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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Ref 10 CFR 50.90
10 CFR 50.91(b)(1)

Subject: Comanche Peak Nuclear Power Plant (CPNPP)
Docket Nos. 50-445 and 50-446
EXIGENT LICENSE AMENDMENT REQUEST (LAR) 20-002
REVISION TO TECHNICAL SPECIFICATION (TS) 3.7.19, "SAFETY CHILLED WATER"

Dear Sir of Madam:

Pursuant to 10 CFR 50.90 and 10 CFR 50.91, Vistra Operations Company LLC (Vistra OpCo) hereby requests an exigent amendment to the Comanche Peak Nuclear Power Plant (CPNPP) Unit 1 and Unit 2 Technical Specifications. The one-time exigent license amendment is required due to unforeseen issues as a result of the COVID-19 virus pandemic and the degrading compressor oil pressure trend on CPNPP Unit 2 Safety Chiller 2-06 (Train B).

The proposed change will revise Technical Specification 3.7.19, "SAFETY CHILLED WATER." The proposed change will implement a one-time change to TS 3.7.19, CONDITION A. This one-time exigent license amendment is required due to degrading compressor oil pressure on CPNPP Unit 2 Safety Chiller 2-06. This change is necessary to permit a net increase in plant safety and reliability without inducing transient risk. Restoring a more stable and reliable safety chiller on Unit 2, Train B is in the public interest, as an unnecessary plant shutdown could be caused by failure of the safety chiller. The loss of a CPNPP unit electrical output would challenge the Electric Reliability Council of Texas (ERCOT) grid if it occurs during high grid demand.

The Enclosure provides a description and assessment of the proposed changes. Attachment 1 provides a list of inspections, compensatory measures, and conditions that will be in place during implementation of the proposed one-time TS 3.7.19 change. Attachment 2 lists the Regulatory Commitments that will be in place during implementation of the proposed one-time TS 3.7.19 change. Attachment 3 provides a markup of the current TS pages and the retyped TS pages. Attachment 3 also provides "for information only" a markup of the current TS Bases and the retyped TS Bases pages. Attachment 4 provides supporting figures for this license amendment request. Attachment 5 provides the "Baseline Average Annual CDF/LERF" data used to provide risk insights for this license amendment request. Attachment 6 provides the "ICCDP and ICLERP for one-time Technical Specification Change" data used to provide risk insights for this license amendment request. Attachment 7 provides an excerpt from the CPNPP Post Work Test Guide to illustrate the testing required following safety chiller compressor replacement.

Vistra OpCo has determined that the proposed change does not involve a significant hazards consideration pursuant to 10 CFR 50.92(c), and there are no significant environmental impacts associated with the change. The CPNPP Station Operations Review Committee (SORC) has reviewed the proposed license amendment. In accordance with 10 CFR 50.91(b)(1), a copy of the proposed license amendment is being forwarded to the State of Texas.

NRC staff review and approval of the proposed license amendment is requested by August 31, 2020, in order to implement the change so the maintenance may begin in September, 2020. Once approved, the amendment shall be implemented prior to work starting and no more than 30 days after approval.

This letter contains a commitment regarding CPNPP Units 1 and 2 as described in Attachment 2.

Should you have any questions, please contact Garry W Struble at (254) 897-6628 or garry.struble@luminant.com.

I state under penalty of perjury that the foregoing is true and correct.

Executed on June 24, 2020.

Sincerely,

Thomas P. McCool

Enclosure: EXIGENT LICENSE AMENDMENT REQUEST (LAR) 20-002 REVISION TO TECHNICAL SPECIFICATION (TS) 3.7.19, "SAFETY CHILLED WATER"

Attachments:
1. Inspections, Compensatory Measures, and Commitments
2. Regulatory Commitment No. 5900444
3. Technical Specification 3.7.19 and Technical Specification Bases B 3.7.19 Pages
4. Supporting Figures
5. Baseline Average Annual CDF/LERF
6. ICCDP and ICLERP for one-time Technical Specification Change
7. CPNPP Post-Work Test Guide Excerpt - Refrigeration Unit Testing

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7. CPNPP Post-Work Test Guide excerpt for refrigeration unit testing following disassembly, repair, or rework

1.0 SUMMARY DESCRIPTION

Proposed Exigent License Amendment Request (LAR) 20-002 is to revise Technical Specifications (TS) 3.7.19, “Safety Chilled Water,” CONDITION A, for Comanche Peak Nuclear Power Plant (CPNPP) Units 1 and 2 (Reference 6.1).

Vistra OpCo is requesting this one time change for Unit 2, Safety Chiller 2-06 maintenance during Unit 2 Cycle 19, only. New REQUIRED ACTION A.2 provides a 7 day COMPLETION TIME to replace Safety Chiller 2-06 compressor. The compressor oil pressure is slowly trending down. Replacing the compressor will restore a stable compressor oil pressure which will provide assurance that Safety Chiller 2-06 will run at optimum performance during the remainder of Unit 2 Cycle 19. This one-time change applies to CPNPP Unit 2 only.

No changes to the CPNPP Final Safety Analysis Report (Reference 6.2) are anticipated as a result of this License Amendment Request (LAR) 20-002.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation (Reference 6.7)

The safety chilled water system is designed to remove heat rejected by Engineered Safety Features (ESF) pump motors, Uninterruptable Power Supply (UPS) Equipment and electrical switchgear and to maintain ambient temperatures below design limits within the rooms served. The chilled water from the system is supplied to the safety-related cooling units. The system is also used during normal operations to aid in heat removal.

The heat sink for the safety chilled water system is the safety-related Component Cooling Water System.

The safety chilled water system is ANS Safety Class 3 and seismic Category I. The system is required to operate during all modes of operation.

The chillers are designed in accordance with ASME B&PV Code Sections III & VIII. The piping is designed in accordance with ASME B&PV Code Section III.

Each unit is provided with two 100 percent capacity chilled water systems each of which are powered from independent Class 1E buses. Thus, the system will sustain a single active component failure without loss of function during all modes of plant operation.

The safety chilled water system flow diagram is shown in Attachment 4, Figure 1 and is provided “for information only.”

The system for each unit consists of two 100 percent capacity hermetic centrifugal chillers, two 100 percent capacity chilled water recirculation pumps, a chilled water surge tank, chilled water fan coil units, and associated piping, valves, and instrumentation. Each chiller is rated for 101 tons of refrigeration at design conditions. Each pump is capable of circulating chilled water at 300 gpm design flow.
Safety Chilled Water is supplied to the following cooling units;

1. Component Cooling Water (CCW) pump room emergency fan coil units
2. Centrifugal Charging Pump (CCP) room emergency fan coil units
3. Spent Fuel Pool Heat Exchanger and Pump room emergency fan coil units

(These fan coil units are common for both units, and the piping arrangement will allow chilled water to be supplied from either the Unit 1 or the Unit 2 chilled water system.)

4. Safety Injection Pump (SIP) room emergency fan coil units
5. Containment Spray Pump (CTP) room emergency fan coil units
6. Residual Heat Removal (RHR) Pump room emergency fan coil units
7. Motor Driven Auxiliary Feedwater Pump (MDAFWP) room emergency fan coil units
8. Electric Area emergency fan coil units
9. Uninterruptable Power Supply (UPS) room emergency fan coil units

The chillers are of the centrifugal type with hermetically sealed, electric-motor-driven compressors. The component cooling water from the respective trains of the safeguards loop of the CCWS is used as a cooling media for the condensers.

The pumps are electrical driven, single-stage, horizontal split, and centrifugal type.

The surge tank is provided to accommodate expansion and contraction within the system and to permit monitoring of the system for leakage. The makeup water to the tank is supplied from either the Demineralized Water System or the Reactor Makeup Water System, with consideration given to water chemistry for the Safety Chilled Water System corrosion inhibitor. The partition in the surge tank provides separate surge volumes for each safety train. A leak in one train will not affect the other train.

Vent and drain connections are provided on piping and equipment where necessary to facilitate testing and maintenance. All major components are provided with upstream and downstream isolation valves to facilitate maintenance.

The system is required to operate during post design basis accident (DBA) conditions. The system is powered from Class 1E safety buses. During loss-of-offsite power, the power is provided from diesel generators.

Chilled water is circulated through each of the two closed-loop safety trains. The recirculation pump takes suction from the chilled water return line and the chilled water surge tank which connects into the return line. The recirculation pump discharges into the evaporator of the chiller. Then chilled water from the evaporator enters into the supply header and passes through the fan coil units connected in parallel. The return chilled water from the fan coil units enters into the chilled water line, thus completing the closed system.

Except for the electrical area and Uninterruptable Power Supply (UPS) Room fan coil units, all fan coil units are interlocked with respective equipment to start. The fan coil units for the electrical area start on a Safety Injection or Blackout Sequence Signal. The chilled water recirculation pumps start on a Safety Injection, Blackout Sequence Signal or the start of a CCW Pump. The UPS fan coil units have no automatic start feature.

The instrumentation and controls for the safety chilled water system are provided for automatic and remote operation of the system (Reference 6.3). The operation and supervision of the safety chilled water system following a Control Room evacuation can be accomplished by using the system components local controls (for emergency fan coils), the Remote Shutdown Panel, and the Shutdown Transfer Panel for Train "A"

pump and chiller.

