

CATAWBA NUCLEAR STATION

SUMMARY OF NUCLEAR STATION MODIFICATIONS
REPORTABLE UNDER 10 CFR 50.59 DURING 1988

CN-10005 Description: This modification replaced flow switches on affected radiation monitors with flow switches less susceptible to material buildup and clogging. This modification affects FSAR Figures in Sections 9.2, 9.3, and 11.2.

Safety Evaluation: This modification reduces maintenance cost and improves equipment performance. This change does not involve any functional change to any system. No safety system is affected. The new flow switches have a larger, more open interior design which has proven less susceptible to clogging problems at other stations. No unreviewed safety question is created by this modification.

CN-00010 Description: This modification involves changes to the Mixing and Settling Tank (MST) and the Liquid Waste Recycle System so that operation of the MST complies with the FSAR. The modification 1) reroutes a section of the MST pump suction line, 2) provides an interlock with 1WL883, OWLLT5190, MST Pump and MST Sludge Pump, 3) reroutes overflow lines for Radwaste Batching Tank and Ultrasonic Cleaning Tanks to remove loop seals, 4) adds a crossover discharge line, valves, and Makeup Demineralizer Water System seal water to the MST pump, and 5) adds a Johnson Screen to the Radwaste Batching Tank vent to atmosphere. This modification affects FSAR Section 11.2 and Figures 11.2.2-4 and 11.4.2-4.

Safety Evaluation: These improvements will allow the MST subsystem to be operated as described in the FSAR. This modification will 1) provide adequate NPSH for and allow proper operation of the MST pump, 2) bring the Radwaste Batching Tank overflow line and Ultrasonic Cleaning Tank drainline into conformance with ALARA exposure guidelines, 3) provide a flush supply for the RBT overflow line, and 4) allow interchangeable use of the MST pump with MST sludge pump to provide redundant capability required in FSAR Sections 11.2.1 and 11.2.2.2. No safety system will be degraded and no functional change will be made to any system as a result of this modification. No unreviewed safety question is judged to be created by this modification.

CN-10023 Description: This modification replaces affected solenoid valves with manual valves to prevent spurious actuations. These valves are non-active and have a potential for repositioning as a result of a spurious electrical signal or a seismic event. This modification affects FSAR Figures 9.3.4-2, 9.3.4-4, 9.3.4-5, 9.3.4-7, 9.3.6-1, 9.3.6-2, 9.3.5-1, 9.3.5-3, 9.3.5-4, 9.3.5-5, 11.2.2-5, 11.2.2-10, 11.3.2-1, 11.3.2-5, 9.2.1-5, and 9.2.1-9.

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Safety Evaluation: No safety system will be degraded by this modification. Replacement of the solenoid valves, which control air supplied to Class 2 or 3 pressure boundary isolation valves, will greatly reduce the possibility of inadvertent actuation of these valves due to spurious electrical signals or seismic activity affecting the solenoid valves. This modification does not involve any unreviewed safety consideration.

CN-10183

Description: This modification reroutes Condensate System resins processing lines to minimize the distance, elevation, and bends in the resin discharge piping. Additionally, necessary equipment was provided to allow vendor removal of contaminated resin from the Condensate Polisher Demineralizer (CPD) Backwash tank. A curb was also installed around the resin cask loading area. This modification affects FSAR Figures 10.4.2-2 and 10.4.7-4, 10.4.7-9 and 10.4.8-2.

Safety Evaluation: This modification allows for more efficient and ALARA operation of the CM system. In the event of a steam generator tube leak, resin in the CPD's would become contaminated. Each precoat in a CPD has a life of five to six days before it is exhausted and the Backwash Tank has a capacity of four (4) backwashes. Thus, the Backwash Tank would have to be emptied at least once per week. This would allow very little time to install the necessary equipment required by Chem-Nuclear for removal of contaminated resin. Without the modifications described above, situation could arise where there would be contaminated resin in the Backwash Tank without the required means of disposing of it. This modification does not adversely affect any equipment important to safety. This modification does not involve any unreviewed safety consideration.

CN-10184

Description: This Unit 1 modification installs piping and valves to allow condensate from the Boron Recycle and Waste Evaporator's condensate return tanks to be discharged to the Unit 2 Condensate Storage Tank (CST). This modification affects FSAR Figure 9.2.6-2.

Safety Evaluation: This modification is required to minimize the volume of water that must be reprocessed following a Unit 1 or Unit 2 primary to secondary leak and allows for cross-routing of non-radioactive condensate between units. This modification does not have any adverse impact on any safety or non-safety system. This modification does not involve any unreviewed safety question.

CN-10385
CN-20185

Description: The general intent of these modifications is to add the capability to process Ventilation Unit Condensate Drain Tank (VUCDT) contents through disposable vendor demineralizers provided by a contractor. The diaphragm in the recycle monitor tanks will be removed to increase usable tank volume. These

modifications affect FSAR Section 11.2 and Figures 11.2.2-4, 11.2.2-7, and 11.2.2-11.

Safety Evaluation: The VUCDT system was designed for the normal discharge path to be through a radiation monitor to the Turbine Building (TB) sump. If the monitor's high setpoint is reached, the discharge stream is automatically isolated from the TB sump and is realigned by an operator to the liquid radwaste release path. Experience at both McGuire and Catawba shows that higher levels of activity than were anticipated will be present. Use of vendor demineralizers will help expedite the processing of the condensate, which could otherwise require more elaborate processing along the same pathways as the main liquid waste stream, thereby impeding processing of radwaste.

The changes to the system including additional piping and valves are located in the Auxiliary Building and are designated Duke Class E, QA Condition 2. The piping is hung by construction hangers and is non-safety related. The pipe routing was reviewed for ALARA concerns and for pipe rupture concerns. Fire barrier integrity reviews for piping are adequate.

Electrical instrumentation added to the control panel has no seismic considerations.

The removal of the Recycle Monitor Tank (RMT) diaphragms will not introduce any additional offsite release considerations. However, the venting of these tanks to the room should be reviewed for ALARA concerns. The probability and consequences of the radwaste tank accident is not affected by modifications to the RMT due to its intended function and protection afforded by the Auxiliary Building.

This system has no emergency or safety function and is not fire protection related.

These modifications do not involve any unreviewed safety considerations.

CN-10421

Description: This modification provides for the addition of permanent cables for eddy current testing of the steam generators. This modification affects FSAR Table and Figure 3.8.2-6.

Safety Evaluation: Potential concerns involved with this modification include considerations of the clarity of the eddy current tests due to extra electrical connections and additional openings to containment. The additional electrical connections should not be a concern as the eddy current testing will be done by computer which will compensate for the extra electrical connections. This testing is done by way of frequency measurements. The concern for additional openings in containment reflects the condition that eddy current testing

could not take place during core alteration or movement of fuel in containment. This condition is reflected by Technical Specification 3/4.9.4. During normal operation this penetration will have blind flanges installed on each end of the penetration. These flanges will be double sealed. Based on this information, there are no potential concerns.

The modification is not related to the initiation of any new 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-10593
CN-20023

Description: These modifications provide an air conditioning system to cool the electrical penetration room during the summer when normal Auxiliary Building Ventilation (VA) system supply air is inadequate to handle the heating load. This modification affects FSAR Section 9.4.3.2.6, Table 8.3.1-1 and Figures 11.2.2-12, 9.4.2-3, and 9.4.3-2.

Safety Evaluation: These modifications assure adequate cooling of the Reactor Vessel Level Instrumentation System (RVLIS) cabinets. The modifications improve long-term reliability of the system. This modification presents no adverse impact to any safety or non-safety system. These changes do not involve any unreviewed safety consideration.

CN-10003
CN-20004

Description: This modification involves adding structural components to the reactor vessel head lifting rig which is left in place (on the head) during normal operation. Removable shielding is attached to the head lifting rig to provide radiation shielding for workers during refueling. This shielding will be removed during normal operation but necessary hardware will remain attached to the lead lifting rig always. No changes have been made to the RCS pressure bounding.

Safety Evaluation: This modification reduces radiation exposure in the reactor cavity with the use of the shield. This modification does not affect any equipment important to safety. This modification does not involve any unreviewed safety question.

CN-10721

Description: This modification installed an additional desiccant Unit at the VI Header takeoff for three of the Groundwater Drainage System Well Level Instruments. The takeoff is located in the Unit 1 exterior doghouse. This modification affects FSAR Figure 9.3.1-2.

Safety Evaluation: This modification is required to prevent malfunction of Groundwater Monitor Wells Level Instrumentation due to potential freezing of moisture in the air heater. This modification does not adversely impact any safety or non-safety

system. This modification does not involve any unreviewed safety consideration.

CN-10810

Description: This modification changes the Auxiliary Building Ventilation System (VA) unit vent and its associated Liquid Waste Recycle System (WL) drain line to prevent condensation and drainage problems. This modification affects FSAR Figures 9.4.2-3 and 11.2.2-15.

Safety Evaluation: Addition of a piping tee provides access to clean out debris clogging the WL drain line. Addition of a sight glass at the lower end of the Unit vent plenum allows for early detection of condensation in the Unit vent so as to prevent overflowing into ventilation systems connecting to the stack. No safety system is degraded as a result of this modification. This modification does not involve any unreviewed safety considerations.

CN-10813
CN-20154

Description: These modifications provide a Makeup Demineralizer Water System water source in the area of the lower personnel hatch. These changes are required for general cleaning and decontamination purposes in the lower containment area. These modifications affect FSAR Figures 9.2.3-6, 9.5.5-1, 11.2.2-2, and 11.2.2-11.

Safety Evaluation: Although the modification is outside containment, no impact on containment integrity will occur. The sink drain will be routed to a trench discharging into the Residual Heat Removal and Containment Spray Rooms sump which is part of the Liquid Radwaste System (WL). The sump is adequately sized to handle a comparatively small flow such as can be expected from this source. Additionally, the system is manually operated locally which should limit excessive flow to drains from spills. The sump is designed to handle liquids that are potentially radioactive.

The new pipe is Class G or H and the materials and design parameters are compatible with the system requirements. Seismic considerations have been reviewed. The Makeup Demineralized Water System plays no role in initiating or mitigating design basis accidents. Based on the above, the probability or consequences of an accident previously evaluated in the FSAR will not be increased and no new accident different than any already evaluated in the FSAR will be created. Since no equipment is adversely affected, the probability or consequences of a malfunction of equipment important to safety previously evaluated in the FSAR will not be increased and there is no possibility of malfunctions of equipment important to safety different than already evaluated in the FSAR. No margin of safety as defined in the bases to any Technical Specification is reduced. There are no unreviewed safety questions associated with this modification.

CN-10825

Description: This modification involves interlocking the "S/R Hi Voltage Failure" and "S/R Hi Shutdown Flux Alarm Blocked" annunciators with permissive circuit P-10. The annunciators would be deactivated above P-10 (10% power) and be reactivated below P-10. The modification is accomplished by wiring the P-10 interlock, available in the SSPS Control Board Demultiplexer cabinet, to an IC cabinet where a multiplying relay is added. Contacts from this relay are then added to the annunciator circuits. No operator action is required. This modification affects FSAR Section 7.2.1.1.3.

Safety Evaluation: Two potential equipment failure modes exist for this modification:

- 1) The circuit could fail to deactivate the annunciators above P-10. Since the source range detectors are not required above the 10% power range, this failure mode would not result in any safety concern.
- 2) The circuit could fail to reactivate the annunciators below P-10. If this failure occurred in the "S/R Hi Voltage Failure" annunciator, the operator would have no indication that the S/R detectors were de-energized. If this failure occurred in the "S/R Hi Shutdown Flux Alarm Blocked" annunciator, the operator may erroneously think that the "S/R Hi Flux at Shutdown" alarm was enabled when it was actually blocked. When the modification functions properly, the annunciators will normally alarm when the power level drops below P-10. If this failure mode occurred, the operator could potentially recognize a malfunction when the annunciators failed to come on below P-10. However, the manual de-energizing and blocking functions associated with these annunciators are procedurally controlled and verified separately from the annunciators themselves. These administrative controls are not affected by this modification. The IC cabinet for this modification will meet seismic/environmental requirements. Appendix R separation criteria are not applicable to this modification.

This modification is not related to the initiation of any accidents or equipment malfunctions analyzed in the FSAR. The initial conditions of the reactor coolant system and core will not be affected by this modification, and the ability to mitigate accidents will be unaffected. This modification will not have any impact on the plant margin of safety as defined in the bases to the Technical Specifications.

There are no unreviewed safety questions associated with this modification.

CN-10829
CN-20168

Description: These modifications interlock each Nuclear Service Water System (RN) Outlet Flow Lo Annunciator from the Component Cooling System (KC) Heat Exchanger with a safety

injection signal. This assures the alarm will only be enabled when there is a safety injection signal present. Without these modifications the annunciator is constantly in alarm because of the relatively low heat load on the KC system during normal plant operation, thus creating a nuisance alarm. These modifications affect FSAR Section 9.2.1.5.3.

Safety Evaluation: The signal to the Annunciator is a non-safety non-QA signal obtained from the safety injection circuit that fails open the RN outlet valves of the KC Heat Exchangers (RN-291 and RN-351). A digital optical isolator is added in series with the safety injection signal. The optical isolator creates a non-safety output signal from a safety signal input without allowing any faults to propagate back into the safety circuit. This provides adequate protection of the safety injection circuitry to prevent any new failure modes to safety related equipment from being created by this modification. The relay which activates the "Lo Flow" Annunciator has a 3-5 sec. time delay to allow the RN outlet valve of the KC HX to open before signaling "Lo Flow" coincident with an SS-0 signal.

A KC HX discharge temperature alarm and RN pump discharge alarm (high and low) are provided in the control room independent of this modification.

The RN functions of essential auxiliary support to Engineered Safety Features, including RN pump minimum flow provided by SS-0 signal to the subject flow control valves, are not impaired by this modification. The operator's environment is improved by deleting a nuisance alarm. Failure of the new interlock circuitry will either cause the nuisance alarm to sound without the SS-0 signal (same as present configuration) or prevent the alarm when desired given the SS-0 signal and "Lo Flow". This flow indication and annunciator are diagnostic. They perform no safety function, are not relied upon for emergency procedures and the subject control valves fail open upon loss of non-safety instrument air. Therefore, no failure modes related to this NSM will adversely impact any safety functions.

Accordingly, these modifications will have no effect on the probability, consequences or "possibility of new" accidents evaluated in the FSAR. Nor will it affect the probability, consequences or possibility 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. These modifications do not involve any unreviewed safety question.

