July 15, 2008

Mr. J. R. Morris
Site Vice President
Catawba Nuclear Station
Duke Energy Carolinas, LLC
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNIT 1, ISSUANCE OF EMERGENCY AMENDMENT REGARDING ONE-TIME EXTENSION OF THE AUXILARY FEEDWATER SYSTEM AND THE CONTAINMENT SPRAY SYSTEM ALLOWED OUTAGE TIME (TAC NO. MD9226)

Dear Mr. Morris:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 242 to Renewed Facility Operating License NPF-35 for the Catawba Nuclear Station, Unit 1. The amendment consists of changes to the licnese in response to your application, dated July 14, 2008, as supplemented July 14, 2008. This emergency amendment request was made under the provisions of Section 50.91(a)(5) to Title 10 of the *Code of Federal Regulations*. This amendment approves a one-time extension of the allowed outage time for the 1B auxiliary feedwater system and the 1B containment spray system from 72 hours to a total of 9 days.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

**/RA/**

John Stang, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-413

Enclosures:
1. Amendment No. 242 to NPF-35
2. Safety Evaluation

cc w/encls: See next page

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Duke Power Company LLC
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DUKE ENERGY CAROLINAS, LLC

NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION

SALUDA RIVER ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-413

CATAWBA NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 242
Renewed License No. NPF-35

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Catawba Nuclear Station, Unit 1 (the facility) Renewed Facility Operating License No. NPF-35 filed by the Duke Energy Carolinas, LLC acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc. (licensees), dated July 14, 2008, as supplemented July 14, 2008, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by changes as indicated in the attachment to this license and Paragrah 2.C(2). Two license conditions, are being added to read as follows:

- The 72 hour allowed outage time of Technical Specification 3.7.5 Action "B" for the 1B AFW pump which was entered at 1041 on July 12, 2008 may be extended by an additional 144 hours. Upon completion of the repair and restoration of the 1B NSWS pump, this License Condition is no longer applicable and will expire at 1041 on July 21, 2008.

- The 72 hour allowed outage time of Technical Specification 3.6.6 Action "A" for the 1B CSS which was entered at 1041 on July 12, 2008 may be extended by an additional 144 hours. Upon completion of the repair and restoration of the 1B NSWS pump, this License Condition is no longer applicable and will expire at 1041 on July 21, 2008.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 242, which are attached hereto, are hereby incorporated into this license. Duke Power Company LLC shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented on July, 15, 2008.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Melanie C. Wong, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. NPF-35

Date of Issuance: July 15, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 242

RENEWED FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

Replace the following pages of the Renewed Facility Operating Licenses and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

| Remove | Insert |
|---|---|
| License Pages | License Pages |
| Page 4 | Page 4 |
| Page 5 | Page 5 |
| Appendix B Page3 | Appendix B Page 3 |

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 242 TO RENEWED FACILITY OPERATING LICENSE NPF-35

DUKE ENERGY CAROLINAS, LLC

CATAWBA NUCLEAR STATION, UNIT 1

DOCKET NO. 50-413

## 1.0 INTRODUCTION

By application, dated July 14, 2008, as supplemented by letter dated July 14, 2008, Duke Energy Carolinas, LLC (Duke, the licensee), requested changes to the Technical Specifications (TSs) for the Catawba Nuclear Station, Unit 1 (Catawba 1).

The proposed change would add two new License Conditions to Appendix B of the Catawba Unit 1 Facility Operating License, License Number NPF-35. The proposed License Conditions are as follows

- The 72 hour allowed outage time of Technical Specification 3.7.5 Action "B" for the 1B Auxillary Feedwater (AFW) pump which was entered at 1041 on July 12, 2008 may be extended by an additional 144 hours. Upon completion of the repair and restoration of the 1B Nuclear Service Water System (NSWS) pump, this License Condition is no longer applicable and will expire at 10:41 a.m. on July 21, 2008.

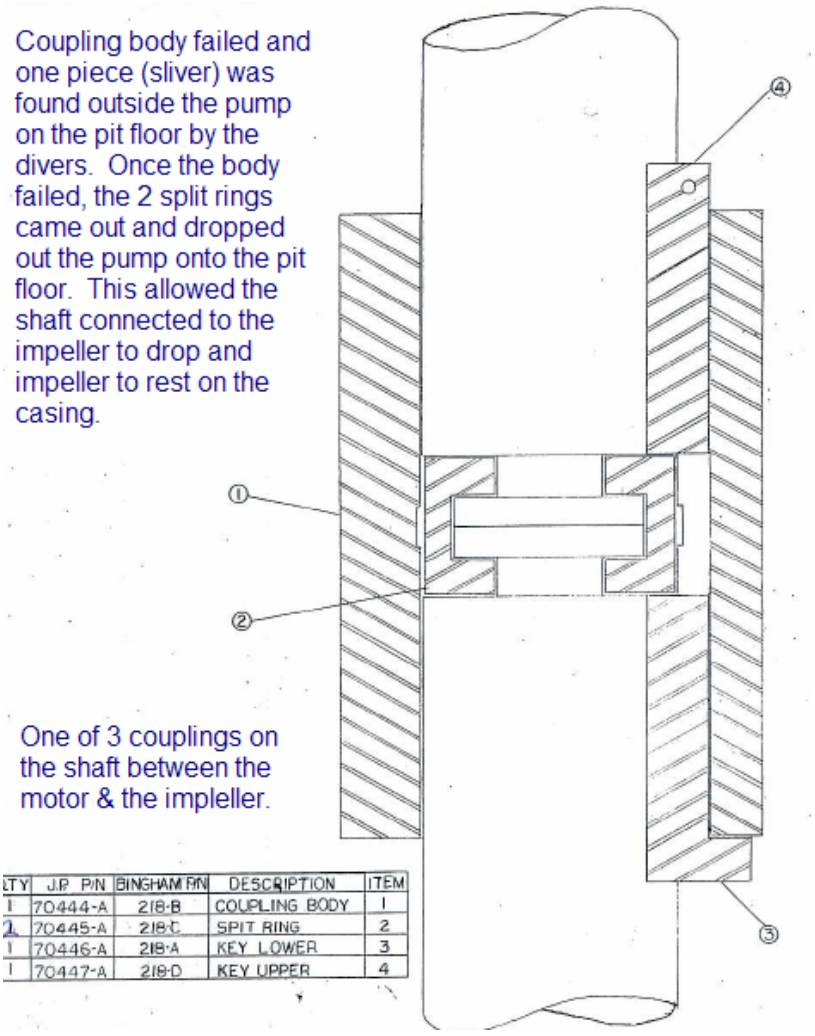
- The 72 hour allowed outage time of Technical Specification 3.6.6 Action "A" for the 1B Containment Spray System (CSS) heat exchanger which was entered at 10:41 a.m. on July 12, 2008 may be extended by an additional 144 hours. Upon completion of the repair and restoration of the 1B NSWS pump, this License Condition is no longer applicable and will expire at 10:41 a.m. on July 21, 2008.