The reliability of the chilled water system is ensured by the following features:

1. The use of two 100 percent capacity systems, one for each train, and the power supply from redundant Class 1E buses to electrically operated equipment; therefore, the system meets the requirement of a single failure without loss of function.
2. Instrumentation and controls are available, providing audible and visual annunciation. This permits continuous monitoring of system performance.
3. The safety chilled water system components are located in a seismic Category I structure.

2.2 Current Technical Specification Requirements

The current Technical Specification proposed to be changed is Limiting Condition for Operation (LCO), 3.7.19 - Safety Chilled Water.

CONDITION A, “One safety chilled water train inoperable.” causes implementation of REQUIRED ACTION A.1, “Restore safety chilled water train to OPERABLE status.” with a COMPLETION TIME of 72 hours.

The bases for LCO 3.7.19, REQUIRED ACTION A.1 are as follows;

“If one Safety Chilled Water System train is inoperable, action must be taken to restore the train to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE Safety Chilled Water System train is adequate to perform the heat removal function for its associated essential equipment.”

However, the overall reliability is reduced because a single failure in the OPERABLE Safety Chilled Water System train could result in loss of the Safety Chilled Water System function. The 72-hour Completion Time is based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time.

2.3 Reason for Proposed Change

There are maintenance activities for safety chilled water trains that require the train to be unavailable for greater than 72 hours. Specifically, the maintenance activity to replace the chiller compressor not only involves removal and replacement of the compressor but also requires refrigerant and oil removal and replacement. A 72-hour COMPLETION TIME is insufficient and a 7 day COMPLETION TIME is requested. Maintenance activities that are associated with identifying and correcting actual or potential degraded conditions extend to all supporting functions for the conduct of these activities. See Attachment 7, “CPNPP Post-Work Test Guide Excerpt - Refrigeration Unit Testing” for a list of the testing that may be required following compressor replacement (Reference 6.29). Enabling online maintenance of this magnitude requires extension of the current COMPLETION TIME from 72 hours to 7 days.

Exigent Circumstances

Over several months, CPNPP has been tracking a slow degradation of compressor oil pressure for Unit 2 Safety Chiller 2-06. Prompt short-term actions have been taken within the time permitted in the action statements of TS 3.7.19. Longer term corrective actions in the form of compressor replacement for Safety Chiller 2-06 are planned. This TS amendment would enable CPNPP to proactively replace the compressor on

Safety Chiller 2-06 and thus avoid the need for either an unnecessary plant transient/shutdown or requesting regulatory relief in the form of a Notice of Enforcement Discretion (NOED) or emergency technical specification amendment. With the introduction of the COVID-19 virus, CPNPP adjusted the scope of the spring 2020 Unit 2 refueling outage to be shut down for the minimum time possible while maintaining safety and quality. Safety chilled water system work during a refueling outage is limited because much of the outage requires two trains of Residual Heat Removal (RHR). CPNPP limits the time that an RHR train is not operable or available due to core cooling risk. As a large base loaded electricity generator CPNPP Unit 2 output is a vital state and national resource. Provided this license amendment is approved, the current schedule is to replace the compressor on Safety Chiller 2-06 in September 2020 to allow for Unit 2 to take the 7 day outage prior to the Unit 1 outage in the fall of 2020 and after the heat of summer 2020 has subsided. Without this license amendment CPNPP could be forced to shut down Unit 2 and impose an associated grid transient without a compensating increase in the level of quality or nuclear safety. Avoidance of an unnecessary shutdown of CPNPP Unit 2 will limit potential impact on electrical grid stability during the remainder of Cycle 19. In the event of extreme heat and/or severe weather (e.g., a tornado warning) coupled with an unplanned shutdown of CPNPP Unit 2 due to a failed safety chiller, grid stability would be challenged with the loss of a large base load unit.

Vistra OpCo initiated dialog with the NRC on a technical specification change and is making a good faith effort to submit this license amendment request in a timely manner following identification of the degrading compressor oil pressure. With elevated ambient temperatures there is more load on Safety Chiller 2-06 which has slowed the compressor oil pressure degradation. As fall and winter arrive it is likely that the compressor oil pressure degradation will begin to trend downward once again. Vistra OpCo has communicated with the NRC Staff regarding this request. Accordingly, Vistra OpCo requests this amendment be processed under exigent circumstances pursuant to 10 CFR 50.91(a)(6) to avoid a potential shutdown in accordance with TS 3.7.19 REQUIRED ACTIONS B.1 and B.2 at the expiration of REQUIRED ACTION A.1 COMPLETION TIME of 72 hours.

Consistent with the Statement of Considerations accompanying issuance of 10 CFR 50.91(a)(6), the circumstances here result in “a net increase in safety or reliability” (51 Federal Register 7744, 7756 (Mar. 6, 1986). Staff implementing guidance expresses a preference for a license amendment, if possible over NOED, where possible. See Inspection Manual Chapter 410, Section 6.03. In this case, the proposed exigent license amendment process appropriately balances opportunity to improve public safety and reliability with public participation in the NRC’s technical specification change process.

2.4 Description of Proposed Change

The proposed change will add an OR logic connector after REQUIRED ACTION A.1 and the following REQUIRED ACTION A.2 and COMPLETION TIME;

OR

A.2	----------NOTE---------- Required Action A.2 is applicable on a one time basis to replace Safety Chiller 2-06 (Train B) compressor during Unit 2 Cycle 19. If Unit 2, Train A safety chilled water becomes inoperable, immediately enter LCO 3.0.3. Regulatory Commitment 5900444 (Attachment 2 to TXX-20039) will be implemented during the 7 day COMPLETION TIME. ---------- Restore safety chilled water train to OPERABLE status.	7 days

See Attachment 3 for Technical Specification 3.7.19 markup.

The proposed change to Technical Specification Bases for TS 3.7.19, Safety Chilled Water is provided “for information only.” The new REQUIRED ACTION A.2 information is added as follows;

A.2

The completion time for restoring the inoperable safety chilled water train to OPERABLE status can be extended to 7 days, on a one-time basis for Safety Chiller 2-06 (Train B) compressor replacement during Unit 2 Cycle 19. This one-time change regains reliability margin for Unit 2, Train B safety chilled water. The 7 day completion time for action A.2 is based on a deterministic evaluation supplemented with risk insights.

See Attachment 3 for Technical Specification Bases markup.

The retyped pages for the proposed change to Technical Specification, 3.7.19, Safety Chilled Water are provided for review.

See Attachment 3 for Technical Specification 3.7.19, Safety Chilled Water retyped.

The retyped pages for the proposed change to Technical Specification Bases, 3.7.19, Safety Chilled Water are provided “for information only.”

See Attachment 3 for the associated Technical Specification Bases retyped.

3.0 TECHNICAL EVALUATION

3.1 Deterministic Evaluation

3.1.1 Safety Chilled Water Design Analysis

Each CPNPP unit has two 100 percent capacity chilled water systems each of which are powered from Class 1E buses. This design allows the system to sustain a single active component failure without a loss of safety function during all modes of operation. Safety Chilled Water removes the heat rejected by ESF pump motors, UPS equipment, and electrical switchgear. The system is designed and components sized to maintain ambient temperatures below design limits within the room being served. These cooling requirements are accomplished by circulation of safety chilled water through emergency fan coil units located in the equipment rooms (See Attachment 4, Figure 1, Safety Chilled Water System).

3.1.2 Safety Chiller Compressor Replacement

A safety chiller compressor is a large, forged component that must be rigged out of tight clearances (See Attachment 4, Figure 2, Safety Chiller Cross Section). Prior to removal, the safety chiller must have the refrigerant and oil removed. Multiple electrical and mechanical connections must be disconnected in a manner that supports repair of the compressor after removal for use if another compressor must be replaced (See Attachment 4, Figures 3 and 4, Safety Chiller Photographs). The replacement compressor must then be rigged into place. Once the compressor has been electrically and mechanically connected, replacement refrigerant and oil must be added. At this point heaters are energized to raise oil temperature to a minimum value prior to start. After adding refrigerant, leak checks are performed. This scope of work cannot be completed within the current 72-hour COMPLETION TIME.

The estimated time from proposed REQUIRED ACTION A.2 entry to having Safety Chiller 2-06 OPERABLE again is 6 days. CPNPP is requesting an additional day for unforeseen contingencies.

A complete list of inspections, compensatory measures, and conditions are provided in Attachment 1 and regulatory commitment 5900444 is described in Attachment 2.

3.1.3 Compliance and Current Regulations

This LAR itself does not propose to deviate from existing regulatory requirements. Compliance with existing regulations is maintained by the proposed one-time change to the plant's Technical Specification requirements. Additional details are provided in the Regulatory Evaluation Section 4.0 of this LAR.