CN-10865
CN-20247

Description: These modifications provide for the installation of improved tube leak detection systems to determine the location of condenser tube leaks. These modifications affect FSAR Figure 10.4.2-1.

Safety Evaluation: The SF₆ on-line condenser waterbox leak detection system utilizes sulfur hexafluoride (SF₆) as a tracer gas to detect condenser tube leaks. SF₆ is injected into the amertap ball collectors (RA system). Any tube leakage will be detected by pulling a sample downstream of the condenser steam air ejectors (ZJ system). This system is totally independent and in no way affects the operation of the amertap system, the condenser steam air ejector system, or any interfaces in between. SF₆ is a colorless, odorless, non-flammable and non-toxic gas. These modifications do not involve any unreviewed safety consideration.

CN-10920
CN-20308

Description: These modifications add high range differential pressure gauges that have extended range required for the Diesel Generator (D/G) Fuel Oil Day Tank (FODT) and provide adequate indication of level. These modifications affect FSAR Figures 9.5.4-1 and 9.5.4-2.

Safety Evaluation: These modifications provide an additional gauge to show level in the D/G Fuel Oil Day Tank. Testing of these modifications involves calibration of the new gauges and a leak test. The consequences or probability of an accident or malfunction of equipment previously evaluated in the FSAR will neither be increased nor created as a result of the changes. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced by the changes. These modifications do not involve any unreviewed safety question.

CN-10927

Description: This modification replaces Auxiliary Feedwater (CA) check valves 1CA 157, 159, 161 and 163 with Anchor/Darling carbon steel tilt disc check valves. The existing valves have experienced operability problems due to the flow conditions at the location of the valves. The new valves are more suitable for the flow conditions experienced in the main feedwater tempering/bypass lines and should provide more reliable service. This modification affects FSAR Figure 10.4.9-2.

Safety Evaluation: The check valves being replaced (1CA157, 159, 161 and 163) are located in the main feedwater tempering/bypass lines, one to each of the four steam generators. Therefore, no failure modes are postulated which would affect more than one steam generator's feed path.

The design basis of the CA system will not be affected by this modification and the modified system should prove to be more reliable, requiring less maintenance.

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 defined in the bases to Technical

Specifications will not be reduced. Therefore, no unreviewed safety questions are created by or involved with this modification.

CN-10970

Description: This modification provides for the addition of office space to allow for close supervision of the water treatment room. This modification involves FSAR Figure 9.5.1-7.

Safety Evaluation: This modification is non-QA Condition and non-safety related. Sprinklers are added for area and equipment protection, but are not required for Appendix R since there is no safety related equipment in the immediate area. The plant lighting panelboard circuit is non-safety related and there are no Appendix R circuit interaction concerns. The phone system is also non-safety. This modification does not involve any unreviewed safety consideration.

CN-10974
CN-20366

Description: These modifications are to facilitate access to the fuel pool area. Doors AX635 J and K will be held open with a fusible link, which will alleviate problems associated with entering/exiting the Fuel Handling Areas via these doors. Most air infiltrating through the open door will enter the VF System through two air transfer openings from the Ventilation Equipment room to the Fuel Building.⁽⁴⁾ This infiltration would exceed the capacity of the VF system to maintain the required .25 inch negative pressure. By blocking off one of the two before mentioned air transfer openings and adding a manual volume damper to the other, the required pressure will be maintained. These modifications affect FSAR Figure 9.4.2-1.

Safety Evaluation: Since the Fuel Handling Area Ventilation (VF) system is not an initiator of any accident previously evaluated in the FSAR, these modifications will not result in an increase in the probability of such accidents. The VF system will still be able to maintain the required .25 inch negative pressure in the Fuel Pool Area. Therefore, the consequences of neither a fuel handling accident nor any accident previously evaluated in the FSAR will be increased. No possibility of an accident different from any already identified in the FSAR is created.

The probability of a malfunction of equipment important to safety previously evaluated in the FSAR will not be increased since these modifications do not result in any change in parameters for which equipment is designed. No common mode failure involving the VF or any other system is introduced by these modifications. Therefore, the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR will not be increased. No possibility of malfunctions of equipment important to safety different from any already evaluated in the FSAR will be created. The margin of safety as defined in the basis to the Tech Spec will not be reduced.

No Unreviewed Safety Questions are associated with this NSM.

CN-10975
CN-20367

Description: These modifications install a forced air cooling system to the 7300 Process Control Cabinets in the control room. The blowers to be installed in the safety-related cabinets will be QA 1 seismically qualified, and powered by 1E cabinet power. These cabinets are designed to function with convection cooling. Addition of these blowers will not block the flow of air for the continuation of the convection process, however, addition of these blowers will lower cabinet temperatures and extend equipment life.

Safety Evaluation: This modification will provide extended equipment life for components of the 7300 process control cabinets. There are 8 cabinets involved with each unit. Four are safety-related and four are not. All of the fans are supplied from internal cabinet power through circuit breaker #2. Failure of the fans will not jeopardize cabinet cooling as convection cooling will be maintained through grills located in the cabinet rears and in the center bays. Fan failures will not affect the ability of the equipment to function and will be identified by periodic inspection by station personnel. No equipment relocation will be required for installation of the blower system.

Since the ability of the equipment to function is not adversely affected, the probability of an accident or malfunction of equipment important to safety which was previously evaluated in the FSAR will not be increased. Addition of the blower system can provide life extension for the internal equipment and does not create any new failure modes except failure of the fan itself. In this event, cabinet cooling is continued by convective airflow, similar to the existing setup. Therefore, the possibility of an accident or malfunction of equipment important to safety which is different than any already evaluated in the FSAR will not be created. The ability of the equipment, within these cabinets, to fulfill their safety-related functions is not degraded, so the consequences of an accident or malfunction of equipment important to safety which were previously evaluated in the FSAR will not be increased. There is no degradation of safety limits or setpoints as a result of this NSM and the reactor vessel core parameters are unaffected. Equipment reliability has not been degraded, therefore, the margin of safety as defined in the bases to any Technical Specification is not affected. Based on this discussion, no unreviewed safety questions are judged to be involved with this modification.

CN-10981
CN-10982
CN-10994
CN-20371
CN-20372

Description: This modification will replace affected RN system valves in order to provide a more reliable design for isolation. The valves to be replaced are:

- RN Supply Crossover Isolation Valves (RN47A and RN48B)

- RN Nonessential Supply Header Isolation Valves (RN49A and RN50B)
- RN Supply Header Isolation Valves (RN67A and RN69B)

This modification is a one for one replacement which replaces a soft-seat valve with a soft-seat valve. The valves will have the same operators. Replacement of these valves will require some valve operator changes to provide correct direction for valve closure. Limit switches will be adjusted accordingly. The valve vendor will supply the new torque settings to account for the different valve characteristics. These are QA Condition 1 valves. RN47A and RN48B separate the RN essential supply header trains in the auxiliary building. RN49A and RN50B isolate the nonessential supply header from the essential supply header. RN67A and RN69B isolate the essential supply header in the auxiliary building from the main supply lines. All of these valves are normally open. RN47A, RN48B, RN49A, and RN50B close on containment high high pressure signal. RN67A and RN69B receive a signal to open upon initiation of safety injection. The function of these valves will not be impacted by these NSMs. The valve closure times and fail-safe positions remain the same. These changes do not impact the piping analysis. These valves are being replaced by more reliable soft-seat valves because the currently installed soft-seat valves are experiencing leakage problems.

Safety Evaluation: Replacement of these valves by this modification represents no change to the reliability of these valves to operate as designed. In fact, these valve replacements provide a more reliable design against leakage. Since the RN system is a mitigating system and not an accident initiator, this modification does not increase the probability of any accidents as evaluated in the FSAR. Some valve operator changes will be made and limit switches will be adjusted accordingly, but these changes will not create any new failure modes for these valves. Since no new failure modes will be created, this modification will not increase the probability of any malfunction of equipment important to safety which was previously evaluated in the FSAR. The modification will not create the possibility of any new accidents or malfunctions of equipment important to safety by the minor changes to be made.

No changes were made to the function of the valves during accident sequences, therefore the consequences of an accident or malfunction of equipment important to safety will not be increased. Since the function of the valves will not be impacted, this modification will not reduce the margin of safety as addressed in the Technical Specifications. The FSAR has been reviewed and is not impacted. Based on these considerations, no unreviewed safety questions are judged to be involved or created by these modifications.

CN-11004
CN-20395
CN-050393

Descriptions: These modifications provide for the addition of drains to give the Nuclear Service Water System (RN) return headers sufficient draining capacity to support valve replacements within 72 hour (Technical Specification) time windows. This modification affects FSAR Figure 9.2.1-3.

Safety Evaluation: The added drains will be only used during maintenance activities and will not affect the operation of the RN system. The consequences or probability of an accident previously evaluated in the FSAR are not increased. Nothing new to the system is added that would create the possibility of an accident which is different than any already evaluated in the FSAR. No qualified equipment has been degraded and no common mode failures have been introduced. Therefore, no possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR has been created. This modification does not involve any unreviewed safety considerations.

CN-11018

Description: This modification upgrades instrumentation for shell side nuclear service water (RN) flow through the containment spray (NS) heat exchangers. Alarms will be added in the control room for high and low flow, and indicators will be added to provide operators with information to determine when adequate flow exists. This use code 9 instrumentation will use existing flow elements.

The information provided by this instrumentation will insure that these NS heat exchangers are able to fulfill their function by preventing the RN flow rate from becoming great enough to create tube vibration and damaging the NS heat exchanger tubes. This instrumentation will be provided with 1E power.

Safety Evaluation: This modification will insure the ability of the RN/NS heat exchangers to fulfill their function by supplying the operators with more reliable information. The accuracy of the instrumentation was considered in the determination of the setpoints involved. These setpoints are consistent with the plant accident analysis. The low flow alarm is interlocked with the downstream EMO valve (RN148A and RN229B) in order to prevent nuisance alarms since no flow is the normal condition of this piping. A potential failure mode due to tube vibration will be addressed by this modification. A seismic review of the control board has been conducted and Appendix R is considered. The old non-safety flow instrumentation will be removed and optical isolators will prevent the non-safety control room annunciators from faulting the safety-related instrumentation. Since the function of the heat exchanger is not affected and the reliability of the information supplied by the instrumentation is increased, the probability and consequences of an accident or malfunction of equipment which was previously evaluated in the FSAR will not be increased. Because the addition of this instrumentation

will remove a potential failure mode and because the additional instrumentation is more reliable, the possibility of an accident or malfunction of equipment important to safety different than any already evaluated in the FSAR will not be created. This modification will not affect the setpoints, safety limits, or reactor core parameters, therefore the margin of safety as defined in the bases of the technical specifications will not be reduced. Based on this discussion, no unreviewed safety questions are involved with this modification.

CN-11019
CN-20409

Description: The purpose of the modifications is to downgrade the diesel generator sump pump from ASME Section III, class 3, to noncoded components. The equipment manufacturer involved with these components has failed to renew their N-stamp certification which has created a problem with procuring replacement items. There are two pumps in the sump for each diesel generator. These modifications affect FSAR Section 9.5.9.3.

Safety Evaluation: The purpose of the diesel generator room sump pump system is to prevent flooding of the diesel generators and remove normal drainage and leakage from equipment in that room. It has been determined by design engineering that it is not necessary for sump pumps in these rooms to meet code requirements. Removal of the code requirements will not impact the reliability of the pumps because this equipment will still be subject to the same testing and inspection criteria. Electrically, no changes have been made to the system. Because the function of the pumps is not adversely affected and the pumps are subject to the same testing and inspection criteria, the probability of an accident or malfunction of equipment important to safety which was previously evaluated in the FSAR will not be increased. No new failure modes have been created therefore, the possibility of an accident or malfunction of equipment important to safety which is different than any already evaluated in the FSAR will not be created. These sump pumps do not perform an accident mitigating function, therefore the consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSAR will not be increased. There are no changes in setpoints or the reactor vessel core parameters and no degradation of safety limits. Equipment reliability will not be degraded so the margin of safety as defined in the bases to any technical specification is not affected. Based on this discussion, no unreviewed safety questions are judged to be involved with this modification.

CN-11026
CN-20416

Description: These modifications provide flanges to existing spare Reactor Building mechanical penetrations M-234 and M-452 for both units. Each penetration involves a welded capped penetration in the RB wall and in the containment wall. Flanges are to be added to both sides of the containment penetrations and to the annulus side of the Reactor Building

penetrations. Also, a threaded access hole is to be installed on the annulus side of the containment penetrations for pressure leak detection. The flanged openings are to provide access for outage activities, such as steam generator shot peening or sludge lancing. These modifications affect FSAR Sections 3.8.2.1, 6.2.1, 6.2.3 and 6.2.6.

Safety Evaluation: This modification is QA Condition 1 and safety related. The affected penetrations are existing penetrations that have pipe caps welded on them. The modification will add pipe flanges and a blind flange will be bolted to each pipe flange. The access hole will be plugged during plant operation. The containment penetrations will be pressure tested using the threaded access hole. The modification to these penetrations will not degrade the integrity of containment so the LOCA or fuel handling accident consequences will not be increased (Sections 15.6.5 and 15.7.4).

This modification does not initiate any FSAR accidents and therefore will not increase the likelihood of any accidents previously evaluated in the FSAR or different than previously evaluated in the FSAR. Containment integrity will be maintained, therefore the consequences of any accidents will not be increased. Since no new failure modes are postulated the probability or consequence of a malfunction of equipment important to safety will also not be increased. Since any leakage will exhaust thru the annulus ventilation system, no margins of safety as defined in the Technical Specifications will be reduced.

There are no unreviewed safety questions associated with these modifications.

CN-11042

Description: This modification replaces Component Cooling (KC) system BIF valves with a valve which has more reliable design for isolation. The valves to be replaced are 1KC50A and 1KC53B. These are the auxiliary building non-essential header isolation valves. Both valves close on receipt of a high-high containment pressure signal or low-low refueling water storage tank levels following a safety injection signal. The modification also adds a two inch drain line between the valves to facilitate leak testing and maintenance. This modification affects FSAR Figure 9.2.2-1.

Safety Evaluation: Replacement of these valves by this modification does not lessen the reliability of these valves to operate as designed. These replacement valves provide a more reliable design against leakage. Some valve operator changes will be made and limit switches will be adjusted accordingly, but these changes will not create any new failure modes for these valves. Since no new failure modes are created, this modification will not create the possibility of any new accidents or malfunctions of equipment important to safety

which are different than any already evaluated in the FSAR. Because these valves are at least as reliable as the previous valves, the probability of an accident or malfunction of equipment important to safety previously evaluated in the FSAR will not be increased. The function of these valves will remain the same, therefore the margin of safety as defined in the bases of the Technical Specifications will not be reduced. The function of the valves during accident conditions will remain the same, so the consequences of an accident or malfunction of equipment important to safety which was previously evaluated in the FSAR will not be increased. Based on these considerations, no unreviewed safety questions are judged to be involved or created by these modifications.

