

DUKE POWER COMPANY

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

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
(704) 373-4531

June 30, 1988

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

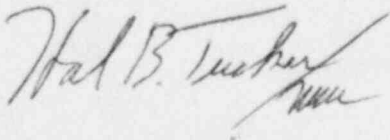
Subject: Catawba Nuclear Station, Units 1 and 2  
Docket Nos. 50-413 and 50-414  
1987 10 CFR 50.59 Report

Gentlemen:

In accordance with the requirements of 10 CFR 50.50, please find attached the summary of Nuclear Station Modifications, the Summary of Exempt Change Variation Notices, and the Summary of Procedure Changes, Tests, and Experiments, which were completed under the provisions of 10 CFR 50.59 during the 1987 calendar year.

Additionally, be advised that no changes were made to the Fire Protection Plan that are reportable under License Condition No. 8 of Operating License NPF-35.

Very truly yours,



H. B. Tucker

JGT/38/sbn

Attachments

cc: Dr. J. Nelson Grace, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

Mr. P. K. Van Doorn  
NRC Resident Inspector  
Catawba Nuclear Station

8807140290 880630  
PDR ADDCK 05000413  
P PNU

IE47  
11

## CATAWBA NUCLEAR STATION

### SUMMARY OF NUCLEAR STATION MODIFICATIONS COMPLETED UNDER 10 CFR 50.59 DURING 1987

CN-00001

Description: This modification provided for a new separate alarm system for Site Assembly which is independent of the plant Public Address System (PA). The new system is composed of sirens and strobe lights and consolidates the containment evacuation alarms. This modification affects FSAR Table 8.3.1-1 and Section 9.5.2.

Safety Evaluation: The plant PA System is unreliable as an emergency alerting method and in many areas of the plant is inaudible due to high noise level. The new Site Assembly/Containment Evacuation Alarm System is more reliable and effective than the PA System. This modification increases the margin of safety with regard to Site Assembly/Containment Evacuation. This modification does not adversely affect any plant system. This modification does not involve any unreviewed safety question.

CN-00011

Description: This modification involved the addition and relocation of several Breathing Air System (VB) headers in the Auxiliary Building. This modification was implemented as a result of knowledge and experience obtained from the TMI incident and operational experience at Oconee and McGuire Nuclear Stations. This modification affects FSAR figure 9.3.1-7.

Safety Evaluation: This modification improved overall breathing air service in eventual airborne contamination areas. No safety system was degraded and no functional change was introduced as a result of this change. This modification does not involve any unreviewed safety question.

CN-10001

Description: This Unit 1 modification involved modifications and/or additions of valves/piping to the condensate and feedwater systems. Changes to the control board were also implemented. This modification prevents water hammer damage during startup. These changes affect FSAR figures 10.4.7-1, 10.4.7-2, 10.4.7-7, and 10.4.7-11.

Safety Evaluation: This modification involves only changes to non-safety grade portions of the condensate and feedwater system in the turbine building. This modification was a result of water hammer experiences at McGuire and Catawba Nuclear Stations. Modifications to the Systems' Control boards does not interact with any safety related parts of those boards. This change increases plant reliability and does not adversely affect any safety related system. This modification does not involve any unreviewed safety question.

CN-10015

Description: This modification deleted loop seals and associated float valves from the drain lines for the Incore instrumentation room purge exhaust filter unit, the Containment air release addition filter units 1A and 1B, and the Containment purge air exhaust filter units 1A and 1B. These drain lines were reequipped with local drains, isolation valves, and caps. In addition, demineralized water piping, which supplied the loop seals, will be capped-off. This modification affected FSAR figures 9.2.3-2, 9.2.3-6, and 11.2.2-15.

Safety Evaluation: No safety systems were adversely affected by this modification. These drain lines were originally designed to be continuously draining and outfitted with loop seals. Subsequent experience has shown that actual condensate volumes are insufficient to require continuous draining. Therefore, the loop seals are not necessary. In addition, this modification eliminated the use of demineralized water to supply these loop seals. The ability of these filter units is not degraded by this modification. No unreviewed safety question is judged to be created by this modification.

CN-11029

Description: This modification retubed the Instrument Air System (VI) for the three pressurizer PORV'S to insure proper operation of the PORV'S. Also, retubing insured proper train relatedness for the backup emergency nitrogen supply for opening the valves. This modification affects FSAR figure 9.3.1-2.

Safety Evaluation: This modification insures that the system operates as designed. Because the tubing configuration now is as designed, no increase of accidents previously evaluated in the FSAR results nor any new accidents are created by this modification. Furthermore, no consequences of malfunction of equipment is increased nor any safety margin as defined in the Technical Specification bases is reduced by this modification. This modification does not involve any unreviewed safety question.

CN-10034

Description: This modification provided for the construction of a Conventional Sampling System (CT) lab extension to accommodate sample panels, electrical panels and analyzer. Power cabling, electrical panels, lighting, and other electrical equipment was also provided. This modification affects FSAR figures 10.4.8.2, 9.2.3-1, 9.3.2-7, and 9.3.2-10.

Safety Evaluation: This modification allowed for greater sampling capabilities in the CT lab to effectively monitor secondary side chemistry. No Safety System was adversely affected and no functional change was made to any plant system. This modification meets steam Generator owners group guidelines as identified in the FSAR and also meets INPO recommendations. No unreviewed safety question is introduced by this modification.

CN-10035

Description: This Unit 1 modification provided for: (1) the installation of conventional Sampling System (CT) local sampling panels in the turbine building; (2) rerouting samples to the CT laboratory annex; (3) additional sampling capabilities in the CT Laboratory annex; (4) a sampling path panel in the CT laboratory annex; and (5) a CT laboratory annex final cooling loop with pump. This modification affects FSAR figures 10.4.10-3, 10.4.10-4, 10.4.10-5, 10.4.10-6, 9.3.2-6, 9.3.2-7, and 9.3.2-9.

Safety Evaluation: These changes rendered the CT laboratory annex operational and permit effective monitoring of secondary side chemistry to prevent accelerated steam generator deterioration. This modification does increase plant reliability. No safety system was degraded and no functional change was made to any system as a result of the modification. These changes do not involve any unreviewed safety consideration.

CN-10102

Description: This modification relocated the 1/2-inch tubing inlet line for each Auxiliary Feedwater sump pump centrifugal separator so that the connection to the 2-inch sump pump discharge line is upstream of the discharge line check valve. This modification affects FSAR Figure 11.2.2-12.

Safety Evaluation: This modification is required to prevent flooding the Auxiliary Feedwater pits which could result in damage to safety related equipment. No safety system will be degraded nor will any functional changes take place. This modification does not involve any unreviewed safety question.

CN-10128

Description: This modification rerouted inputs to the thermocouple loop for two Unit 1 heater assemblies in the Hydrogen Skimmer System (VX) from existing locations on Westinghouse Hydrogen Recombiner Control Panel to a separate, non-safety panel. This panel was seismically mounted to assure operability in post-accident situations.

Safety Evaluation: This modification was required to correct an error in temperature indication on control panels which indicated 90°F to 94°F low. This modification is to enhance the ability of the operator to utilize hydrogen recombiner in a design basis event. The changes have no impact on normal operation of any safety or non-safety system. No functional change to any system is being introduced. This modification does not involve any unreviewed safety consideration.

CN-10159

Description: This Unit 1 modification provides for the addition of Babbitt chairwheel operators and chains to handwheels on several Component Cooling system valves. One valve was also moved slightly to prevent interference between a chain and a cable tray. This modification affects FSAR Figure 9.2.2-7.



Safety Evaluation: This modification allows for operation of the handwheels from a safer location. This modification does not adversely impact any safety or non-safety system. No functional change is introduced. This modification does not involve any unreviewed safety question.

CN-10287

Description: This modification installed Condensate System (CM) piping so that the condensate polisher demineralizer backwash tank can recirculate with the backwash pumps. An extra isolation valve was added on the outlet of the backwash tank. This modification affects FSAR Figure 10.4.7-9.

Safety Evaluation: This modification is needed to keep the pumps operating within their normal operating range and prevent an unmonitored release of potentially contaminated ion exchange resin. This modification does not increase the probability or consequences of an accident or malfunction previously evaluated or creates a new type of accident or malfunction. This modification does not introduce any functional changes to any system and no margin of safety is reduced. This modification does not involve any unreviewed safety question.

CN-10303

Description: This modification provided for the installation of narrow level range transmitters, including receiver gauges in parallel with Reactor Coolant System (NC) level transmitters 1NCLT5200 and 1NCLT6450. A permanent, heavy duty, accessible, sight glass vented to the NC system was added. The sight glass is connected or valved in only when draining the NC system below 12% level. This modification affects FSAR figures 5.1-1 and 5.1-2.