3.1.4 Defense in Depth

This request proposes one new REQUIRED ACTION A.2, new NOTE, and associated COMPLETION TIME (CT) of 7 days to TS 3.7.19 CONDITION A. The purpose of the extended CT is to allow sufficient time to complete planned corrective maintenance to avoid an unnecessary plant shutdown. The extension of the CT has no impact on the current safety analysis because the remaining OPERABLE safety chilled water train is still available to perform its system safety function while in this TS action. The current 72 hour CT limit of REQUIRED ACTION A.1 is established with the TS Basis to allow sufficient time to effect restoration for the majority of conditions that lead to a safety chilled water train inoperability. The requested extension of the COMPLETION TIME is within the range of a Shearon Harris license amendment request previously approved

(ML20050D371) (Reference 6.16). The requested CT extension does not change the likelihood for an initiating event, successful mitigative action, or required operator actions as assumed in the PRA.

The basis underlying the safety function of the safety chilled water system remains unchanged with an extension of the CT. Each train of the safety chilled water system consists of a surge tank (partitioned), a chiller, a recirculation pump, and electrical room coolers. The trains are required to be OPERABLE to ensure the availability of room cooling to shut down the reactor and maintain it in a safe condition after a postulated design basis accident (DBA). Loss of any one train of safety chilled water does not prevent the safety function from being performed. Because of this design feature, the CT extension would not result in the loss of capability to prevent core damage, prevent containment, or mitigate the consequence of an accident. The Train A safety chilled water is still able to perform its intended safety function as designed.

The plant design will not be modified with the proposed extension of the CT. All safety systems will still perform their design functions, and there will be no reliance on additional systems, procedures, or operator actions.

System redundancy, independence, and diversity are maintained commensurate with the expected frequency and consequences of challenges to the system.

TS 3.5.2, ECCS – Operating

A single train of ECCS is capable of providing core cooling and negative reactivity to ensure that the reactor core is protected after a Design Basis Accident (DBA), assuming no single failure. The ECCS consists of three separate subsystems: centrifugal charging (high head), safety injection (SI) (intermediate head), and residual heat removal (RHR) (low head). Each subsystem consists of two redundant, 100% capacity trains. The ECCS accumulators and the RWST are also part of the ECCS, but are not considered part of an ECCS flow path as described by this TS. The ECCS flow paths consist of piping, valves, heat exchangers, and pumps such that water from the RWST can be injected into the RCS following the accidents described in this LCO. The major components of each subsystem are the centrifugal charging pumps, the RHR pumps, heat exchangers, and the SI pumps. Each of the three subsystems consists of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required to mitigate the accident consequences. This interconnecting and redundant subsystem design provides the operators with the ability to utilize components from opposite trains to achieve the required 100% flow to the core. ECCS Train A will be protected during the extended CT.

TS 3.6.6, Containment Spray System

A single train of Containment Spray is capable of supporting the minimum safety functions necessary to provide containment atmosphere cooling to limit post accident pressure and temperature in containment to less than the design values, assuming no single failure. The Containment Spray System is an Engineered Safety Feature (ESF) system. It is designed to ensure that the heat removal capability required during the post-accident period can be attained. The Containment Spray System provides a method to limit and maintain post accident conditions to less than the containment design values.

The Containment Spray System consists of two separate trains of equal capacity, each capable of meeting the design bases. Each train includes two containment spray

pumps, spray headers, nozzles, valves, and piping. Each train is powered from a separate ESF bus. The refueling water storage tank (RWST) supplies borated water to the Containment Spray System during the injection phase of operation. In the recirculation mode of operation, containment spray pump suction is transferred manually from the RWST to the containment sumps. The Containment Spray System provides a spray of cold borated water mixed with sodium hydroxide (NaOH) from the spray additive tank into the upper regions of containment to reduce the containment pressure and temperature and to reduce fission products from the containment atmosphere during a DBA. Containment Spray System Train A will be protected during the extended CT.

TS 3.7.5 Auxiliary Feedwater (AFW) System

A single train of AFW is capable of supporting the minimum safety functions necessary to automatically supply feedwater to the steam generators to remove decay heat from the Reactor Coolant System upon the loss of normal feedwater supply. The AFW System consists of two motor driven AFW pumps and one steam turbine driven pump configured into three trains. Each motor driven pump provides 100% of AFW flow capacity, and the turbine driven pump provides 200% of the required capacity to the steam generators, as assumed in the accident analysis. The AFW System is capable of supplying feedwater to the steam generators during normal unit startup, shutdown, and hot standby conditions. Auxiliary Feedwater System Train A and the turbine driven AFW pump will be protected during the extended CT.

TS 3.7.7, Component Cooling Water (CCW) System

A single train of CCW is capable of supporting the minimum safety functions necessary to provide a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient, assuming no single failure. During normal operation, the CCW System also provides this function for various nonessential components, as well as the spent fuel storage pool.

The CCW System is arranged as two independent, full capacity cooling loops (safeguards loops), and has isolatable non-safety related components. A common non-safeguards loop is provided for non-essential cooling loads as well as spent fuel pool cooling. Each safeguards loop train includes a full capacity pump, heat exchanger, piping, valves, and instrumentation. Each safety related train is powered from a separate bus. An open surge tank in the system provides protective functions to ensure that sufficient net positive suction head is available. In the event an accident, various system valves are repositioned by an ESF actuation signal (i.e., a Safety Injection Actuation Signal and/or a Containment Spray Actuation Signal) as described in the FSAR. The pump in each train is automatically started on receipt of a safety injection signal, and the non-safeguards loop is isolated on receipt of a Containment Spray Actuation Signal. Component Cooling Water System Train A will be protected during the extended CT. (Reference 6.5)

TS 3.7.20 UPS HVAC System -- Operating

An Emergency Fan Coil Unit (EFCU) cooled by safety chilled water normally provides the required temperature control to maintain its respective room below 104ºF during normal plant conditions. Uninterrupted Power Supply (UPS) is a self-contained cooling system for battery charger and inverter rooms under conditions when the normal EFCU system is unavailable. A single UPS HVAC Train will provide the required temperature control to maintain the UPS rooms below 122ºF during emergency plant conditions. A

single UPS HVAC train will also provide the required temperature control to maintain the UPS & Distribution rooms between 40ºF and 104ºF during normal plant conditions. UPS HVAC System Train A will be protected during the extended CT. (Reference 6.6)

TS 3.8.9 Distribution Systems -- Operating

The AC electrical power subsystem for each train consists of a primary Engineered Safety Feature (ESF) 6.9 kV bus and secondary load centers and 480 and 120 V buses. Each 6.9 kV ESF bus has two separate and independent offsite source of power as well as a dedicated onsite diesel generator (DG) source. Each 6.9 kV ESF bus is normally connected to a preferred offsite source. After a loss of the preferred offsite power source to a 6.9 kV ESF bus, a slow transfer to the alternate offsite source is accomplished. If the alternate offsite sources are unavailable, the onsite emergency DG supplies power to the 6.9 kV ESF bus. The AC, DC, and AC vital bus electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. The following for Train A electrical power sources will be protected during the extended CT;

- Offsite power sources (no switchyard work)
- Emergency Diesel Generator (both trains)
- 6.9kV and 480V buses and MCCs

Spent Fuel Pool Cooling

The Spent Fuel Pool Cooling and Cleanup System provides cooling to remove residual decay heat from the fuel stored in the spent fuel pool and is designed with redundancy and testability to ensure continued heat removal. A purification loop is provided to remove fission product activity.

The cooling portion of this system has two trains consisting of a pump, heat exchanger, and other associated equipment.

The maximum design condition bounds the maximum normal heat loads which occur during refueling outages. Temperature limits are in accordance with the ACI Code and ANSI N210.

The spent fuel pool bulk water temperatures are maintained at less than 150ºF for normal operation based on decay heat generation from a normal full core offload at 125 hours after shutdown, plus decay heat from the opposite unit's last refueling discharge plus decay heat from fuel assemblies from a maximum number of previous refuelings in both pools. At least 193 spaces in the spent fuel pools are assumed to remain available to accept one full core in accordance with ANSI N18.2 [15].

Design Basis Accident (DBA) (with no Loss of Offsite Power)

The Safety Chilled Water Train A remains available during the extended CT. Risk reduction measures are captured as a commitment in Attachment 2 to minimize potential failure of Safety Chilled Water Train A.

Loss of Offsite Power (LOOP)

In the event of a Loss of Offsite Power (LOOP), the Safety Chilled Water Train A power would be available from Train A Emergency Diesel Generator. Risk reduction measures are implemented as commitments to minimize potential for LOOP and failure

of Safety Chilled Water Train A.

3.2 Safety Systems Affected by the Proposed Change

The proposed change provides the necessary time to ensure a more stable and reliable safety chiller for Unit 2, Train B safety system component room coolers. The following will provide a summary of the impact on the nine components listed in Section 2.1 of this Enclosure.

Component Cooling Water (CCW) Pump room emergency fan coil units provide room cooling during normal and abnormal conditions. CCW Safeguards Loop provides cooling for;

1. Residual Heat Removal Pump Seal Cooler
2. Containment Spray Pump Seal Cooler (2 per train)
3. Containment Spray Heat Exchanger
4. Residual Heat Removal Heat Exchanger
5. Safety Chiller (condenser)
6. Control Room Air Conditioning Units (condenser with 2 per train)
7. Uninterruptible Power Supply (UPS) Chiller (condenser)

Centrifugal Charging Pump (CCP) emergency fan coil units provide room cooling during normal and abnormal conditions. During normal operation the CCPs provide charging flow to the Reactor Coolant System (RCS) and seal injection flow to the Reactor Coolant Pump (RCP) seal packages. During accident conditions the CCPs are automatically aligned as high-head safety injection pumps.

