VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

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Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2
SUMMARY OF FACILITY CHANGES, TESTS AND EXPERIMENTS

Pursuant to 10 CFR 50.59(d)(2), attached is a summary description of Facility Changes, Tests and Experiments identified in Regulatory Evaluations implemented at the North Anna Power Station during 2009. Also, attached are Commitment Change Evaluation Summaries that were completed.

If you have any questions, please contact Page Kemp at (540) 894-2295.

Very truly yours,

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Attachments

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IE47
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ATTACHMENT 1

10 CFR 50.59 SUMMARY DESCRIPTION OF FACILITY CHANGES, TESTS AND EXPERIMENTS

NORTH ANNA POWER STATION UNITS 1 AND 2
VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

NORTH ANNA UNITS 1 & 2

10 CFR 50.59 SUMMARY DESCRIPTION OF FACILITY CHANGES, TESTS AND EXPERIMENTS

REGULATORY EVALUATION: 09-SE-PROC-01, Revision 0

Document Evaluated: Maintenance Operating Procedure 1-MOP-26.79, C RSS Transformer and F Transfer Bus

Brief Description: The activity consists of a procedurally control temporary modification to add steps to allow supplying the "F" Transfer Bus from the "A" Reserve Station Service Transformer (RSST).

Reason for Change: This procedurally controlled temporary modification is being installed to ensure an offsite power supply to the 2J Emergency Bus will be available from the "A" RSST during the maintenance outage of the "C" RSST. The 1H Emergency Bus will be powered from its designated alternate power supply (1B Station Service Bus) during the evolution.

Summary: The activity consists of a procedurally controlled temporary modification that will ensure an offsite power supply to the 2J Emergency Bus will be available from the "A" RSST during the maintenance outage of the "C" RSST. This will be performed by aligning the "A" RSST to the "F" Transfer Bus through the Alternate AC Buses 0L and 0M. The 1H Emergency Bus will be powered from its UFSAR described alternate offsite power supply (1B Station Service Bus) during the evolution. In this proposed configuration the offsite power supplies for the 2H and 2J Buses will not be physically separate (e.g., 34.5kV cables are routed in the same duct bank).

Engineering Transmittal ET-CEE-0009, Rev. 0 has been created to evaluate any load concerns with supplying the 2J Emergency Bus with the "A" RSST. The ET concluded that the voltage profile analysis for the proposed configuration shows that voltage is adequate for all buses and that a separation of the emergency buses from offsite power due to actuation of the degraded voltage relays is not predicted.

The risk associated with "C" RSST being out of service and the "A" RSST supplying the "F" Transfer Bus for the few hours of "C" RSST being out of service was assessed. The assessment concluded that since there are still two sources of power for the emergency buses, there is only a minimal increase in risk. The risk increase, in terms of Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) figures of merit, for Unit 1 and 2 are minimal (delta CDF of less than 6.0E-8 and no change in LERF). The small increase in the CDF and no change in LERF are consistent with the expectation because the impact of this configuration on the safety-related structures, systems, and components as well as modeled initiating events frequencies is minimal.

In addition, the risk associated with this plant configuration will be limited by entering a 72-hour Action of Technical Specification 3.8.1.

This configuration reduces the operational risk to the units with only slightly increasing the CDF and not increasing the LERF figures of merit. Any failures as a result of this activity are bounded by the existing loss-of-offsite power analysis which bounds the loss of the "A" and "B" RSSTs. This procedurally controlled temporary modification does not impact Operation's ability to respond to any abnormal conditions or emergency situations.

REGULATORY EVALUATION: 09-SE-TM-01, Revision 0

Document Evaluated: Temporary Modification 1811, Revision 0

Brief Description: Temporary Modification 1811, Revision 0 disconnects the overhead lines going from the "B" RSST to the 1B Station Service Bus alternate feeder breaker to facilitate repair restoration of the faulted cables, and then returns the "B" RSST to service.

Reason for Change: The Temporary Modification will allow the alternate feed breaker 2-EP-BKR-25B1 to the 2B 4160 VAC bus to be returned to service and restores the auto transfer feature to this bus.