Safety Evaluation: This modification provided NC system level instrumentation to determine system water level while draining below 12% level. There are no failure modes for this modification which could result in the degradation of any equipment important to safety. The narrow range indication scale will fail safe in the "low" position on a loss of power. However, there is no common failure mode which could affect both trains of narrow range indication. In addition, the wide range indication would also be available. The narrow range indication is not QA Condition 1, and will not be used in any emergency procedures. This modification does not increase the initiation of any accidents or equipment malfunctions analyzed in the FSAR, and does not result in the creation of any new accidents. The initial conditions of the reactor coolant system and core are not affected, and the ability to mitigate accidents is also unaffected. This modification does not have any impact on the plant margin of safety as defined in the bases to the Technical Specifications. No unreviewed safety question is involved in these changes.

CN-10372

Description: This modification rerouted the Reactor Make-up Water Storage Tank (RMWST) and Boric Acid Tank (BAT) overflows to the Recycle Holdup Tanks (RHT) inlet header downstream of

the Boron Recycle System (NB) Feed Demineralizer's Filters. This modification allows the reclamation of clean deaerated and reactor makeup grade water through the NB system. This modification affects FSAR Figures 9.3.4-5, 9.3.5-1, 9.3.5-7, 11.2.2-13, 9.3.5-2, and 11.2.2-2.

Safety Evaluation: The previous overflow destinations did not provide sufficient capacity due to the difference in the volumes between the overflowing tanks and destination sump or tank. This created the possibility of spills and ALARA problems. This modification will prevent any spills of Reactor Makeup Water and therefore increase the reliability of the system. No safety system was degraded by implementation of this modification and no functional changes to any system were made. This modification does not involve any unreviewed safety question.

CN-10390

Description: This modification to the Solid State Protection System provided the capability to manually reset a main steam isolation signal due to low steam line pressure or high-high containment pressure while the signal is still present. This will enable Unit 1 to cooldown by remote operation from the control room by either steaming to the condenser or to the atmosphere following a small break loss of coolant accident or main steam line break inside containment. This modification affects FSAR figures 7.2.1-1, 10.3.2-1, and 10.3.2-4.

Safety Evaluation: If a second valid signal appears after the initiating signal clears, this modification would not prevent a main steam isolation from occurring. This modification has been determined: 1) Not to increase the initiating frequencies of any accident previously evaluated in the FSAR; and 2) Not to increase the consequences of any accident previously evaluated in the FSAR; and 3) Not to increase the probability or consequences of malfunction of equipment important to safety previously evaluated in the FSAR; and 4) Not to reduce the margin of safety as defined in the FSAR. This modification does not pose any unreviewed safety question.

CN-10433

Description: This modification replaced the Unit 1 air operated auxiliary pressurizer spray valve INV37A with a specially designed motor operated valve. Control circuitry was modified to produce an identical installation to Unit 2.

Safety Evaluation: This modification enhanced the operator's control capability and produced the desired identical installations on both units. No safety system was degraded and no functional changes were the result of the change. This modification does not pose any unreviewed safety question.

CN-10504

Description: This modification provided additional restraints to support the Unit 1 generator fuel oil and lube tubing.

Safety Evaluation: This modification is to reduce vibration of Diesel Generator's lube oil and fuel oil crossover headers to appropriate levels. These changes do not adversely affect the operability of the Diesel Generators and do not introduce any functional changes. This modification does not involve any unreviewed safety consideration.

CN-10568

Description: This modification added a secondary discharge line with isolation valve and tap into the existing discharge line between the discharge radiation monitor 1EMF34 and Nuclear Sampling System (NM) check valve 1NM245. This discharge line was routed to the nearest floor drain leading to sump D. The discharge line was embedded. This modification affects FSAR Figures 9.3.2-5 and 11.2.2-12.

Safety Evaluation: 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. This modification does not involve any unreviewed safety question.

CN-10600

Description: Unit 1 Containment Air Release and Addition System (VQ) transmitter 1VQFT5020 was replaced with a transmitter that is not affected by static pressure changes. This modification affects FSAR figure 9.5.10-1.

Safety Evaluation: Transmitter 1VQFT5020 did not function properly due to excessive static pressure. This modification increased the reliability of the VQ system. No plant system was adversely affected by this modification. No functional change to any plant system was involved. This modification did not pose any unreviewed safety question.

CN-10628

Description: This Unit 1 modification replaced affected Heater Drain System (HW) Fisher 4160 controller on valves 1HW181 and 1HW182 with Fisher Differential Pressure Controllers. Pressure gauges 1HWP16690167C0 were deleted. This modification affects FSAR Figure 10.4.10-1.

Safety Evaluation: The previous Seal Supply Pressure Control System could not provide positive seal pressure at all power levels due to increasing pump suction pressure with increasing load on the C Heater Drain Tank Pumps. This modification therefore protects the integrity of the C heater drain tank pump seals and increases system reliability. This modification does not adversely affect any plant system and does not introduce any functional change. This modification does not involve any unreviewed safety question.

CN-10639

Description: This modification provides for the replacement of Unit 1 Component Cooling System (KC) valves utilizing mechanically fastened seats instead of epoxy. Additionally, a

drain was installed between the valves to facilitate leak testing and maintenance. This modification affects FSAR figure 9.2.2-1.

Safety Evaluation: This modification provided for the installation of better equipment and therefore increased plant reliability. No safety system was degraded and no functional change was made to any system as a result of this modification. The changes do not involve any unreviewed safety consideration.

CN-10664

Description: This modification provided an interlock with reset capability to fail open Unit 1 Feedwater System (CF) recirculation valves to condenser 1CF6 and 1CF13 on low suction flow. This modification affects FSAR figures 10.4.7-7 and 10.4.7-10.

Safety Evaluation: The subject interlock provides quick opening of valves 1CF6 and 1CF13 to provide minimum flow regardless of the setpoint selected on the selector station. The main feedwater pumps will therefore be kept from tripping during plant transients. This modification increases plant reliability. The normal operation of the recirculation valves and the failure modes associated with a loss of control air are not affected by this modification. Accidents and equipment malfunctions, as addressed in the FSAR are neither created by nor affected by this modification, and no margin of safety, as defined in the bases to the Tech. Specs., is reduced. Therefore, no unreviewed safety questions, as defined in 10CFR50.59, are either created by or involved with this modification.

CN-10669

Description: This modification provided for the removal of existing field cable from affected Valcor 526 and V70900-39 valves. Removed wiring was replaced with high temperature wire and a junction box was placed no closer than 5 feet to the valve/for high temperature wire/field cable connection.

Safety Evaluation: This modification is in response to NRC Information Notice 84-68. The changes are intended to prevent potential degradation of field cable due to high temperature. This modification does not adversely affect any safety system. This modification does not involve any unreviewed safety consideration.

CN-10707

Description: This modification moved pressure switches 1LHPS-5700, 5710, 50720, 5730, and associated control packs from the main control valves to the main stop valves. Technical Specifications were amended prior to implementation of this modification. This modification affects FSAR Sections 7.2.1, 10.2.1, Table 7.2.1.1, and Figure 7.2.1-1.

Safety Evaluation: This modification prevents unnecessary reactor trips due to main turbine power-load unbalance signals which are unnecessarily generated when the subject pressure switches are located in the main control valves. Therefore,



this modification improved plant reliability. No safety systems were degraded and no functional changes were made to any system. This modification does not involve any unreviewed safety question.

CN-10735  
CN-20088

Description: These modifications provided for the addition of switches to the SSPS to allow the "Not P-10" function for 1 channel to be tripped whenever a Nuclear Instrument Power Range channel is removed from service.

Safety Evaluation: These modifications prevent a "Power Above P-10" signal from reaching the logic circuit if its switch is open. The "P-10" and "Not P-10" function can then be satisfied by any 2 of 3 operable channels. These modifications improve unit availability. These modifications do not involve any unreviewed safety consideration.

CN-10742  
CN-20092

Description: Units 1 and 2 Auxiliary Feedwater System (CA) turbine-driven pump discharge check valves were replaced with a better design in order to prevent backleakage. These modifications affect FSAR Figure 10.4.9-2.

Safety Evaluation: The flow characteristics of the replacement valves will not significantly affect system performance, and adequate flow can be delivered to the steam generators with the new valves in place. The design basis of the CA system will not be affected by replacement of these check valves. The probability of accidents or equipment malfunctions will not be increased by this modification and the ability to mitigate the consequences of accidents may actually be enhanced since the reliability of the CA system will be increased. No new types of accidents or equipment malfunctions are postulated and the margin of safety will not be reduced. Therefore, no unreviewed safety questions are created by or involved with this modification.

CN-10790

Description: This modification redesigned the layout of piping in the Chemical and Volume Control System (NV) filter rooms, replaced NV globe valves with double disk gate valves, provided shielding, and removed NV flushing valves and associated piping for NV filters A and B. This modification affects FSAR Figures 9.3.4-3 and 9.3.5-7.

Safety Evaluation: Prior to implementation of this modification, valves in the seal injection filter rooms could not be operated adequately with reach rods to close completely. Therefore, this modification improved the design of the NV filter rooms and increased plant reliability. No safety system was degraded as a result of this modification. This modification does not involve any unreviewed safety question.