Safety Injection Pump (SIP) emergency fan coil units provide room cooling during normal and abnormal conditions. The SIPs are normally in standby during normal conditions. The pumps may be used to recirculate the Refueling Water Storage Tanks during normal conditions. During accident conditions the SIPs are automatically aligned as intermediate-head safety injection pumps.

Containment Spray Pump (CTP) emergency fan coil units provide room cooling during normal and abnormal conditions. The CTPs are normally in standby during normal conditions. The pumps may be used to recirculate the Refueling Water Storage Tanks during normal conditions. During accident conditions the CTPs automatically start when a Safety Injection signal is received and will spray containment when containment pressure reaches its high-high value.

Residual Heat Removal (RHR) Pump emergency fan coil units provide room cooling during normal and abnormal conditions. The RHR Pumps are normally in standby during normal conditions. During accident conditions the RHR Pumps are automatically aligned as low-head safety injection pumps.

Motor Driven Auxiliary Feedwater Pump (MDAFWP) emergency fan coil units provide room cooling during normal and abnormal conditions. The MDAFWPs are normally in standby during normal conditions. The MDAFWPs are used to feed steam generators during plant shutdown and startup when Main Feedwater is not available. During accident conditions the AFWPs (motor driven and turbine driven) automatically start based on protection system setpoints.

Electrical Area emergency fan coil units provide room cooling during accident conditions. During normal conditions these fan coil units are in standby. A Blackout or Safety Injection will automatically start these fan coil units.

Uninterruptable Power Supply (UPS) emergency fan coil units provide room cooling during normal and abnormal conditions. During normal conditions these emergency fan coil units are in operation and the associated UPS chillers are secured.

While Unit 2 Safety Chiller 2-06 is in the proposed 7 day COMPLETION TIME the above listed components on Unit 2, Train B will be out of service. The TDAFW Pump does not rely on the safety chilled water system for room cooling as there is no room cooler installed.

3.3 Equipment Response to Loss of Room Cooling

CPNPP evaluated the loss of room cooling on Engineered Safety Features equipment (Reference 6.4). The evaluation included the following major elements;

- Review of HVAC calculations for temperature rise versus time and conclusions made pertaining to equipment survival.
- Review of mechanical and electrical equipment qualification to determine the most limiting components and their failure temperatures.
- Evaluation of limiting equipment lubricants to determine their maximum operating temperatures.
- Performance of room heatup calculations and determination of heatup rate as a function of time for limiting equipment.
- Evaluation of qualification temperature against the room heatup rates.

These analyses demonstrated that on a loss of room cooling there is sufficient time to take corrective or compensatory actions to maintain acceptable room temperatures.

3.4 Additional System for Safe Shutdown

Alternate Power Generators (APG) are located on site. They are connected to the 6.9kV Safeguards switchgear through a transfer switch and a bus breaker. This capability does not meet technical specification operability requirements for emergency power sources. However, it does contribute to plant safety by providing another source of power. The APGs are available to feed the selected 6.9kV Class 1E bus. They may be used in the event of loss of offsite power coincident with failure of both onsite Class 1E Emergency Diesel Generators. So the unaffected train (Unit 2, Train A) could have power from the APGs aligned to restart Safety Chiller 2-06.

Should the APGs be the only source of power at least one train of safety chilled water is restarted by one of three procedures (Unit 2 procedures are used for illustration);

- SOP-614B, “Alternate Power Generator Operation”
  5.1 Operating APG’s on the 2EA1 Bus to Supply RCS Cooling
    - Step 5.1.K. The priorities are isolating any inventory loss from the RCS while restoring the following systems to service by starting the following components: 4) (first bullet) “2-HS-6700, RECIRC PMP 5 AND Safety Chiller (≈118 kW)” (Train A)

5.2 Operating APG's on the 2EA2 Bus to Supply RCS Cooling
- Step 5.2.J. The priorities are isolating any inventory loss from the RCS while restoring the following systems to service by starting the following components: 4) (first bullet) "2-HS-6701, RECIRC PMP 6 AND Safety Chiller (≈118 kW)" (Train B)

5.3 Operating APG's on Bus 2EA1 to Supply 480V Busses
- Step 5.3.K (first bullet) "RESTORE the following systems to service as necessary to support plant operation: Safety Chillers (≈118 kW)" (Train A)

5.4 Operating APG's on Bus 2EA2 to Supply 480V Busses
- Step 5.4.K (first bullet) "The priorities are isolating any inventory loss from the RCS while restoring the following systems to service: Safety Chillers (≈118 kW)" (Train B)

- ECA-0.1B, "Loss of All AC Power Recovery Without SI Required"
  - Step 4.e. "Start safety chilled water recirc pump (0.018 MW) AND locally ensure safety chiller is running (0.126 MW)"
  - BASES for Step 4. "A safety chiller is started to provide cooling (e.g., CCW pump room and CCP room) consistent with blackout loading requirements."

- ECA-0.2B, "Loss of All AC Power Recovery with SI Required"
  - Step 5.c. (second bullet) "Manually start the following loads as necessary: Safety Chiller (0.126 MW) AND Safety Chiller Recirc Pump (0.018 MW)"
  - BASES for Step 5. "Safeguards equipment should be manually loaded on the energized AC safeguards bus to provide RCS inventory addition and containment cooling. A CCW pump should be loaded to supply essential equipment cooling, (e.g., cooling for ECCS pumps). The RHR and SI pumps should be loaded to initiate recovery of RCS inventory. Other equipment should be loaded on the AC Safeguards bus as required to assist in plant recovery or establish required safeguards status conditions (i.e. Safety Chillers)."

3.5 Supplemental Risk Information

The supplemental risk information, included in Sections 3.5.1, 3.5.2, and 3.5.3 supports this license amendment request concluding that the additional Required Actions have a small impact on overall plant risk. Although this request is not based on the criteria of Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," risk information and insights are considered in the overall decision-making process and are useful in the development of effective risk management strategies. General risk considerations associated with Operations Inspections and the Fire Protection Program are provided in Sections 3.5.4, and 3.5.5.

3.5.1 Probabilistic Risk Assessment Capability and Insights

The risk assessment of the proposed CT extension is based on quantitative models for Internal Events, Internal Flooding and Internal Fire, and qualitative assessments for external hazards. The CPNPP models meet the scope and quality requirements of RG

1.200, Revision 2 “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities” (Reference 6.14). CPNPP procedures are in place for controlling and updating the models, when appropriate, and for assuring that the models represent the as-built, as-operated plant. The conclusion, therefore, is that the CPNPP PRA models are acceptable for use in providing supplemental risk information for applications, including assessment of proposed TS amendments.

The PRA analysis and calculation for the proposed COMPLETION TIME are presented in (Attachment 6). The baseline Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) contributions from the PRA models are provided in Attachment 5. The results show that the risk significance from extending the proposed COMPLETION TIME for an inoperable Safety Chilled Water train from 72 hours to 7 days is small and by applying risk insights are within regulatory guidance. The total CDF and LERF values are consistent with thresholds referenced in NRC RG 1.174, Revision 3 (Reference 6.12) for consideration in review of licensing changes (i.e., CDF less than 1E-4 per year and LERF less than 1E-5 per year). The risk impact results, when considered with the unquantified benefits of implementing effective risk reduction measures, are consistent with thresholds referenced in RG 1.177, Revision 1 (Reference 6.13). Note that such measures reduce the sources of increased risk, but they are not explicitly credited in the quantitative risk evaluation.

CPNPP PRA models do not include quantitative credit for any FLEX or portable equipment.

3.5.2 Development and Use of PRA Insights

The evaluation for the proposed COMPLETION TIME extension consisted of a review of the impacted plant systems and their safety functions. There are no systems, structures, or components (SSCs) that will change status due to the proposed change. No new accidents or transients will be introduced by the proposed change. No physical changes are being made to any of the systems affected by the COMPLETION TIME extension. The function and operation of these systems will remain the same, as described in the plant design basis. Protective measures will be taken to ensure that unanticipated compromises to system redundancy, independence, and diversity will not occur during maintenance activities.

The CPNPP Configuration Risk Management Program (CRMP) is established in TS 5.5.18. Engineering Evaluation 314 (Reference 6.18) provides a description of controls and assessments to preclude the possibility of simultaneous planned outages of redundant trains and ensure system reliability. Use of PRA Insights associated with this proposed change can be considered to the extent the defense-in-depth principles described in RG 1.177 and RG 1.174 are met.

An appropriate balance is maintained for layers of defense in depth. Prevention of core damage depends on the ability to continuously remove decay heat after an initiating event. (1) During the extended COMPLETION TIME, if a design basis accident occurred, the operable safety chilled water train remains available to cool areas of plant equipment that are needed to mitigate the event. (2) The design of CPNPP, with relatively large equipment spaces, means the PRA model can reflect realistic room heat up over the mission time through application of conditional probabilities. (3) The use of heat up analysis results of Section 3.3 focuses attention on RHR, Chemical and Volume Control System (CVCS) and CCW areas for operator actions.

