analyzed in the FSAR, and will not result in the creation of any new accidents or malfunctions. The initial conditions of the reactor coolant system and core will not be affected by this NSM, and the ability to mitigate accidents will be unaffected. No failure modes are associated with this mod.

The only potential safety concern associated with this modification is that the new level setpoints for the RWST may result in a reduction in the margin of safety for plant operation. However, the revised results obtained in the setpoint recalculation indicate that the new level setpoints are adequate for operating requirements and do not compromise any plant margins of safety. Appropriate technical justification for this modification is fully documented in the recalculation.

MG-11590
MG-20466

These NSMs add indications to the Auxiliary Shutdown Panels (ASPs): reactor coolant system cold leg wide range temperature, neutron flux, letdown temp, letdown pressure, letdown flow, decay heat removal pump discharge temp, and decay heat removal to RCS cold leg temp.

The subject NSMs represent a major modification to a nuclear-safety-related system. The system is provided to allow operators to attain and maintain a hot shutdown condition in the unlikely event that the main control room must be evacuated. Only one ASP is provided for each unit.

The ASPs are safety-related panels because they contain some energized IE control circuitry; however, the indications, both existing and proposed, are non-essential and non-safety and do not involve any controls. The indications are seismically mounted to prevent interactions with the IE components, but are not required to function during or following a seismic event. The signals for the new indications include qualified isolation devices to prevent fault propagation to the PCS. Therefore, the probability of accidents or malfunctions of equipment important to safety is not increased and the potential for new types of accidents or malfunctions is not created.

Since the additional indications enhance the ability of the operator to perform the necessary actions at the ASP, the chance for operator error is reduced. Therefore, the consequences of accidents or malfunctions of equipment important to safety are not increased.

The margins of safety defined in the bases to the Technical Specifications are also not reduced by the addition of monitoring instrumentation to the ASP.

- MG-20468
MG-11591 This NSM provides throttling capability from the Auxiliary Shutdown Panel to the Letdown Orifice Isolation Valve, Auxiliary Spray Supply to Pressurizer Isolation Valve and the Charging Line Flow Control Valve. Appendix R Review was performed and seismic mounting to the Auxiliary Shutdown Panel was provided. Therefore, the probability of any malfunction of equipment will not be increased and the possibility of any different malfunction of equipment not previously evaluated in the FSAR will not be created. No margin of safety is affected. This modification resolves several Human Engineering Discrepancies (HED M-1-686, HED M-1-688 and M-1-694).
- MG-11380 This NSM replaced a water-cooled condenser unit in the service building with an air-cooled unit. No safety system is affected by this modification and no functional changes to any system are made. Failure of the condensing unit is of no safety significance and potential missiles are bounded by existing analyses. No unreviewed question is created by this modification.
- MG-11274 This NSM provided for the remodeling of existing warehouse space into office space. This renovation will not adversely impact any safety systems. The service building was used for warehouse space and maintenance, and did not house active safety-related systems.

- MG-20254 This modification provided isolation valves in drain lines of ventilation systems' filter units. The purpose of the modification is to prevent the drains from backing up and flooding the carbon filters, in the event a float assembly fails in the open position. The float assembly controls the level of a water seal in the drain lines, to prevent air leakage past the filter unit. These drains are inadequate to remove excess water in the event the deluge fire protection system actuates. Therefore, the value of the drain system is outweighed by the occasional failure of the float assembly, which results in wet (inoperable) carbon filters. The addition of the valves in the filter drain lines will not increase or create any accident probability, and will not affect the function of the ventilation filter units. Thus, the consequences of any accident will not be increased.
- MG-11707 These modifications added flame arrestors to the diesel generator
MG-20114 fuel oil day tanks. The flame arrestors will not affect the operation or reliability of the diesel generators, and will not introduce any new or additional accident or accident consequence concerns.
- MG-11877 This NSM enlarged the overflow pipe of the Reactor Makeup Water
MG-20660 Storage Tank and installed a relief valve on the underdiaphragm vent line. These modifications will prevent overpressurization of the tank, therefore decreasing the probability of equipment malfunction. No margin of safety or consequences of accidents are affected.
- MG-10914 This modification routed overflow from liquid waste monitor (WM) tanks A and B to a common header and then to floor drain tank Sump B. Previously, the overflow from the tanks had been free to empty into a walkway in the auxiliary building. This modification has no effect on the operation of the WM tanks or the WM system. The additional influent to the FDT sump is not a safety concern.
- MG-1374 This modification removed a sodium analyzer from what was originally intended to serve as a liquid waste (WL) evaporator, but is now used as a boron recycle (NB) evaporator. A sodium analyzer would serve no purpose in the NB system evaporator. The WL evaporator function has been determined to be a less efficient means of processing liquid wastes than a bed resin ion exchanger, which is currently being used.
- MG-1408 This modification removed an unused auxiliary plant heating boiler. The boiler had been idle since a larger capacity boiler had previously been installed. No safety system has been degraded and no functional change will be made to any system.
- MG-11884 These modifications involve installation of a stainless steel
MG-11885 spool piece for a flow element in a component cooling (KC) heat