CN-10820

Description: This modification provided remote control from outside containment for reactor coolant pump standpipe drain valves 1NV105, 106, 110, 111, 115, 116, 120, and 121 in the



Chemical and Volume Control System (NV). The manual valves which control the air supply to the drain valve operators were replaced with 3-way solenoid valves. Solenoid control switches were placed outside containment. This modification affects FSAR figure 9.3.4-6.

Safety Evaluation: There are no new failure modes introduced by replacing the manual control valves with the 3-way solenoid valves. The pneumatic drain valves will still fail in the manner specified on FSAR figure 9.3.4-6 should the solenoid valves malfunction or experience a loss of power. In addition, the standpipes are equipped with level alarms that could provide indication of a potential malfunction. This modification does not relate to the initiation of any accidents or equipment malfunctions analyzed in the FSAR, and does not result in the creation of any new accidents. The initial conditions of the reactor coolant system and core are not affected, and the ability to mitigate accidents is unaffected. This modification does not have any impact on the plant margin of safety as defined in the bases to the Technical Specifications. The reactor coolant pump standpipe drain valves are not addressed in either the FSAR or Technical Specifications. This modification does not involve any unreviewed safety consideration.

CN-10830  
CN-20177

Description: These modifications rerouted piping downstream of Unit 1 valve 1WL847 and Unit 2 valve 2WL847 to direct diverted flow directly to the Residual Heat Removal and Containment Spray rooms sump. These changes eliminate backflow into IEMF52 and reduce the volume of water to be processed by the Liquid Waste System (WL). This modification affects FSAR Figures 11.2.2-1, 11.2.2-2, 11.2.2-12, and 11.2.2-19.

Safety Evaluation: The Liquid Waste System cannot accept the floor draining Sump D water volume on a continuous basis as it was required due to contamination in IEMF52. These modifications prevented the unnecessary treatment of gross amounts of uncontaminated water. These modifications result in improved system efficiency and does not adversely affect any plant system. These modifications do not involve any unreviewed safety question.

CN-10927

Description: This Unit 1 modification replaced Auxiliary Feedwater System (CA) check valves 1CA157, 159, 161, and 163 due to maintenance problem. These valves are located in the main feedwater tempering/bypass lines to each steam generator. This modification affects FSAR figure 10.4.9.2.

Safety Evaluation: The design basis of the CA system was not affected by this modification and the modified system should prove to be more reliable, requiring less maintenance. The probability of accidents or equipment malfunctions was not increased by this modification and the ability to mitigate the consequences of accidents may actually be enhanced since the

reliability of the CA system was increased. No new types of accidents or equipment malfunctions are postulated and the margin of safety defined in the bases to Technical Specifications are not reduced. Therefore, no unreviewed safety questions are created by or involved with this modification.

CN-10944

Description: This modification provided the means to tie in temporary piping to provide cooling from the Unit 2 Component Cooling System (FC) to the Unit 1 Spent Fuel Cooling System (KF) Heat Exchanger. This modification covers only the installation of flanges and branch connections. This modification affects FSAR Figure 9.2.2-3.

Safety Evaluation: This modification allows for the repair of KC discharge cross-connects while the core is in the fuel pool and the Unit is in "no mode". No additional hangers are required to support these changes. This modification does not adversely affect any plant system and does not involve any unreviewed safety question.

CN-10981  
CN-10982  
CN-10994

Description: This Unit 1 modification provided for the replacement of Nuclear Water System (RN) valves RN 47A, RN 48B, RN 49A, RN 50B, RN 67A, and RN 69B with more reliable valves for isolation.

Safety Evaluation: The replaced valves allowed excessive seat leakage which could jeopardize unit startup and operation. Replacement of the valves represented no change to the reliability of the valves to operate as designed. The new valves increase overall plant reliability. No functional changes were introduced to any plant system. This modification does not involve any unreviewed safety consideration.

CN-11004  
CN-20395

Description: These modifications installed 6 inch drain lines on the Nuclear Service Water (RN) system piping. These drain lines were utilized to facilitate the replacement of the BIF butterfly valves. The BIF valves have rubber seals which are prone to separation from the valve body and allow leakage. These modifications affect FSAR Figures 9.2.1-2 and 9.2.1-7.

Safety Evaluation: There were two drain lines to be added by each modification. One drain line is class C and the other class F. The affected piping has been reviewed by the pipe stress group in Design Engineering. The addition of the drain lines did not significantly affect the pipe stress. Support/restraint loads increased at one location, but not enough to require rework of the support restraint. Based on the reanalysis of appropriate piping, these modifications will not increase the initiation of any accidents or the malfunction of any equipment as described in the FSAR. These modifications will not create accidents which are different than those previously analyzed in the FSAR. The consequences of accidents or malfunctions are not increased as a result of these

modifications. The margins of safety will not be reduced. Based on these considerations, these modifications are judged to involve no unreviewed safety questions.

CN-11026

Description: This modification provided for the welding of flanges on existing penetrations M-234 and M-452 for use during outages. A test connection with isolation valve was added so penetration may be leak tested.

Safety Evaluation: The flanged openings are to provide access for outage activities, such as steam generator shot peening or sludge lancing. This modification does not create the likelihood of any accident previously evaluated in the FSAR or different than evaluated in the FSAR. Containment integrity will be maintained. No new failure modes are postulated. No margin of safety as defined in Technical Specification was reduced as a result of this modification. These changes do not involve any unreviewed safety consideration.

CN-11033

Description: This modification installed a thermowell in the 4 inch Class E piping that serves as a recirculation line for both the 1A and 1B Containment Spray System (NS) heat exchangers. This thermowell is to be plugged when not being used for testing purposes. This modification affects FSAR figure 6.2.2-1.

Safety Evaluation: During normal operation, the recirculation line is isolated from the operating portion of the system by valves 1NS8 and 1NS25. Therefore, the addition of this thermowell does not affect normal system operation or have any effect on the probability, consequences, or possibility of new accidents evaluated in the FSAR. This modification does not affect the probability, consequence, or possibility of malfunctions of equipment important to safety evaluated in the FSAR. The margin of safety defined in the bases of Tech. Specs. is not affected by this modification. No unreviewed safety question is involved.

CN-11066

Description: This modification deleted the automatic transfer of the Nuclear Service Water System (RN) Supply Source (and return) to the Standby Nuclear Service Water Pond (NSNWP) on receipt of a containment High-High Pressure (Sp) signal. This change was required because the design of the RN system did not support operation within the bounds of the safety analysis. If a Unit is placed on Cold Shutdown, one emergency Diesel Generator (D/G) may be removed from service for an extended time period pursuant to Technical Specifications. If a Station Blackout and a simultaneous operating unit LOCA were to occur while in this condition, a simple failure of the RN pit supply valve on the opposite train from the inoperable D/G would result in the loss of both RN pumps on that train. The RN system would not support operation within the bounds of the safety analysis under such circumstances. Since the seismic design of the station precludes a seismic event causing a LOCA,

the simultaneous occurrence of a LOCA and a Station Blackout is not credible. Thus, it was determined that it is not necessary to automatically transfer RN suction to the SNSWP in the event of a LOCA. This modification affects FSAR Sections 7.4.2 and 9.2.1, and Figures 9.2.1-1, 9.2.1-2, 9.2.1-3, 9.2.1-6, and 9.2.1-10.

Safety Evaluation: Should Lake Wylie be lost during a LOCA, RN will still be automatically re-aligned to the SNSWP upon receipt of a low-low pit level signal, and the removal of the controls of Sp would not represent a significant reduction in redundancy with regard to the swapover function. Removal of the S<sub>1</sub> signal contacts from the controls of the swapover valves would eliminate unnecessary alignments of RN to SNSWP during a LOCA without loss of Lake Wylie. This results in an increase in reliability of RN with respect to the automatic swapover function. No unreviewed safety question is created or involved as a result of this modification.

CN-11069  
CN-20454

Description: These modifications install a seal-in logic into the diesel generator emergency start circuits to keep the emergency start relays energized during a blackout or a LOCA with coincident blackout. This will keep the non-emergency diesel generator trips blocked during a blackout even if the emergency start signal is reset. When offsite power is restored, the seal-in circuit will automatically open and reenables the non-emergency trips. These modifications affect FSAR section 8.3.1 and Figure 9.5.6-1.

Safety Evaluation: The EQB is an accident mitigation system and is not the initiator for a loss of off-site power accident, therefore this modification will not increase the probability of any FSAR evaluated accident. The sequencer will not be changed, therefore the consequences of any FSAR evaluated accident will not be increased. The modifications eliminate the possibility of a diesel trip due to a non-emergency condition whenever a safety injection signal has been received and a blackout exists, and the circuit changes will not create any new failure modes, therefore the possibility of consequences of a previously evaluated equipment malfunction is not increased and the possibility of a different equipment malfunction or accident will not be created. A potential degraded safety function is being eliminated by this modification, therefore the margin of safety as defined in the Technical Specifications will be maintained. These modifications do not involve any unreviewed safety considerations.