Design features are preserved without an overreliance on programmatic activities as compensatory measures. During the extended COMPLETION TIME, the opposite train will remain operable and capable of performing necessary safety functions, consistent with accident analysis assumptions. Safety analysis acceptance criteria stated in the FSAR are not impacted by this change. With this proposed change, the operable safety chilled water train remains available and does not result in plant operation in a configuration outside the design basis. Programmatic features are limited to those associated with risk management actions described in Section 3.5.3. These risk reduction measures provide a qualitative risk impact to the PRA analysis and calculation for this proposed change; no quantitative credit was taken in the PRA analysis for any of the proposed risk reduction measures. The results of the Section 3.3 heat up analysis determined that in several areas analyzed the temperature reached following a loss of HVAC would allow components to continue to function with some higher likelihood and in other areas additional time would be available to take risk mitigating actions; thus, the impact from reliance on operator action during the proposed COMPLETION TIME is limited. Fire Protection tracking impacts will be reviewed for fire hazards and fire impairments. Transient combustibles and hot work in fire risk-sensitive areas will be limited. Restrictions on work activities will be in place for components that if lost or failed could result in a direct plant trip or transient. The compensatory measures described in Section 3.6 are intended to reduce the potential of risk-significant configurations, however, are not overly relied upon in the PRA analysis for the proposed licensing amendment.

System redundancy, independence, and diversity are appropriately preserved. Some areas cooled by fans that rely on the safety chilled water contain alternate cooling dependent on the area. For example, the fan coil units for UPS have a redundant system with its own chiller and fans if safety chilled water is unavailable. The 1E electrical switchgear rooms are not normally cooled by safety chilled water.

The potential for common-cause failures (CCFs) would not increase as there is no change in failure mechanisms associated with the safety chilled water COMPLETION TIME change from 72 hours to 7 days.

3.5.3 Avoidance of Risk Significant Plant Configurations

CPNPP plant risk associated with the proposed Safety Chilled Water System COMPLETION TIME extension is determined from RG 1.200, Revision 2 (Reference 6.14) Capability Category II compliant PRA models for internal events, internal flooding, and internal fires with additional risk insights provided from qualitative assessments for seismic events, tornado events, and other external events. Associated actions to avoid or respond to these events through function of the redundant train of safety chilled water with protection of associated support functions and mitigating equipment are discussed below.

The dominant risk scenarios associated with unavailability of safety chilled water include:

- Loss of offsite power (i.e., grid, switchyard, or transformer failure)
- Transient events leading to a plant trip
- Fires in the unaffected safety related Switchgear Rooms, UPS and Distribution rooms, Cable Spreading Rooms and Main Control Room leading to abandonment

The dominant risk contributors with a train of safety chilled water out of service were reviewed as documented in Engineering Evaluation 314 (Reference 6.18). The evaluation includes detailed review of the individual top cutsets and significant basic events to identify risk reduction measures.

The dominant impact of the above scenarios on critical safety functions is the loss of heat removal from the Steam Generators due to failure of all the auxiliary feedwater pumps (random or induced) or loss of room cooling to the motor driven pumps. Random or induced loss of coolant accidents do not contribute significantly to the change in risk for the safety chilled water train out of service, with the overall risk reduced at CPNPP due to use of low leakage reactor coolant pump seals.

The PRA analysis assumes that other risk significant plant equipment outage configurations will not occur during the extended completion time period by prohibiting elective maintenance on other PRA risk significant plant equipment (i.e., prohibiting voluntary entry into identified risk management action level configurations) and avoiding other activities that could challenge unit operation or cause fires in risk significant areas as described in the compensatory measures.

The potential for a common cause failure of the remaining available safety chilled water train during the CT extension period for an out of service safety chilled water train is considered minimal. Failure effects are well understood as slow acting. During the proposed completion time, monitoring and prompt corrective actions mitigate conditions such that common cause failure does not contribute to increasing risk.

The PRA analysis identified the following actions to further reduce PRA risk as documented in Engineering Evaluation 314 (Reference 6.18). Actions include monitoring of those dominant risk-sensitive areas associated with fire scenarios potentially affecting remaining in-service train equipment during the extended CT. These risk reduction measures are being taken at the start of the work activity and prior to exceeding the initial 72 hours of the CT, (see Attachment 1) to address various configuration risks and sensitivity analyses:

- Posting of the following Unit 2, Train A components and the corresponding power supplies as protected equipment:
  - Centrifugal Charging Pump
  - Safety Chilled Water
  - Component Cooling Water
  - AC and emergency power
- Suspension of Maintenance on Unit 2:
  - EDGs
  - APGs
  - TDAFWP
  - MDAFWPs
  - 1E switchgear and Motor Control Centers (MCCs)
  - CCPs
  - CCWPs
  - SSWPs

Noted restrictions will be put in place with signage on the doorways and barricades at equipment locations and around the in-service safety chilled water train components in accordance with STA-600, “Protecting Plant Equipment and Sensitive Equipment Controls” (Reference 6.26)

- Restrictions on work activities that involve components that if lost or failed could result in a direct plant trip or transient
- Perform Unit 2, Train A surveillances, prior to extended CT entry, on:
  - Safety Chiller 2-05
  - EDG 2-01
  - TDAFWP 2-01
- Prohibit alignment of the CCW crosstie configuration
- Restriction on Transient Combustible Storage in Unit 2 Train A:
  - EDG 2-01
  - 1E Switchgear
  - UPS
  - 1E batteries 2ED1 and 2ED3
  - Inverters/Battery Chargers
  - MCR/CSR/RSP
  - Safety chilled water component areas
- Suspension of Hot Work Activities in Unit 2 Train A:
  - EDG 2-01
  - 1E Switchgear
  - UPS
  - 1E batteries 2ED1 and 2ED3
  - Inverters/Battery Chargers
  - MCR/CSR/RSP
  - Safety chilled water component areas
- Roving Fire Watch, twice shiftly in Unit 2 Train A:
  - EDG 2-01
  - 1E Switchgear
  - UPS
  - 1E batteries 2ED1 and 2ED3
  - Inverters/Battery Chargers
  - MCR/CSR/RSP
  - Safety chilled water component areas
- Limiting access to and minimize switching activities in either CPNPP switchyards

Though not assumed, severe weather during the period of this one-time extended completion time will be monitored by control room and security personnel to support further risk reduction. The actions described above mitigate additional plant risk beyond that directly represented in the extended safety chilled water train CT quantified risk metrics provided in Attachment 6.

3.5.4 Operations Inspections

Shiftly Surveillances (Reference 6.19)
OPT-102A-7, Revision 30, “Local Shiftly Surveillances”
OPT-102B-7, Revision 20, “Local Shiftly Surveillances”

Shiftly Tours / Inspection (OWI-104-19) (Reference 6.20)
Operations shiftly inspection guidelines for safety chillers include the following:

- Chiller running
- Condenser CCW flow
- Refrigerant leak detector

- Refrigerant high pressure
- Refrigerant low pressure
- Compressor oil pressure
- CCW outlet temperature
- Compressor oil level
- Outlet water temperature
- CCW Inlet temperature
- Inlet water temperature

These equipment logs also record operating data for the CCW pumps, CCPs, and Spent Fuel Pool Cooling.

Shiftly Tours / Inspection (OWI-104-17 & OWI-104-42) (Reference 6.21) Operations shiftly inspection guidelines for UPS room coolers.

Shiftly Tours / Inspection (OWI-104-21 & OWI-104-43) (Reference 6.22) Operations shiftly inspection guidelines for Safety Injection, Residual Heat Removal, Containment Spray, and Auxiliary Feedwater pumps.

Preplanning / Staging of Materials
The activities to replace Safety Chiller 2-06 compressor have been preplanned and materials pre-staged in the Safety Chiller Room.

3.5.5 Fire Protection Program Considerations

There are two impacts for proposed activity on the CPNPP Fire Protection Program. The first is the impact due to the physical work itself. This work is known, understood, and the maintenance activity will have the necessary fire protection considerations included as required by station procedures. For the maintenance activity itself, no new requirements are introduced beyond those implemented for routine activities.

The second impact is on the Fire Safe Shutdown Analysis (FSSA). The analysis assumes that there is a Loss of Offsite Power (LOOP) in conjunction with a fire and any equipment requiring power can be fed from onsite power sources. In the event of a fire in conjunction with a LOOP the ability to achieve Safe Shutdown, for a fire in any fire area crediting that train of power, is compromised. This is true for any maintenance activities that potentially affect FSSA components such as the Safety Chiller 2-06 maintenance discussed here.

CPNPP addresses the risk associated with performing maintenance on FSSA credited components in accordance with NEI guidance. Site Procedure STI-604.05, On-Line Fire Risk Management, (Reference 6.28), delineates the application of Fire Risk to the maintenance process and identifies the subject components and requirements to determine and specify compensatory measures (Risk Management Actions - RMAs) when maintenance is being performed on affected FSSA equipment for extended periods. When one of the required active components is unavailable, actions are imposed to reduce the station risk by enhancing one or more of the other facets of the Fire Protection Program Defense in Depth philosophy.