exchanger and a nuclear service water (RN) heat exchanger to alleviate corrosion-induced measurement errors.

The stainless steel spool piece to be fabricated for this modification meets seismic requirements for Class C piping. Pressure tap environmental qualifications are specified as Code 8 from the McGuire I&C List. This modification will improve reliability of flow measurement readings by eliminating the corrosion problem. Equipment availability will not be affected. The spool piece will not have any impact on response times or error bands.

This modification does not affect any FSAR accident analyses, and does not introduce any potential failure modes. No adverse systems interactions will occur as a result of this modification, and there will not be any impact on the plant margin of safety as defined in the bases to the Technical Specifications.

MG-11880
MG-20663

The purpose of the subject NSMs is to improve the response time and the reliability of the control loops associated with FWP Recirc Control Valves CF76 and CF81. This is accomplished by replacing pneumatic components (transmitters, receiver gages, and valve positions) with electronic components.

The control loops affected by this modification are not safety-related and the consequences of any new component failures are bounded by those that formerly existed because the feedwater system is ultimately not relied upon to perform any safety functions. The modification should, in fact, reduce the likelihood for such failures. Thus, as a consequence of the improved control response and reliability, the probability of occurrence of design basis feedwater transients is not increased and no accidents beyond the design basis are created by the modification. The modification does not involve a functional change to the control loops; the operation of the control valve is not degraded and it still fails open on a loss of signal.

A seismic review of affected control boards has been performed and the seismic qualification of the boards is not degraded by the modification. No other equipment important to safety is affected, either directly or indirectly, by the modification. Therefore, the probability or consequences of equipment malfunction are not increased and no new malfunctions are introduced.

MG-11656

This modification adds 18 breathing air (VB) connections in the turbine building. The VB system is not safety-related (with the exception of the containment isolation valves, which are not affected by this modification). No safety system is affected by this modification.

MG-11917 This NSM replaced pressure transmitters and instrument air pressure switches monitoring the operation of the main steam (SM) Power Operated Relief Valves (PORVs). The transmitters and switches are replaced by direct process line pressure switches and pressure gauges. The modification has been analyzed to ensure that any failure of the replacement switches will not create a new accident. The replacement switches should reduce the frequency of maloperation of the PORVs caused by pressure drift in the pressure transmitters.

MG-01864 The modification will downgrade the boron recycle evaporator feed pumps from Duke Class C to Duke Class E.

Potential concerns with this modification involve the reclassification of one snubber from QA Condition 1 to QA Condition 4, the deletion of one snubber, and the reclassification of 27 rigid supports from QA Condition 1 to QA Condition 4. These changes reflect the down grade of the associated piping from Class C to Class E. This downgrade can be accomplished since the Boron Recycle System does not affect the safety of station operations. The Boron Recycle Evaporator Feed Pumps will be changed from QA Condition 1 to QA Condition 2 equipment. This piping, equipment, and support/restraints do not need to be QA Condition 1 because they are not part of the Reactor Coolant System pressure boundary, they are not required for safe shutdown, and they are not necessary to prevent or mitigate the consequences of accidents as required by 10 CFR Part 100.

This modification is not related to the initiation of any accidents or the malfunction of any equipment as described in the FSAR. The modification will not result in the creation of any new accidents or malfunctions. The modification will not have any impact on the plant margin of safety as defined in the Technical Specifications.

MG-11524 This modification adds a dual indicating light and selector switch to IMC5 Control Board to provide Open/Closed status and power disconnect for the Pressurizer Auxiliary Spray Control Valve. Human Engineering Discrepancy HED-M-1-699 is resolved by this modification. The valve fails close and the NSM was reviewed for seismic impact to the control board and Appendix R concerns. Therefore, the probability of any malfunction of equipment will not be increased and the possibility of any different malfunction of equipment not previously evaluated in the FSAR will not be created. No margin of safety is affected.