CN-11061
CN-20445

Description: These Unit 1 and Unit 2 modifications installed permanent branch connections on Spent Fuel Pool Cooling System (KF) piping. The branch connections will allow the installation of temporary crossover piping. These modifications allowed for cooling of the Unit 1 Fuel Pool during implementation of Nuclear Station Modifications CN-10639 and CN-11042. These modifications affect FSAR Figure 9.1.3-1 and 9.2.2-3 and 9.2.3-1.

Safety Evaluation: These changes are minor in nature and will not affect the ability of the system to perform its intended function. Stress Analysis has reviewed the piping changes. Because the system will function in the same manner, the probability or consequences of an accident, or malfunction of equipment previously evaluated in the FSAR will not be created and the margin of safety as defined in the plant's Technical Specifications is not affected by this modification. There is no impact to the FSAR because of these changes. Based on these considerations, no unreviewed safety questions are judged to be involved or created by these modifications.

CN-11071
CN-20453

Description: These modifications involve the installation of proximity probes on the main feedwater pumps and turbines, provision of a local cabinet to house proximitors, and replacement of associated control room monitors. Proximity probes are installed outside the tilt pad bearings to monitor vibration and eccentricity and near each end of the shaft to monitor thrust position. Connectors are also provided at each tilt pad bearing for new thermocouples.

Safety Evaluation: These modifications involve a non-safety instrumentation system. These modifications enhance the ability to monitor the condition of the main feedwater pumps and associated turbines, which are also non-safety. Since it is strictly for monitoring purposes, the modification does not introduce any failure modes which would affect the operability of the pumps and turbines and is intended to improve their reliability by improving surveillance capabilities.

The probability of previously evaluated accidents involving increases and decreases in secondary system heat removal is not increased by the modification because it cannot cause a reduction in the feedwater temperature, an increase in feedwater flow, or a loss of feedwater. No other accident analyses are affected by the modification and no different type of accident is possible.

The modification does not affect the design basis of any structure, system or component. Therefore, the modification does not increase the consequences of any accident or equipment malfunction and does not reduce the margin of safety as defined in the bases to any Technical Specifications. These modifications do not involve any unreviewed safety considerations.

CN-11114

Description: CN-11114 is a drawing change only to delete two requirements on the installation of Rdf Model 21205 RTDs. The requirements are: 1) that the braided stainless steel jacket of the RTD be covered in flexible metal conduit and 2) that the cable be supported within 15 inches of the RTD.

Safety Evaluation: This modification does not increase the probability of a malfunction of equipment or of an accident as described in the FSAR. Margins of safety are not affected. The safety function of the RTD and its operation are not affected. This modification does not involve any unreviewed safety considerations.

CN-11134

Description: This change modified the first root valve of the Reactor Coolant System (NC) loop B flow instrumentation (1NCFT 5050L) so that a leak repair process can be performed. This allows for repair of a body to bonnet joint leak. This modification affects FSAR Section E4.12 and 7.2.1.12.

Safety Evaluation: An evaluation has determined that the hole drilled into the valve bonnet will not adversely affect the pressure boundary integrity of the root valve (Ref 4). The sealant will be injected into a void around the body to bonnet joint, therefore no sealant should enter the reactor coolant system. Operability of the flow instrumentation will be verified by the plant following completion of the leak repair. The weight of the clamp assembly, which will remain after the injection process, has been considered and judged to have negligible impact on pipe stress analysis.

No new failure modes have been identified, therefore the probability of any new accidents or new malfunction of equipment important to safety have not been increased. The consequences of any accidents previously evaluated will not be increased since no accident mitigating systems have been adversely affected. Since the flow instrumentation will be proven operable, the margin of safety as defined in the Technical Specifications will not be reduced. This

modification does not involve any unreviewed safety consideration.

CN-11143
CN-20521

Description: These modifications install a tee in the line between the Nuclear Service Water (RN) and Spent Fuel Cooling (KF) systems. This connection from the RN to the KF system is the assured make-up to the spent fuel pool. A blind flange will be installed on the branch line of the tee. Removal of the flange will allow the branch line to be used in RN system flushing for removal of clams. These modifications affect FSAR Figures 9.2.1-5 and 9.2.1-9.

Safety Evaluation: Installation of this tee in the assured make-up lines to the spent fuel pool will not degrade system flow. Completion of this modification will provide a location to access piping for RN system flushing. This tee will be installed between a normally closed RN system valve and a locked closed KF system valve. This location will not functionally impact the RN or KF systems. The stress analysis group has analyzed the addition of the branch line to insure the piping will fulfill its function under seismic conditions. Since the function of the assured make-up line to the spent fuel pool will not be adversely affected, the probability or consequences of an accident or malfunction of equipment important to safety, which was previously evaluated in the FSAR, will not be increased. The possibility of an accident or malfunction of equipment important to safety which is different than any already evaluated in the FSAR will not be created because no new failure modes are created. The safety limits, set points, and reactor vessel core parameters are unaffected by this modification, therefore the margin of safety as defined in the bases to any technical specification is not reduced. Based on this discussion, no unreviewed safety questions are judged to be involved with these modifications.

CN-11151

Description: This modification adds nitrogen bottles, including a manifold regulating valve with an integral relief valve, tubing and a cabinet mounted shuttle valve to the 1A Diesel Generator Starting Air System (VG). The nitrogen serves as the non-assured primary source for the engine control panel 1A pneumatic instrumentation. The VG system is still available as prior to implementation of the changes. This modification affects FSAR Figures 9.5.6-1 and 9.5.6-2.

Safety Evaluation: Diesel Generator 1A control air for the pneumatic shutdown logic system has been of poor quality due to its moisture content. Use of nitrogen as the primary source of control air eliminates moisture and reduces pneumatic component failures. The VG system is still available to provide control air. The regulating valve and nitrogen bottles are seismically qualified. This modification does not introduce any unreviewed safety consideration.

CN-20017

Description: This modification concerns the addition of two complete trains of neutron flux instrumentation. This instrumentation is known as the Boron Dilution Mitigation System (BDMS).

This instrumentation will provide outputs for displays on the Main Control Boards, the SSF, and the ASP. All of this equipment, with the exception of the SSF loop, will be QA1 and fully qualified for PAMS use. Also, Appendix R separation will be maintained between Trains for the equipment and cabling from the detectors to the signal processing electronics and between the cable to the SSF and any train B equipment or cables. This modification affects FSAR Section 7.6-24.

Safety Evaluation: This instrumentation will be independent of the existing neutron flux instrumentation and will not affect the existing system in any way. The BDMS will not increase the initiation frequency of any accidents described in the FSAR. Plant operation should be more reliable, particularly in the modes where the BDMS provides automatic protection (Modes 3-6). The RCS should actually have a decreased probability of a boron dilution event/accident ever reaching criticality because of the increased reliability of a redundant safety grade automatic system compared to a dependence of "human interaction" to detect and stop the flow of diluted borated water into the RCS.

The consequences of accidents previously evaluated in the FSAR are not increased.

There are no new accidents which can be identified different than those already evaluated in the FSAR.

No new malfunctions of equipment can be identified.

The margin of safety will not be reduced by installing this system, nor is it necessarily dependent on the operability of this system.

There are no unreviewed safety questions resulting from the implementation of this modification.

CN-20019

Description: Current design of the Component Cooling System (KC) system non-essential header for the auxiliary building provides isolation of this header on receipt of an Ss signal. This modification alters the control circuitry of isolation valves 2KC1A, 2KC2B, 2KC50A and 2KC53B such that their automatic close operation will be initiated on an Sp signal or an Ss signal coincident with a low-low FWST level. Monitoring lights on 2MD4 for these four valves are being regrouped within the same panel to the Sp operated group instead of the Ss group.

Safety Evaluation: The modification is needed in order to make the units similar. This modification decreases the probability

of KC pump runout. No unreviewed safety questions are judged to be created or involved as a result of this modification.

CN-20119

Description: This modification changes Main Steam Bypass to condenser valve 1SB29 to pipe specification 900.4 Class G. This change allows valve 1SB29 to be blind flanged when disconnected from the Condenser Steam Air Ejector Vacuum System. This modification affects FSAR Figure 10.4.2-1.

Safety Evaluation: A constant flow of steam and condensate leaks by valve 1SB29. This modification corrects a personnel safety hazard. The change does not adversely impact any safety or non-safety system. This modification does not involve any unreviewed safety question.

CN-20125

Description: This Unit 2 modification to the Solid State Protection System manually reset the Main Steam Isolation Signal due to low steamline pressure or Hi-Hi containment pressure while signal is still present. This will enable the plant 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-20180

Description: This Unit 2 modification provided for the installation of a permanent sight glass to the Reactor Coolant (NC) System. The sight glass allows for the level measurements between the RVLIS connection on NC hot leg 2C and the low pressure tap for 2 NCLT6450. This sight glass is to be valved into the NC piping only during draining operations on the NC system. This modification affects FSAR Figures 5.1-1 and 5.1-2.

Safety Evaluation: Lack of accurate and reliable level indication on the NC System for determining level while draining below 12% level has caused loss of suction on both trains of the residual heat removal system, rendering them inoperable and creating a Technical Specification violation.

There are no failure modes for this modification which could result in the degradation of any equipment important to safety.

This modification will not increase the initiation of any accident or equipment malfunctions analyzed in the FSAR, and will not result in the creation of any new accidents. 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. This modification will not reduce the plant margin of safety as defined in the bases to the Technical Specifications.

This modification does not involve any unreviewed safety question.

CN-20208

Description: This modification provides for the reinforcement of supports and elongation of bolt holes for thermal expansion of Starting Air Manifold piping.

Safety Evaluation: This modification provides for the validation of the design review for the Starting Air manifold piping, Component No. 02-441-A. This modification does not adversely impact any safety system. This modification does not involve any unreviewed safety consideration.

CN-20265

Description: This modification revises the Unit 2 Boric Acid Tank level instrument scheme by utilizing a reference leg-type installation which indicates properly under pressurized conditions. This modification affects FSAR Figure 9.3.4-5.

Safety Evaluation: This modification allows for accurate indication of the Boric Acid Tank level. This modification does not involve any changes to the process control cabinets. This modification does not involve any unreviewed safety question.

CN-20303

Description: This modification installs temporary level instrumentation off of alternate steam generator level taps on one SG to monitor indicated level response at these alternate taps. This data will be used to determine if a level tap change can improve steam generator level control.

Safety Evaluation: The modification involves the temporary installation of level instrumentation on one of the four steam generators (S/Gs) of Catawba Unit 2. The installation utilizes existing level taps which are presently plugged. The instrumentation will serve no control function, no safety function, and will not be used by the control room as an alternate S/G level indication. The data which is provided by the new instruments was used only as comparative data to determine whether use of the lower level taps will actually improve S/G level control. The temporary level instrumentation interfaces with the steam generator at the existing lower taps and with the plant computer, with the capability to record data on the transient monitor. It ties into existing impulse lines coming off the upper tap locations but there is no functional interface with or modification of existing S/G level

instrumentation. Neither will there be any interface with engineered safeguards nor any other control or protection systems.

No accidents or equipment malfunctions will be affected or created, and no margins of safety will be affected. This modification does not involve any unreviewed safety question.

CN-20316

Description: This Unit 2 modification involved the installation of temperature elements upstream of check valves 2CA37 and 2CA65 to provide computer indication and alarms on increasing temperature indicating backleakage through the check valves. This modification affects FSAR Table 10.4.9-4.

Safety Evaluation: 2CA37 and 2CA65 are in the discharge lines from the turbine-driven auxiliary feedwater pump (TDCAP) to S/Gs D and A, respectively. The thermocouples are of the strap-on type. These thermocouples involve no pressure boundary penetrations and are not in contact with the flowing water. Therefore, the integrity or performance of the system is unaffected by this modification. Since there is no interaction with the CA system and no adverse interactions with other systems, the probability of previously analyzed accidents and malfunctions of equipment important to safety is not increased and the possibility of new accidents and equipment malfunctions is not created. The modification does not affect the performance or operational characteristics of any system and so does not reduce the margin of safety as defined in the bases to technical specifications. The strap-on thermocouples provide a safety and reliable method for determining whether check valve backleakage is occurring and thus can help to prevent subsequent damage to equipment. This assures that equipment will be able to perform as designed when called upon to do so, and the modification is designed such that single failures affect only one train of auxiliary feedwater. Therefore, the consequences of accidents and malfunctions of equipment important to safety are not increased. This modification does not involve any unreviewed safety question.

CN-20328

Description: This change modifies control circuit wiring on 2NI-9A, 10B, 100B, 183B, 162A, 173A, 178B, 184B, 185A, 2NV-89A, 91B, 188A, 189B, 252A, 253B, 312A, and 314B to provide "limit actuated" torque switch bypass contacts which can be adjusted independent of indication or interlocks.

Safety Evaluation: This modification is being implemented as a result of the findings in NRC IEB 85-03, "MOV Common Mode Failures During Plant Transients Due to Improper Switch Settings".

The subject valve operators have "limit switch" actuated "torque bypass switch" contacts. To assure that these valves open fully, the "torque bypass switch" will defeat the torque switch for a much longer opening stroke travel - 0 to 25% open.

In this manner, the maximum motor torque will unseat and open the valve against full flow and Δp without allowing the torque switch to operate until the valve is ~ 25% open. Then, if for some reason an unusually high torque is measured, the torque switch could trip off the motor, protecting the valve but not leaving it closed when it should be open. The torque switch protects the valve when opening by tripping the motor when the back seat is reached due to increased torque (resistance).

Functionally these valves will operate identically to the way they presently operate. With the new control circuit wiring and "torque bypass switch" setting, the valves should be more reliable in attaining the desired positions without letting the torque switch protection device interfere. Also, other indications and interlocks associated with valve operation, position etc., will not be affected by these changes.

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, consequences or possibility 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. This modification does not involve any unreviewed safety question.

CN-20457

Description: This modification removes vendor supplied pressure gauges from the present locations on Lube Oil Filters 2A and 2B and Pre-Lube Oil Filters 2A and 2B. It specifies instrumentation, piping, test tees, isolation valves, and Duke supplied pressure gauges to be installed next to filters. Present pressure gauge location on Lube Oil Filter requires draining oil from filter to service the pressure gauge. New configuration will facilitate calibration and maintenance of pressure gauges without draining the oil.