## 2.0 BACKGROUND

The licensee stated that on July 12, 2008 at approximately 9:10 a.m., the control room operators started the 1B RN pump and stopped the 1A RN pump in support of a RN train B supply header flush. At approximately 10:41 a.m., the control room operators received several RN system alarms for B RN train header pressure and flow. In addition, the operators observed low discharge header pressure along with high RN flow for the 2B RN pump and low flow for the 1B RN pump. The operators entered their abnormal procedure for the RN system and started the 1A RN pump and stopped the 1B NSWS pump. The 1B NSWS pump was declared inoperable as of 10:41 a.m. and both units entered TS 3.7.8 Action A with a 72 hour completion time.

The licensee determined one of the three couplings in the casing failed and allowed the shaft to separate from the section above it. This allowed the impeller to drop down and come into contact

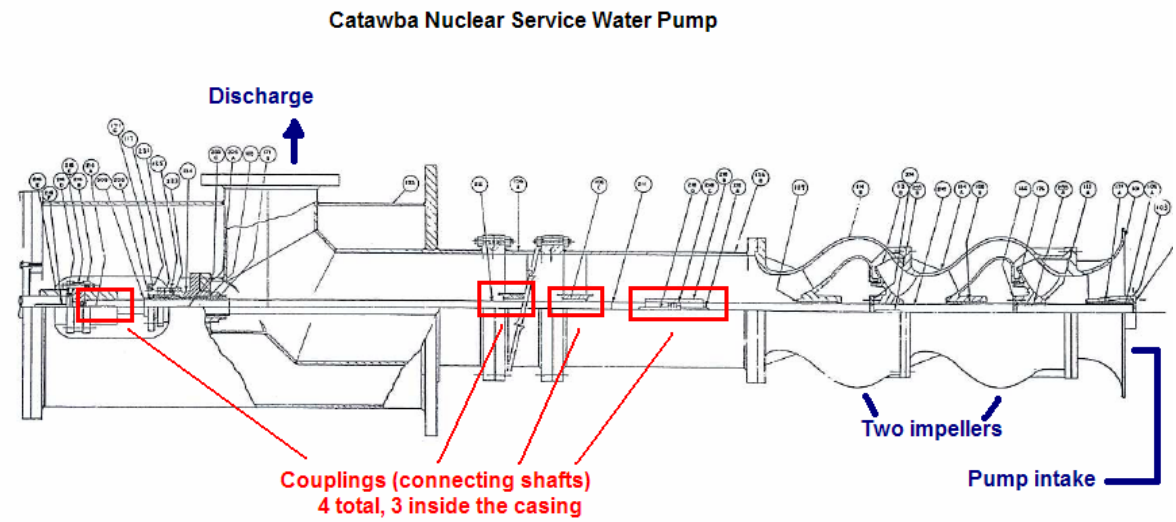
with the casing. The fact that the upper shaft can be hand rotated at the motor connection and the impeller can not be moved by divers at the intake to the pump confirms that this separation occurred.



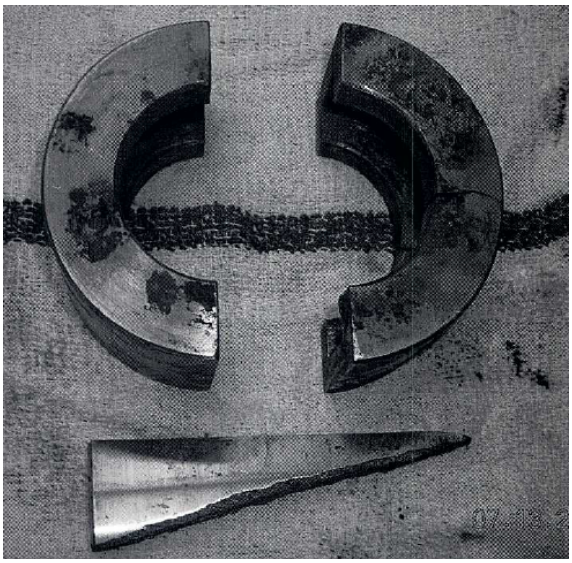

| LTY | J.P. P/N | BINGHAM P/N | DESCRIPTION | ITEM |
|---|---|---|---|---|
| 1 | 70444-A | 218-B | COUPLING BODY | 1 |
| 2 | 70445-A | 218-C | SPIT RING | 2 |
| 1 | 70446-A | 218-A | KEY LOWER | 3 |
| 1 | 70447-A | 218-D | KEY UPPER | 4 |

In the drawing above, the licensee has postulated that the coupling body failed and separated. The coupling body piece is 14" long and about 6.5" in diameter. Once it separated, it no longer held the split rings in place and they came off, falling down the inside of the casing and working themselves through the two impellers and ending up on the pit floor (underwater). One piece of the coupling body and both halves of the split ring were recovered by divers early morning on July 13, 2008.

The licensee's drawing below shows the pump assembly in a horizontal position, with the pump mounted vertically. The licensee believes that one of the 3 lower couplings failed and caused the shaft to drop down and leave the impeller, resting on the casing of the pump. The cause of the failure and the specific coupling that failed will be determined once the pump is removed and a failure analysis performed.




The following photo from the licensee shows the items recovered by the divers. The two rings are the split ring and the sliver is one piece of the coupling body that appears to have failed catastrophically. The licensee will perform a detailed Foreign Material Exclusion (FME) inspection once the 1B pump is pulled from the pit, to ensure that there are no pieces in the pit that could affect/damage the 1B or 2B pumps.



On July 13, 2008, the licensee realigned the RN system on Unit 1. Flow to the 1B AFW, 1B CSS heat exchanger and the Unit 1 nonessential header were isolated. This action required the licensee to enter TS 3.6.6 Required Action A and TS 3.7.5 Required Action B, each with a 72 hour Completion Time. These alignments allow the 2B RN system pump to carry the loads for Unit 1 Train B except for the isolated sections discussed above. Since the required flows are not available for the 1B AFW pump and the 1B CSS heat exchangers, the start time of the LCO is 10:41 a.m., July 13, 2008, the time the when the RN system was taken out of service

originally. These TS Required Actions will remain in effect until the repairs and restoration of the 1B RN pump is completed.

Completion Time (CT) for the applicable TS Required Actions for the 1B AFW pump and 1B CSS train expires at 10:41 a.m. on July 15, 2008. The licensee has efforts under way to replace the 1B RN pump; however, the pump will not be restored to operable status prior to expiration of the completion time.

In order to avoid the shutdown of Catawba 1, the licensee proposes a one-time limited duration extension of the TS required action completion time associated with the Unit 1B AFW pump and the 1B CSS. The requested extension would allow continued operation of Unit 1 for an additional 144 hours beyond the TS allowed outage time (AOT) of 72 hours while repairs and related testing of the 1B RN pump are completed.