At CPNPP the usual practice is to reduce the likelihood of a fire through a series of administrative controls and limitations that significantly reduce the potential for a fire in the subject locations. These administrative controls include fire watches, limitations on Hot Work, and limitations on introduction of transient combustibles.

The Safety Chilled Water System at CPNPP is credited by the FSSA to provide support

to ensure acceptable fire safe shutdown system performance. Safety chilled water is required to supply several safety-related cooling units for the purpose of cooling the Component Cooling Water, Centrifugal Charging, Motor-Driven Auxiliary Feedwater, and Residual Heat Removal Pump Rooms and essential electrical areas. The Uninterruptible Power Supply and Distribution Rooms air conditioning unit is required to remove heat ejected by the battery chargers and the static inverters.

The Unit 2 safety chiller room fire suppression system has a “water curtain” added to the area over the one-hour fire barriers located between the two safety chiller trains. The purpose of this water curtain is to augment the rating of the barriers to a one-hour rating. Operability of the one-hour barrier in the room depends on the operability of the water curtain portion of the suppression system since the water curtain is relied upon as part of the barrier design. The water curtain and area wide suppression system can be isolated from one another by use of manually operated shut off valves. This arrangement results in a potential need for varied compensatory measures depending on the type or extent of impairment.

CPNPP will implement the risk mitigating measures that are specified for addressing impact of maintenance on FSSA credited equipment due to the safety chilled water train CT extension.

When Unit 2 Safety Chilled Water Train B is inoperable in accordance with the one-time action requested, the following administrative controls and protective measures will be implemented for fire areas and fire zones of the affected safety chilled water train prior to entry into the proposed 7 day COMPLETION TIME of TS 3.7.19 REQUIRED ACTION A.2:

- Provide a roving fire watch, twice shiftly in the Fire Areas of Concern,
- Suspend performance of any ongoing “Hot Work” and prohibit the start of any new “Hot Work,” in the Fire Areas of Concern,
- Control the introduction of any new transient combustibles, or addition to transient combustibles already authorized to be in the Fire Areas of Concern

Additional measures related to protection of the offsite power feeds from fire (not required for FSSA, rather based on risk insights) are discussed in Attachments 1 and 2.

A complete list of inspections, compensatory measures, and conditions are provided in Attachment 1 and regulatory commitment 5900444 is described in Attachment 2.

3.6 Assumptions and Compensatory Measures

Average test and maintenance as allowed within TS is assumed for the PRA analysis and calculation results in Attachment 6 include the limitation of test and maintenance activities during the proposed CT. Compensatory measures listed below provide a qualitative risk impact to the calculation results; no quantitative credit was taken in the PRA analysis for any of the proposed compensatory measures. These compensatory measures will be implemented upon entering proposed TS 3.7.19 REQUIRED ACTION A.2. These compensatory measures are included in Attachment 1 of this LAR.

<u>Posting of Protected Equipment</u>

- Safety Chiller 2-05
- Safety Chilled Water Recirculation Pump 2-05
- Safety Chilled Water Surge Tank
- 138 kV and 345 kV Switchyard and Relay House Access

- Emergency Diesel Generator 2-01
- Emergency Diesel Generator 2-02
- Alternate Power Generators Unit 2
- Motor Driven Auxiliary Feedwater Pump 2-01
- Turbine Driven Auxiliary Feedwater Pump 2-01
- Startup Transformer XST1A (Unit 2 Preferred, Unit 1 Alternate)
- Startup Transformer XST2 (Unit 1 Preferred, Unit 2 Alternate)
- Component Cooling Water Pump 2-01
- Component Cooling Water Pump 2-02
- Station Service Water Pump 2-01
- Station Service Water Pump 2-02

Summary of Current Routine Inspections

- Operations Inspections
  - Shiftly Surveillance

    OPT-102A-7, Revision 30, “Local Shiftly Surveillances”

    OPT-102B-7, Revision 20, “Local Shiftly Surveillances”
  - Shiftly Tours / Inspection of equipment

    OWI-104-19, Revision 69, “Auxiliary Building”

    OWI-104-17, Revision 126, “Unit 1 Turbine Building”

    OWI-104-42, Revision 116, “Unit 2 Turbine Building”

    OWI-104-21, Revision 48, “Unit 1 Safeguards Building”

    OWI-104-43, Revision 49, “Unit 2 Safeguards Building”

Summary of Compensatory Measures during extended COMPLETION TIME

- Inspections listed above
- Fire Protection Administrative Controls / Protective Measures for the fire areas / fire zones of the affected Unit 2 Train A and B
  - Roving fire watch, twice shiftly in the Fire Areas of Concern
  - Suspend ongoing “Hot Work” and prohibit start of any new “Hot Work” in the Fire Areas of Concern
  - Do not introduce any new transient combustibles, or add to any transient combustibles already authorized in the Fire Areas of Concern
- Grid Stability (See commitment in Attachment 2)
  - Prior to entry into proposed TS 3.7.19 REQUIRED ACTION A.2, contact Transmission Grid Controller (TGM) to assure local grid is stable and no anticipated challenges have been identified
- Prior to entry into proposed TS 3.7.19 REQUIRED ACTION A.2
  - Access to both switchyards and relay houses will be controlled and posted, and all planned maintenance will be suspended for the duration of the CT.
  - The following applies to Unit 2. The EDGs, APGs, TDAFWP, inservice startup transformers (Preferred and Alternate), CCWPs, and SSWPs will have ALL

testing and maintenance activities suspended

- Both Unit 1 and 2 Transient Combustible safe zones identified in the fire assessment, in the unaffected areas, the Main Control Room (MCR) and the Cable Spread Room (CSR) and the cable routing paths for the inservice startup transformers will have additional restrictions relating to combustible storage during the extended CT duration.
- All hot work activities along the routing associated with power and control cabling for inservice startup transformers, in the unaffected battery / inverter areas, the MCR and the CSR will be suspended during the CT.
- The following Transient Combustible safe zones identified in the fire assessment will have additional restrictions relating to combustible storage during the extended COMPLETION TIME;
  - Safety Chiller 2-05 Room
  - Component Cooling Water Pump 2-01 Room
  - Centrifugal Charging Pump 2-01 Room
  - Safety Injection Pump 2-01 Room
  - Residual Heat Removal Pump 2-01 Room
  - Containment Spray Pumps 2-01 and 2-03 Room (common room)
  - Motor-Driven Auxiliary Feedwater Pump 2-01
  - Turbine Driven Auxiliary Feedwater Pump 2-01
  - Train A and Train B, Unit 2 Safeguards Electrical Switchgear Rooms
  - Uninterruptable Power Supply Chiller X-01 and X-02 Rooms
  - Spent Fuel Pool Pump and Heat Exchanger X-01 and X-02 Rooms

- Severe Weather
  - If a Severe Thunderstorm Warning or Tornado Warning is issued per ABN-907 (Reference 6.23) after entry into TS 3.7.19 proposed REQUIRED ACTION A.2, and 72 hours have elapsed then exit TS 3.7.19 proposed REQUIRED ACTION A.2 and enter TS 3.7.19 REQUIRED ACTION B.1 (Be in MODE 3 within 6 hours) and TS 3.7.19 REQUIRED ACTION B.2 (Be in MODE 5 within 36 hours).
  - Once the applicable severe weather warning is cancelled and plant system statuses are verified, TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and Safety Chiller 2-06 compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

- For example:
  - TS 3.7.19 proposed REQUIRED ACTION A.2 is entered and Safety Chiller 2-06 compressor replacement begins.
  - 73 hours after entering TS 3.7.19 proposed REQUIRED ACTION A.2 a Tornado Warning is issued for Somervell County, the county where Comanche Peak is located.
  - At that 73 hour point TS 3.7.19 proposed REQUIRED ACTION A.2 is exited and TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are entered.
  - One hour after exit from TS 3.7.19 proposed REQUIRED ACTION A.2 and entry into TS 3.7.19 REQUIRED ACTIONs B.1 and B.2, the Tornado Warning for Somervell County is cancelled and forecasts predict no further severe weather.

- o TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are exited and TS 3.7.19 proposed REQUIRED ACTION A.2 is re-entered with 94 hours remaining to complete Safety Chiller 2-06 compressor replacement.