Safety Evaluation: No safety system will be degraded as a result of this modification. No changes or impact to FSAR or Technical Specifications will result from the implementation of this modification. Therefore, no unreviewed safety questions are created or involved as a result of this modification.

CN-20494

Description: This modification replaces 2NCRD5850 and 2NCRD5870 which are reactor coolant wide range resistance temperature detectors. These detectors supply signals to wide range temperature recorders located in the control room. This information is used by the operators to control the coolant temperature during startup, shutdown and Condition II, III and IV Events. These Conax detectors will replace the RDF detectors which are presently used at Catawba Nuclear Station. The change in manufacturer is due solely to supply problems.

Safety Evaluation: Since the reactor coolant system and the function of the RTD's are not adversely affected by this

replacement the probability or consequence of an accident previously evaluated in the FSAR is not increased nor is the probability or consequence of a malfunction of equipment important to safety previously evaluated in the FSAR increased.

The nature of these RTD's as measuring devices and the fact that the reactor coolant system is not adversely affected preclude their potential role as event initiators. Therefore, the possibility of an unanalyzed accident is not created by the replacement of 2NCRD5850 and 2NCRD5870.

This NSM will have no adverse impact on the thermowell or any other piece of equipment; therefore, it does not create the possibility of an unanalyzed malfunction of equipment important to safety.

Operating parameters, safety limits and set points will remain the same following the implementation of this NSM as they were prior to its implementation. Therefore, the margin of safety as defined in the bases to any Technical Specification is not reduced by this NSM.

Based on the above analysis there are no unreviewed safety questions involved with this modification.

CN-20503

Description: This modification injects sealant material in the gasket area of the steam generator manway for steam generator 2A. This is done by drilling holes circumferentially around the manway cover and injecting the sealant material at these locations. These sealant material injections should stop steam leaks around the manway cover gasket.

Safety Evaluation: This modification only affects the steam generators shell and does not create any new failure modes. The probability and consequences of any malfunction are not increased. This modification does not involve any unreviewed safety considerations.

CN-50016

Description: This change involves the addition of a Makeup Demineralizer Water System (YM) supply pump recirculation path through the YM demineralizers. This recirculation path must be provided through the demineralizers to prevent either a bed channeling problem during periods of low flow or high conductivity alarm on YM after the bed has been in a no flow situation. This recirculation path is to assure that the minimum flow through the YM demineralizer will be no less than 125 gpm. This modification involves FSAR Figures 9.2.3-1 and 9.2.3-4.

Safety Evaluation: The YM system is not required for maintenance of plant safety in the event of an accident. Only the containment isolation valves and the piping connecting the valves are safety class. This modification does not affect the safety class portion of the YM system. The affected parts are

located entirely within the Service Building which is a non-QA structure. This modification does not adversely affect any safety system. This change does not involve any unreviewed safety consideration.

CN-50025

Description: This modification provides for the construction of a temporary waste storage facility. This allows for the temporary storage of waste that cannot be disposed of immediately. This modification affects FSAR Section 9.5.1-6.

Safety Evaluation: This building is being erected to store hazardous waste safely until it can be shipped off site. It is a non-QA structure. Adequate fire protection is provided by a non-QA sprinkler system and any wall penetrations are sealed with RTV foam. Concrete curbing will contain any spillage and a sloped floor will direct it to a trench which drains to a sump. Any possible releases of chemicals or smoke will not affect control room habitability. This structure performs no safety function nor will it affect any safety related structures system or components. This modification does not involve any unreviewed safety consideration.

CN-50055

Description: This modification provides Makeup Demineralizer Water System (YM) supply lines to the Auxiliary Building decontamination sinks such that Demineralized Water is available for both sink use and local header supply. This modification affects FSAR Figures 9.2.3-2, and 9.2.3-6.

Safety Evaluation: Makeup Demineralized Water (system YM) is currently supplied at the decontamination sinks in each Aux. Building for both sink use and local use (for example filling janitorial buckets). A hose is used for directing water where needed. This modification would add a permanent 3/4" line and manual isolation valve for local use, particularly filling roll-around janitorial buckets at 14 decon. sinks. The YM supply header in each case is capable of isolation such that the installation of this change can be made at any time. The new piping and valves have design parameters compatible with the YM supply to the sinks. The system is manually operated locally which should limit excessive flow to drains from spills. Auxiliary Building floor drains are part of the Floor Drain Tank (FDT) Subsystem of the Liquid Radwaste System (WL). Liquids are potentially radioactive, but are generally suitable for discharge without treatment. Floor drain headers are routed to the various tanks and sumps of the WL system in a manner designed to minimize the liquid and gaseous radioactive releases.

The Makeup Demineralized Water System is not required for maintenance of plant safety in the event of an accident and plays no role in initiating or mitigating design basis accidents. Seismic initiated flooding is not a concern because the new lines are short runs of 3/4" pipe. Based on the above, the probability or consequences of an accident previously

evaluated in the FSAR will not be increased and no new accident different than any already evaluated in the FSAR will be created. Since no equipment is adversely affected, the probability or consequences of a malfunction of equipment important to safety previously evaluated in the FSAR will not be increased and there is no possibility of malfunctions of equipment important to safety different than already evaluated in the FSAR. 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.

CN-50062

Description: This change modifies temporary pressure test connections and provides for the installation of an annubar and flow gauges on the low pressure service water (RL) system side of the Administration Building and Computer Room Chilled Water Systems Chillers. This modification affects FSAR Figure 9.2.8-4.

Safety Evaluation: Instruments added per this modification are to be used to gather data to determine the friction and fouling characteristics of raw water pipe. Computer modeling codes for the Nuclear Service Water System will be improved based in this data. This modification does not affect any QA condition structures, systems or components. This modification does not involve any unreviewed safety consideration.

CN-50065

Description: This modification provides for the construction of a performance calibration lab and storage area in the Service Building. This modification affects FSAR Figures 9.2.3-1 and 9.3.1-1.

Safety Evaluation: This modification is necessary to allow for proper calibration of performance and secondary side instruments. No safety system will be degraded and no functional change will occur due to this modification. This modification does not involve any unreviewed safety consideration.

CN-50110

Description: This modification adds level instrumentation upstream of waste gas headed drain valves IWG339, 340, 345, thru 351 to detect the presence of liquid in the drain lines. This modification affects FSAR Figure 11.3.2-4.

Safety Evaluation: No safety system will be degraded by implementation of this modification. No functional changes to any systems are to be made. This modification will allow the drain header to function more efficiently. No unreviewed safety question is judged to be created or involved as a result of this modification.

CN-50175

Description: This change modifies the radwaste transfer pump so that it will operate under the bead resin load. This modification affects FSAR Figures 11.4.2-4 and 9.2.3-2.

Safety Evaluation: This modification provides additional flexibility and resolves problems discovered during preoperational testing of Catawba's Solid Radwaste System. No safety systems are degraded as a result of this change. This modification does not involve any unreviewed safety considerations.

CN-50178

Description: This modification replaces the Process Equipment stainless steel tank with a Process Equipment fiberglass tank. Stainless still tubing is also replaced with plastic tubing. Stainless steel valves are also replaced with brass or PVC valves. This modification affects FSAR Figure 9.4.4-2.

Safety Evaluation: The subject NSM is to change out materials in the Filtered Water System (YF) coagulant process equipment including the coagulant mixing and storage tank, piping, and valves.

In compliance with public health standards, a back flow preventer is provided between the Drinking Water System supply and the filtered water supply to other station equipment. The Filtered and Drinking Water Systems do not perform any safety function. The only interconnections between the Filtered and Drinking Water Systems and other systems having the potential for containing any radioactive material occur in the Makeup Demineralized Water System. A reduced pressure principal backflow preventer installed between the filtered water tank riser and the Makeup Demineralized Water System supply line prevents any possible backflow. This portion of the YF system does not have a QA condition associated with it; piping is class G or H. No equipment important to safety will be degraded during design basis events as a result of this change. Therefore, the modification has no safety significance. This modification does not involve an unreviewed safety consideration.

CN-50180
CN-50292

Description: These modifications provide for the construction and tie-in of the Monitor Tank System. The Monitor Tank System is designed to provide additional processing capability to the Liquid Waste (WL) System and the Steam Generator Drain Tanks. It also provides condensate powdex processing capability and additional monitor tank capability. These modifications affect FSAR Sections 11.2 and 11.6, Table 11.6.2-1, and Figures 2.4.1.1-4, 9.2.3.-1, 9.2.3-6, 9.2.4-3, 9.3.1-1, 9.3.1-7, 10.4.7-8, 10.4.7-9, 11.2.2-9A, 11.2.2-12, 11.2.2-16, 11.2.2-19, and 11.6.2-1 thru 11.6.2-3.

Safety Evaluation: as an extension of the WL System, the Monitor Tank Building (MTB) and its associated equipment and components are not related to any FSAR accident analysis except those dealing with radioactive releases due to liquid tank failures. The consequences of a Liquid tank failure within the MTB are much less severe than the consequences of the Refueling Water Storage Tank failure already evaluated in the FSAR.

Therefore, the probability and consequences of an accident previously evaluated in the FSAR will not be increased. Since the only accidents postulated for the MTB are a system leak or tank failure, the possibility of an accident of a different type than any previously evaluated in the FSAR will not be created. The MTB and its associated equipment and components are not related to any margin of safety and will not affect any parameter associated with any margin of safety. The MTB does not involve any unreviewed safety considerations.

CN-50194

Description: This modification provides for the replacement of the existing chilled water coil in Counting Room HVAC with a DX Coil and air cooled condensing unit. Blackout power supply is provided to the equipment. Control modifications separate the Counting Room HVAC from other Auxiliary Building Ventilation Systems. This modification affects FSAR Section 9.4.3.2-5.

Safety Evaluation: This modification improves the reliability of the Counting Room HVAC by eliminating its dependency in the Radwaste Area Chilled Water System. This modification does not adversely affect any safety system. The system is not safety related and the possibility for indirect and secondary interaction does not exist. This modification does not involve any unreviewed safety considerations.

CN-50208

Description: This modification provided for the installation of a centrifugal type air compressor to provide Instrument Air (VI) and Station Air (VS). The older reciprocal compressors are to be used as back-ups. This modification affects FSAR Section 9.3.1, FSAR Table 9.3.1-1, and Figures 9.3.1-1 thru 9.3.1-8.

Safety Evaluation: Based on experience at other Duke Power plants including McGuire, centrifugal air compressors are more reliable than reciprocating compressors requiring significantly less maintenance and downtime. The compressor will be located in the Service Building and is non-safety related.

The centrifugal compressor will operate as base load to supply the normal requirements of the VI and VS systems with the presently installed VI and VS compressors utilized for standby. This will increase compressed air capacity as well as provide greater flexibility for necessary maintenance. If the system demand exceeds the centrifugal compressor capacity, low VI header pressure will initiate a signal to start additional standby compressors as demand dictates. If the VI pressure drops below a low set pressure, a self-contained back pressure control valve will close to terminate air supply to the VS system in order to maintain air supply to the VI system. Overpressure protection has been considered.

The addition of added capacity and reliability will decrease the possibility of creation of an accident which is different than any already evaluated in the FSAR. This is due to the

compressed air system's higher probability of operating as designed.

The probability or consequences of a malfunction of equipment important to safety previously evaluated in the FSAR will not be increased. Since no new failure modes have been identified, the possibility of a malfunction of equipment important to safety different than any already evaluated in the FSAR will not be created. Based on the compressed air system functioning the same as before and more reliably, the margin of safety as defined in the bases to any Technical Specification will not be reduced. This modification does not involve any unreviewed safety question.

CN-50226

Description: An overflow line was provided on the Spent Resin Storage Tank (SRST) A vent line. It ties off of the vent line upstream of 1WS11 which remains normally closed. The overflow ties in to the line leading to WEFT Sump B upstream of valve 1WS39. This valve will become normally open and serve as the vent path for the tank.

A similar overflow setup is provided for SRST B. The tie-off on the vent line occurs upstream of 1WS32. The overflow ties-in upstream of 1WS46 which will change to normally open operation and serve as a vent path for the tank. This modification affects FSAR Figures 11.4.2-1, 11.4.2-2 and 11.2.2-4.

Safety Evaluation: The modification reduces the possibility of tank overflow entering the VA system ductwork, and still allows the tanks to be charged with nitrogen in a similar manner as before. When charging the tanks with nitrogen to loosen compacted resin, the valves 1WS39 and 1WS46 will be closed. Valves 1WS11 and 1WS32 will be opened to vent off excess nitrogen. The modification does not affect the operation of the VA system during normal operation except as mentioned above.

No accident scenario in Chapter 15 of the FSAR involves the SRST's or the WEFT sump; therefore, the probability or consequences of an accident previously evaluated in the FSAR is not increased. The function of the SRST's is not changed, the Auxiliary Building Ventilation (VA) system operates as before, and the WEFT sumps are sized and qualified to handle the contaminated liquids expected from these overflows. The possibility of an accident different than any already evaluated in the FSAR will not be created. The SRST is not adversely affected and in fact the SRST and associated systems should operate better since the instrumentation readings will fluctuate less. The WEFT sump pump and WEFT are designed for these types of flows. No other equipment is affected and therefore the probability or consequences of a malfunction of equipment important to safety previously evaluated in the FSAR will not be increased. No other equipment is affected, so the

possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR will not be created.

No setpoints, operating parameters or safety limits are changed; therefore no margin of safety as defined in any Technical Specification is impacted or reduced.

There are no unreviewed safety questions associated with this NSM.

CN-50305

Description: This modification provides for the upgrade of the Station Telephone System. This modification affects FSAR Section 9.5.2.

Safety Evaluation: This modification is not related to the cause of mitigation of any accident previously evaluated in the FSAR. No equipment important to safety is involved. Cable routes have been reviewed for Appendix R fire interaction concerns. This modification does not involve an unreviewed safety question.

CN-50334

Description: This modification provides a more reliable method of monitoring waste gas releases at the station. The relocation of valve 1WG160 downstream of radiation monitor EMF-50 prevents the release of radioactive gases detected by the monitor as appropriate. A nitrogen purge was added upstream of 1WG160 so that the discharge header can be purged back into the Waste Gas (WG) System.