CN-11085

Description: This modification installed a drain valve upstream of the Nuclear Sampling System (NM) 1NM6A bypass line discharge. This modification was intended to facilitate the drainage of Containment Penetration M-235 for Type C leak rate testing. This change affects FSAR figure 9.3.2-1.



Safety Evaluation: The addition of a QA-1 drain line to the instrument line does not make any accident postulated in the FSAR more probable or increases the consequences of any accident. No new failure modes or operating characteristics are created by this modification. This change does not adversely affect any plant system and no margin of safety is reduced. This modification does not involve any unreviewed safety question.

CN-11091

Description: This modification provided for the replacement of the Chemical and Volume Control System (NV) tube bundle in NV letdown heat exchanger. This modification affects FSAR figure 9.3.4-1.

Safety Evaluation: This change was intended to replace the tube bundle from the letdown heat exchanger due to tube damage. This modification increased overall plant reliability. No safety system was adversely affected by this modification and no functional change was introduced. This modification does not involve any unreviewed safety consideration.

CN-20001

Description: This Unit 2 modification modified the Condensate System Demineralizer (CM) piping downstream of the Condensate Polishing Demineralizers (CPD) backwash tank resin pump. A curb was also installed around the resin cask loading area, and other changes were made to accommodate the vendor package used to process spent resin from the CPD backwash tank. A mist eliminator was installed on the CPD backwash tank atmospheric vent. This modification affects FSAR Figure 11.4.2-2.

Safety Evaluation: A steam generator tube leak would result in the contamination of resin in the condensate polishing demineralizers. This modification is required to allow disposal of contaminated spent resin and prevent the loss of polisher backwash capacity and eventual loss of the polisher. This modification therefore improves plant reliability. This modification does not adversely impact any safety or non-safety system. No unreviewed questions are involved.

CN-20212

Description: The Unit 2 Diesel Generator's external lube oil line supports were modified to provide additional axial and lateral support.

Safety Evaluation: This modification is to prevent excess vibration and movement in vendor piping connected to the Diesel Generators. These changes do not adversely affect the operability of the Diesel Generators and do not introduce any functional changes. This modification does not involve any unreviewed safety consideration.

CN-20386

Description: This modification provided for the installation of a dessicant filter kit on Feedwater System (CF) valves 2-CF 33, 42, 51, and 60.



Safety Evaluation: This modification is intended to prevent corrosion build-up on pieces of the manifold assembly which could prevent actuator closure for the affected valves. These changes therefore increase overall plant reliability. This modification does not adversely affect any safety system and it does not introduce any functional changes. This modification does not involve any unreviewed safety consideration.

CN-20442

Description: This modification provided for the installation of a line from Safety Injection System valve 2N1-208 to the item leak-off line downstream of 2NBFS-6460 with a throttle valve, test drain, and isolation valve. This way leakage from the cold leg injection check valves is routed to the Recycle Holdup Tank.

Safety Evaluation: This modification provides a permanent resolution of the Cold Leg Injection Valve Leakage. This modification increases overall plant reliability. No safety system was degraded as a result of these changes. This modification does not involve any unreviewed safety consideration.

CN-50082

Description: This modification provides for the removal of Liquid Waste Recycle System (WL) check valve 1WL-168. Check valve 1WL-168 will not allow a flowpath from the Waste Evaporator Feed Tank (WEFT) to the Waste Monitor Tank (WMT). By removing this valve and piping the section up, processing could occur from the WEFT to the WMT's. This modification affects FSAR Figures 11.2.2-4 and 11.2.2-5.

Safety Evaluation: This modification would allow Radwaste to clean up the water from the WEFT more efficiently by processing directly through the demineralizer train and another filter train to the WMT's. This modification does not affect any accident addressed in the FSAR. The new flowpath does not result in a failure mechanism not previously anticipated, and no equipment needed for a safety function is affected. This modification does not involve any unreviewed safety question.

CN-50102

Description: This modification replaced Liquid Waste Recycle System (WL) flow meter CNOWLFE6080 and associated flow totalizer with a Jacoby-Tarbox sight flow indicator. The connecting pipe was increased to 2 inches. This modification affects FSAR figure 11.2.2-13.

Safety Evaluation: CNOWLFE 6080 had a tendency to clog and restricted flow. This modification reduces clogging in the line and therefore increases system reliability. No safety system was degraded by these changes and no functional change was made to any system. This modification does not involve any unreviewed safety consideration.

CN-50116

Description: This modification provided for the addition of a relief valve test bench on the Service Building Machine Shop to allow testing of relief valves. This modification also

provided for required sources of demineralized water (YM) and compressed air supply (VS). This modification affected FSAR Figure 9.2.3-6.

Safety Evaluation: Improper test equipment and testing procedures may lead to a misinterpretation of relief valve action. This modification provided adequate testing equipment and thus increased plant reliability. This modification does not adversely affect any plant system and no functional change to any plant system was introduced. This modification does not involve any unreviewed safety question.

CN-50135

Description: This modification provided for the filling with grout, lead, or wool of a total of 702 existing unused openings in walls of the Auxiliary Building. Such modification was undertaken to limit personnel radiation exposure ALARA.

Safety Evaluation: Openings were filled to eliminate potential radiation hazard and to satisfy shielding requirements. This modification did not degrade or introduce any functional change to any plant system. These changes do not involve any unreviewed safety consideration.

CN-50188

Description: This modification provided for the installation of catchment sumps, yard drainage piping, ladders to sumps, equipment supports, and level indicators in order to provide a secondary containment for yard drains and to prevent overflow of the cooling towers. More screening was installed on the top of the cooling tower to remove Amertap balls. A diffuser was installed in the cooling tower basin. A common Hi-Hi Basin Level Alarm was installed for the cooling towers. This modification affects FSAR Figures 9.2.8-1, 9.5.11-1, and 9.5.11-2.

Safety Evaluation: This modification provides a secondary containment for the yard drains and is intended to prevent overflow of the cooling towers. No safety system is degraded as a result of these changes. This modification will prevent unauthorized discharges into Lake Wylie and the Standby Nuclear Service Water Pond. This modification does not involve any unreviewed safety consideration.

CN-5355

Description: This modification provided alternate locking methods for kerotest manual glove valves.

Safety Evaluation: This modification allows the option of adding locking devices to affected valves. This modification provides added assurance that valves will not be misaligned and that the consequences of a malfunction will be mitigated as expected. This modification does not change the function of any affected plant system. This modification does not involve any unreviewed safety consideration.

CATAWBA NUCLEAR STATION

SUMMARY OF EXEMPT VARIATION NOTICES  
COMPLETED UNDER 10 CFR 50.59 DURING 1987

CE-0042

Description: This Unit 1 modification changed the setpoint on time delay relays 1VXTD1(CB), 1VXTD2(CB), 1VXTD11(EB), and 1VXTD21(EB) from 10 to 9 minutes to agree with Technical Specification 4.6.5.6.1.a. This modification affects FSAR Section 9.4.1 and Figure 9.4.10-1.

Safety Evaluation: This modification only involves revising set points on existing time delay relays to agree with the Technical Specification Requirement 4.6.5.6.1.a. The probability or consequences of an accident previously evaluated, or different than any already evaluated, in the FSAR will not be increased since the Technical Specifications are the basis of station operation including all accident situations. Nor will the probability or consequences of an equipment malfunction previously evaluated, or different than any already evaluated, in the FSAR be increased due to the time delay relay set point revision. In the event of any single active failure, this revision will not affect the integrity and availability of one train of the containment air and hydrogen skimmer fans. The margin of safety as defined in the bases to any Technical Specification will not be affected since this modification represents an administrative change bringing the FSAR to agreement with the Technical Specifications. Therefore, this modification does not involve any unreviewed safety question.

CE-0121

Description: This variation notice changed the size of Heater Drain System (HW) orifice plates 1HWFE5190 and 1HWFE5230 from 1.390 inches to full bore of the pipe. These changes affect FSAR figure 10.2.2-1.

Safety Evaluation: This variation notice reduced high vibration in the 'c' Heater pump minimum flow line by enlarging the subject orifice plates. This variation notice enhanced overall plant reliability and did not adversely affect any safety system. These changes do not involve any unreviewed safety consideration.

CE-204

Description: This variation notice provided for the routing of sample room drain lines to an existing Unit 1 Liquid Waste Recycle System (WL) header downstream of valve 2WL252. This modification involves FSAR figure 11.2.2-2.

Safety Evaluation: This modification eliminates piping interferences and thus results in an increase in overall plant reliability. The change does not adversely affect any safety system or introduce any functional changes to safety system.

This variation notice does not involve any unreviewed safety consideration.

CE-0272      Description: This variation notice provided for the addition of heat tracing equipment in the Makeup Demineralizer Water System. This modification affects FSAR figure 9.2.3-2.