Conditions where CPNPP would not enter the one-time extended COMPLETION TIME

- Severe weather is anticipated

Conditions where CPNPP would exit the one-time extended COMPLETION TIME

- Prior to entry into TS 3.7.19 REQUIRED ACTION A.2, CPNPP will verify the following items and every 12 hours thereafter. If any of the following items are not met, and after 72 hours have elapsed CPNPP will exit TS 3.7.19 REQUIRED ACTION A.2 and enter TS 3.7.19 REQUIRED ACTIONS B.1 and B.2:
  a. Both offsite sources available as determined by performance of OPT-215-1, “Offsite Transmission Network Operability Data Sheet”
  b. Affected 6.9kV bus steady state frequency is 59.5 – 60.5 Hz in accordance with ABN-602. (Reference 6.25)
  c. The Turbine Driven Auxiliary Feedwater Pump (TDAFW) is OPERABLE per TS 3.7.5, “Auxiliary Feedwater (AFW) System”
  d. The plant is not operating under an ACTION statement for an inoperable offsite AC power source or the opposite train Emergency Diesel Generator
- Similar to the example described in severe weather above, if TS 3.7.19 REQUIRED ACTIONS B.1 and B.2 are entered due to an item (a, b, c, or d) above not being met and the items are subsequently met, then TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and Safety Chiller 2-06 compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

3.7 Evaluations of Safety Margins

The design and operation of the Safety Chilled Water System is not altered by this LAR. The COMPLETION TIME on the system currently allowed by CPNPP TS for a time period of 72 hours will be extended to 7 days. The safety analysis acceptance criteria stated in the FSAR are not impacted by this change. The proposed change will not allow plant operation in a configuration outside the design basis. The requirements regarding the Safety Chilled Water System credited in the accident analysis will remain the same. As such, it can be concluded that safety margins are not impacted by the proposed change. The proposed change involves a COMPLETION TIME extension of the current TS. The systems that are affected during a particular Safety Chilled Water System outage time period are all associated with the train that corresponds to the affected Safety Chilled Water System train, leaving one train of safety equipment fully operable and capable of performing its safety functions. Preserving the operability of one Safety Chilled Water System train during the extended COMPLETION TIME will maintain the balance among the prevention of core damage, prevention of containment failure, and consequence mitigation.

3.8 Risk Informed Configuration Management

Risk will also be managed during the extended COMPLETION TIME via the Maintenance Rule 10 CFR 50.65(a)(4) Configuration Risk Management Program (CRMP), which has been reviewed in prior risk informed Technical Specification change

requests (Reference 6.30). The process governing CRMP is described in Technical Specifications, Section 5.5.18.

3.9 Conclusions

The results of the deterministic engineering justification provide assurance that the systems and equipment required to safely shutdown the plant and mitigate the effects of a design basis accident will remain capable of performing their safety functions.

The calculated probabilistic risk metric values provided to supplement the deterministic evaluation are all within guidance thresholds and therefore from the risk informed perspective, the proposed change to the CT for one safety chilled water train inoperable to 7 days has a non-risk significant impact on overall plant risk. The qualitative assessments for external events show that the potential for significant change in risk is also small. Given the combination of quantitative and qualitative results, the requested CT extension poses minimal impact to the plant.

Any increases in CDF and LERF are small and consistent with the NRC Safety Goal Policy Statement and the thresholds referenced in Regulatory Guides 1.174 and 1.177.

Constraints on concurrent maintenance of other equipment while the safety chiller is inoperable are defined to ensure that the risk increase due to the proposed change is small. Based upon these evaluations, including quantitative and qualitative considerations, the risk results and insights support the request to extend the safety chilled water CT to 7 days.

A list of inspections, compensatory measures, and conditions are provided in Attachment 1 and regulatory commitment 5900444 is described in Attachment 2.

The proposed TS 3.7.19 REQUIRED ACTION A.2, new NOTE, and COMPLETION TIME are consistent with NRC guidance and meet the following principles:

- Meets the current regulations
- Consistent with defense-in-depth philosophy
- Maintains sufficient safety margins

Vistra OpCo concludes with assurance that the systems and equipment required to safely shut down the plant and mitigate the effects of a design basis accident will remain capable of performing their safety functions, with the established assumptions and compensatory measures in place for the proposed COMPLETION TIME. The proposed TS COMPLETION TIME extension is consistent with NRC guidance and meets the principles of current regulations, defense-in-depth philosophy, and maintains sufficient safety margins.

Based on the considerations discussed above, (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 NRC 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.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include technical specifications as part of the license. The Commission's regulatory requirements related to the content of the technical

specifications are contained in Title 10, Code of Federal Regulations (10 CFR), Section 50.36, "Technical Specifications," of 10 CFR Part 50 "Domestic Licensing of Production and Utilization Facilities." The technical specification requirements in 10 CFR 50.36 include the following categories: (1) safety limits, limiting safety systems settings and control settings, (2) limiting conditions for operation, (3) surveillance requirements, (4) design features, and (5) administrative controls. The requirements for one safety chilled water train inoperable are included in the technical specifications in accordance with 10 CFR 50.36(c)(2), "Limiting Conditions for Operation."

As stated in 10 CFR 50.59(c)(1)(i), a licensee is required to submit a license amendment pursuant to 10 CFR 50.90 if a change to the technical specifications is required. Furthermore, the requirements of 10 CFR 50.59 necessitate that the NRC approve technical specification changes before the changes are implemented. Vistra OpCo's submittal meets the requirements of 10 CFR 50.59(c)(1)(i) and 10 CFR 50.90.

General Design Criteria (GDC), as outlined in 10 CFR 50, Appendix A, were considered for the proposed amendment. CPNPP will maintain the ability to meet GDC 2, 44, 45, and 46, which are applicable to the Safety Chilled Water System design, with the proposed licensing amendment. Additionally, CPNPP will maintain the ability to meet GDC 35, 36, and 37, which are applicable to ECCS design, with the proposed licensing amendment. The applicable GDCs considered are described below:

GDC-2 Design bases for protection against natural phenomena

Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. The design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety functions to be performed. (Reference 6.8)

GDC-44: Cooling Water

A system to transfer heat from structures, systems, and components important to safety, to an ultimate heat sink shall be provided. The system safety function shall be to transfer the combined heat load of these structures, systems, and components under normal operating and accident conditions. Suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure. (Reference 6.9)

GDC-45: Inspection of cooling water system

The cooling water system shall be designed to permit appropriate periodic inspection of important components, such as heat exchangers and piping, to assure the integrity and capability of the system. (Reference 6.10)

GDC-46: Testing of cooling water system

The cooling water system shall be designed to permit appropriate periodic pressure and functional testing to assure (1) the structural and leak tight integrity of its components, (2) the operability and the performance of the active components of the system, and (3) the operability of the system as a whole and, under conditions as close to design as practical, the performance of the full operational sequence that brings the system into operation for reactor shutdown and for loss-of-coolant accidents, including operation of applicable portions of the protection system and the transfer between normal and emergency power sources. (Reference 6.11)

As stated previously, although a train of the Safety Chilled Water System will be inoperable during the extended CT, the opposite train of the Safety Chilled Water System will remain operable. NRC Generic Letter 80-30 states that the specified time to take action when an LCO is not met is a temporary relaxation of the single failure criterion since the completion time provides a limited time to fix equipment or otherwise make it operable.

There are no permanent changes to the design of the Safety Chilled Water System or its supported systems involved with this LAR. The evaluations provided within this proposed amendment confirm that the plant will continue to comply with the applicable design criteria. Additionally, prior to entering proposed REQUIRED ACTION A.2 Safety Chilled Water System CT on either train, action will be taken to ensure no discretionary maintenance or discretionary testing is planned for the remaining duration on the Safety Chilled Water System (operable train), Motor-Driven and Turbine-Driven AFW Pumps,

CCW system, EDGs, ECCS system (CCP, SIP, RHR pump), Containment Spray system, Safeguards Electrical system, UPS HVAC system, or the Spent Fuel Pool cooling system.

In this configuration, the operable train will respond as designed during design basis events. The requested period of 7 days to complete the required actions of the affected TS is reasonable considering the redundant capabilities of the above systems, the defense-in-depth measures that will be available, and compensatory measures that will be in place.

4.2 Precedent

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 176 to Renewed Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit 1. The amendment allows one train of the Essential Services Chilled Water System (ESCWS) to be inoperable for up to 7 days from the previously allowed 72 hours for extended maintenance activities on the ESCWS and air handlers supported by the ESCWS for equipment reliability (Reference 6.16). This approved LAR from Shearon Harris is not identical to CPNPP LAR 20-001 in that the Shearon Harris amendment is permanent whereas the CPNPP requested amendment is one time only.

4.3 No Significant Hazards Consideration Determination

Vistra OpCo has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, “Issuance of amendment,” as discussed below:

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

The proposed changes add provisions to increase the COMPLETION TIME (CT) from 72 hours to 7 days, on a one-time basis for Comanche Peak Nuclear Power Plant Safety Chilled Water System Train B (Safety Chiller 2-06). This one-time increase will be used once during Unit 2 Cycle 19. An additional REQUIRED ACTION, new Note, and associated COMPLETION TIME is specified when Safety Chiller 2-06 is declared inoperable to replace the compressor. The proposed changes do not physically alter any plant structures, systems, or components, and are not an accident initiator: therefore, there is no effect on the probability of accidents previously evaluated. As part of the single failure design feature, loss of one safety chilled water train does not prevent the minimum safety function from being performed. Also, the proposed changes do not affect the type or amounts of radionuclides released following an accident, or affect the initiation and duration of their release. Therefore, the consequences of accidents previously evaluated, which rely on safety chilled water to mitigate, are not significantly increased.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed changes do not involve a change in design, configuration, or method of operation of the plant. The proposed changes will not alter the manner in which equipment is operated, nor will the functional demands on credited equipment be changed. The proposed changes do not impact the interaction of any systems whose failure or malfunction can initiate an accident. There are no identified redundant components affected by these changes and thus there are no new common cause failures or any existing common cause failures that are affected by extending the CT. The proposed changes do not create any new failure modes.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Do the proposed changes involve a significant reduction in a margin of safety?