A loop seal was added to the discharge line to prevent water from entering the WG system via the unit vent. The WG system relief header was rerouted from upstream of EMF50 to downstream of the new location of 1WG160. The discharge flow gauge (OWGP5940) and the flow totalizer (OWGMT5940) were moved to a point where it can be seen from the WG system control panel. All Waste Gas Decay Tank releases will be made from Tank "C". This requires additional pipe routing from all tanks to Tank "C". Dedicated sample lines run from each tank for sampling. A visual type flow meter was added to allow inspection for water in the sample header. Rotameter OWGFS6170 was removed from the in line flow and replaced with a different type of instrumentation switch that performs the same function. This modification affects FSAR Figures 11.3.2-2, 11.3.2-3, and 11.3.2-5.

Safety Evaluation: A seismic interaction study was done for affected piping and it has been determined that no seismic interactions exist. The racks containing the nitrogen bottles are seismically anchored. The replacement switch for the rotameter is still controlled by EMF50. A high radiation signal on EMF50 will terminate flow. This modification is an operational enhancement. The design bases of the system is not impacted even though the design of the system has been changed.

This modification has QA Condition 1 portions because of the addition of new (redundant) isolation valves. The rest of the modification is QA Condition 2. No new release paths have been created. No new failure modes have been created. Adequate isolation of the waste gas tanks has been maintained. Although the new method of release will be through Tank "C", after the gas to be released has transferred to Tank "C" the tanks will again be isolated and then the release from Tank "C" will be made. At no time will the rupture of one tank allow the release of more than one tank's contents. As such the FSAR Chapter 15 accident analysis for a waste gas tank rupture will not be impacted. Waste gas plays no role in any other Chapter 15 accident mitigation. This modification does not involve an unreviewed safety question.

CN-50346

This modification replaces the coagulant controllers and Streaming Current Detectors (SCD) in the Filtered Water System (YF) system. With the installation of Ultrasonic Cleaners for the SCD's were also installed. This modification also updates the YF instruction manual to as-built condition. This modification affects FSAR Figure 9.2.4-1.

Safety Evaluation: The new SCD's and ultrasonic cleaner will provide a more reliable reading to the coagulant controller. The installation of this modification will not change the function or operation of the YF system. It will provide a more reliable and superior control of the coagulant in the YF system. This modification involves no unreviewed safety questions.

CATAWBA NUCLEAR STATION

SUMMARY OF EXEMPT VARIATION NOTICES
COMPLETED UNDER 10 CFR 50.59 DURING 1988

- CE-0718 Description: This change adds a Makeup Demineralizer Water System (YM) supply to the Unit 2 S/G sodium analyzer to allow for proper calibration. This change affects FSAR Figures 9.3.2-7 and 9.3.2-10.
- Safety Evaluation: This change will allow more accurate sodium analyzer calibration which will improve 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 will not reduce the margin of safety as defined in any Technical Specification bases. This modification does not involve any unreviewed safety consideration.
- CE-0789 Description: This modification replaces all limit switches on Containment Purge valves IVP7, 11, 17, and 20 with new Namco limit switches with date codes later than 02/06/80. The actual date codes for the limit switches installed will be forwarded to Design Engineering to update the Environmental Qualification Reference Index after switches have been installed.
- Safety Evaluation: The limit switches on valves IVP7, IVP11, and IVP20 are being replaced to comply with 10CFR50.49. This will ensure the equipment will perform as required when subjected to the environmental conditions present at the time it must function. No changes to the FSAR or Technical Specifications. The possibility, probability, or consequences of accident or equipment malfunction will not be increased. This change does not involve any unreviewed safety questions.
- CE-0821 Description: This modification specifies a standard size bottle and expansion coils at the tubing connections, to eliminate problems with variations in N2 tank sizes and to allow for seismic movements of N2 tanks.
- Safety Evaluation: This modification has no effect on any system structure or component important to safety. This modification improves system operation. This modification does not involve any unreviewed safety question.
- CE-0940 Description: This change revises the nameplates on the Standby Shutdown Facility (SSF) that could possibly lead to an operator

error. These revisions will better define the function of the associated devices.

Safety Evaluation: The revision of nameplates on OCNSL0001 will not create an unreviewed safety question or require a change to the Technical Specifications.

CE-1003

Description: This modification involves the release of specifications to the Station regarding usage of flexible blanket type insulation inside containment.

Safety Evaluation: The insulation system inside containment has a very passive role in plant operation and the performance of blanket insulation is essentially identical to that of the mirror insulation it replaces. Blanket insulation does not increase the probability of previously evaluated accidents.

During normal operation, blanket insulation is at least equivalent to mirror insulation in heat retention capability and performs much better in areas where insulation removal and reinstallation has taken place. So blanket insulation does not present unnecessary challenges to equipment required for containment heat removal. Following a LOCA, blanket insulation debris has been shown to have a high probability of remaining within the crane wall and thus not affecting the performance of ECCS equipment.

The blanket insulation will have no adverse impact on any operating parameters and no effect on any safety limits or setpoints. It serves no role in accident mitigation and will have no adverse impact on the performance of ECCS components, since the impact on the NPSH margin has been evaluated and found to be acceptably low. Therefore, the margin of safety as defined in the bases to any Technical Specifications is not reduced by replacing mirror insulation with blanket insulation. This modification does not involve any unreviewed safety consideration.

CE-1017

Description: This change adds trash catch screens to the bottom half of the Unit 1 and 2 cooling tower primary outlet screens.

Safety Evaluation: This modification will prevent refuse caught on the screens from falling into the outlet when the screens are removed. The modification will have no appreciable effect on Condenser Cooling Water System (RC) flow and will not increase the probability of occurrence or severity of consequences of any accident or malfunction. The modification creates no unreviewed safety questions and requires no revision to Technical Specifications. This change does not involve any unreviewed safety question.

CE-1075

Description: This variation notice was initiated to install a pressure gauge in the 1" vent line off the RMWST downstream of

valve 1NB248. This gauge will be monitored periodically by Operations to provide indication of the tank pressure condition. This change affects FSAR Figure 9.3.5-7.

Safety Evaluation: This change does not increase the probability or consequences of an accident previously evaluated in 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 FSAR. This change will not reduce the margin of safety as defined in an Technical Specification bases. This modification does not involve any unreviewed safety consideration.

CE-1152

Description. This modification provides for the deletion of piping downstream of valves 1KD29, 14, 31, 32, 1RN234, and 294. Drain lines downstream of these valves otherwise have to be cut when the Diesel Generator engine jacket water coolers or oil coolers are disassembled. This modification affects FSAR Figure 9.5.5-1.

Safety Evaluation: This change is necessary to prevent cutting and rewelding piping. This change does not affect safety related structures, systems, or components and no safety system will be degraded.

Deletion of piping downstream of drain valves 1RN234, 1RN294, 1KD14, 1KD29, 1KD31, and 1KD32 will not create an unreviewed safety question or require a change to the Technical Specifications; likewise, elimination of drain header downstream of 1KD11 and 1KD26. This change is being made to simplify disassembly of the D.G. lube oil cooler and the jacket water cooler.

CE-1308

Description: The old torque switch setting sheets are being superseded in response to NRC Bulletin 85-03. The purpose of the new sheets is to ensure that switch settings on certain safety-related motor-operated valves are selected, set and maintained correctly to accommodate the maximum differential pressures expected on these valves during both normal and abnormal events within the design basis. The new torque switch setting sheets ensure the valve will operate during normal and abnormal events by setting limitations on Total Thrust, Delta Thrust and Packing Load. These values are verified by the use of MOVAT's testing.

Safety Evaluation: The probability or consequences of an accident previously evaluated, or different than already evaluated, will not be increased by this modification. Nor will the probability of consequences of any equipment malfunction previously evaluated, or different than any already evaluated, in the FSAR be increased due to this modification.

The margin of safety as defined in the basis to any Technical Specification will not be reduced by the use of the new torque switch setting sheets. The new torque switch settings ensure adequate thrust output of the motor operators. This modification does not involve any unreviewed safety question.

CE-1316

Description: This modification increases the length of the trace heat cable for a section of piping from the Boric Acid transfer pump to the Volume Control tank to include 1NV234 which directs flow for Emergency Boration Flow line into the Chemical and Volume Control System. Valve 1NV234 is not trace heated and Boron Crystallization causes frequent maintenance to open Emergency Boration Flowpath. This modification affects FSAR Figure 9.3.4-8.

Safety Evaluation: Changing the trace heat cables for this loop will not create an unreviewed safety question or degrade the system in any manner. The consequences or probability of an accident or malfunction of equipment previously evaluated in the FSAR will neither be increased or created. The margin of safety as defined in the basis to Technical Specification will not be reduced. This modification does not involve any unreviewed safety consideration.

CE-1326

Description: This modification adds a drain to the junction boxes on the MFWIV Actuators. There has been a history of water getting into the boxes through cable connections to them on the top and sides. This leakage is due to damage to the sealed cable entrances caused by persons using the cables as a climbing step. The boxes, as is the entire valve actuator, are EQ.

Safety Evaluation: Because the only damaged seals are at the top of the box, there is no means for the water to escape, which causes the water to accumulate and results in severe corrosion. This corrosion and the water's presence could cause the valve to close spuriously. The drain will allow any water that gets into the box to escape, thus eliminating the long term accumulation and most of its corrosive damage. The drain is designed in such a way as to prevent steam leaks from blowing straight into the boxes. Also, because these boxes are not located in a LOCA environment and would not be exposed to excess pressure conditions, the drain does not degrade the Environmental Qualification of the actuator. The drain design was reviewed and approved by the actuator's manufacturer for installation. By stopping the water's accumulation and corrosion, the valves' reliability and proper operation are enhanced. Thus, the consequences or probability of an accident or malfunction of equipment previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced. This modification does not involve any unreviewed safety question.

CE-1340

Description: Instrument 1CAFT5120 provides Aux. Feedwater flow to S/G D indication to the Control Room. The present model, Barton 764, has failed with no available replacements. The replacement is a Rosemount Model 1153DB5PA. This transmitter is a class 1E transmitter and is qualified to the same standards as the Barton 764.

Safety Evaluation: EQ considerations have not been reduced. The input and output characteristics of the Rosemount transmitter are the same as the Barton being replaced and therefore will function without any other system modifications being needed. Thus, the consequences or probability of an accident or malfunction of equipment previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced. This modification does not involve any unreviewed safety considerations.

CE-1369

Description: This modification removes valves with Item # 6J-238 and replace with 1" ITT Grinnel Item # CMV-269 valves. Revise valve cross reference to show both valves 2LD 116 and 2LD 118 with Item # CMV-269. This modification affects FSAR Figure 9.5.7-2.

Safety Evaluation: Replacing Globe Valves 2LD116 and 2LD118 (Item # 6J-238) with Ball Valves (Item # CMV-269) will provide valves that are capable of being disassembled and reassembled without the removal and replacement of a seal weld. This will reduce the possibility of damage to the valves during maintenance activities. The existing valves are Class G Non-Safety related, and were installed as construction drains. The replacement valves will provide adequate isolation of the drain piping and will not affect system operational requirements. Since these drain valves do not perform a safety function, the possibility of an accident will not be created, the probability or consequences of an accident be increased, nor will the probability or consequences of a malfunction of equipment important to safety be increased by the addition of ball valves.

CE-1371
CE-1372

Description: These changes will allow the ENB Source and Intermediate Range detectors to have adequate space for water drainage within the housings. The present detectors will be replaced with detectors having modified housings.

Safety Evaluation: The detectors, inside the housings, will remain unaffected. This change is a result of a new Westinghouse design for the detector housings. All detectors replacements will be QA-1 qualified and serve the same functions as the existing detectors. Changes made by this VN will not degrade the excore detectors. Materials, of the replacements, will be QA-1. This modification does not involve any unreviewed safety question.

CE-1378

Description: This modification defeats the trips of the hotwell pumps on condenser hotwell emergency low level. This trip signal is initiated by level switches 1CMLS5460, 1CMLS6960, and 1CMLS6970.

Safety Evaluation: These switches do not perform a safety related function and are not QA Condition. The deletion of the trip will prevent spurious trips which have occurred at the other Duke plants and throughout the industry. These trips resulted in significant damage to the feedwater and related systems. The tripping of the hotwell pumps on emergency low level will now be a manual trip by the control room operators. However, this does not create a safety concern as per the FSAR, "any failure in the non-safety class portions of the Condensate and Feedwater systems does not prevent safe shutdown of the reactor." The worse case accident would be an operator's failure to trip the hotwell pump on emergency low level which would result in damage to the pump. However the course of events that would lead to an emergency hotwell low level should have lead the operators to trip the pumps and the unit via operating procedures. No new safety concerns are created and there are no unreviewed safety questions. The consequences and probability of an accident or malfunction of equipment important to safety and previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced. This modification does not involve an unreviewed safety question.

CE-1379

Description: This modification defeats the trips of the hotwell emergency low level. This trip signal is initiated by level switches 2CMLS5460, 2CMLS6960, and 2CMLS6970.

Safety Evaluation: These switches do not perform a safety related function and are not QA Condition. The deletion of the trip will prevent spurious trips which have occurred at other Duke plants and throughout the industry. These trips resulted in significant damage to the feedwater and related systems. The tripping of the hotwell pumps on emergency low level will now be a manual trip by the control room operators. However, this does not create a safety concern as per the FSAR, "any failure in the non-safety class portions of the condensate and feedwater systems does not prevent safe shutdown of the reactor." The worse case accident would be an operator's failure to trip the hotwell pump on emergency low level which would result in damage to the pump. However, the course of events that would lead to an emergency hotwell low level should have lead the operators to trip the pumps and the unit via operating procedures. No new safety concerns are created and there are no unreviewed safety questions. The consequences and probability of an accident or malfunction of equipment important to safety and previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications

will not be reduced. This modification does not involve an unreviewed safety question.

CE-1496

Description: This change repositions the operating elevation of the fully withdrawn RCCA's from 228 steps to 230 steps so that the interfacing surfaces between the parked rods and the guide cards is shifted. RCCA overlap was adjusted from 113 to 114 steps.

Safety Evaluation: Modifying the operating elevation of the parked RCCAs from 228 to 230 steps withdrawn does not pose any unreviewed safety questions or require and Technical Specification changes. Operation of the fully withdrawn RCCAs at 231 steps does not create an unreviewed safety question or require a technical specification change provided that the mechanical withdrawal limit of all the RCCAs is verified to be 231 at 557°F. The probability and consequences of the accidents and safety related equipment malfunctions that are evaluated in the existing FSAR are not increased. In addition, the possibility of an accident or equipment malfunction which is different than any previously evaluated in the FSAR is not created. Also, the margins of safety which are defined in the bases of the Technical Specifications are not reduced. Therefore, implementation of RCCA axial repositioning by the thumbwheel and individual manual adjustment methods is acceptable.