Summary: The faulted cables from "B" RSST to 1-EP-BKR-15B1 placed the plant in the following configuration: "B" RSST is tagged out. "A" RSST is supplying the 2H bus from the 0L bus through 1-EP-BKR-15E3. The 1G and 2G Transfer Buses are cross tied with 2G bus suppling loads. The 1B and 2B normal buses have lost their alternate supply with 1-EP-BKR-15B1 and 2-EP-BKR-25B1 tagged out.

Temporary Modification 1811, Revision 0 disconnects the overhead lines going from the "B" RSST to the 1B Station Service Bus alternate feeder breaker to facilitate repair restoration of the faulted cables, and then returns the "B" RSST to service. This allows for breaker 1-EP-BKR-15E1 to be closed, and the splitting of the 1G and 2G Transfer Buses. The Temporary Modification will allow the 2B Station Service Bus (via breaker 2-EP-BKR-25B1) to be returned to service and restores the auto transfer feature to this bus. This Temporary Modification will allow for a better defense in depth alignment of the station while repairing the faulted cables on the 1B Station Service Bus.

The Temporary Modification evaluates the configuration necessary for the repair as not adverse to plant safety. The risk associated with the temporary configuration was assessed. The assessment assumed breakers 1-EP-BKR-15B1 and 2-EP-BKR-25B1 were unavailable. The risk increase, in terms of CDF and LERF figures of merit, for Unit 1 and 2 are minimal (less than 9.0E-8 and 5E-9, respectively). These small increases in CDF and LERF are due to the minimal impact of this configuration on the safety-related structures, systems, and components and modeled initiating event frequencies. The configuration was evaluated previously both per planned work (Design Change 06-005, Rebuild of Switchyard 34.5kV Buses #3 and #4), and the previous Temporary Modification 1780 for restoration of the "B" RSST feeder cables to the normal buses, as not adverse to plant safety.

This will restore the auto transfer function to the 2B Station Service Bus, thus increasing the reliability of the plant. Upon loss of power from Unit 2, the 2B Station Service Bus would be able to auto transfer back to the "B" RSST.

Repair of the faulted cables will restore the availability of the alternate source of power to the 1B Station Service Bus. This allows the 1B Station Service Bus to auto transfer

to "B" RSST in the event of a Unit Turbine trip by restoring backfeed via breakers 1-EP-BKR-15B1. This backfeed is used during planned unit outages. With offsite power available, the G12 breaker on Unit 1 makes it possible to automatically power the Unit 1B Station Service Bus on a Unit 1 trip. Unit 2 does not have this capability, making restoration of the alternate supply to the 2B Station Service Bus more critical, since breaker 2-EP-BKR-25B1 allows for the Unit 2 Station Service bus to remain energized in the event of a Unit 2 trip. This Temporary Modification will restore the alternate feed to Station Service Bus 2B and therefore mitigates the risk associated with not having this alternate feed available during a Unit 2 trip.

Temporary Modification 1811, Revision 0 has been determined to be acceptable for use. By implementing this Temporary Modification, the station will regain the preferred power supply to the "E" Transfer Bus and the Unit 1 and 2 "G" Transfer Buses will be restored back to their normal supplies ("B" RSST feeding 1G bus and "C" RSST feeding 2G bus). This Temporary Modification will also allow the 2B Station Service Bus to be returned to service and restores the auto transfer feature to the 2B bus. This configuration reduces the operational risk to the units with only slightly increasing the CDF and LERF figures of merit, for Unit 1 and 2 (less than 9.0E-8 and 5E-9, respectively). This Temporary Modification does not impact Operation's ability to respond to any abnormal condition or emergency situation. The Temporary Modification will allow the station to repair the damaged 5kV feeder cables to 1-EP-BKR-15B1. Upon successful repairs to the feeder cables, both units will be restored to their normal power configurations.

REGULATORY EVALUATION: 09-SE-TM-02

Document Evaluated: Temporary Modification 1814, Revision 0

Brief Description: Temporary Modification 1814, Revision 0 disconnects the overhead lines from the "A" RSST that provide alternate feed to Station Service Buses 1A and 2A resulting in a loss of function for the 2A bus to fast transfer in the event of a trip without an electrical fault on the bus.