## 3.0 REGULATORY EVALUATION

The following are applicable regulations and regulatory guidance used by the NRC staff in evaluating the proposed emergency license amendment:

The Commission's regulatory requirements related to the content of the TSs are set forth in Title 10 to the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.36. This regulation requires that the TSs include items in five specific categories. These categories include 1) safety limits, limiting safety system settings and limiting control settings, 2) limiting conditions for operation, 3) surveillance requirements, 4) design features, and 5) administrative controls.

Regulatory Guide (RG) 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” describes a risk-informed approach, acceptable to the NRC staff, for assessing the nature and impact of proposed permanent licensing-basis changes by considering engineering issues and applying risk insights. This RG also provides risk acceptance guidelines for evaluating the results of such evaluations for permanent changes.

RG 1.177, “An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specifications,” describes an acceptable risk-informed approach specifically for assessing proposed permanent TS changes in allowed outage times. The RG 1.177 also provides risk acceptance guidelines for evaluating the results of such assessments. RG 1.177 identifies a three-tiered approach for the licensees evaluation of the risk associated with a proposed CT TS change, as discussed below.

- Tier 1 assesses the risk impact of the proposed change in accordance with acceptance guidelines consistent with the Commission’s Safety Goal Policy Statement, as documented in RG 1.174 and RG 1.177. The first tier assesses the impact on operational plant risk based on the change in core damage frequency (ΔCDF) and change in large early release frequency (ΔLERF). It also evaluates plant risk while equipment covered by the proposed CT is out-of-service, as represented by incremental conditional core damage probability (ICCDP) and incremental conditional large early release probability (ICLERP). Tier 1 also addresses PRA quality, including the technical adequacy of the licensee’s plant-specific PRA for the subject application. Cumulative risk of the proposed TS change in light of past related applications or additional applications

under review is also considered along with uncertainty/sensitivity analysis with respect to the assumptions related to the proposed TS change.

- Tier 2 identifies and evaluates any potential risk-significant plant equipment outage configurations that could result if equipment, in addition to that associated with the proposed license amendment, is taken out-of-service simultaneously, or if other risk-significant operational factors, such as concurrent system or equipment testing, are also involved. The purpose of this evaluation is to ensure that there are appropriate restrictions in place such that risk-significant plant equipment outage configurations will not occur when equipment associated with the proposed CT is implemented.
- Tier 3 addresses the licensee's overall configuration risk management program (CRMP) to ensure that adequate programs and procedures are in place for identifying risk-significant plant configurations resulting from maintenance or other operational activities and appropriate compensatory measures are taken to avoid risk significant configurations that may not have been considered when the Tier 2 evaluation was performed. Compared with Tier 2, Tier 3 provides additional coverage to ensure risk-significant plant equipment outage configurations are identified in a timely manner and that the risk impact of out of service equipment is appropriately evaluated prior to performing any maintenance activity over extended periods of plant operation. Tier 3 guidance can be satisfied by the Maintenance Rule (10 CFR 50.65(a)(4)), which requires a licensee to assess and manage the increase in risk that may result from activities such as surveillance testing and corrective and preventive maintenance, subject to the guidance provided in RG 1.177, Section 2.3.7.1, and the adequacy of the licensee's program and PRA model for this application. The CRMP is to ensure that equipment removed from service prior to or during the proposed extended CT will be appropriately assessed from a risk perspective.

RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," describes an approach, acceptable to the NRC, for determining whether the quality of the PRA, in total or the parts that are used to support an application, is sufficient to provide confidence in the results, such that the PRA can be used in regulatory decision-making for light-water reactors.

General guidance for evaluating the technical basis for proposed risk-informed changes is provided in Chapter 19.0, "Use of Probabilistic Risk Assessment in Plant-Specific, Risk-Informed Decisionmaking: General Guidance," of the NRC Standard Review Plan (SRP), NUREG-0800. Guidance on evaluating PRA technical adequacy is provided in Chapter 19.1, "Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." More specific guidance related to risk-informed TS changes is provided in SRP Section 16.1, "Risk-Informed Decisionmaking: Technical Specifications," which includes completion time changes as part of risk-informed decisionmaking. Chapter 19.0 of the SRP states that a risk-informed application should be evaluated to ensure that the proposed changes meet the following key principles:

- The proposed change meets the current regulations, unless it explicitly relates to a requested exemption or rule change.
- The proposed change is consistent with the defense-in-depth philosophy.

- The proposed change maintains sufficient safety margins.

- When proposed changes increase core damage frequency (CDF) or risk, the increase(s) should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.

- The impact of the proposed change should be monitored using performance measurement strategies.

## 4.0 TECHNICAL EVALUATION

### 4.1 Risk Assessment Evaluation

The evaluation presented below addresses the NRC staff philosophy of risk-informed decision making, that when the proposed changes result in a change in core damage frequency (CDF) or risk, the increase should be small and consistent with the intent of the Commission's Safety Goal Policy Statement

#### 4.1.1 Tier 1: PRA Capability and Insights

The first tier evaluates the impact of the proposed changes on plant operational risk. The Tier 1 NRC staff review involves two aspects: (1) evaluation of the validity of the Catawba 1 and 2 probabilistic risk assessment (PRA) models and their application to the proposed changes, and (2) evaluation of the PRA results and insights based on the licensee's proposed application.

PRA Quality

The objective of the PRA quality review is to determine whether the Catawba PRA used in evaluating the proposed changes is of sufficient scope, level of detail, and technical adequacy for this application. The NRC staff review evaluated the PRA quality information provided by the licensee in their submittal, including industry peer reviews results.

The Catawba PRA is a full scope model which addresses internal and external events (excluding seismic events, which are separately addressed). The licensee identified that there were six outstanding plant changes deemed to have a potential impact on the PRA but not yet incorporated into the PRA model. These were reviewed and determined either to not to impact the conclusions of the risk analysis, or they were dispositioned by incorporating the plant change into the model.

The PRA internal events model has been assessed for technical adequacy using RG 1.200. The licensee identified those supporting requirements of the internal events PRA standard, endorsed by the RG, for which the Catawba 1 and 2 PRA model did not satisfy the requirement at a capability category of II. Many of these "gaps" to the standard were due to omissions in the documentation of the PRA model, and these were summarily dismissed. The remaining "gaps" were identified as technical in nature, rather than as a documentation deficiency. Each of these items was discussed by the licensee to provide its expected impact on the application, and to provide a reason why the deficiency would not impact the risk-informed decision for this

application. The NRC staff reviewed the licensee's analyses of the PRA model deficiencies, and found them to be reasonable and supportive of this application.

The licensee identified and justified truncation levels used to generate the cutsets for this analysis.