CE-1510

Description: This modification relocates 2RNTE5000 and 2RNTE5010 upstream of Tee branching to the NS Heat Exchangers. This modification will allow daily monitoring of the RN Header temperature during the months of July, August, and September.

Safety Evaluation: This relocation will have a minimal affect on the flow in the RN Header due to the large diameter, 30 inches, of the pipe.

Accordingly, this modification will not increase the probability or consequences of an accident previously evaluated, or different than any already evaluated, in the FSAR. Nor will it increase the probability or consequences on an equipment malfunction, previously evaluated, or different than any already evaluated, in the FSAR. The margin of safety defined in the bases of the Technical Specifications is unaffected. An unreviewed safety question does not exist.

CE-1518

Description: This change replaces the pressurizer PORV's existing die formed graphite packing with braided packing.

Safety Evaluation: This change does affect the function of the valves. The change allows the valves to operate more smoothly. This modification will not increase the probability or consequences of an accident, create the possibility of an accident, or increase the probability or consequences of a malfunction of equipment important to safety. No unreviewed safety question is created by this modification.

CE-1523
CE-1524

Description: These changes replaces the P3 shuttle valve in the D/G control panel, with a base mounted OR gate. The pneumatic shuttle valve has proven to be unreliable and has caused numerous trips of the D/G. This has been attributed to poor workmanship in its manufacture and material, and to poor design.

Safety Evaluation: The base mounted OR gate is presently used in other applications in the D/G pneumatic controls and has proved to be reliable. It has been tested in the application of the P3 shuttle valve and has exhibited no pressure drop during signal transfer as was seen in the P3 shuttle valve. The base mounted OR gate is approved by the vendor for use in this application, and is a Nuclear Safety qualified part. The base, on which the OR gate mounts, has been recommended and Nuclear Safety qualified by IMO Delaval. IMO Delaval also has approved the installation location and mounting of the base and OR gate. See the attached IMO Delaval letter and drawing showing the mounting of this. The base has been qualified and provided by IMO Delaval.

The consequences or probability of an accident or malfunction of equipment previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced. This change does not involve any unreviewed safety question.

CE-1580
CE-1581

Description: These changes will remove unqualified terminal blocks from Limitorque Actuators NI054A, NI065B, NI076A and NI088B. The motor power terminal block is unqualified in these valves and must be replaced with a qualified Raychem splice.

Safety Evaluation: The probability or consequences of an accident previously evaluated, or different than already evaluated, will not be increased by this modification. Nor will the probability or consequences of any equipment malfunction previously evaluated, or different than any already evaluated, in the FSAR be increased due to this modification.

The margin of safety as defined in the basis to any Technical Specification will not be reduced by replacing the terminal block with a qualified Raychem splice. The Raychem splice is qualified for in-containment use and the terminal block being removed is not. This change does not involve any unreviewed safety question.

CE-1602
CE-1607

Description: These modifications change the type oil used in the CA turbine driven pump and the alarm setpoint for the bearing temperatures. These changes have resulted from constant high bearing temperature alarms which are caused by a

higher than expected ambient temperature at the pump. This conclusion and the recommended changes were made by the pump manufacturer.

Safety Evaluation: The new oil will withstand the higher temperature and provide adequate equipment protection. The alarm setpoint change will be to 220° which is 10° below the manufacturer's recommended shutdown temperature. Per the manufacturer's recommendation, these modifications are to be joint change. Adequate work controls will be given to ensure that neither change is performed without the other. The consequences or probability of an accident or malfunction of equipment previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced. This change will not create any unreviewed safety question.

CE-1622

Description: This modification changes the time delay associated with tripping the Condensate Booster Pumps on low suction pressure. This is to allow the system more time to respond to transients that occur. The current setting, 5 sec., causes a premature trip of the pump which hinders the system's ability to correct disturbances. CM disturbances of short duration can cause an unnecessary unit trip.

Safety Evaluation: This change does not affect any safety related equipment or circuits. This change does not create a safety concern as per the FSAR "any failure in the non-safety class portions of the Condensate and Feedwater system does not prevent safe shutdown of the reactor." The consequences or probability of an accident or malfunction of equipment previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced. This modification will not create an unreviewed safety question.

CE-1629

Description: This change will fill the termination enclosures for the NC system wide range hot and cold leg aux. shutdown panel indication loops and PAM indication loops RTD, with Scotchcast 9 Epoxy. The enclosures involved are not environmentally qualified to prevent introduction of moisture and radiation into the enclosures subsequently producing excessive errors on RTD signals.

Safety Evaluation: The sealing of these enclosures will not increase the possibility or probability of an accident or consequences of an accident previously evaluated in the FSAR. The possibility of an accident different than any already evaluated in the FSAR will not be created. The consequences or probability of a malfunction of equipment previously evaluated in the FSAR will neither be increased nor created. The margin of safety as defined in the basis to any of the Technical Specifications will not be reduced.

The sealing of these enclosures with the Scotchcast 9 Epoxy will ensure that these temperature loops will operate as designed by not allowing moisture or radiation to enter and degrading the involved RTD's. This change does not involve any unreviewed safety questions.

CE-1643

Description: Due to interferences that prevented replacement of Pressurizer Heaters 47, 48, and 72, these penetrations will be plugged. Heaters will be shortened to approximately 16 inches, inserted into the penetration and welded per standard heater installation procedure. Heater 21 will be wired into the delta bank of group B along with 71 and 41 to ensure that a maximum number of heaters in group B are energized.

Safety Evaluation: This modification will not affect the Pressurizer pressure boundary. Implementation of this modification will not affect any FSAR evaluation. Therefore, the probability or consequences of an accident previously evaluated in the FSAR will not be increased since this modification will not affect the function or integrity of the Pressurizer. The probability or consequences of a malfunction of equipment important to safety previously evaluated in the FSAR will not be increased since the application of this modification will not affect the function of any equipment or systems addressed in the FSAR. For the same reason, the possibility of an accident or malfunction of equipment important to safety which is different than already evaluated in the FSAR will not be created. This modification does not involve any unreviewed safety consideration.

CE-1659

Description: This change removes the condensate drain plugs on the drive end of HSF-2A and HSF-2B to ensure the motor will have a means to breathe, equalize pressure, and drain condensate. The Environmental Qualification of the fan motor is not affected by removing the plug.

Safety Evaluation: The probability or consequences of an accident previously evaluated, or different than already evaluated, will not be increased by this modification. Nor will the probability or consequences of any equipment malfunction previously evaluated, or different than any already evaluated, in the FSAR be increased due to this modification.

The margin of safety as defined in the basis to any Technical Specification will not be reduced by removing the drain plug.

Removing the plug will better ensure the fan motor will be able to breathe, drain condensate, and equalize pressure. Thus by making this change, the intended operation of the affected equipment will not change. This modification does not involve any unreviewed safety question.

CE-1806

Description: This modification will revise flow diagram CN-1574-1.0 by removing the note that indicates 1RN36A and

1RN37B close on Emergency Low Level in either RN pump pit. This change affects FSAR Figure 9.2.1-1.

Safety Evaluation: The current 1RN36A and 1RN37B interlocks do not jeopardize RN operability, but the overall RN logic is not clean. It cannot be said, for example, that RN completely separates into its redundant trains upon emergency low level, for a 4" crossover line could be open.

This modification will not increase the probability or consequences of an accident previously evaluated, or different than any already evaluated, in the FSAR. Nor will it increase the probability or consequences on an equipment malfunction, previously evaluated, or different than any already evaluated, in the FSAR. The margin of safety as defined in the bases of the Technical Specifications is unaffected. An unreviewed safety question does not exist.

CE-1888

Description: This exempt change will replace the containment side flanges and bolting material for penetrations M234 and M452. The penetration drawings will also be revised to correct any errors and improve the general readability.

Safety Evaluation: This modification will not have any effect on the probability, consequences, or possibility of new accidents evaluated in the FSAR. This exempt change will also not affect the probability, consequences, or possibility of malfunctions of equipment important to safety evaluated in the FSAR. Any leakage will still be handled by the VE system, therefore, the margin of safety defined in the bases of the Tech. Specs. will not be reduced. This modification does not involve an unreviewed safety question.

CE-1950:

Description: This modification revises the affected drawings associated in downgrading the WN Sump Pumps to non-coded components. NSM's CN-11019 and CN-20409 were written to accomplish this modification. However, several drawings were not included in the revision. This VN will revise those drawings which were overlooked. This modification affects FSAR Figure 9.5.9-1.

Safety Evaluation: A Safety Evaluation is already provided for NSM's CN-11019 and CN-20409. This modification will not require any work in the field to be performed.

CE-2007

Description: This change revises I/M CNM-1205.00-1997 to include all the NRC Bulletin 85-03 valves which have been identified. The old Torque Switch settings sheets for the affected valves will be deleted and all the information included in the I/M. Thrust, Packing and Differential Pressure values have been included in the I/M for valves which MOVATS testing has been completed. The remaining torque switch setting values will be deleted and MOVATS data added by exempt change VN's as the valves are scheduled to be tested.

Safety Evaluation: The probability or consequences of an accident previously evaluated, to different than already evaluated, will not be increased by this modification. Nor will the probability or consequences of any equipment malfunction previously evaluated, or different than any already evaluated, in the FSAR be increased due to this modification.

The margin of safety as defined in the basis to any Technical Specification will not be reduced by this Exempt Change. No field work will be completed per this Exempt Change. This Exempt Change only takes existing information from various drawings and includes it in I/M CNM-1205.00-1997. This change does not involve any unreviewed safety considerations.

CE-2030

Description: This modification revises the EQRI Manual to include a note concerning eight (8) Barton 763 and 764 Transmitters, identifiable by unique serial number. The note requires that these specific transmitters have their internal pin connectors soldered per CNM-1399.60-U031 (Westinghouse FCN DCPM-10575) prior to being installed in a plant system. Modification of any of these transmitters after December 1, 1988 will require the origination of an exempt change variation notice for documentation.

Safety Evaluation: The location of these (8) transmitters is unknown but all model 763 and 764 Barton Transmitters installed in the plant have been looked at and verified not to be any of the (8) serial numbers involved with CE-2030.

The probability or consequences of an accident previously evaluated, or different than already evaluated in the FSAR, will not be increased by this modification. Nor will the probability or consequences of any equipment malfunction previously evaluated, in the FSAR be increased due to this modification.

The margin of safety as defined in the basis of any Technical Specification will not be reduced by this change. This modification will not cause any unreviewed safety questions.

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

- CP/0/A/8800/05 Chemistry Procedure for Recording and Management of Data: This change deleted the requirements for sampling boron concentration and dissolved gas in the UHI (Upper Head Injection) system. This change was made after the determination by Westinghouse, and approved by the NRC, that the UHI system was not required as part of the ECCS. No Unreviewed Safety Question (henceforth USQ) was deemed to exist.
- OP/1/A/6350/02 Diesel Generator Operation: This changed a verification of control pressure to account for the addition of a nitrogen supply to the Diesel Generator Starting Air System, serving as a non-assured primary source for the engine control panel pneumatic instrumentation. The Safety Related Starting Air System is available as before, and the Nitrogen System is separated from the Starting Air System by a check valve which will allow the Starting Air System to assume its role if the nitrogen supply pressure falls below the starting air supply pressure. No USQ was deemed to exist.
- PT/1/A/4350/02A Diesel Generator A Operability Test: Exactly the same as above change for OP/1/A/6350/02.
- OP/0/B/6400/03 Low Pressure Service Water System: This change adds instructions for the operation of valve 1RL-497, which was added to the system per a modification to provide isolation capability for deleted piping to the station machine shop. No USQ was deemed to exist.
- OP/0/A/6500/18 Operating Procedure for the Release of Waste Gas Decay Tank C: This change adds instructions for the operation of two manual valves, 1WS-140 and 1WG-309, to reduce gas pressure in lieu of a pressure reducing valve. This change in release mode operation was made to accommodate a modification which changed the release path. No USQ was deemed to exist.
- PT/2/A/4150/22 Total Core Reloading: This was an initial procedure issue used to reload the core in a safe and orderly manner in agreement with the Catawba Unit 2 Core Loading Plan Cycle 2. This procedure meets all the pertinent criteria as outlined in the FSAR, and introduces no new failures or accidents. This procedure is more conservative than the FSAR in that it requires SFP insert identification numbers to be checked along with the fuel assembly identification numbers prior to reload. No USQ was deemed to exist.

PT/2/A/4150/11B

Control Rod Worth Measurement By Rod Swap: This change incorporated a test methodology concerning the use of alternate rod banks to swap with rod banks being measured. Before, the reference bank was used exclusively to perform this swapping. The rod worth measurement is still performed the same way. The only significant change is the use of the previously measured rod bank to swap with the next bank being measured instead of the reference bank. Adoption of the new rod swap methodology will minimize the use of Tech Spec Special Test Exception 3.10.3. Overall safety will be enhanced. This new test methodology has been reviewed by the NRC per an SER. No USQ was deemed to exist.

TC/0/B/9400/06

Radwaste Chemistry Procedure for the Determination of Recirculation Requirements for Representative Auxiliary Monitor Tank Sampling: This was an initial procedure issue control testing of the recirculation time required to obtain a representative sample from the Auxiliary Monitor Tanks, added to the Liquid Waste System per a modification. These tanks are a response to NRC concerns requiring the station to show that samples were representative of tank contents for release from the station. This procedure will enhance safety by ensuring that liquids released are within governmental requirements for dose. No USQ was deemed to exist.

B&W 1151373-A1

Recirculating Steam Generator Manual Removal of Ribbed Mechanical Plugs: This procedure is an initial issue and implements the S/G tube plugging process, which is described in 5.4.2.1.3 of the FSAR. This section describes tube plugging as an acceptable method for repairing S/G tubes. All potential failure modes have been addressed in the FSAR. No new failure modes are created. No USQ was deemed to exist.

B&W 1155135-A2

Recirculating Steam Generator .750 and .875 Tube Plugging with Ribbed Mechanical Plugs: Same as above. No USQ was deemed to exist.

B&W 1157321-A2

Ribbed Plug Lubrication: Same as above. No USQ was deemed to exist.

B&W 1157922-A3

RSG Rolled Plug Pull Removal Tool Operating Instructions for .750 Roll Plug: Same as above. No USQ was deemed to exist.

B&W 1158085-A1

Field Procedure for Recirculating Steam Generator Manual Removal of .750 Roll Plugs: Same as above. No USQ was deemed to exist.

B&W 1169608-A3 Operating Instruction for the Air Driven Roger Roll Expansion Tool and the Manual Roll Expansion Tool: Same as above. No USQ was deemed to exist.