Reason for Change: The Temporary Modification has been prepared to re-energize the "A" RSST to power the 1J Emergency Bus upon a loss of the abnormal configuration of power to 1J Emergency Bus through the 0L Bus. The abnormal configuration was put in place to facilitate "A" RSST cable repairs. Repairs to "B" RSST overhead cables must be complete leaving "B" RSST overhead cables to the normal switchgear room fully operable prior to implementation of this Temporary Modification.

Summary: The plant configuration with the loss of the 2A Station Service Bus was modeled from a risk perspective and was shown to have a less than minimal increase in frequency as expected for the non-safety related 2A Station Service Bus.

Partial loss of reactor coolant flow following a reactor trip has been shown in the safety analysis as bounded by a complete loss of flow as would occur with a loss of offsite power (UFSAR Section 15.2.5.3). Non-safety related feedwater isolation valves 2-FW-MOV-254A (Main Feed Pump Discharge) and 2-FW-MOV-250B Feedwater Isolation Valve) powered from the 2A bus will have power from the 2B Station Service Bus while alternate power to the 2A bus is not available from the "A" RSST. This is to ensure these feedwater motor-operated valves (MOVs) can still perform their design accident function and shut on a feedwater isolation signal. These feedwater valves provide redundancy for feedwater isolation to the applicable Main Feedwater Regulating Valve and Main Feedwater Regulating Bypass Valve which are air-operated, fail closed and powered from vital AC distrubution to ensure the feed train is isolated on a feedwater isolation signal.

The risk increase, in terms of CDF and LERF figures of merit, for Unit 1 and 2 are minimal (CDF of less than 1.0E-8 for Unit 1 and 9E-8 for Unit 2, and no change in LERF).

Loss of 2A Station Service Bus following a generator trip would result in a partial loss of reactor coolant flow. This event is already analyzed and shown to be bounded by a complete loss of flow as expected with a loss of offsite power. There is no increase in the consequences of malfunction of one of the feedwater MOVs listed above from what is already evaluated in the UFSAR.

Loss of offsite power and partial loss of reactor coolant flow have already been evaluated. A different type of accident is not possible with the fast transfer function to the 2A Station Service Bus removed.

Failure of the "A" RSST is already evaluated, is bounded by the loss of offsite power analysis which bounds loss of the 2A Station Service Bus. There are no other structure, system, or component malfunction possibilities as a result of disconnecting the overhead lines from the "A" RSST.

This activity does not exceed or alter any design basis limits for any fission product barriers. Fuel cladding, Reactor Coolant System boundary, and the Containment design basis limits are not altered by the disconnection of the overhead bus or the possibility of a loss of the 2A Station Service Bus following a Unit trip either directly or indirectly.

This activity is not a departure from any method of evaluation described in the UFSAR.

REGULATORY EVALUATION: 09-SE-TM-03

Document Evaluated: Temporary Modification 1815, Revision 0

Brief Description: Temporary Modification 1815, Revision 0 isolated the "A" RSST from the 1A Station Service Bus. Breaker 1-EP-BKR-15A1 will be danger tagged open and the cable connection will be isolated from the overhead 5kV bus to allow a cable repair. The Temporary Modification will allow the alternate feed breaker 2-EP-BKR-25A1 to the 2A Station Service Bus to be returned to service and provide the auto transfer feature.

Reason for Change: With the failure of cables from "B" RSST to 1-EP-BKR-15B1, a review was performed on all RSST cables and the determination was made to replace all RSST cables. The "B" RSST cables were replaced first due to the damage sustained during the fault of these cables. Once the cables were replaced, the "B" RSST was restored to service. Upon completion, the "A" RSST cables require replacement. Temporary Modification 1814, Revision 0 was developed to remove the cables from breakers 1-EP-BKR-15A1 and 2-EP-BKR-25A1 from the low side bushing and opened these breakers in order to isolate the cables to be replaced. Temporary Modification 1815, Revision 0 was developed in the case of a Unit 2 trip in order to provide an alternate feed to the 2A Station Service Bus.