The licensee stated that the fire PRA is based on the level of detail used to support the Individual Plant Examination of External Events (IPEEE, Generic Letter 88-20). The licensee also identified that the results of this analysis did not show that fire scenarios were significant to this application. This is consistent with the licensee's expectations because 1) the dominant fire scenarios involve failure of the Component Cooling Water system, and so the unavailability of the NSW would not be relevant to such scenarios; 2) the NSW supply to AFW is only required in the event of a failure of other clean water supplies to AFW, and the isolation only impacts the 1B AFW pump; 3) the CS heat exchangers are a backup credited only if the valves to the Residual Heat Removal system heat exchangers fail to open. Therefore, fire risk is not a significant risk contributor to this application.

Based on review of the above information, the NRC staff finds that the licensee has satisfied the intent of RG 1.177 (Sections 2.3.1, 2.3.2, and 2.3.3), RG 1.174 (Section 2.2.3 and 2.5), and SRP Section 19.1, and that the quality of the Catawba PRA is sufficient to support the risk evaluation for non-seismic events provided by the licensee in support of the proposed license amendment.

PRA Results and Insights

The risk metrics were calculated by setting events to unavailable to reflect the specific configuration of the plant during the extended CT, that is, the unavailability of one NSW pump, isolation of NSW to the AFW pump and to the CS heat exchanger, and isolation of the non-essential NSW header. Both CDF and LERF were evaluated for two configurations: 1) no NSW train B pump available and loads isolated on train B, and 2) one NSW train B pump available and loads isolated on train B. The first configuration was assumed to exist for up to 3 days, as governed by the existing TS for NSW, and will be entered during the extended CT when the pump bay is dewatered, rendering both train B NSW pumps unavailable. The second configuration has one train B NSW pump available. The seismic risk contribution is addressed separately.

The licensee's methodology is consistent with the guidance of RG 1.177, Section 2.3.4 and Section 2.4 and is, therefore, acceptable to the NRC staff.

For a one-time temporary change to the TS, there is no permanent change in the CDF or LERF. The licensee calculated the ICCDP and ICLERP based on the entire nine days during which TS equipment is inoperable and accounting for the changes in configuration as discussed above. The $\Delta$CDF and $\Delta$LERF were calculated for the extra 144 hours of unavailability above the existing TS CT of 72 hours, applicable only in the current year when the one-time change is implemented. The results are presented below:

| | | | |
|---|---|---|---|
| ICCDP: | 1.6E-6 | $\Delta$CDF: | 1.1E-6/yr |
| ICLERP: | 5.5E-8 | $\Delta$LERF: | 4.1E-8/yr |

The risk impacts for the proposed one-time change to extend the CTs from 72 hours to 216 hours were found to be reasonably consistent with the RG 1.177 acceptance guidelines of less than 5E-7 for ICCDP and 5E-8 for ICLERP, applicable to permanent TS changes. The ΔCDF and ΔLERF were within acceptance guidelines for RG 1.174, also applicable for permanent TS changes. These risk impacts are well within the guidance of NUMARC 93-01, endorsed by the NRC staff in RG 1.182, applicable for risk management of plant maintenance activities. Therefore, the risk impacts are considered to be small and acceptable to support a one-time change to TS.

Seismic Events

The licensee stated that seismic risk was not significant for this application. In support of a license amendment in 2005, the licensee had previously evaluated the seismic risk impact of an inoperable NSW header (i.e., no pumps available) and found the risk to be a factor of 100 below the internal events risk. This risk would bound the risk when the header is available with one pump but with specific loads isolated. Therefore, seismic risk is not significant to this application.

Shutdown and Transition Risk

The proposed one-time change is not applicable during shutdown, and so consideration of these risks is not required.

Based on the low risk impact of the one-time proposed change, and the qualitative consideration of seismic impacts, the NRC staff finds that the licensee has satisfied the intent of RG 1.177 (Section 2.4), RG 1.174 (Sections 2.2.4 and 2.2.5), and SRP Section 19.2.

4.1.2 Tier 2 - Avoidance of Risk-Significant Plant Configurations

The second tier requires a licensee to provide reasonable assurance that risk-significant plant equipment outage configurations will not occur when specific plant equipment is taken out-of-service in accordance with the proposed TS change.

The licensee identified various regulatory commitments, applicable during the extended CT, which restrict maintenance and testing activities on plant systems, establish continuous manning of the Standby Shutdown Facility, and provide enhanced readiness of operators to address plant transients. The commitments are identified in Section 7.0 of this safety evaluation. The NRC staff finds the licensee's proposed restrictions support the implementation of the changes to TS, and are acceptable to the NRC staff.

4.1.3 Tier 3 - Risk-Informed Configuration Risk Management

The third tier requires a licensee to develop a program that ensures that the risk impact of out-of-service equipment is appropriately evaluated prior to performing any maintenance activity.

The licensee identified plant procedures and directives applicable for compliance with the requirements of the maintenance rule, 10CFR50.65(a)(4), specifically with regards to a risk assessment prior to performance of maintenance activities. The licensee identified NUMARC 93-01 and RG 1.182 as requirements applicable to the risk assessment used to comply with the maintenance rule.

Based on conformance to the above cited references, the NRC staff finds the licensee's Tier 3 program supports the proposed changes to TS, and is acceptable.

4.1.4 NRC Staff Findings and Conditions

The risk impacts as estimated by the licensee are reasonably consistent with the acceptance guidelines for RG 1.177 and RG 1.174 (applicable to permanent changes) for the proposed one-time change to TS. The licensee's Tier 2 analysis and commitments provide reasonable assurance that risk-significant plant equipment outage configurations will not occur when specific plant equipment is taken out of service in accordance with the proposed TS change. The licensee's Tier 3 program was found to be adequate to support the proposed TS change.

4.2 Deterministic Evaluation

4.2.1 Pump Operability

Licensee reviewed previous 4 quarters of inservice test (IST) data for the 1B RN pump and verified that no performance degradation had occurred prior to the failure of the pump on July 12, 2008. The pump flow rate and discharge pressure were well within the established acceptance criteria. The pump motor inboard and outboard vibration readings were well below the acceptance criteria. There were no negative trends on any of the measured parameters. The licensee's review of previous work did not identify any work activity generated as a result of degrading pump conditions indicative of impending coupling failure. Therefore, the failure of pump coupling would not be predictable based on the quarterly IST data. Licensee initiated a Root Cause Investigation to determine the failure mechanisms and the results will be incorporated into NSWS pump monitoring program. The licensee is expected to report to NRC the findings of Root Cause Investigation.

The replacement pump for the failed 1B RN pump is the 1A RN pump which was removed from service during the refueling outage (1EOC17) in May/June, 2008. The 1A pump performance prior to removal from service has been reviewed to determine acceptable for installation as the replacement 1B pump. The IST data from the previous four tests, specifically the flow rate, discharge pressure and pump vibration data, demonstrate the replacement pump will operate within the established acceptance criteria. Once in service, the operability of the replacement pump will continue to be demonstrated by quarterly tests in accordance with IST program. Therefore, the proposed emergency TS change has no adverse impact on the pump operability and is acceptable.

4.2.2 AFW Completion Time Extension

The NRC staff reviewed and evaluated the provided information against the defense-in-depth attributes listed below.