Safety Evaluation: This variation notice provided for improvements to the Makeup Demineralizer Water System. This change does not adversely affect any safety system. No unreviewed safety question is involved.

CE-0285      Description: This modification provided for the increase of the size of the gravity drain header located in the Conventional Sampling System (CT) lab. This variation notice affects FSAR figure 9.3.2-7.

Safety Evaluation: This modification improved drain performance and protects CT lab equipment from water damage. Overall plant reliability is improved by this variation notice. No unreviewed safety question is introduced by this change.

CE-0343      Description: This variation notice deleted vendor supplied Diesel Generator (D/G) engine lube oil sump tank level gage from the D/G engine control panel. This modification affects FSAR figures 9.5.7-1, 9.5.7-2, and 9.5.7-3.

Safety Evaluation: The affected equipment would not stay in calibration and supplied unreliable information. A separate gage is mounted on the nearby wall which provides the same local indication with greater reliability. This modification does not reduce any margin of safety. This variation notice does not involve any unreviewed safety consideration.

CE-0353      Description: This variation notice provided root valves, end caps and associated piping to the Feedwater Pump Turbine exhaust basket taps on A and B turbines. These changes affect FSAR figure 10.3.2-3.

Safety Evaluation: These changes allowed for Main Feedwater Turbine exhaust pressure measurements which were required for the Turbine Acceptance Test. These changes did not adversely affect any safety system. This variation notice does not involve any unreviewed safety considerations.

CE-0384      Description: This variation notice updated affected documents to indicate that a Fisher 14-948 thermometer is used to verify control room temperature is less than 90°F once every 12 hours as required by technical specifications. This variation notice affects FSAR figure 9.4.1-2.

Safety Evaluation: This variation notice reflects usage of instrumentation to verify control room temperature as required by Technical Specifications. This modification has no effect

on the operation of any safety related equipment. This change does not involve any unreviewed safety consideration.

CE-0478

Description: This variation notice provided for the addition of a tee, a ball valve, and a threaded nipple to the Unit 2 Drain/Overflow line from the Reactor Makeup Water Storage Tank. This variation notice affects FSAR figure 9.3.5-8.

Safety Evaluation: Addition of the subject equipment was required to purge air from the drain line and allow for proper drainage. These changes do not adversely affect any safety system or introduce any functional changes to any such system. This modification improved overall plant reliability. This variation notice did not involve any unreviewed safety question.

CE-0510

Description: This variation notice provided for the revision of the circuitry for Component Cooling System (KC) valves 2KC056A and 2KC081B to minimize the possibility of pump runout upon the failure of one train of KC pumps by using containment isolation phase "B" signal instead of an engineered safety signal to open the valves. This modification affects FSAR Section 9.2.2.

Safety Evaluation: This variation notice was intended to reduce the possibility of pump runout, and therefore it improved overall plant reliability. The redesign of valve 2KC050A and 2KC021B did not involve any unreviewed safety question.

CE-0517

Description: This variation notice recalibrated Nuclear Service Water System (RN) instrumentation required to obtain correct RN pump flow discharge indications. This variation notice affects FSAR Table 9.2.1-1.

Safety Evaluation: This variation notice allows for correct indications which provide increased pump protection by the operator knowing the actual discharge flow. This change does not adversely affect any plant equipment. This modification does not involve any unreviewed safety consideration.

CE-0518

Description: This modification was initiated to recalibrate Nuclear Service Water System (RN) instrumentation in order to provide accurate RN pump flow discharge indications. This change affects FSAR Table 9.2.1-1, page 1.

Safety Evaluation: Recalibration of flow monitor indication allows for correct indication which provides increased pump protection. This change does not degrade any safety system or results in any functional change to any plant system. No new equipment malfunction possibilities are created. This modification does not involve any unreviewed safety question.



CE-0537

Description: This modification provided for the installation of Nuclear Service Water System (RN) valves to allow for installation of the Wet layup system. This variation notice affected FSAR figures 9.2.1-5 and 9.2.1-9.

Safety Evaluation: The valves and lines added were drain lines which do not affect the operation of the RN system. The valves and piping met the requirements for class "C" piping and all class "C" joints were hydrostatically tested to ensure their integrity. Flow restrictors and check valves were added to the lines to ensure that room flooding criteria would not be exceeded. The additional valves and piping have been evaluated for seismic concerns and were found to be satisfactory. This change does not increase the probability or consequences of an accident previously evaluated in the FSAR, nor does it increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. This change does not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. This change will not reduce the margin of safety as defined in any Technical Specification bases. This variation notice does not involve any unreviewed safety question.

CE-0557

Description: This variation notice revised Conventional Low Pressure Service Water System (RL) to reflect the replacement of temporary test piping with blind flanges. This modification affects FSAR figure 9.2.8-4.

Safety Evaluation: This modification does not involve any physical work. The revised drawings reflect actual pipe configurations. This change does not introduce any modification to any safety system and it does not involve any unreviewed safety consideration.

CE-0584

Description: This Variation Notice provided for the addition of branch lines and isolation valves upstream and downstream of the Unit 1 Radwaste Transfer Pump to allow for the installation of a temporary Radwaste Transfer Pump. These changes affect FSAR figure 11.4.2-4.

Safety Evaluation: Addition of the branch lines for temporary pump connection does not affect accident probability or consequences. These changes do not affect margins of safety. No functional change is involved. This Variation Notice does not involve any unreviewed safety consideration.

CE-0598

Description: This modification revised affected drawings to correct an error in tagging. The changes made to drawings reflect the actual as built condition of the Reactor Coolant Drain Tank pumps. This variation notice affects FSAR figure 11.2.2-17.

Safety Evaluation: These changes reflected actual as built plant conditions and did not affect the function of the subject pumps or associated instruments and valves. Pump function or reliability were not affected and the probability or severity of consequences regarding any accident or malfunction were not increased. These changes do not involve any unreviewed safety question.

CE-0604

Description: This variation notice changed the status of Safety Injection System (SI) Unit 1 valves 1N1-350, 357, 358, and Unit 2 valves 2N1-356, -357, and -358 from normally closed to normally open. These changes affect FSAR figure 6.3.2-5.

Safety Evaluation: These valves were required to be opened before the Upper Head Injection Makeup and Testing Pump was operated. These changes saved operator time. The Upper Head Injection Testing and Makeup Pump are isolated by its discharge valve. This variation notice does not involve any unreviewed safety consideration.

CE-J646

Description: This modification revised Duke Power documents and flow diagrams to reflect the previous installation of a 0-160 psi pressure gauge on the outlet part of Hydrogen Bulk Storage System pressure regulating valve 1GS110. Additionally, a test tee and isolation valve for the pressure gauge were added. This variation notice affects FSAR Figure 10.2.2-2.

Safety Evaluation: Previous addition of the gauge improved the H2-O2 generator system from both a safety and operational standpoint by providing local indication of the outlet pressure of valve 1GS110. The additional changes and updating of flow diagrams did not degrade any safety system or introduced any functional change. This modification does not involve any unreviewed safety considerations.

CE-0649

Description: This variation notice changed the position of Unit 2 Liquid Waste Recycle System (WL) valve 2WL874 to normally open and the position of WL valve 2WL873 to normally closed. These changes affect FSAR figure 11.2.2-18.

Safety Evaluation: These changes divert flow away from the turbine building sump. These changes do not increase the probability of equipment malfunctions or their consequences. No safety margins were reduced as a result of these changes. This modification does not involve any unreviewed safety considerations.

CE-0687

Description: This variation notice revised flow diagrams to reflect the actual connections on affected Fire Protection System (RF) instruments. This modification affects FSAR figure 9.5.1-8.

Safety Evaluation: This variation notice revised flow diagrams to reflect as-built conditions and did not involve any physical

modification. This change does not involve any unreviewed safety question.

CE-0690

Description: This variation notice installed a drain line at the inlet of Liquid Waste Recycle System (WL) radiation monitor 2EMF52 and a vent line at the outlet of the monitor. This modification involves FSAR figure 11.2.2-19.

Safety Evaluation: These changes allow for the proper sampling and flushing of the monitor and reduces the amount of liquid radwaste for processing. This variation notice does not increase the probability or consequences of an accident previously evaluated in the FSAR nor does it increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. This change does not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. This variation notice does not involve any unreviewed safety consideration.

CE-0704

Description: This modification provided for the installation of flanges in the drain piping for the tube side of the Containment Spray System (NS) heat exchangers 1A and 1B to allow disassembly for maintenance and inspections. This modification affects FSAR Section 6.2.2.2.

Safety Evaluation: This modification is intended to allow easier access for maintenance and inspections. This modification does not involve any functional change to any plant system. The possibility, probability, or consequences of an accident or equipment malfunction were not increased by these changes. No reduction to margins of safety was created. This modification does not pose any unreviewed safety question.

CE-0711

Description: This modification revised affected documents to allow the installation of Polyvinylidene Fluoride P.S. 177 class H (PVDF) piping as a replacement of drain lines from the Makeup Demineralizer Acid Day Tank due to various acid leaks. This modification affects Figure 9.2.3-5.