Summary: Temporary Modification 1815, Revision 0 will allow the 2A Station Service Bus (via breaker 2-EP-BKR-25A1) to be returned to service and restores the auto transfer feature to this bus. The temporary modification also isolates 1-EP-BKR-15A1 from the 4160 VAC bus, in order to allow the "D" Transfer Bus to be re-energized in order to provide an alternate feed to the 2A Station Service Bus upon a Unit 2 trip. Temporary Modification 1815, Revision 0 will allow for a better defense in depth alignment of the station while replacing the cables on the 1A Station Service Bus.

Temporary Modification 1815, Revision 0 evaluates the configuration necessary for this repair as not adverse to plant safety. The risk associated with the activity was assessed assuming breakers 1-EP-BKR-15A1 and 2-EP-BKR-25A1 were unavailable. The risk increase, in terms of CDF and LERF figures of merit, for Unit 1 and 2 are minimal (less than 9.0E-8 and 5E-9, respectively). These small increases in the CDF and LERF are due to the minimal impact of this configuration on the safety-related structures, systems, and components modeled for initiating event frequencies. This configuration has also been evaluated previously both per planned work (Design Change 06-005, Rebuild of Switchyard 34.5kV Buses #3 and #4), and the previous Temporary Modification 1780 for restoration of the "B" RSST feeder cables to the normal buses, as not adverse to plant safety.

This will restore the auto transfer function to the Unit 2 Station Service Bus, thus increasing the reliability of the plant. Upon loss of power from Unit 2, the 2A Station Service Bus would be able to auto transfer back to the "A" RSST.

Replacement of the cables will restore the availability of the alternate source of power to the 1A Station Service Bus. This allows the 1A bus to auto transfer to "A" RSST in the event of a Unit Turbine trip by restoring back feed via breaker 1-EP-BKR-15A1. This back feed is used during planned unit outages. With offsite power available, the G12 breaker on Unit 1 makes it possible to automatically power the Unit 1A Station Service Bus on a Unit 1 trip. Unit 2 does not have this capability, making restoration of the alternate supply to the 2A bus more critical, since breaker 2-EP-BKR-25A1 allows for 2A Station Service Bus to remain energized in the event of a Unit 2 trip. Temporary Modification 1815, Revision 0 will restore the alternate feed to Station Service Bus 2A and therefore mitigates the risk associated with not having this alternate feed available during a Unit 2 trip. Station Service Buses "B" and "C" will still maintain preferred power.

Temporary Modification 1815, Revision 0 has been determined to be acceptable for use. By implementing this temporary modification, the station will regain the preferred power supply to the "D" Transfer Bus. This temporary modification will also allow the 2A bus to be returned to service and restores that auto transfer feature to the 2A Station Service Bus. This configuration reduces the operational risk to the units with only slightly increasing the CDF and LERF figures of merit, for Unit 1 and 2 (less than 9.0E-8 and 5E-9, respectively). Temporary Modification 1815, Revision 0 does not impact Operation's ability to respond to any abnormal condition or emergency situation.

ATTACHMENT 2

COMMITMENT CHANGE EVALUATION SUMMARY

NORTH ANNA POWER STATION UNITS 1 AND 2
VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

Commitment Change Evaluation Summary

Original Commitment Description: In 1981 high temperatures were experienced in Unit 1 containment that exceeded Technical Specification limits. Licensee Event Report (LER) 81-058/03X-1 contained commitments to revise an operating procedure to check open all ring duct exhaust dampers and check closed the vent seals following maintenance or refueling outages. Operating Procedure 1-OP-1B has steps to "verify the discharge duct dampers into the RCP cubicles for the Containment Air Recirculation fans are open" but there is no mention of checking closed the vent seals. A review of all previous revisions of 1-OP-1B, back to 1981 when the damper inspection first appeared, did not identify the requirement to check closed the vent seals. No other procedure or records were identified that performed the inspection identified in LER 81-058/03X-1.

Revised Commitment Description: Eliminate the commitment to check closed the vent seals following maintenance or refueling outages.