- A reasonable balance among prevention of core damage, prevention of containment failure, and consequence mitigation is preserved.

  The design basis of the AFW is to supply water to the steam generators to remove decay heat and other residual heat. The limiting design basis accidents and transients for the AFW system are: 1) feedwater line break and 2) loss of main feedwater. The AFW

system configuration, while in the extended AOT, does not introduce new accidents or transients or increase the likelihood of an accident or transient.

To mitigate the risk of a potential core damage event, a dedicated operator on each shift is provided to manually operate key AFW valves, when called upon, to establish water flow to the steam generators prior to the depletion of the vital batteries, thereby preventing steam generators overfill and protecting the steam supply to the AFW turbine driven pump. Additionally, an operator is assigned and stationed in the safe shutdown facility (SSF) to provide additional assurance that the safe shutdown facility (SSF) will be available during an extended completion time and to reduce the likelihood of an operator failing to get to the SSF and performing the required actions. This individual is trained on how to operate the SSF diesel generator and the standby makeup pump to establish an alternate method of reactor coolant pump seal injection.

- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided.

  The proposed change will not involve any new programmatic activities or credit any new operator actions for assuring that the AFW is capable of performing its safety functions.

- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers).

  The requested extension of the AFW AOT increases the length of time the safety related water supply is isolated from the nuclear service water system (NSWS) to the AFW pumps. However, the normal non-seismic/non-safety-related supplies to the AFW pumps remain available. These non-safety-related supplies include the hotwell, the condensate storage tank (TS minimum volume of 225,000 gallons), and the auxiliary feedwater condensate storage tank. These non-safety-related supplies can provide sufficient inventory of water to satisfy the majority of accidents described in the UFSAR. These sources provide sufficient inventory to remove decay heat for two hours at hot standby following a reactor trip, and the subsequent cooldown to residual heat removal (RHR) system entry. In the event of a external event, the safety related source of water from the RN system can be restored with operator actions. In the event of a post LOCA cooldown and depressurization, the additional heat from a running reactor coolant pump would require additional AFW inventory to cooldown to RHR conditions. Catawba would initiate makeup to the condensate supply system to provide the additional inventory before swapping over to the SW supply. This proposed one-time increase in the action completion time is modeled in the probabilistic risk assessment, thereby assuring no risk outliers are introduced.

- Defense against potential common cause failures is preserved, and the potential for the introduction of new common cause failure mechanisms is assessed.

  The safety related source of water supply to the AFW pumps from the NSWS is temporarily unavailable during the AOT extension. However, the AFW system will continue to be available and provide cooling through non-safety-related water sources.

The failure of the NSWS water pump does not introduce any new common cause failure mechanisms that challenged the operability to the AFW pumps.

- Independence of barriers is not degraded.

  The relationship of the AFW system to individual barriers will not change as a result of the proposed AOT extension.

- Defense against human errors is preserved.

  Operator response during normal, abnormal, and emergency operating conditions will continue to be in accordance with station approved procedures. Dedicated and trained operators are stationed in key areas to assure the specified cooling functions are performed in the time required.

- The intent of the General Design Criteria in Appendix A to 10 CFR Part 50 is maintained.

The requested change does not involve any physical changes to the AFW system.

Evaluation of Safety Margins

The requested change does not permanently modify the AFW system. The safety related supply of water to the AFW pumps is only temporarily isolated during the duration of the AOT. The proposed increase in the AOT does not result in a significant decrease in the availability of supply of water for the AFW system. Therefore, adequate margin of safety is maintained.

The NRC staff reviewed the traditional engineering aspects of the licensee's evaluation related to the requested one-time limited duration extension of TS 3.7.5. Based on its evaluation of traditional engineering considerations, the NRC staff finds that the requested increase in action CT to 144 hours from 72 hours is consistent with current regulations, defense-in-depth attributes, and maintenance of adequate safety margins.

4.2.3 CSS Completion Time Extension

The Catawba 1 and 2 containment heat removal system is an engineered safety features system. The primary design basis for the CSS is to spray cool water into the containment atmosphere when appropriate in the event of a loss-of-coolant accident (LOCA) or a main steam line break and thereby ensure that the containment pressure cannot exceed the containment shell design pressure. These containment spray system also limits offsite radiation levels by reducing the pressure and temperature of the containment atmosphere. The containment spray system removes radioactive particulate from the containment atmosphere. The containment heat removal systems are described in Section 6.2.2 of the Catawba 1 and 2 UFSAR.

The containment cooling system consists of the Ice Condenser, the Air Return Fan System, and the Containment Spray System.

The primary design basis for the Containment Spray System is to spray cool water into the containment atmosphere when appropriate in the event of a loss-of-coolant accident or main steam line break and thereby ensure that the containment pressure cannot exceed the

containment shell design pressure.

The Containment Spray System consists of two trains of redundant equipment. There are six spray headers per unit. Two headers are supplied by each containment spray pump the other two are supplied by separate Residual Heat Removal (ND) pumps. Each train consists of two spray headers supplied by one containment spray pump and its associated heat exchanger, one spray header supplied by a residual heat removal pump, and required piping and valves. All of the spray headers are located in upper containment and contain a sufficient number of spray nozzles to deliver adequate flow and maximum coverage of upper containment for pressure suppression following an accident. The system initially uses borated water supplied from the refueling water storage tank (RWST) and after emergency core cooling system (ECCS) switchover from the containment recirculation sump. Service water is used for heat exchanger cooling when operating from the containment recirculation sump.

Section 6.2.2.2.1.1 of the UFSAR states that independent electrical power supplies are provided for equipment in each containment spray train. In addition each train is provided with electrical power from separate emergency diesel generators in the event of a loss of offsite electrical power.

The licensee's proposal does not modify the design or operation of the containment spray system. The proposal also does not affect the emergency core cooling system (ECCS), the Ice Condenser, emergency power supplies, or containment integrity.

The CSS will be actuated either manually from the control room or automatically by the coincidence of two out of four protection set loops monitoring pressure in the lower containment. The CSS provides two redundant heat removal trains. The system is designed such that both trains are automatically started by high-high containment "P" pressure signal. The signal actuates, as required, controls for positioning all valves to their operating positions and starting the pumps. RHR spray operation is initiated manually when required by the operator and only if 1) the Emergency Core Cooling System is operating in the recirculation mode and 2) either more than 50 minutes have passed since the initiation of the accident or both trains of the Residual Heat Removal System are operating. Assuming a large break LOCA with one train of Engineered Safeguards unavailable, the remaining ND Auxiliary Spray header is required to maintain containment pressure within design values.

The CSS is designed to withstand the safe shutdown earthquake and the operational basis earthquake without loss of function. It is an Engineered Safety Feature System and satisfies ANS Safety Class 2 requirements. The CSS will maintain its integrity and will not suffer loss of ability to perform its minimum required function due to normal operation, faults of moderate frequency, infrequent faults, or limiting faults. Sufficient redundancy for all supporting systems necessary for minimum operational requirements of the CSS is provided and complies with the single failure criterion for engineered safety features. Separate divisions of essential raw cooling water supply, power equipment, heat exchangers, pumps, valves, and instrumentation are provided in order to have two completely separated trains.