MG-11768
MG-20598 These modifications delete the Upper Head Injection (UHI) system. The Technical Specification changes associated with UHI removal have been reviewed and approved by NRC; therefore, no unreviewed safety questions exist.

- MG-11267 This NSM rerouted the spent resin sluice pump discharge header from the waste evaporator feed tank gravity header to the WEFT pumped header. The ultimate destination remains the WEFT. The purpose of the modification is to avoid unnecessary contamination of personnel and equipment through inadvertent spills. More than sixty components are connected to the WEFT gravity drain header. There is a possibility that a valve associated with one of these components, if left open, could result in a radioactive spill. Rerouting the discharge to the pumped header will provide more positive control of the sluicing operation. The spent resin sluicing operation remains functionally the same. No safety system is affected by this modification.
- MG-11888
MG-11891 These NSMs replaced carbon steel pipe in the nuclear service water (RN) system with stainless steel pipe, the replacement piping is safety-related and is designed to the same pressure and temperature parameters as the original. Nothing new is added to the system which would create the possibility of a new accident not previously evaluated in the FSAR.
- The probability and consequences of a malfunction of equipment important to safety previously evaluated in the FSAR will be decreased since the equipment coolers can perform as designed. No possibility of malfunction of equipment important to safety different than any already evaluated in that FSAR has been introduced. No margin of safety as defined in the bases to any Technical Specification is reduced. There are no unreviewed safety questions associated with this NSM.
- MG-11743
MG-20575 These NSMs involve the replacement of eight cold leg accumulator (CLA) discharge check valves. The valves have had repeated leakage problems. The leakage has caused reductions in CLA boron concentration and difficulty in maintaining RCS leakage within Tech Spec limits.
- The new check valves represent essentially one-for-one change-outs; the new valves have slightly different flow characteristics. The new valves are functionally identical to the old valves and introduce no new failure modes. The weight and end-to-end dimensions of the new valves are the same as the old valves, so the stress analysis remains valid. No increase in the probability of previously-analyzed accidents will occur. The discharge orifices have been sized to compensate for the slightly different hydraulic characteristics. No consequences any accident will be increased.
- MG-20645 This NSM allows 3 spare containment penetrations to be used for various activities performed during refueling outages. Pipe caps used to seal the penetrations have been cut off, and replaced with flange-blind flange assemblies. A valve is included on the flange outside of containment to allow for testing. Flanges, pipes, and valve all comply with ASME Section III requirements. No accident probability will increase or be created, because the penetrations do not affect any equipment which could initiate an accident. No consequences of any accident will increase, because

the penetrations are sealed during unit operation and are open only during shutdown. The penetrations are testable to ensure containment integrity. During shutdown, when the penetrations are in use (blind flanges removed) the penetrations are filled with a foam sealant to inhibit air exchange between containment and the annulus. No accident which could occur during shutdown would result in this foam barrier failing.

McGUIRE NUCLEAR STATION
Summary of Procedure Changes, Tests, and
Experiments Completed Under 10CFR50.59 for 1987

- IP/O/B/3006/18 IP/O/B/3006/18 is the instrument procedure associated with Radiation Monitoring System Data Logger. The data logger replaces a recorder for increased reliability in monitoring. FSAR Section 11.4.2 needs to be changed to reflect this equipment replacement. Since the equipment deals with monitoring functions only, which cannot affect accident probability, the change does not involve an unreviewed safety question.
- OP/O/A/6450/11 OP/O/A/6450/11 describes the operating procedure for the Control Area Ventilation/Chilled Water System (VC/YC). This particular change involves steps for the cross-connecting of two inoperable trains of VC/YC to provide cooling. This change would not be utilized unless both Trains were already inoperable. This mode of operation is not described in FSAR Section 6.4, but does not involve an unreviewed safety question.
- PT/1/A/4403/07 PT/1/A/4403/07 describes the procedure for performing the Train A Nuclear Service Water (RN) Flow Balance. Change 5 was made after encountering difficulty in achieving the specified RN flowrate to the Safety Injection Pump Oil Cooler. A re-evaluation by Design Engineering confirmed that the reduced flowrate, still satisfying vendor specifications, was acceptable and did not involve an operability question. A change was necessary to FSAR Table 9.2.2-1 to reflect the lowered flowrate.
- OP/O/B/6200/33 OP/O/B/6200/33 describes the procedure for isolating, flushing, draining, and returning to service various components of the Solid Waste (WS) System. Section 13 of the procedure refers to the Contaminated Oil Storage Tank (COST), which was previously used as the Binder Storage Tank for the old solidification process that was never used at McGuire. The tank is located outside the solidification pad and is implanted underground. FSAR Sections 2.4.12 and 15.7.3 address credible accidental releases to the ground water and the assumptions made at the time did not include the use of the Binder Storage Tank as a storage tank for contaminated oil. This procedure revision makes this assumption necessary. The evaluation of the risk potential determined that an unreviewed safety question did not exist.