Justification for the Commitment Change: A review of various design basis information revealed that the original placement of these seals in the loop rooms was in response to problems encountered with maintaining adequate ventilation in containment, and keeping the temperature below maximum values allowed by the Technical Specifications. The seals served to close off an opening in the floor area that would otherwise allow leakage of ventilation air back down into the area below the cubicles, thereby bypassing the upper dome area of containment.

Since installation of these vent seals there have been changes to the containment ventilation and its requirements. Ventilation changes made include: 1) using the Chilled Water System as the supply for the Containment Air Recirculation Fans and the Service Water System is only used as backup cooling, and 2) the addition of containment dome fans 1/2-HV-F-92A, B and C. The maximum allowable containment temperature when these vent seals were installed was 105°F and at the present the maximum allowable temperature is 115°F per Technical Specifications. These changes have proven over the years to provide the necessary air circulation and cooling to maintain containment temperatures well below the maximum allowable limit and the requirement for these vent seals to be closed is no longer necessary. This conclusion is further substantiated by the successful performance of a daily periodic test conducted by Operations to verify the average containment temperature, which has been less that 100°F leaving a 15°F margin before reaching the Technical Specification limit over the past 5 years.

It is noted that another design feature of the vent seals is to "blowout" to relieve steam generator subcompartment overpressurization during the postulated mass and energy release during a LOCA/MSLB. This requirement is still being supported, since the current condition is conservative to that assumed in the safety analysis, which does not credit any air flow until the vent seal panels blow out when the cubicle reaches 5 psid.

Original Commitment Description: In December 1986, the NRC performed a Control Room Habitability Survey. Open items from the Control Room Habitability Survey were documented in NRC Inspection Report 87-19. Inspection Follow-up Item 87-19-07 was related to limiting access to the control room following an accident so the control room can be maintained at a positive pressure with the bottled air system operating. North Anna responded to Inspection Follow-up Item 87-19-07 in a letter to the NRC dated March 1, 1989 (Serial No. 89-022). This letter stated that "Operator logs have been revised to require verification, every 8 hours, that the Control Room Envelope is at an adequate positive pressure..."

Revised Commitment Description: Eliminate the commitment to monitor the Control Room Envelope differential pressure every 8 hours.

Justification for the Commitment Change: The commitment to monitor the Control Room Envelope every 8 hours is not required. License Amendment Nos. 255 and 236 for North Anna Units 1 and 2 were approved by the NRC on March 25, 2009. These license amendments removed the Limiting Condition for Operation for the Control Room Bottled Air System from the Technical Specifications. Control Room Envelope differential pressure in relation to all adjacent areas will be monitored with the Main Control Room/Emergency Switchgear Room Emergency Ventilation System operating in the pressurization mode of operation every 18 months on a staggered test basis as specified in Technical Specification 5.5.16.d.

Original Commitment Description: Technical Specification Task Force (TSTF) 372, Addition of LCO 3.0.8, Inoperability of Snubbers, and the associated NRC Safety Evaluation Report is the basis for Technical Specification (TS) 3.0.8. TS 3.0.8 provides a delay time before declaring a support system inoperable. This basis for the delay is a risk-informed seismic analysis. As part of the risk-informed evaluation, Tier 2 restrictions were established and required by the NRC to avoid high risk configurations when using TS 3.0.8. However, the focus of analysis was on a unit at power and credited safety systems that are required to be available to mitigate consequences of an accident while at power. That is, the analysis did not consider safety system configurations during non-operating modes. As a result, the Tier 2 restriction imposed by the original analysis is not practical for use in modes where the safety systems credited for decay heat removal are different from those credited while at power. Therefore, a commitment change is necessary to address one of the unpractical Tier 2 restrictions. Specifically, the Tier 2 restriction that requires a train of Auxiliary Feedwater (AFW) to be available (when TS 3.0.8 is being used) is being changed for those operating modes when AFW is not required to be operable. The change will require, for non operating modes when AFW system is not required to be operable, at least one train of the credited system for core heat removal to be operable.