The Catawba 1 and 2 UFSAR states that the minimum Engineered Safety Feature performance of the Containment Heat Removal Systems is achieved with the following:

1. Ice Condenser,

2. One train of the Containment Air Return Fan System,
3. One train of the Containment Spray System,
4. One train of the Residual Heat Removal (ND) System.

Catawba will meet the minimum Engineered Safety Feature performance required as listed above. UFSAR Figure CN-FSAR-FIG.5-17 and UFSAR Figure CN-FSAR-FIG.5.18 show residual heat removal pumps are connected to containment spray headers. Therefore there will be three out of four containment spray systems operable.

The licensee's proposed technical specifications change extends the period of time that the single failure criterion would not apply from 72 hours to 9 days.

There are several bases for staff approval of the licensee's proposed extension of the period of time that the single failure criterion would not apply.

First, even if the single failure criterion was invoked and the OPERABLE containment spray train was lost, an acceptable level of safety would be maintained. An acceptable outcome would be maintaining containment integrity and acceptable radiological consequences.

Second, the licensee has committed to maximizing the availability of the OPERABLE containment spray train, both trains of the containment cooling system and the ECCS.

These bases are discussed below.

One basis for approval of this change is an acceptable outcome assuming the loss of the OPERABLE train of the containment spray system during a postulated loss-of-coolant accident (LOCA) or main steam line break accident. This conservative scenario invokes the single failure criterion during the TS CT even though the single failure criterion is not required during this time. Since this is beyond the Catawba Unit 1 design basis, design basis assumptions need not apply in justifying the proposed change.

It is possible that with no containment spray cooling the containment design pressure may be exceeded (depending on power level, break type and location, etc.). Scale tests have been performed which demonstrate that containment failure occurs at pressures much greater than the design pressure (typically more than a factor of two).1 In addition, increased leakage was not observed in these tests until pressures close to the ultimate containment pressure were reached. Thus, the increase in containment pressure due to loss of both trains of the containment spray system will not result in increased leakage and containment integrity will be maintained.

The containment spray system also has the design basis function of reducing the radiological source term in the containment atmosphere in order to maintain offsite and control room dose levels below the limits of 10 CFR Part 100 and 10 CFR Part 50 Appendix A General Design Criterion 19. However, the assumed design basis source term is based on the assumption that the core has melted. The licensee's proposed technical

1 M.F. Hessheimer and R. A. Dameron, "Containment Integrity Research at Sandia National Laboratories, An Overview," Sandia national laboratories, NUREG/CR-6906, July 2006

specifications change, together with the additional assumption that the OPERABLE containment spray train would not be available is outside of the Catawba Unit 1 licensing basis. Therefore, it is acceptable to consider a more realistic source term. The six additional days of this allowed outage time extension do not significantly affect the operability of the ECCS. Also, the proposed change does not affect the low probability of core melt due to a LOCA or main steam line break. Therefore, the source term of radioactive material would be expected to be significantly less than the Part 100 core melt assumptions, even without containment spray. Therefore, there is a reasonable assurance that the limits of Part 100 and GDC 19 will be met without containment spray.

The licensee included in their letter July 14, 2008 the following commitments related to the proposed extension of the containment spray system Completion Time.

- The proposed changes to the Catawba TS will be implemented prior to the end of the original 72 hour Completion Time (1041 on 7/15/08).

- During the extended Completion Time period, no major maintenance or testing will be planned on the remaining operable NSWS “A” header. In addition, for Unit 1, during this period, no major maintenance or testing will be planned on the operable equipment that relies upon "A" Train NSWS as a support system.

- During this extended Completion Time period, no major maintenance or testing will be planned on the Unit 1A AFW pump and Unit 1 turbine driven AFW pump

- During this extended Completion Time period, no major maintenance or testing will be planned on the Unit 1 A train and B train CCW system.

- During this extended Completion Time period, no major maintenance or testing will be planned on the Unit 1 A train Chemical Volume and Control System

- During this extended Completion Time period, no major maintenance or testing will be planned on the SSF.

- No major maintenance or testing will be planned on the portions of the drinking water system that are relied upon to provide backup cooling to the “A” charging pumps

- During the extended Completion Time period, the AFW system train 1B motor driven will remain available.

- During this extended Completion Time period, no major maintenance or testing will be planned on the 1A and 1B essential AC power switchgear including 4160 volt busses, load centers and motor control centers.

- During this extended Completion Time period, no major maintenance or testing will be planned on switchyard components, the 1A and 2A emergency diesel generators, and the transformers that feed the 1A, 1B, and 2A 4160 volt busses.

- An action taken by Catawba to reduce the likelihood of an operator failing to get to the SSF and performing the required actions is to station an individual in the SSF

continuously. This individual is trained on how to operate the SSF diesel generator and the standby makeup pump to establish an alternate method of reactor coolant pump seal injection. This will provide additional assurance that the SSF will be available during the extended completion time.

- Prior to entering the extended Completion Time the operating crews will review the procedures regarding starting the SSF and establishing backup cooling to an "A" charging pump.

- Catawba will perform a cleanliness inspection while the NSWS pit B is drained for pump change out.

- To mitigate the risk of a potential core damage event, an operator action has been identified. This involves dispatching operators to throttle key AFW valves to supply the flow to the steam generators prior to the depletion of the vital batteries, thereby preventing steam generator overfill and thus protecting the steam supplies to the AFW turbine driven pump. Catawba will dedicate an operator on each shift with this responsibility.

- Catawba has installed permanent flood protection barriers in the turbine building to mitigate turbine building flooding. In addition, to help reduce any potential flooding issues, no major maintenance or testing will be planned on the Condenser Circulating Water System.

- Duke commits to a change out of the 1B NSWS pump at the next scheduled refueling outage.

- Catawba will perform a detailed cause evaluation of this failure of the 1B NSWS pump. This cause evaluation will be compared to the cause evaluation completed for the failure of the 1B centrifugal charging pump earlier this year. This result of this comparison will be used to evaluate any potential enhancements to Catawba's pump preventive maintenance program.

The staff finds these commitments to be acceptable since they support the staff's basis for granting the increase in containment spray system technical specification Completion Time.

The NRC has previously approved a similar extension of a Completion Time from 72 hours to 7 days for another PWR with a large dry containment.2

The NRC staff concludes that an extension in the technical specification Completion Time for the Catawba Unit 1 containment spray system is acceptable based on continued assurance of containment integrity and acceptable radiological doses. These conclusions are acceptable based on assumptions outside the scope of the Catawba Unit 1 licensing basis and are acceptable based on the technical justification given above, the short time period requested and the licensee's commitments to the NRC stated above.