B&W 1169615-A3 Field Procedure/Operating Instructions for Steam Generator Tube End Repair: Same as above. No USQ is deemed to exist.

B&W 1169652-A2 Field Procedure for Recirculating Steam Generator Tube Plugging with Mechanical Roll Plugs: Same as above. No USQ was deemed to exist.

B&W 1169898-A1 Manual and Remote Marking of Tube Locations: Same as above. No USQ was deemed to exist.

B&W 1170119-A0 Open Systems Log for Steam Generator Activities: Same as above. No USQ was deemed to exist.

B&W 1170155-A2 Operating Instruction for Ribbed Plug Installation Tool (Center Pull Type): Same as above. No USQ was deemed to exist.

CP/O/A/8700/01 Chemistry Procedure for Sampling Local Primary Sample Points: Same as discussed in CP/O/A/8800/05 above, i.e., the UHI System was deleted and is no longer part of the ECCS. This change deleted sampling of the UHI System from the procedure. No USQ was deemed to exist.

HP/O/B/1004/04 Radioactive Liquid Waste Release: This change incorporates use of the new Monitor Tank Building and associated components. The Monitor Tank Building System and components will increase process flow rates and ensure proper segregation of the various liquid waste streams. This system does not affect any safety related portion of the Liquid Waste System, and does not introduce any new failure mode. The consequences of failure of the Monitor Tank Building is less than that previously evaluated for the Refueling Water Storage Tank. No USQ was deemed to exist.

HP/O/B/1009/11 EMF (Radiation Monitor) Loss: This change incorporates the EMF for the Monitor Tank Building into the procedure for instructions of compensatory measures required. Same as above. No USQ was deemed to exist.

IP/1/B/3610/02A System Calibration Procedure Diesel Generator 1A Engine Cooling System (KD): This change deletes calibration of a Diesel Engine Cooling Water System temperature transmitter. A new procedure has been created containing calibration of this same transmitter. This new procedure will provide for specific Calcon related instrument related corrosion inspections and calibrations. No USQ was deemed to exist.

IP/1/B/3610/02B System Calibration Procedure Diesel Generator 1B Engine Cooling System (KD): This change deletes calibration of a Diesel Engine Cooling Water System temperature transmitter. This transmitter is now calibrated per another procedure. Same as above. No USQ was deemed to exist.

IP/2/B/3610/02B System Calibration Procedure Diesel Generator 2B Engine Cooling System (KD): Same as above for Unit 2 KD System transmitter. No USQ was deemed to exist.

IP/1/B/3620/02A Calibration Procedure Diesel Generator 1A Lube Oil System (LD): Same as above for six Unit 1 LD System transmitters. No USQ was deemed to exist.

IP/2/B/3610/02A System Calibration Procedure Diesel Generator 2A Engine Cooling System (KD): Same as above for Unit 2 KD System transmitter. No USQ was deemed to exist.

IP/2/B/3620/02A Calibration Procedure Diesel Generator 2A Lube Oil System (LD): Same as above for six Unit 2 LD System transmitters. No USQ was deemed to exist.

IP/1/B/3620/02B Calibration Procedure Diesel Generator 1B Lube Oil System (LD): Same as above for six Unit 1 LD System transmitters. No USQ was deemed to exist.

IP/2/B/3620/02B Calibration Procedure Diesel Generator 2B Lube Oil System (LD): Same as above for six Unit 2 LD System LD transmitters. No USQ was deemed to exist.

IP/1/B/3680/01 Diesel Generator Control and Monitoring Equipment (EQC) Calibration Procedure: Same as above for two EQC System pressure transmitters. No USQ was deemed to exist.

IP/2/B/3680/01A Calibration Procedure Diesel Generator Control and Monitoring Equipment (EQC): Same as above for a Unit 2 EQC System pressure transmitter. No USQ was deemed to exist.

IP/2/B/3680/01B Calibration Procedure Diesel Generator Control and Monitoring Equipment (EQC): Same as above for a Unit 2 EQC System pressure transmitter. No USQ was deemed to exist.

IP/1/B/3681/01A Calibration Procedure for Diesel Generator 1A Calcon Instrumentation: This was an initial procedure issue for the specific purpose of incorporating all Unit 1 D/G Calcon instrumentation calibration/inspection into one procedure. Specific instruments have been taken out of the above stated procedures. This procedure will ensure that the instruments included perform in

accordance with Design Engineering specifications. No USQ was deemed to exist.

IP/2/B/3681/01A Calibration Procedure for Diesel Generator 2A Calcon Instrumentation: Same as above for D/G 2A. No USQ was deemed to exist.

MP/0/A/7150/21 Centrifugal Charging Pump Auxiliary Lube Oil Pump Corrective Maintenance: No significant change to procedure. The procedure was updated to include correct information and procedure format. The pump will be returned to as-designed, as-built conditions. No USQ was deemed to exist.

MP/0/A/7650/69 Installation and Repair of Mechanical Piping and Cable Penetration Firestops: No significant change to procedure. This change added precautionary information related to the use of passive fire protection material. No USQ was deemed to exist.

MP/0/A/7650/85 Visual Inspection of Snubbers and Corrective Maintenance: This was an initial procedure issue. The inspections and corrective maintenance are designed to ensure that snubbers are kept in the as-designed, as-built condition. Performance of this procedure does not make any snubbers inoperable, but is intended to detect and repair inoperable snubbers. No USQ was deemed to exist.

OP/1/A/6100/07A Annunciator Response for Panel 1AD-20: The changes made in this procedure retype make the required response for the "KC (Component Cooling) Supply Header Flow to Reactor Coolant Pump Bearings Low" annunciator (KC system pressure switch KCPS9170) compatible with directions given in the loss of Component Cooling Abnormal Procedure. This retype will allow a smooth transition from the annunciator response to the abnormal procedure and the actions contained agree with the information in the FSAR, Section 9.2.2. No action taken in this procedure can adversely impact system operability. No USQ was deemed to exist.

OP/1/A/6100/07B Annunciator Response for Panel 1AD-21: Same as above for component cooling pressure switch KCPS9180. No USQ was deemed to exist.

OP/2/A/6100/07A Annunciator Response for Panel 2AD-20: Same as above for Unit 2 Component Cooling System pressure switch KCPS9170. No USQ was deemed to exist.

OP/2/A/6100/07B Annunciator Response for Panel 2AD-21: Same as above for Unit 2 Component Cooling System pressure switch KCPS9180. No USQ was deemed to exist.

OP/1/A/6450/17

Containment Air Release and Addition System: This change was made to enable containment air releases without recirculation. The original reason for recirculation was to give the operator time to determine if the containment pressure increase was due to a loss of coolant or a steam line break accident and to ensure that containment air chemistry had been determined. The pressure increase due to a LOCA or SLBA would be much larger than normal pressure increases and would be recognized prior to starting the release. Containment air chemistry is checked daily (and is also continuously monitored by radiation monitors) and is forwarded to Operations via a Gas Waste Release Package. It is not necessary to recirculate containment prior to release. The safety related containment isolation portion of this system is not affected by this change. No USQ was deemed to exist.

OP/2/A/6450/17

Containment Air Release and Addition System: Same as above for Unit 2. No USQ was deemed to exist.

OP/1/A/6500/14

Operations Controlled Liquid Waste Systems: This change was made to incorporate the operation of valves added (per a modification) to sample the condensate from several Air Handling Units. This change will have no affect on the proper operation of the safety related portions of the Liquid Waste System. No USQ was deemed to exist.

OP/0/B/6500/33

Operating Procedure for the Liquid Waste Recycle (WL) System Floor Drain Tank (FDT) Subsystem: This change was made to a) incorporate previously approved changes into a retype, b) revise the procedure format, and c) provide operating instructions for portions of the system added or altered by a modification. The modification performed on the WL System comprises the new Waste Monitor Tank building system as discussed previously in this report. No USQ was deemed to exist.

OP/0/B/6500/34

Operating Procedure for Liquid Waste Recycle System Laundry and Hot Shower Tank: Same as above. No USQ was deemed to exist.

OP/1/B/6500/13

Turbine Building Sump System: This change was initiated to allow discharge from the Turbine Building Sump (which receives ventilation unit condensate drain-potentially radioactive) to the new Waste Monitor Tank Building, added per a modification as previously discussed in this report. This change will not affect any safety related portion of the Liquid Waste System. This change will allow for more efficient processing of effluent paths. No USQ was deemed to exist.

OP/2/B/6500/13 Turbine Building Sump System: Same as above for the Unit 2 Turbine Building Sump. No USQ was deemed to exist.

PT/2/A/4150/13 Venturi Fouling Correction Test: This is an initial procedure issue which determines the correction factor for the feedwater venturi. A correction factor is necessary due to the fouling that can occur over time. The feedwater venturi is an ASME nozzle used to measure feedwater flow as an input to the thermal best estimate power calculation. Thermal best estimate is used to calibrate the nuclear instrumentation. Test measurement uncertainty has been analyzed for its impact on nuclear safety. No change in DNBR limit will result from this procedure. Secondary thermal power measurement is addressed in the FSAR. No USQ was deemed to exist.

PT/1/A/4150/22 Total Core Reloading: This change incorporates minor editorial and format changes. Several parameter values are revised to account for the necessary conservatism due to uncertainties. No USQ was deemed to exist.

PT/1/A/4200/10B ND (Residual Heat Removal) Pump 1B Performance Test: This was a temporary change issued to utilize more accurate pressure gauges than required by this procedure so that this test procedure may be conducted concurrently with pump head verification procedure (which requires more accurate test instrumentation). No USQ was deemed to exist.

PT/1/A/4200/10B ND (Residual Heat Removal) Pump 1B Performance Test: This change established a new set of reference values for the performance testing of ND Pump 1B. The pump was changed out during maintenance, and ASME IWP allows changing the acceptance criteria to the tested performance conditions of the new pump. The new ND 1B pump is a little stronger than the previous pump, and also meets Westinghouse acceptance criteria for ND flows for the FSAR Chapter 6 and 15 analyses. No USQ was deemed to exist.

PT/2/A/4200/01M Incore Instrumentation Thermocouple Penetration Leak Rate Test: This change constitutes a complete rewrite of the original procedure to incorporate new testing commitments and methods. The penetrations will be tested by pressurizing the penetrations with nitrogen at approximately 15 psig. The penetrations are designed for 72 psig with no adverse effects. Therefore, the integrity of the penetrations will not be challenged. Also, the penetration cap removal and replacement and fill valve manipulation are independently verified to ensure that the penetration is

returned to the safe condition. No USQ was deemed to exist.

PT/1/A/4200/01R

M301, M141, M234, M452 Penetrations Leak Rate Test: This change was written to allow the use of higher range test instrumentation. This higher range has been accounted for in the test acceptance criteria uncertainty analysis. No significant changes to the procedure. No USQ was deemed to exist.

PT/1/A/4200/01R

M301, M141, M234, M452 Penetrations Leak Rate Test: The purpose of this test is to measure leakage through each respective penetration. However, two of the penetrations have had flanges rewelded. As per ANSI requirements, this change allowed a pressure test of the penetration prior to the leak rate test. Any degradation in the flanges or flange bolts during the pressure test will be apparent during the subsequent leak rate test. No USQ was deemed to exist.

PT/1/A/4350/15A

Diesel Generator 1A Periodic Test: This change was made to accommodate the modification which installed a nitrogen system to provide control gas pressure to Diesel Generator 1A, as previously discussed in this report (under OP/1/A/6350/02). The nitrogen system is separated from the diesel starting air system by a check valve, and this procedure change provides directions for the testing of the check valve. This test ensures proper operation of the diesel. No USQ was deemed to exist.

PT/1/A/4400/01

ECCS Flow Balance: This procedure was originally written to be performed in Mode 6 (Refueling) or no mode. This change will allow performance of the ND (Residual Heat Removal) Pump 1B Head verification in Mode 5 (Cold shutdown). Boron dilution is not a concern since the pump will be recirculating the water already in the Reactor Coolant System. The pump will be run in its normal operating alignment, and important pump and motor parameters will be monitored. No USQ was deemed to exist.

PT/1/A/4400/01

ECCS Flow Balance: This change was written in anticipation of Valve INDGO (Residual Heat Removal Heat Exchanger 1B Outlet) leaking by its seat enough to not allow the Miniflow valve to open automatically. If this occurs, the Residual Heat Removal Crossover valve will be closed, isolating B Train from A Train, and the Train B Cold Leg Injection valve will be closed. Isolating the trains will have no effect on system operation, since Train A will remain in operation during the test on B Train. No USQ was deemed to exist.

IP/0/B/3220/33 Control Rod Drive System (IRE) Logic Cabinet
Pulser/Oscillator Card Setup: This change involved no significant major revisions. This change contains editorial revisions and provides better direction and will allow safer calibration of the cars. No USQ was deemed to exist.

IP/1/A/3110/07 Component Cooling System (KC) Loops 5530, 5531, 5540, 5541, 5630, 5640, 9170, 9180: This change involved a revision to the data sheets and calibration method to avoid lifting leads at the level switch, shorting, and possibly causing unwanted valve acuation. No USQ was deemed to exist.

IP/1/A/3632/01 Diesel Generator Room Ventilation System (VD): This change added information for the calibration of the Temperature Control Controller Instrument Loops without the fans running. Only editorial changes were made. No USQ was deemed to exist.

IP/1/B/3181/16
IP/2/B/3181/16 Liquid Waste (WL) System Calibration Procedure for Reactor Coolant Drain Tank Subsystem: This change involved a minor editorial revision due to a modification which changed the nomenclature of the Reactor Coolant Drain Tank Level Annunciator Window such that the annunciator matches the actual alarm. This change did not affect any setpoints or plant parameters. No USQ was deemed to exist.

IP/2/A/3140/03C Calibration Procedure Auxiliary Feedwater System (CA): This change deleted calibration of indicator portion of CA System Pressure Switch 2CAPS5141. This pressure switch functions to automatically close Valve 2CA58A for train isolation in the event of a low CA pump discharge pressure following a CA auto-start signal. This safety related automatic function will in no way be affected by deletion of calibration of the Switch Indicator Pointer. Also, other instrumentation is available to monitor operation of the CA Pumps. No USQ was deemed to exist.

MP/0/A/7150/04 Component Cooling Pump Corrective Maintenance: This change involved no significant changes. Only editorial revisions were made. No USQ was deemed to exist.

MP/0/A/7150/48 Steam Generator Power Operated Relief Valve Corrective Maintenance: This change corrected a torque value on a data sheet to agree with the value indicated in the body of the procedure and the manufacturer's drawing. This was an editorial revision. No significant changes were made. No USQ was deemed to exist.