Revised Commitment Description: A Tier 2 restriction is currently required when using TS 3.0.8.a for a non-functional snubber. In place of a train of AFW, alternative heat removal capabilities will be permitted when the AFW System is not required to be operable, which is Mode 4 when the Steam Generators are not relied upon for heat removal and in Modes 5 and 6. Furthermore, because of the conservative assumption made for Loss of Offsite Power (LOOP) sequences that a 0.1g level earthquake would fail all piping associated with inoperable snubbers, non-Loop sequences would not include any more failures associated with inoperable snubbers than LOOP sequences. Therefore, the risk impact of inoperable snubbers associated with non-LOOP accident sequences is small compared to the risk impack associated with the LOOP accident sequences modeled in the simplified bounding assessment. Thus, the alternative means of core cooling in place of an AFW train does not impact or effect the risk assessment performed to establish the snubber delay time LCO.

Justification for the Commitment Change: The credited system (Residual Heat Removal (RHR) System or feed and bleed) can adequately remove the core decay heat load, when AFW is not required to be operable and therefore, can be used as an alternative method for decay heat removal and not adversely affect plant risk. The original effort and risk analysis was performed focused on a unit at power, where TS requires AFW to be Operable. At that time, there was no consideration for the shutdown modes of operation when AFW is not required to be operable. However, the general approach for estimating the risk and the acceptability criterion are not mode dependent. Thus, the approach and accptability criterion that was used to estimate and approve the TS 3.0.8 risk impact during operating modes are applicable to those that are used to support the application of TS 3.0.8.a during the shutdown modes.

Since use of an alternative means of core cooling is acceptable when the snubber affects two trains of AFW, the use of alternative means of core cooling is judged to be

acceptable when used as an alternative means of core cooling when the AFW System is not required to be operable. The analysis assumes that one train (or subsystem) of all safety subsystems is unavailable during snubber testing or maintenance (an entire system is assumed unavailable if a removed snubber is associated with both trains of a two-train system). This is a very conservative assumption for the case of corrective maintenance since it is unlikely that a visual inspection will reveal that one or more snubbers across all supported systems are inoperable. This assumption is also conservative for the case of the licensee-controlled testing of snubbers since such testing is performed only on a small representative sample. In general, no credit is taken for recovery actions and alternative means of performing a function, such as the function performed by a system assumed failed (e.g., when LCO 3.0.8.b applies). However, most plants have reliable alternative means of performing certain critical functions. For example, feed and bleed can be used to remove heat in most pressurized water reactors (PWRs) when AFW, the most important system in mitigating LOOP accidents, in unavailable.

For cases where all inoperable snubbers are associated with only one train (or subsystem) of the impacted systems (i.e., when LCO 3.0.8.a applies), it was assumed in the analysis that there will be unaffected redundant trains (or subsystems) available to mitigate the seismically induced LOOP accident sequences. This assumption applies that there will be at least one success path available when LCO 3.0.8.a applies. Therefore, potentially high-risk configurations can be avoided by ensuring that such a success path exists when LCO 3.0.8.a applies. Based on a review of the accident sequences that contribute to the risk increase associated with LCO 3.0.8.a, as modeled by the simplified bounding analysis (i.e., accident sequences initiated by a seismically-induced LOOP event with concurrent loss of all safety system trains supported by out-of-service snubbers), the following restrictions were identified to prevent potentially high-risk configurations:

- For PWR plants, at least one AFW train (including a minimum set of supporting equipment required for its successful operation) not associated with the inoperable snubber(s), must be available when LCO 3.0.8.a is used.

For cases where one or more of the inoperable snubbers are associated with multiple trains (or subsystems) of the same safety system (i.e., when LCO 3.0.8.b applies), it was assumed in the bounding analysis that all safety systems are unavailable to mitigate the accident, except for West Coast plants. Credit for using feed and bleed to provide core cooling is taken for plants having feed and bleed capability (e.g., Diablo Canyon) when a snubber impacting more than one train of the AFW system is inoperable. Credit for one AFW train to provide core cooling is taken for West Coast PWR plants with no feed and bleed capability (e.g., San Onofre) because it has been determined that there is no single snubber whose non-functionality would disable more that one train of AFW in a seismic event of magnitude up to the plant's safe shutdown earthquake. (SSE). Based on a review of the accident sequences that contribute to the risk increase associated with LCO 3.0.8.b (as modeled by the simplified bounding

analysis) and defense-in-depth considerations, the following restrictions were identified to prevent potentially high-risk configurations:

- When LCO 3.0.8.b is used at PWR plants, at least one AFW train (including a minimum set of supporting equipment required for its successful operation) not associated with the inoperable snubber(s), or some alternative means of core cooling (e.g., feed and bleed, firewater system or "aggressive secondary cooldown" using the steam generators) must be available.