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2 Letter from US NRC to Mr. Jeffrey S. Forbes, Site Vice President Arkansas Nuclear One, Entergy Operations, Inc., Arkansas Nuclear One, unit No. 2 – Issuance of Amendment re: License Amendment Request for a One-Time Extension of the Containment Spray System (CSS) Allowable Outage Time (AOT), September 28, 2006

4.2.4 Technical Specifications

The licensee identified that the failure of the 1B RN pump required entry into Catawba 1 and 2 TS 3.7.8, RN system, Limiting Condition for Operation (LCO). This LCO requires two RN trains to be operable in plant modes 1, 2, 3, and 4, and the loss of the 1B RN pump resulted in the loss of 1 of the 2 operable trains. The licensee subsequently realigned the RN loads to reduce system flow demand, declared the train as operable, and exited the LCO. The NRC staff does not agree that the LCO allows the train to be considered operable with an inoperable NSWS pump; however, the LCO is ambiguous on this point, and the licensee did return the NSWS train to a condition where it could perform its intended safety function with less than 2 operable pumps. In accordance with 10 CFR 50.36, the lowest functional capability or performance levels of equipment required for safe operation of the facility are defined in the LCO. In addition, the surveillance requirements ensure that the LCOs will be met. In other words, operability of equipment and systems is defined in the TSs, not in the Bases. The Bases are not part of the license (per 10 CFR 50.36(a)), were not previously approved by the NRC staff, and cannot be used to define operability. To correct this situation and prevent future misunderstanding, the licensee has committed to work with staff to clarify Catawba 1 and 2 TS LCO 3.7.8. Therfore the NRC staff finds the proposed emergency TS acceptable.

5.0 SUMMARY

The NRC staff has concluded that the proposed one-time extension of the AOTs for the Unit 1 AFW system and the Unit 1 CSS system is acceptable. This conclusion is based, in part, on the above risk and deterministic evaluations. In addition, the licensee has taken compensatory measures limiting activities that have the potential to result in a plant transient. Therefore, the NRC staff finds that there is no undue risk to public health and safety associated with granting the AOT extensions for the Unit 1 AFW system and the Unit 1 CSS system.

6.0 EMERGENCY CIRCUMSTANCES

The NRC's regulations 10 CFR 50.91 contain provisions for issuance of an amendment where the Commission finds that emergency circumstances exist, in that a licensee and the Commission must act quickly and that time does not permit the Commission to publish a *Federal Register* notice allowing 30 days for prior public comment.

In the July 14, 2008, application, the licensee requested that this amendment be treated as an emergency amendment. In accordance with 10 CFR 50.91(a)(5), the licensee provided information explaining how this emergency situation occurred and why it could not be avoided.

The licensee provided the following explanation.

1. Reason Emergency Situation Has Occurred:

On July 12, 2008 at approximately 9:10 a.m., the control room operators started the 1B RN system pump and stopped the 1A RN system pump in support of RN train B supply header flushes. At approximately 10:41a.m., the control room operators received several RN NSWS alarms for B NSWS train header pressure and flow. The operators observed low discharge header pressure along with high RN flow for the 2B RN system pump and low flow for the 1B RN

pump. The operators entered their abnormal procedure for the RN system and started the 1A RN pump and stopped the 1B RN system pump. The 1B RN pump was declared inoperable as of 10:41 a.m. and both units entered TS 3.7.8 Action A with a 72 hour completion time.

On Sunday July 13, 2008, the licensee realigned RN system on Unit 1. Flow to the 1B AFW, 1B CSS heat exchanger and the Unit 1 nonessential header were isolated. This action required the licensee to enter TS 3.6.6 Required Action A and TS 3.7.5 Required Action B each with a 72 hour Completion Time. These alignments allow the 2B RN system pump to carry the loads for Unit 1 Train B except for the isolated sections discussed above. Since the required flows are not available for the 1B AFW pump and the 1B CSS heat exchangers, the start time of the LCO reverts back to the time the when the RN system was taken out of service originally. These TS Required Actions will remain in effect until the repairs and restoration of the 1B RN pump is completed.

Completion times for the applicable TS Required Actions for the 1B AFW pump and 1B CSS train expire at 10:41a.m. on July 15, 2008. The licensee has effort under way to replace the 1B RN system; however, the pump will not be restored to operable status prior to expiration of the completion time.

In order to avoid the shutdown of Catawba 1, the licensee proposes a one-time limited duration extension of the TS required action completion time associated with the Unit 1B AFW pump and the 1B CSS. The requested extension would allow continued operation of Unit 1 for an additional 144 hours beyond the TS allowed outage time of 72 hours while repairs and related testing of the 1B RN pump are completed.

2. Reason the Situation Could Not Have Been Avoided:

Initial Incident Investigation

On July 13, 2008 at 12:30 a.m., a diver crew and maintenance pump team performed an inspection of the pump. The diver crew entered the suction pit and discovered several metallic pieces lying on the bottom of the pump house pit floor as shown above. The diver crew retrieved the pieces for further inspection. While on location at the entrance to the suction bell, the maintenance pump team proceeded to hand rotate the pump. The diver crew did not identify any movement in the first stage impeller while the pump crew successfully rotated the shaft at the pump and motor coupling. Therefore, it was evident the impeller assembly was no longer connected to the motor shaft.

The RN system pumps are a deep draft vertical pump. The pumps are a 1,000 horse power, two stage pump. It is assembled with a suction bell, two bowl assemblies, four columns, one discharge head and motor to make the complete vertical assembly approximately 65 feet tall. It consists of five shafts and correspondingly four couplings. Only the uppermost motor to pump head shaft is accessible without complete pump removal and disassembly. Therefore complete removal is necessary for further investigation and repair.

RN System Pump Monitoring

The Catawba 1 and 2 RN system pumps are high safety significance pumps and receive in depth monitoring, trending, and analysis.

1) Vibration: Data collected quarterly via IWP and Maintenance testing programs. Amplitude, frequency, and time waveforms are reviewed in detail for any changes. Data is reviewed by Category III and IV certified vibration analysts. The most recent vibration data collected on the 1B RN system pump was collected just prior to the recent 1EOC 17 RFO. No abnormal data was evident.

2) Pump Pressure and Flow: Suction and discharge pressure as well as flow is monitored closely on a quarterly basis via required procedural IWP testing. Suction and discharge pressure have remained within acceptable values.

3) Oil Analysis Data: Motor oil samples are collected on a quarterly basis. No significant changes in oil quality have been noted.

4) Preventive Maintenance: Pump assemblies are replaced on a periodic frequency based on vendor recommendations and industry experience for this type of pump. The pump was last refurbished is 2003. Per the preventative maintenance program the next overall/rebuild should not be needed until 2015.