MP/0/A/7150/24 Component Cooling Pump Removal and Replacement: This

change involved a procedure format upgrade and editorial revisions. No significant revisions were made. No USQ was deemed to exist.

MP/O/A/7150/53

Pressurizer Hatch Cover Removal and Replacement: This change involved only editorial changes. The necessary precautions and instructions are included to return the hatch covers and gaskets to as-designed, as-built condition. No USQ was deemed to exist.

MP/O/A/7600/12

Walworth and Aloyco Bolted Cover Swing Check Valves Corrective Maintenance: This change involved editorial revisions. The procedure will maintain the valves to Tech Spec, FSAR, and manufacturer's requirements. No physical change is being made to the valve's design or function. No USQ was deemed to exist.

MP/O/A/7600/26

Pacific Swing Check Valves Corrective Maintenance: This change only involved editorial and format changes. No technical content was changed. The procedure maintains the valves to manufacturer's requirements. No USQ was deemed to exist.

MP/O/A/7600/33

Pressure Relief Valves, Flanged Type Corrective Maintenance: This change mainly involved editorial and format revisions made during the procedure upgrade process. Also, revisions included a) coating nozzle threads with thread sealant to prevent leakage, b) added guidance for proper venting of a bellows sealed valve bonnet. This procedure will maintain the valves to original design specs and requirements. No USQ was deemed to exist.

MP/O/A/7600/47

Fisher-Diaphragm and Manual Actuated Control Valves Types DBQ, DBAQ, and DBQNS and Type 1008 Manual Operator Corrective Maintenance: This change mainly involved editorial and procedure format revisions. Several other revisions were made to ensure that the valve is returned to the as-found position following maintenance and to ensure proper group communication for the performance of Post-Maintenance Testing. This procedure maintains the valve to Design and manufacturer's specs. No USQ was deemed to exist.

MP/O/A/7600/110

Anchor Darling 12" Bolted Bonnet Gate Valve Corrective Maintenance: This is an initial procedure issue. The procedure will maintain valves to proper design and manufacturer's specs. No USQ was deemed to exist.

MP/O/A/7650/01

Flange Gasket Removal and Replacement: This change only involved editorial revisions. This change provides for additional recording of data from inspections. No change to the physical structure is involved. No USQ was deemed to exist.

MP/O/A/7650/82

Auxiliary Building Hatch Cover Removal and Replacement: This is a procedure retype which incorporates previously approved changes. This procedure provides the necessary guidance to ensure that the hatch cover is reinstalled as per design. No USQ was deemed to exist.

OP/O/A/6250/16

Operating Procedure for the Condensate Polishing Demineralizer Backwash Tank Subsystem: This change involves a procedure reissue. This system is non-safety related, and does not interface with any safety related systems. The system operation as described in this procedure is consistent with the operation described in the FSAR. The procedure requires sampling to ensure that the contents of the Backwash Tank and the Decant Monitor Tank are within units of Tech Spec 3/4.11.1.5 prior to discharge to the Conventional Waste Treatment System. No USQ was deemed to exist.

OP/O/A/6400/06B

Nuclear Service Water Pump Structure Ventilation System: This is a procedure retype which incorporates Operations Management Procedure guidelines and changes the normal alignment of the system. Presently, the Normal alignment of the system is to have one fan in "Auto" and running, while the other is in "Off." This retype allows the operator the option of leaving both fans in "Auto" with one fan running. Interlocks exist such that only one fan will run at a time, thus protecting the ductwork. With both fans in "Auto," on a failure of the running fan, the opposite train fan in the respective compartment will automatically start to provide ventilation. Therefore, this is an enhancement of nuclear safety. No USQ was deemed to exist.

OP/1/A/6350/02

Diesel Generator Operation: This change involved editorial revisions to support and accommodate a modification to replace and relocate the D/G Starting Air Solenoid Control Cabinets. The purpose of the modification is to provide a Bill of Materials for the cabinets and relocate them to a less harsh environment. This modification has a separate 50.59. No USQ was deemed to exist.

OP/1/A/6700/01

Unit One Data Book: This change establishes New Core Axial Flux Difference (AFD) Targets and Limitations. The Target AFD is updated by the performance of PT/1/A/4150/08, Target Flux Difference Circulation. The Target AFD is changed to keep Control Bank D at approximately 215 steps withdrawn (at 100% power), while allowing for changes in the natural axial power shape that occurs with core burnup. The targets are set by procedure to be within the operating bounds of

Tech Spec 3/4.2.1. The targets are an operating guideline only to aid the Control Room operators in maintaining AFD within the units of Tech Spec 3/4.2.1. The targets serve no other purpose. They do not provide input to any trip function. The limits that must be observed in Tech Spec 3/4.2.1 are set by Cycle Specific Analysis. No USQ was deemed to exist.

OP/1/A/6700/01

Unit One Data Book: This change replaced the "NC (Reactor Coolant) Pump No. 1 Seal Safe Operating Range" curve with a new curve supplied by Westinghouse entitled "NC Pump No. 1 Seal Normal Operating Range." The "Safe Operating Range" plot was not representative of the normal range of No. 1 Seal Leak rates at intermediate pressures. Therefore, Westinghouse has redefined the plot of No. 1 Seal Leak Rate vs. Differential Pressure for RCP operation. With this update, Westinghouse has also revised the minimum and maximum seal leak rates for continuous operation to be 0.8 gpm and 6.0 gpm respectively. The normal No. 1 seal leak rates are not referenced in the FSAR or Tech Specs and are not considered in any accident scenario. No USQ was deemed to exist.

OP/1/A/6700/01

Unit One Data Book: This change replaced the Reactivity Balance Calculation, Reactivity Anomaly Calculation, ECP Calculation, and Boric Acid/water to alter Boron Concentration Tables in the Unit Data book. All of these new tables were taken from the Catawba 1 Cycle 3 Startup and Operational Report supplied by Nuclear Engineering of the Duke Power Co. Design Engineering Department. This is a QA Condition 1 Manual. No USQ was deemed to exist.

OP/1/A/6700/01

Unit One Data Book: Update of AFD Targets - see 50.59 evaluation earlier in this report on same type change. No USQ was deemed to exist.

OP/1/A/6700/01

Unit One Data Book: Same as above. No USQ was deemed to exist.

OP/0/B/6250/09

Operating Procedure for the Condensate Polishing Demineralizers: This is a procedure reissue. This reissue enables manual precoating, backwashing, and other modes of operation by the operator in lieu of automatic operation. The various steps of operation are the same as for automatic operation as described in the FSAR. No USQ was deemed to exist.

OP/2/A/6250/06

Main Steam Operating Procedure: This change temporarily adds an enclosure to induce a level transient in S/G 2C to observe the response of the Temporary Level Instrumentation installed under a modification. Catawba Unit 2 Steam Generator Narrow Range Level Indi-

cations have displayed excessive shrink and swell characteristics during low power operation. These fluctuations have resulted in numerous reactor trips and ESF actuations. In response to this problem, a modification was performed to install temporary level taps at a lower tap location on S/Gs. This temporary level instrumentation is designed for data recording and testing purposes only, and there is no functional interface with or modification of the current S/G level instrumentation. All plant safety systems will remain in their normal mode. No USQ was deemed to exist.

PT/1/A/4150/12B

Isothermal Temperature Coefficient of Reactivity Measurement (EOL): This change relaxes the restriction on Allowable TAVE-TREF Deviation previously imposed by the test's Limits and Precautions Section. The restriction of $+3.0^{\circ}\text{F}$ is based upon the "Initial Condition" restriction of $+4.0^{\circ}\text{F}$ imposed for analyzed accidents which are not DNB Limited, per FSAR Section 15.0.3.2. However, FSAR Section 15.0.1.1 allows deviations in plant parameters in excess of normal operational limits for the purpose of performing tests required by Tech. Specs. In this case, the EOL ITC Measurement is required to be performed within 7 EFPDs of reaching a Reactor Coolant System Boron Concentration of 300 ppmB per Tech Spec 4.1.1.3.b. In order to minimize the error associated with this measurement, it is necessary to reduce TAVE an amount greater than 4.0°F below TREF. This change will not impact FSAR accidents which are DNB limited due to the fact that TAVE is only reduced below TREF. TAVE is increased by Reactor Coolant System dilution only to recover it to the TREF value (Full power TREF is 590.8°F). Per this test methodology the TAVE limit of 592.5°F specified in Table 4.4.2-1 of the FSAR, Section 4.4, Thermal and Hydraulic Design, will not be exceeded at any time. This test methodology also does not employ the use of the Chemical and Volume Control System in any but a normal operating configuration. Therefore, the assumptions made in this analysis and the resulting consequences are bounded by the FSAR Accident Analysis. The margin of safety defined in the Tech Spec Bases will not be reduced. Operation within the limits of Tech Spec Figure 2.1-1, Reactor Core Safety Limit - Four Loops in Operation, will be maintained at all times. Additional conservatism will be assured by observance of the DNB Parameters in Tech Spec Table 3.2-1. No USQ was deemed to exist.

OP/2/A/6700/01

Unit Two Data Book: This change replaces the Main Feedwater Pump Speed Control Delta-Program. This change will improve flow during normal operations and reduce the severity of feedwater transients. It is desirable to operate the Feed Reg Valves in the controlling region which represents the latest

information on the Pump Speed Control Program obtained from IP/2/B/3222/87. This figure being placed into the Unit Data Book provides no control or interlocks, but is for information only. No USQ was deemed to exist.

- OP/2/A/6700/01 Unit Two Data Book: This change replaces the "Reactor Coolant Pump No. 1 Seal Safe Operating Range" curve with a curve supplied by Westinghouse as discussed earlier in this report. No USQ was deemed to exist.
- PT/1/A/4150/11B Control Rod Worth Measurement by Rod Swap: Same as discussed earlier in this report under PT/2/A/4150/11B. No USQ was deemed to exist.
- PT/1/A/4200/01N Reactor Coolant System Pressure Boundary Valve Leak Rate Test: This change allows the testing of more than one valve at a time. This change is written so that the acceptable leakage from an entire group of valves tested at the same time is less than 1 gpm. If leakage from the group exceeds this value, each valve in the group will be tested individually. No change was made to the allowable leakage for each valve. No USQ was deemed to exist.
- PT/1/A/4200/09A Auxiliary Safeguards Test Cabinet Periodic Test: This is a reissue of the test procedure. The appropriate precautions are taken in this procedure to ensure that no plant equipment is actuated which will upset the plant during normal operation. No USQ was deemed to exist.
- PT/1/A/4200/13H NI (Safety Injection) and NV (Chemical and Volume Control) System Check Valve Test: This is a reissue. This procedure verifies full stroke capability of various check valves in the ECCS. Performance of this test will take place in either Mode 6 (Refueling) or no mode. In either case, the Reactor Vessel Head will be removed and full flow through the check valves can be obtained. In Mode 6 or no mode the ECCS is not required to be operable. Boron dilution will not be a concern since the pumps will not be a concern since the pumps will be recirculating the water already in the system or injecting water from the Refueling Water Storage Tank. The ability of the Reactor Coolant System to provide Net Positive Suction Head has previously been demonstrated.
- PT/1/A/4250/03D RN (Nuclear Service Water) to CA (Auxiliary Feedwater) Pumps Suction Transfer Periodic Test: This is a procedure reissue. The purpose of this procedure is to measure the time required for the CA System to switch to the safety grade suction source, the RN System. The suction piping is aligned so as to introduce as little RN Water to the system as possible. This test will be

performed in Modes 4, 5, or 6. The CA System is only required in Modes 1, 2, or 3. RN System operability will not be affected by this procedure. The CA Pump Breakers will be racked out during this test, and the valves will not be operated abnormally. No USQ was deemed to exist.

PT/2/A/4200/19

FD (Diesel Engine Fuel Oil) System Valve Inservice Test-Quarterly-Performance: This change is a procedure writer's guide upgrade of an existing procedure. This procedure is used to satisfy IWV stroke time requirements for FD System valves. No USQ was deemed to exist.

CP/O/B/8150/02

Chemistry Procedure for the Determination of Conductivity: This change includes the incorporation of previously approved changes and editorial revisions. It also includes directions for obtaining samples at same points added to the Conventional Sampling System for S/G blowdown and the Main Steam Reheaters. These new sample points will enhance Unit operation by allowing the Chemistry Staff to better monitor and correct secondary side chemistry problems. No USQ was deemed to exist.

OP/1/A6200/13

Filling, Draining and Purification of the Refueling Cavity: This change will ensure the procedure steps are performed in such an order that the vessel head is not suspended over the vessel while QA personnel are verifying the vessel cleanliness. There are no technical changes made. This change ensures personnel safety. No USQ was deemed to exist.

OP/1/A/6100/20

Operational Guidelines for Achieving Cold Shutdown Following a Fire in the Plant: This change did not involve any technical revisions. The intra-plant phone numbers were updated to reflect the current plant conditions. No USQ was deemed to exist.

PT/1/A/4200/02A
PT/1/A/4200/02B
PT/1/A/4200/02C

Monthly Outside Containment Integrity Verification: This change was made to delete verification of the UHI System valves because of the removal of the UHI System. This change also corrected some minor nomenclature inaccuracies. No technical changes were made. No USQ was deemed to exist.

PT/1/A/4200/06A
PT/1/A/4600/19C

Mode 1 and 3 Periodic Surveillance Items: This change deleted surveillance requirements related to the UHI System due to the removal of the system and its consequent deletion from Tech Specs. No USQ was deemed to exist.

PT/1/A/4600/02B
PT/1/A/4600/02C

Mode 2 Periodic Surveillance Items: This change involved editorial revisions. A revision was also included to perform an RL System (low pressure raw water - non safety related) flow channel check for the purpose of verifying a flow weighted temperature. No USQ was deemed to exist.

CATAWBA NUCLEAR STATION
NUCLEAR STATION MODIFICATIONS
COMPLETED IN RESPONSE TO NUREG-0737
SUPPLEMENT 1 DURING 1988

The following Nuclear Station Modifications were completed during 1988 and corrected Human Engineering Deficiencies (HEDs) identified in NUREG-0737, Supplement 1:

CN-20222	CN-20226	CN-20232
CN-20223	CN-20227	CN-20233
CN-20224	CN-20230	CN-20237
CN-20225	CN-20231	CN-20240

Description: These modifications corrected all outstanding HED's identified as part of the Control Review Process. The subject modifications meet License Condition 7 to Operating License NPF-52 and fulfill commitments made in Duke Power's response to NUREG-0737, Supplement 1.

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