- HP/O/B/1003/02 HP/O/B/1003/02 describes the method of sampling, initiating, and documenting a radioactive release from various sources, including unwatering of the Condenser Circulating Water piping via the WU System. A change is needed to FSAR Section 9.2.8 to reflect that the WU System is also a potential radioactive source to the Turbine Building Sump. A unreviewed safety question does not exist.
- PT/O/A/4550/28 The "Controlling Procedure for Fuel Clip Installation" is a new procedure provided for the installation of fuel rod clips to protect the fuel against the damaging effects of baffle jetting. The addition of the fuel rod clips (to 24 fuel assemblies) is a design change that must be determined that the addition of the fuel rod clips to the fuel assemblies does not involve an unreviewed safety question.
- PT/O/B/4600/18 The rewrite of PT/O/B/4600/18, "Radioactive Liquid Effluent Sampling and Analysis Frequency", incorporates changes 0 through 4. By Facility Operating License Amendment 72 (Unit 1) and 53 (Unit 2), a new release point for radioactive liquids was added, thereby permitting the release of liquids containing trace quantities of radioactivity directly into the Catawba River, via the Conventional Waste Water Treatment System. The release point was added because the liquid radwaste system was incapable of handling turbine building sump discharge on a continuing basis as would be required by the tech. spec. if there were small steam generator tube leaks. It was determined that FSAR Section 9.2.8 needs to be changed to reflect that the Unwatering (WU) System is also a potential radioactive source to the Turbine Building Sump. FSAR Section 11.2 will be changed to include the Catawba River as a release point. Although the effluent release path is changed, neither the dose, quantity nor concentration of radioactive effluent in the river is changed and therefore an unreviewed safety question does not exist.
- OP/O/B/6200/65 The "Radwaste Procedure for the Transfer, Dewatering, and Shipment of Powdex Resin", addresses a processing option not identified in the FSAR, that being to process powdex to liners for burial at an approved disposal site. This change does not affect Tech. Specs. and does not involve an unreviewed safety question.
- HP/O/B/1003/08 HP/O/B/1003/08 describes the method for determining radiation monitor setpoints. With the addition of the Equipment Staging Building and the associated ventilation radiation monitor 2EMF-59, it was necessary to change Tech. Spec. and FSAR Section 11.4.2.2 to reflect the added monitor. It was determined that an unreviewed safety question did not exist.

- HP/O/B/1009/14 HP/O/B/1009/14 describes Health Physics actions for inoperable gaseous effluent monitoring and flow rate measurement devices. With the addition of the Equipment Staging Building and the associated ventilation radiation monitor 2EMF-59, it was necessary to change Tech. Spec. and FSAR Section 11.4.2.2 to reflect the added monitor. It was determined that an unreviewed safety question did not exist.
- PT/O/B/4600/08 PT/O/4600/08 correlates process and effluent monitor readings with laboratory analyses of radionuclide concentrations. With the addition of the Equipment Staging Building and the associated ventilation radiation monitor 2EMF-59, it was necessary to change Tech. Specs. and FSAR Section 11.4.2.2 to reflect the added monitor. It was determined that an unreviewed safety question did not exist.
- HP/O/B/1003/15 HP/O/B/1003/15 describes a method for calculating the total gaseous, particulate, halogen and tritium activity that is released from the Contaminated Parts Warehouse, the Interim Radwaste Building, and the newly added Equipment Staging Building ventilation systems. FSAR Section 11.4.2.2 needs to be changed to reflect the addition of the Equipment Staging building Ventilation Monitor, 2EMF-59. It was determined that an unreviewed safety question did not exist.
- PT/O/B/4600/19 PT/O/B/4600/19 establishes a program for periodically sampling, analyzing and documenting radioactive gaseous effluents as required by Tech. Specs. With the addition of the Equipment Staging Building and the associated ventilation radiation monitor 2EMF-59, it was necessary to change Tech. Specs. and FSAR Section 11.4.2.2 to reflect the added monitor. It was determined that an unreviewed safety question did not exist.