A comprehensive review of the previous 4 quarters of in-service test data for the 1B RN system pump was reviewed to verify that no performance degradation had occurred prior to the failure of the pump on July 12, 2008. The pump flow rate and discharge pressure were well within the established acceptance criteria. The pump motor inboard and outboard vibration readings were well below the acceptance criteria. There were no negative trends noted on any of the measured parameters. A review of previous work history on the 1B RN system pump did not identify any work activity generated as a result of degrading pump conditions indicative of impending coupling failure. Therefore, the failure of the pump coupling was not predictable based on the quarterly test data. When completed, the results of the root cause investigation will be incorporated into the RN system pump monitoring program.

Additional Actions

Based on the above discussion, the licensee has been actively monitoring pump data and this failure could not have been predicted. Neither a routine nor an exigent TS amendment request could have been processed within the 72 hour period. Therefore, an emergency TS amendment is required to preclude a shutdown of Catawba 1.

Based on the above, the Commission finds that an emergency situation exists, in that failure to act in a timely way would result in shutdown of the plant. The licensee has explained why the emergency situation occurred and why it could not be avoided. Accordingly, the Commission has determined that emergency circumstances exist pursuant to 10 CFR 50.91(a)(5) and could not have been avoided, that the submittal of information by the licensee was timely, and the licensee did not create the emergency condition. Therefore, this request was handled under the provisions of 10 CFR 50.91(a)(5).

7.0 REGULATORY COMMITMENTS

In the July 14, 2008, application submittal the licensee made the following regulatory commitments:

| Regulatory Commitment | Due Date |
|---|---|
| The proposed changes to the Catawba 1 and 2 TS will be implemented prior to the end of the original 72 hour completion time | July 15, 2008 |
| During the extended completion time period, no major maintenance or testing will be planned on the remaining operable RN "A" header. In addition, for Unit 1, during this period, no major maintenance or testing will be planned on the operable equipment that relies upon "A" Train RN as a support system. | July 15, 2008 |
| During this extended completion time period, no major maintenance or testing will be planned on the Unit 1A AFW pump and Unit 1 turbine driven AFW pump. | July 15, 2008 |
| During this extended completion time period, no major maintenance or testing will be planned on the Unit 1 A train and B train component cooling water system. | July 15, 2008 |
| During this extended completion time period, no major maintenance or testing will be planned on the Unit 1 A train chemical volume and control system. | July 15, 2008 |
| During this extended completion time period, no major maintenance or testing will be planned on the safe shutdown facility (SSF). | July 15, 2008 |
| No major maintenance or testing will be planned on the portions of the drinking water system that are relied upon to provide backup cooling to the "A" charging pumps. | July 15, 2008 |
| During the extended completion time period, the AFW system train 1B motor driven will remain available. | July 15, 2008 |
| During this extended completion time period, no major maintenance or testing will be planned on the 1A and 1B essential AC power switchgear including 4160 volt busses, load centers and motor control centers. | July 15, 2008 |

| Regulatory Commitment | Due Date |
|---|---|
| During this extended completion time period, no major maintenance or testing will be planned on switchyard components, the 1A and 2A emergency diesel generators, and the transformers that feed the 1A, 1B, and 2A 4160 volt busses. | July 15, 2008 |
| An action taken by Catawba 1 and 2 to reduce the likelihood of an operator failing to get to the SSF and performing the required actions is to station an individual in the SSF continuously. This individual is trained on how to operate the SSF diesel generator and the standby makeup pump to establish an alternate method of reactor coolant pump seal injection. This will provide additional assurance that the SSF will be available during the extended completion time. | July 15, 2008 |
| Prior to entering the extended completion time the operating crews will review the procedures regarding starting the SSF and establishing backup cooling to an “A” charging pump. | July 15, 2008 |
| Catawba will perform a cleanliness inspection while the RN pit B is drained for pump change out. | July 21, 2008 |
| To mitigate the risk of a potential core damage event, an operator action has been identified. This involves dispatching operators to throttle key AFW valves to supply the flow to the steam generators prior to the depletion of the vital batteries, thereby preventing steam generator overfill and thus protecting the steam supplies to the AFW turbine driven pump. Catawba 1 and 2 will dedicate an operator on each shift with this responsibility. | July 15, 2008 |
| Catawba 1 and 2 has installed permanent flood protection barriers in the turbine building to mitigate turbine building flooding. In addition, to help reduce any potential flooding issues, no major maintenance or testing will be planned on the condenser circulating water system. | July 15, 2008 |
| The Duke commits to a change out of the 1B RN pump at the next scheduled refueling outage. | Prior to the end of 1EOC 18 Refueling outage |

| Regulatory Commitment | Due Date |
|---|---|
| Catawba 1 and 2 will perform a detailed cause evaluation of this failure of the 1B RN pump. This cause evaluation will be compared to the cause evaluation completed for the failure of the 1B centrifugal charging pump earlier this year. This result of this comparison will be used to evaluate any potential enhancements to the licensee‘s pump preventive maintenance program. | November 30, 2008. |

8.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92(c) state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or,

(2) Create the possibility of a new or different kind of accident from any previously evaluated; or,

(3) Involve a significant reduction in a margin of safety.

The following analysis was provided by the licensee in their letter dated July 14, 2008.

i. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The 1B AFW pump and the 1B CSS safety related functions are as accident mitigators and are not required unless an accident occurs. The 1B AFW pump and 1B CSS do not affect any accident initiators or precursors. The proposed extension of the Required Action Completion Time does not affect the 1B AFW pump's and 1B CSS interaction with any system whose failure or malfunction could initiate an accident. Therefore the probability of an accident previously evaluated is not significantly increased.

The risk evaluation performed in support of this amendment request (Reference Section 9) [July 14, 2008 application] demonstrates that the consequences of an accident are not significantly increased. As such, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

ii. Does the proposed amendment create the possibility of a new or different kind of accident from any previously evaluated?

Response: No.

This change does not create the possibility of a new or different kind of accident from any accident previously evaluated. No new accident causal mechanisms are created as a result of the NRC granting of this proposed change. No changes are being made to the plant which will introduce any new or different accident causal mechanisms.

iii. Does the proposed amendment involve a significant reduction in the margin of safety?

Response: No.

Based on the availability of redundant systems, the restrictions on maintenance and operation of required systems, and the low probability of an accident, Catawba concludes that the reduction of availability of the 1B AFW pump and the 1B CSS does not result in a significant reduction in the margin of safety.

The margin of safety is related to the confidence in the ability of the fission product barriers to perform their design functions during and following an accident situation. These barriers include the fuel cladding, the reactor coolant system, and the containment system. The performance of these fission product barriers will not be significantly impacted by the proposed change. The risk implications of this request were evaluated and found to be acceptable.

The NRC staff agrees with the licensee's analysis and, based on this review has concluded that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff makes a final determination that the amendment does not involve a significant hazards consideration.

## 9.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official was notified of the proposed issuance of the amendment. The State official had no comments.

## 10.0 ENVIRONMENTAL CONSIDERATION

The amendment change a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has made a final no significant hazards finding with respect to this amendment. Accordingly, the amendment meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 11.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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