Safety Evaluation: Revising the affected documents allowed the installation of PVDF piping which is more suitable for the subject application. This change does not increase the probability or consequences of an accident previously evaluated in the FSAR nor does it increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. This change does not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. This change will not reduce the margin of safety as defined in any Technical Specification bases.

CE-0714

Description: This Variation Notice revised affected drawings to reflect the movement of Conventional Sampling System (CT) sample valves CT4, 10, 15, 20, 199, 25, 36, and 41 downstream of the final heat exchanger for each sample point. These changes affect FSAR figures 9.3.2-6 and 9.3.2-7.

Safety Evaluation: This change reflects as built conditions. The reflected changes allowed for more accurate sampling methods which improved overall secondary system reliability. This change does not increase the probability or consequences of an accident previously evaluated in the FSAR, nor does it increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. This change does not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. This change does not reduce the margin of safety as defined in any Technical Specification bases. This Variation Notice does not involve any unreviewed safety consideration.

CE-0719  
CE-0723

Description: These variation notices added a new valve and associated tubing in order to provide a new Conventional Sampling System (CT) sample point. This modification affects FSAR figures 9.3.2-7 and 9.3.2-8.

Safety Evaluation: These changes allow more accurate calibration of sampling instrumentation which improves CT Lab operation and overall plant reliability. These changes do not increase the probability or consequences of an accident previously evaluated in the FSAR, nor do they increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. These changes do not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. These changes do not reduce the margin of safety as defined in any Technical Specification bases. These variation notices do not involve any unreviewed safety consideration.

CE-0720

Description: This Variation Notice revised FSAR Figures 9.3.2-7 and 9.3.2-10 to reflect a Makeup Demineralizer Water System (YM) supply line which is routed to the Unit 1B Steam Generator Sodium Analyzer Sample line.

Safety Evaluation: The YM supply line allows more accurate sodium analyzer calibration which improves the Conventional Sampling System (CT) Lab operation and overall plant reliability. This change does not increase the probability or consequences of an accident previously evaluated in the FSAR, nor does it increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. This change does not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. This



change does not reduce the margin of safety as defined in any Technical Specification bases. No unreviewed safety question is involved.

CE-0722

Description: This variation notice provided for the removal of Conventional Sampling System (CT) valve CT-237 and associated tubing. This change affects FSAR figure 9.3.2-7.

Safety Evaluation: This change removes a line that is not required for proper CT Lab operation. This change does not increase the probability or consequences of an accident previously evaluated in the FSAR, nor does it increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. This change does not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. This change will not reduce the margin of safety as defined in any Technical Specification bases. This variation notice does not involve any unreviewed safety considerations.

CE-0734

Description: This variation notice provided for the replacement of a threaded nipple and cap downstream of Chemical and Volume Control System valve INV-902 with a tubing connector and tubing plug. This variation notice affects FSAR figure 9.3.4-1.

Safety Evaluation: This modification simplified future additions of a pressure controller and associated tubing at the affected location. The subject changes do not adversely affect operation of safety related structures, systems, or component. These changes do not involve any unreviewed safety consideration.

CE-0934

Description: This variation notice relocated the flow restricting orifice between Condensate System (CM) valve 1CM839 and the condenser. This change affects FSAR figure 10.4.7-11.

Safety Evaluation: Relocation of the orifice was intended to eliminate steam erosion of a piping elbow located at the previous orifice outlet. This modification did not involve any safety related equipment. No unreviewed safety question was created as a result of this modification.

CE-0943

Description: This variation notice provided for the addition of flanges in place of pipe caps downstream of Nuclear Service Water System valves 1RNC11 and 1RNC14. These changes affect FSAR figures 9.2.1-9 and 9.2.1-10.

Safety Evaluation: These changes facilitate the usage of the subject valves to drain the RN headers. This variation notice does not affect safety related structures, systems, or components, and no safety system was degraded. This modification did not involve any unreviewed safety question.



CE-0960

Description: This variation notice changed the valve position of Boron Recycle (NB) valves 1NB-459, 2NB-459, 1NB-460, and 2NB-460 shown on flow diagrams in order to reflect operating procedures. This modification affects FSAR figures 9.3.5-7 and 9.3.5-8.

Safety Evaluation: The subject valves were realigned to reduce line pressure to that of the Reactor Makeup Water Storage Tank (RMWST) which will prevent relief valves 1NB-333 and 2NB-333 from lifting as when they were under RMWST pump discharge pressure. No degradation or functional change will be made to any safety system. This variation notice does not involve any unreviewed safety consideration.

CE-0967

Description: This variation notice removed heater circuit fuses at motor control centers for all quality assurance "Condition 1" limotorque valves.

Safety Evaluation: The removal of the fuses will deenergize heaters in the limotorque valve operators at Catawba in order to preclude degradation of environmentally qualified valve internal wiring. This variation notice does not adversely affect any safety system. This modification does not involve any unreviewed safety consideration.

CE-0974

Description: Liquid Waste Recycle System (WL) valve 1WL-151 was replaced with a different globe valve which has a larger opening. This variation notice affects FSAR figure 11.2.2-4.

Safety Evaluation: 1WL-151 was catching trash particles from the WL system and becoming clogged. This modification prevents clogging of the line which would otherwise interrupt recirculation flow to the Floor Drain Tank. This variation notice enhances overall plant reliability. No adverse changes and no functional modifications to any safety system were involved. This modification does not involve any unreviewed safety consideration.

CEVN-1018

Description: This Variation Notice allowed Nuclear Service Water System (RN) Unit 1 valves 1RN-59, 60, 61, 62, 64, and 65 and Unit 2 valves 2RN-C51, C52, C53, and C54 to be locked in their open position. This change affects FSAR figure 9.2.1-2.

Safety Evaluation: The listed valves are required to be open to allow flow through essential equipment. Operating procedures verify that the valves are secured in the proper position. Securing each valve in the correct position does not involve any unreviewed safety consideration.

CE-1075  
CE-1076

Description: These Units 1 and 2 variation notices were initiated to install a pressure gauge in the 1" vent line off the Reactor Makeup Water Storage Tanks RMWST downstream of valves 1/2NB248. This gauge will be monitored periodically by

Operations personnel to provide indication of the tank pressure condition. These modifications affect FSAR Section 9.3.5.

Safety Evaluation: These modifications do not increase the probability or consequences of an accident previously evaluated in the FSAR, nor do they increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. These changes do not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. These changes will not reduce the margin of safety as defined in any Technical Specification bases. No unreviewed safety question is involved.

CE-1094

Description: This variation notice provided for the addition of two thermometers in the Control Room area to monitor temperature near the Solid State Protection System (SSPS) cabinets. This change affects FSAR figure 9.4.1-2.

Safety Evaluation: This change was required to place the station in full compliance with Technical Specification 3.7.6. No safety system was adversely affected and no functional changes to any plant system was involved. The Technical Specification bases were not affected. This change does not involve any unreviewed safety consideration.

CE-1104  
CE-1116

Description: These Unit 1 Variation Notices provided for the installation of a pressure gauge to measure Hotwell Pumps 1A, 1B, and 1C seal injection pressures. These changes affect FSAR figure 10.4.7-1.

Safety Evaluation: These modifications provided the capability to monitor Hotwell Pump 1A, 1B, and 1C seal injection pressures. Therefore, overall plant reliability is improved. These modifications do not adversely affect any safety system or introduces functional changes to any plant system. These Variation Notices do not involve any unreviewed safety consideration.

CE-1108  
CE-1109

Description: This variation notice installed a barrier around the Containment Air Return and Hydrogen Skimmer (VX) fans motors' pits to reroute water to the proper drainage point following a LOCA in which Containment Spray (NS) actuates.

Safety Evaluation: Since the modification is intended to prevent a postulated accident from occurring, neither the probability nor the consequences of an accident previously evaluated in the FSAR is increased. Since the structures being used to reroute the water are anchored properly and do not actively participate to mitigate any accident, no new accident is created nor is the probability or consequences of malfunction of safety related equipment increased. Also, no new possibility of malfunction of safety related equipment is created and the structures do not affect any margin of safety.

to any Technical Specification. This variation notice does not involve any unreviewed safety consideration.

CE-1140

Description: This variation notice provides the option to leave the flange ring inserts permanently installed into existing tapped holes in the nozzle flange rings which are located in the Steam Generator hot and cold leg nozzle openings.

Safety Evaluation: The option to leave flange ring inserts permanently installed facilitates usage of Steam Generator nozzle dams during outages. The inserts do not adversely impact any equipment important to safety and do not reduce the margin of safety as defined in the basis for any Technical Specification. This variation notice does not involve any unreviewed safety consideration.

CE-1208

Description: This variation notice provided for the option to insert a helicoil in the hanger of Auxiliary Feedwater System (CA) valve 1CA057 due to previous damage to the valve's hanger pin plug hole.