Based on the requirements for LCO 3.0.8.b, crediting an alternative means of core cooling is acceptable when the snubber affects two trains of the AFW system on the basis that the duration is limited and the alternative means is adequate to provide a reliable source of core cooling In response to a plant transient. Therefore, it is judged that an alternative and reliable source of core cooling to AFW is provided when the AFW system is not required to be available (particularly when it is not practical for the AFW system to be available), the change in risk can be considered to be mininal and acceptable.

The original analysis performed to support LCO 3.0.8, assumed that one train (or subsystem) of all safety systems is unavailable during snubber testing or maintenance (an entire system is assumed unavailable if a removed snubber is associated with both trains of a two-train system). This is a very conservative assumption for the case of corrective maintenance since it is unlikely that a visual inspection will reveal that one or more snubbers across all supported systems are inoperable. This assumption is also conservative for the case of the licensee-controlled testing of snubbers since such testing is performed only on a small representative sample. In general, no credit is taken for recovery actions and alterative means of performing a function, such as the function performed by the system assumed failed (e.g., when LCO 3.0.8.b applies). However, most plants have reliable alternative means of performing certain critical functions. For example, feed and bleed can be used to remove heat in most PWRs when AFW, the most important system in mitigating LOOP accidents, is unavailable.

In addition, the NRC concurred with the use of an alternative means of core heat removal when the AFW System is not required to be operable, as documented in Arkansas Nuclear One, Unit No. 1 – Issuance of Amendment Re: Technical Specification Change to Add Limiting Condition for Operation 3.0.8 on the Inoperability of Snubbers (TAC No. MD9482), dated January 28, 2009.

Original Commitment Description: Virginia Power and Electric Company (Dominion) responded to IE Bulletin No. 81-03, Flow Blockage of Cooling Water to Safety Components by Corbicula SP. (Asiatic Clam) and Mytilus SP. (Mussel) on May 22, 1981. The response indicated that a periodic monitoring program would be incorporated into existing procedures for the inspection of piping components and various heat exchangers to effectively monitor the increased population growth and the possible intrusion of Corbicula into water systems. The NRC requested (on January 21, 1983) additional information on the systems inspected for flow blockage and a description on the periodic monitoring program. Dominion responded by listing systems and components that were inspected for Corbicula and shell debris. The Fire System piping strainers and various Service Water System piping were included in the periodic monitoring program.

In 1998, an evaluation was performed to discontinue testing the Service Water piping to the Auxiliary Feedwater Pump suction and extend the period between testing of the Fire Protection System piping supplying the Auxiliary Feedwater Pumps suction from 18 months to 36 months. This change in the monitoring program was communicated to the NRC in Dominion letter dated March 24, 1999 (Serial No. 99-161).

Revised Commitment Description: Reduce the frequency of performing testing of the Fire Protection System piping supplying the Auxiliary Feedwater Pumps suction from 36 months to 72 months.

Justification for the Commitment Change: Testing performed since 1998 on Fire Protection System piping supplying the Auxiliary Feedwater Pumps has been found relatively free of sludge as evidenced by the time taken to achieve turbidity requirements stipulated in test procedures. No significant amount of sludge or other foreign materials were observed at the end of the flush. Also, no evidence of Asiatic Clams (Corbicula) or shell debris was present at the end of the flush. The turbidity of the lake is used in determining the sludge loading of the flushed lines. The procedure requires that the difference between the turbidity of the lake and the flushed lines be $\leq$ 2 NTU (Nephelometric Turbidity Unit). The histroical review referred to above indicated the turbidity difference has been generally < 1 NTU. Therefore, it is acceptable to reduce the frequency of performing testing of the Fire Protection System piping supplying the Auxiliary Feedwater Pumps suction from 36 months to 72 months.