Safety Evaluation: The helicoil will be installed to allow proper installation of hanger pin plug made of appropriate material. This plug keeps the valve flapper hinge pin securely in place. The installation of the helicoil will ensure proper operation of the valve. Since the modification will ensure proper operation of the valve, neither the probability nor the consequences of an accident previously evaluated in the FSAR will be increased. No new accident will be created nor will the probability or consequences of malfunction of safety related equipment be increased. Also, no new possibility of malfunction of safety related equipment is created and the installation of the helicoil will not affect any margin of safety to any Technical Specifications. This variation notice does not involve any unreviewed safety consideration.

CE-1221

Description: This variation notice allowed for the substitution of the Hochiki detector model S1F24F and base HS2 for the previously used Rixson firemark model 9620.

Safety Evaluation: The previously used detectors are no longer produced. The Hochiki detector has all required features. This variation notice will not adversely affect any safety related system. This change does not involve any unreviewed safety consideration.

CE-1242

Description: This variation notice reflects the removal of the internals of Liquid Waste Recycle System (WL) check valve 1WL-446. This change affects FSAR figure 11.2.2-1.

Safety Evaluation: Leaving the valve 1WL-446 internals out is acceptable and does not affect the operability of the station. This variation notice revised affected documents to reflect the

removal of the internals. This change does not increase the probability or consequences of an accident previously evaluated in the FSAR, nor does it increase the probability or consequences of a malfunction of safety related equipment as previously evaluated in the FSAR. This change does not create any new accident scenarios or any new possibilities of safety related equipment malfunction different than those evaluated in the FSAR. This change will not reduce the margin of safety as defined in any Technical Specification bases. This variation notice does not involve any unreviewed safety consideration.



CATAWBA NUCLEAR STATION  
NUCLEAR STATION MODIFICATIONS  
COMPLETED IN RESPONSE TO NUREG-0737  
SUPPLEMENT 1 DURING 1987

The following Nuclear Station Modifications were completed during 1987 and corrected Human Engineering Deficiencies (HEDs) identified in NUREG-0737, Supplement 1:

CN10025	CN10240	CN10243	CN10498
CN10536	CN10537	CN10538	CN10539
CN10540	CN10541	CN10542	CN10543
CN10544	CN10545	CN10546	CN10547
CN10548	CN10549	CN10550	CN10551
CN10553	CN10554	CN10555	CN10556
CN10557	CN10558	CN10559	CN10562
CN10873	CN10049	CN10267	CN10210
CN10306	CN50074	CN50207	
CN20221	CN20222	CN20223	CN20224
CN20225	CN20226	CN20227	CN20228
CN20229	CN20230	CN20231	CN20232
CN20233	CN20235	CN2023C	CN20237
CN20238	CN20239	CN20240	CN20241

Description: The preceding modifications corrected HEDs identified as part of the Control Review Process. The subject modifications also meet License Conditions Nos. 11 and 7 to Operating Licenses NPF-35 and NPF-52, respectively, and fulfill commitments made in Duke Power's response to NUREG-0737, Supplement 1.

Safety Evaluation: The subject modifications were the result of Control Review Activities. These modifications do not adversely impact any plant system and do not involve any unreviewed safety consideration.

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

OP/O/A/6400/06C

Nuclear Service Water System: This change replaces a procedure enclosure to clarify nuclear service water system operability with one unit in cold shutdown and the other unit operating with one diesel generator out-of-service for an extended period. This change results from revised design engineering calculations and rebalancing of nuclear service water system flow rates. The affected section of the FSAR is 9.2. This change does not involve any unreviewed safety question.

OP/O/B/6450/18

Radwaste Area Air Conditioning and Ventilation Systems: This change deletes and changes references to the radwaste area chilled water system for the counting room HVAC. The counting room HVAC is no longer served by this chilled water system but now has a separate and dedicated DX (direct expansion) cooling system. The affected section of the FSAR is 9.4.3.2.5. This change does not involve any unreviewed safety question.

OP/1/A/6550/02

Diesel Generator Lube Oil System: This change describes and provides direction for lube oil addition by the mechanical maintenance group in lieu of oil addition via the lube oil system. The lube oil system cannot be used for oil makeup until a 5 micron filter is installed by modification. The affected section of the FSAR is 9.5.7.2.1. This change does not involve any unreviewed safety question.

OP/2/A/6550/02

Diesel Generator Lube Oil System: This change describes and provides direction for lube oil addition by the mechanical maintenance group in lieu of lube oil addition via the lube oil system. The lube oil system cannot be used for oil makeup until a 5 micron filter is installed by modification. The affected section of the FSAR is 9.5.7.2.1. This change does not involve any unreviewed safety question.

PT/O/A/4400/08

Nuclear Service Water Flow Balance For Degraded Mode: The purpose of this change is to balance flows to ensure that various components served by the nuclear service water system are within the new design flow rate acceptance criteria. Furthermore, after successful completion of this test, the system will be able to perform its intended function after loss of one train of nuclear service water, which is more conservative than the FSAR assumption of a single failure. The affected sections of the FSAR are Table 9.2.1-2, and section 6.2.1.1.3.1. This change does not involve any unreviewed safety question.

TN/2/A/C454/00/AL1 Procedure for Implementation of NSM CN-20454 Rev. 0 Work Unit A (Diesel Generator 2A): This circuitry modification eliminates the possibility of a diesel trip due to a non-emergency condition whenever a safety injection signal has been received and a blackout condition exists. The circuitry modification will not create any new failure modes. The circuitry modification will not block the non-emergency trips during monthly diesel testing. This ensures that the diesel will not be unnecessarily subjected to damage. The affected sections of the FSAR are 8.3.1.1.1.4, 8.3.1.1.2.1, and 8.3.1.1.3.4. This procedure does not involve any unreviewed safety question.

TN/2/A/0454/00/BL1 Procedure for Implementation of NSM CN-20454 Rev. 0 Work Unit B (Diesel Generator 2B): This circuitry modification eliminates the possibility of a diesel trip due to a non-emergency condition whenever a safety injection signal has been received and a blackout condition exists. The circuitry modification will not create any new failure modes. The circuitry modification will not block the non-emergency trips during monthly diesel testing. This ensures that the diesel will not be unnecessarily subjected to damage. The affected sections of the FSAR are 8.3.1.1.1.4, 8.3.1.1.2.1, and 8.3.1.1.3.4. This procedure does not involve any unreviewed safety question.

PT/0/B/4700/13 Radwaste Chemistry Weekly Inspection for System Leakage and Cleanliness: This change clarified requirements for action to verify lack of leakage from areas where entry was prohibited due to high radiation, including alternate means such as floor drain leak detectors and water spillage near door curbs. This change involves no unreviewed safety question and affects no sections of the FSAR. The safety evaluation question checked yes indicating that this represented a change to the station or procedures as described in the FSAR was checked in error.

HP/0/B/1004/04 "Radioactive Liquid Waste Release", changes 0 to 6 incorporated, describes an approved method for establishing release rate(s) of radioactive effluents singularly and/or simultaneously through EMF 49, from the Turbine Building Sump(s), and/or from the Conventional Waste Water System during normal and unusual conditions. FSAR Section 9.2.8.3 needed an added reference to low level radioactive liquid wastes being discharged through a radiation monitor to the Low Pressure Service Water discharge piping in the Turbine Building from the Turbine Building Sumps through valve 1RL295. FSAR Section 11.5.1.2.1.1 also needed added references to possible discharges through a radiation monitor to the LPSW piping. No unreviewed safety question is judged to exist.

HP/O/B/1009/03

"Health Physics Response Following a Primary to Secondary Leak," change 0 to 1 incorporated, describes the manner in which Health Physics personnel will monitor and account for the release of radioactivity to the environment, minimize the spread of contamination, and identify radiological hazards due to a primary to secondary leak. FSAR Sections 9.2.8.3 and 11.5.1.2.1.1 were affected the same way as procedure HP/O/B/1004/04 (see above). No unreviewed safety question is judged to exist.

OP/O/B/6500/56

"Radwaste Procedure for Discharging the Turbine Building Sump to the Environment" was issued to outline the procedure for discharging the Turbine Sump when contaminated by way of the Low Pressure Service Water Discharge. FSAR Sections 9.2.8.3 and 11.5.1.2.1.1 were affected the same way as procedure HP/O/B/1004/04 (see above). No unreviewed safety question is judged to exist.

PT/1/B/4150/01G

"Turbine Building Sump Isolation" was issued to describe a method which may be used for determining and isolating the source of contamination in the Turbine Building Sump from a primary to secondary steam generator tube leak. FSAR Section 9.2.8.3 and 11.5.1.2.1.1 were affected the same way as procedure HP/O/B/1004/04 (see above). No unreviewed safety question is judged to exist.

TT/1A/9100/36

"Boric Acid Tank Recirculation Time Test" was issued to determine the optimum recirculation time required to obtain a representative sample from the Boric Acid Tank. The FSAR does not describe this test. This test does not affect the function of the systems described in Section 9.3.4 of the FSAR. No unreviewed safety question is judged to exist.

TT/O/A/9100/38

"Diesel Fuel Oil Storage Tank Recirculation Time Test," change 0 to 2 incorporated, determines the recirculation time required to obtain a representative sample from the diesel generator fuel oil tanks. FSAR Section 9.5.4.2.1 describes the general operation of the Diesel Generator Fuel Oil System, but does not include the Diesel Fuel Oil Storage Tank Recirculation Time Test. No unreviewed safety question is judged to exist.



OP/1/A/6150/04

"Pressurizer Relief Tank," change 2 to 4 incorporated, provides instruction for the operation of the pressurizer relief tank. FSAR Section 5.4.11.1 describes the design basis of the Pressurizer Discharge Relief System which states that the initial water temperature of the pressurizer relief tank is assumed to be 120 degrees. The procedure has as a "limit and precaution" that the maximum temperature in the pressurizer relief tank should not exceed 10 degrees above lower containment ambient temperature (which is about 130 degrees). The FSAR is to be revised. The Pressurizer Relief Discharge System does not constitute part of the reactor coolant pressure boundary per 10CFR50 Section 50.2 and failure of the auxiliary systems serving the pressurizer relief tank will not impair the capability for safe plant shutdown. No unreviewed safety question is judged to exist.

OP/2/A/6200/06

This procedure, "Safety Injection System," describes the proper operation of the Safety Injection System. Change 7 to this procedure changed the position of valve 2NI-120B from "CLOSED" to "OPEN" and valve 2NI-363 from "OPEN" to "THROTTLED" which maximizes the safety injection flow margin and still relieves excessive pressure downstream of the NI pumps caused by minor backleakage through cold leg injection check valves. FSAR Figures 6.3.2-2 and 6.3.2-3 needed to be revised to show the altered valve positions. No unreviewed safety questions is judged to exist

OP/2/A/6200/09

This procedure, "Cold Leg Accumulator Operation," describes the proper operation of the the cold leg accumulators. Change 10 to this procedure changed the position of 2NI-96B from "CLOSED" to "OPEN" to relieve excessive pressure downstream of the NI pumps caused by minor backleakage through cold leg injection check valves. FSAR Figures 6.3.2-2 and 6.3.2-3 needed to be revised to show the altered valve positions. No unreviewed safety question is judged to exist.

OP/1/A/6250/08

"Steam Generator Blowdown," changes 12 to 16 incorporated, provides instructions for operation of the Steam Generator Blowdown System. A change included in this retype will allow operation without a pump. FSAR Section 10.4.8.2, "Steam Generator System - System Description," were changed to show that each unit's blowdown pumps are provided minimum flow protection by the same means. No unreviewed safety question is judged to exist.

OP/1/A/6500/14

This procedure, "Operations Controlled Liquid Waste Systems," outlines the proper procedure for collecting, recycling, sampling and discharging radioactive and potentially radioactive liquids using the Liquid Waste System. Change 13 to this procedure added that the Instrument Air supply valve to 1WL-873 is to be locked closed to prevent operation from the local panel since the normal flow path from the ventilation unit condensate drain tank is now to the waste monitor tank instead of the Turbine Building sump. FSAR Sections 11.2.2.1.7 and 11.2.2.7.1.7 were changed to show the new normal flow path. No unreviewed safety question is judged to exist.

OP/2/A/6500/14

This procedure, "Operations Controlled Liquid Waste Systems," outlines the proper procedure for collecting, recycling, sampling and discharging radioactive and potentially radioactive liquids using the Liquid Waste System. Change 11 to this procedure added that the Instrument Air supply valve to 2WL-873 is to be locked closed to prevent operation from the local panel since the normal flow path from the ventilation unit condensate drain tank is now to the waste monitor tank instead of the Turbine Building sump. FSAR Sections 11.2.2.1.7 and 11.2.2.7.1.7 were changed to show the new normal flow path. No unreviewed safety question is judged to exist.

OP/0/B/6450/18

Procedure major change #6 to OP/0/B/6450/18 "Radwaste Area Air Conditioning and Ventilation Systems" was initiated due to a NSM affecting this system. NSM-CN-50194 deleted YR cooling to Count Room HVAC, deleted control interlock between Count Room HVAC and VA system, and added new separate cooling system for Count Room HVAC. The FSAR has been revised to reflect this change. No unreviewed safety question seems to exist.

OP/1/A/6550/02

Restricted procedure major change #23 to OP/1/A/6550/02 "D/G Lube Oil System" was initiated due to the waiting for completion of NSM-10695. This NSM was for installing a 5 micron filter in the D/G lube oil normal make up line. FSAR 9.5.7.2.1 indicated that normal make-up would be done using the existing pump. However, until the new filter was installed, normal make-up could not be done as said in the FSAR. This procedure change was done to allow for alternate make-up method. No unreviewed safety question seems to exist.

OP/2/A/6550/02

Restricted procedure major change #8 to OP/2/A/6550/02 "D/G Lube Oil System" was initiated due to the same reason as that for OP/1/A/6550/02. The NSM involved was NSM-20061. No unreviewed safety question seems to exist.

PT/O/A/4400/08

Restricted procedure change #9 to PT/O/A/4400/08 "RN Flow Balance For Degraded Mode" was initiated due to the problem of not being able to meet the test acceptance criteria. FSAR specified the minimum accepted flow during faulted ESF mode equaled to 4583 gpm. During this test, only 3200 gpm could be achieved. This procedure change was done to temporarily allow for lowering the accepted minimum flow to 3200 gpm provided that the SNSWP's temperature was equal to or less than 80.8\_F (based on a new Design Engineering's Heat Exchanger Analysis). Under this condition, the NSHX could still pass sufficient heat. No unreviewed safety question seems to exist.

TP/O/B/2600/15A

"Waste Gas Radiation Monitor (EMF50) Test" was written to accept the transfer of FSAR test requirement for EMF-50 from TP/1/B/2600/15 and TP/2/B/2600/15 "Unit 1 and 2 Start-up." The reason for this transfer was that EMF-50 failed to meet acceptance criteria during the start-up tests due to significant problems associated with the sampling and discharge of the WG system. An NSM was initiated to correct these problems. In TP/O/B/2600/15A, a single WG decay tank was utilized which had an administrative limit in inventory of less than 97,000 Curies. According to design basis accident analysis, 97,000 Curies release would result in an upper limit dose of 500 mrem at the site boundary ( $\leq 500$  mrem is Tech. Spec. limit). TP/O/B/2600/15A would utilize a WG decay tank with less than 97,000 Curies. This test did not involve ESF systems or components other than those associated with exhaust through the Unit vent. The affected FSAR sections are: Tables 11.5.1-1 and 11.5.1-2, Table 14.2.12-2 and Figure 14.2.11-1. No unanswered safety questions exist.

TT/2/A/9100/05

"D/G 2A Non-Emergency Trip Reset Test" was developed to verify proper operation of D/G 2A Non-Emergency Trip Reset pushbutton added per NSM CN-20454. Precautions were included in this procedure to mitigate the effects of a blackout which was analyzed in the FSAR. The probability of a blackout was not increased by this procedure. This procedure did not increase the probability, consequences or possibility of an accident or malfunction of equipment. The affected FSAR Section are: 8.3.1.1.3 and 8.3.2.1.2. No unanswered safety question exists.

TT/2/A/9100/06

"D/G 2B Non-Emergency Trip Reset Test" was developed to verify proper operation of D/G 2B Non-Emergency Trip Reset pushbutton added per NSM CN-20454. Similar to TT/2/A/9100/05 above, no unanswered safety question exists.

OP/O/B/6500/33

Revision #4 to OP/O/B/6500/33 "Radwaste Chemistry Operating Procedure for the Liquid Waste Recycle (WL) System Floor Drain Tank (FDT) Subsystem" covered new filters added to the system per an approved NSM. These redundant filters did not increase the probability of any accident previously evaluated in the FSAR. They increased the processing capability of the system. Equipments involved were not safety related. Modified equipment and procedures actually reduced the effect of a station accident on the WL system. No unanswered safety question seems to exist.

PT/O/B/4700/13

Revision #3 to "Radwaste Chemistry Weekly Inspection for System Leakage and Cleanliness" was for procedure clarity purpose. No change to FSAR was made. This procedure did not require the operation or manipulation of any station equipment. It involved visual inspection only and was conducted under ALARA considerations. No unanswered safety question seems to exist.

HP/O/HB/1003/44

"Operation and Calibration: Aptec Concept 7M Hand and Foot Monitor" did not affect any Limiting Conditions for Operation and Surveillance Requirements or their bases in the Tech. Spec. An affected FSAR section needed to be updated to include the newly purchased Hand and Foot Monitors utilized at various exits from the Radiation Control Area. The affected FSAR section is 12.5.2.1.3. No unanswered safety question seems to exist.