   Response: No

   The proposed changes are based upon a deterministic evaluation. This evaluation is supplemented by risk insights.

   The deterministic evaluation concluded with one inoperable safety chilled water train, the redundant OPERABLE safety chilled water train will be able to perform the safety function as described in the accident analysis. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

   Supplemental risk information supporting this license amendment request concluded that the additional REQUIRED ACTION, new Note, and associated COMPLETION TIME have a small impact on overall plant risk and is consistent with the NRC Safety Goal Policy statement and the thresholds in Regulatory Guide (RG) 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” and

RG 1.177, “An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications.”

The deterministic evaluation and the supplemental risk information provide assurance that the safety chilled water system will be able to perform its design function with a longer COMPLETION TIME for inoperable Safety Chiller 2-06 during Unit 2 Cycle 19, and risk is not significantly impacted by the change.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above evaluations, Vistra OpCo concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of “no significant hazards consideration” is justified.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (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 adverse to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATIONS

Vistra OpCo has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amount of effluent that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

6.0 REFERENCES

6.1 Comanche Peak Unit 1 and Unit 2 Facility Operating Licenses, NPF-87 and NPF-89, (ML053180521 / ML053180525)

6.2 Comanche Peak Units 1 and 2, Transmittal of Electronic Licensing Basis Documents including Certified FSAR Amendment 109, Dated February 1, 2019

6.3 CPNPP FSAR Section 7.3.1.1.4.11, "Safety Chilled Water System Instrumentation and Control"

6.4 CPNPP FSAR Section 7.4.2.3.2, "Loss of Cooling Water to Vital Equipment"

6.5 CPNPP FSAR Section 9.2.2, "Component Cooling Water System"

6.6 CPNPP FSAR Section 9.4C.8, "Uninterruptable Power Supply (UPS) and Distribution Rooms Air Conditioning Systems"

6.7 CPNPP FSAR Appendix 9.4F, "Safety Chilled Water System"

6.8 General Design Criteria (GDC) of 10 CFR 50 Appendix A, GDC 2 “Design bases for protection against natural phenomena”

6.9 General Design Criteria (GDC) of 10 CFR 50 Appendix A, GDC 44 “Cooling water”

6.10 General Design Criteria (GDC) of 10 CFR 50 Appendix A, GDC 45 “Inspection of cooling water system”

6.11 General Design Criteria (GDC) of 10 CFR 50 Appendix A, GDC 46 “Testing of cooling water system”

6.12 NRC Regulatory Guide 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” Revision 3, January 2018. (ML100910006)

6.13 NRC Regulatory Guide 1.177, ““An Approach for Plant-Specific, Risk-Informed Decision-making: Technical Specifications,” Revision 1, May 2011. (ML100910008)

6.14 NRC Regulatory Guide 1.200, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities,” Revision 2, March 2009. (ML090410014)

6.15 NUREG/CR 6850, EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities, dated September 2005

6.16 Shearon Harris Nuclear Power Plant, Unit 1 - Issuance of Amendment No. 176 Regarding the Extension of the Essential Services Chilled Water System Allowed Outage Time and Removal of an Expired Note from Technical Specifications (EPID L-2019-LLA-0025) (ML20050D371)

6.17 ASME/ANS RA-Sa-2009, “Addenda to ASME/ANS RA-S-2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications,” American Society of Mechanical Engineers, New York, NY, February 2009

6.18 CPNPP Engineering Evaluation 314 (ECE 2.15 Log #314), “Safety Chilled Water – One-Time CT Extension

6.19 CPNPP OPT-102A-7, Revision 30, “Local Shiftly Surveillances”
CPNPP OPT-102B-7, Revision 20, “Local Shiftly Surveillances”

6.20 CPNPP OWI-104-19, Equipment Log, Auxiliary Building, Revision 69

6.21 CPNPP OWI-104-17, Equipment Log, U1 Turbine, Revision 126
CPNPP OWI-104-42, Equipment Log, U2 Turbine, Revision 116

6.22 CPNPP OWI-104-21, Equipment Log, U1 Safeguards, Revision 48
CPNPP OWI-104-43, Equipment Log, U2 Safeguards, Revision 49

6.23 CPNPP ABN-907, Acts of Nature, Revision 15

6.24 CPNPP ABN-601, Response to a 138/345 KV System Malfunction, Revision 13

6.25 CPNPP ABN-602, Response to a 6900/480V System Malfunction, Revision 8

6.26 STA-600, Protecting Plant Equipment and Sensitive Equipment Controls, Revision 3

6.27 CPNPP STA-629, Switchyard Control and Transmission Grid Interface, Revision 8

6.28 CPNPP STI-604.05, On-Line Fire Risk Management, Revision 0

6.29 CPNPP Post-Work Test Guide, Revision 13

6.30 CPNPP received NRC approval for the Surveillance Frequency Control Program on June 29, 2012 (ML12067A244)

6.31 R&R-PN-041, Revision 5A, May 2019, “Sensitivity and Uncertainty”

Attachment 1 to TXX-20039

Inspections, Compensatory Measures, and Commitments

Summary of Current Routine Inspections

Summary of Compensatory Measures during 7-day COMPLETION TIME

Conditions when CPNPP would not enter the 7-day COMPLETION TIME

Conditions when CPNPP would exit the 7-day COMPLETION TIME

List of Inspections, Compensatory Measures, and Conditions

Summary of Current Routine Inspections

- Operations Inspections
  - Shiftly Surveillance
    OPT-102A-7, Revision 30, “Local Shiftly Surveillances”
    OPT-102B-7, Revision 20, “Local Shiftly Surveillances”
  - Shiftly Tours / Inspection of equipment
    OWI-104-19, Revision 69, “Auxiliary Building”
    OWI-104-17, Revision 126, “Unit 1 Turbine Building”
    OWI-104-42, Revision 116, “Unit 2 Turbine Building”
    OWI-104-21, Revision 48, “Unit 1 Safeguards Building”
    OWI-104-43, Revision 49, “Unit 2 Safeguards Building”

Summary of Compensatory Measures during 7 day COMPLETION TIME

- Fire Protection Administrative Controls / Protective Measures for the fire areas / fire zones of the affected Unit 2 Train A and B
  - Hourly roving fire watch in the Fire Areas of Concern
  - Suspend ongoing “Hot Work” and prohibit start of any new “Hot Work” in the Fire Areas of Concern
  - Do not introduce any new transient combustibles, or add to any transient combustibles already authorized in the Fire Areas of Concern

- Grid Stability (See commitment in Attachment 2)
  - Prior to entry into proposed TS 3.7.19 REQUIRED ACTION A.2, contact Transmission Grid Controller (TGM) to assure local grid is stable and no anticipated challenges have been identified

- Prior to entry into proposed TS 3.7.19 REQUIRED ACTION A.2
  - Access to both switchyards and relay houses will be controlled and posted, and all planned maintenance will be suspended for the duration of the CT.
  - The following applies to Unit 1 and Unit 2. The EDGs, APGs, TDAFWPs, inservice startup transformers, CCWPs, and SSWPs will have ALL testing and maintenance activities suspended
  - Both Unit 1 and 2 Transient Combustible safe zones identified in the fire assessment, in the unaffected areas, the Main Control Room (MCR) and the Cable Spread Room (CSR) and the cable routing paths for the inservice startup transformers will have additional restrictions relating to combustible storage during the extended CT duration.
  - All hot work activities along the routing associated with power and control cabling for inservice startup transformers, in the unaffected safety chilled water train component areas, the MCR and the CSR will be suspended during the CT.

- The following Transient Combustible safe zones identified in the fire assessment will have additional restrictions relating to combustible storage during the 7 day COMPLETION TIME;
  - Safety Chiller 2-05 Room
  - Component Cooling Water Pump 2-01 Room
  - Centrifugal Charging Pump 2-01 Room
  - Safety Injection Pump 2-01 Room
  - Residual Heat Removal Pump 2-01 Room
  - Containment Spray Pumps 2-01 and 2-03 Room (common room)
  - Motor-Driven Auxiliary Feedwater Pump 2-01
  - Turbine Driven Auxiliary Feedwater Pump 2-01
  - Train A and Train B, Unit 2 Safeguards Electrical Switchgear Rooms
  - Uninterruptable Power Supply Chiller X-01 and X-02 Rooms
  - Spent Fuel Pool Pump and Heat Exchanger X-01 and X-02 Rooms

- Severe Weather
  - If a Severe Thunderstorm Warning or Tornado Warning is issued in accordance with ABN-907, “Acts of Nature” (Reference 6.23) after entry into TS 3.7.19 proposed REQUIRED ACTION A.2, and 72 hours have elapsed then exit TS 3.7.19 proposed REQUIRED ACTION A.2 and enter TS 3.7.19 REQUIRED ACTION B.1 (Be in MODE 3 within 6 hours) and TS 3.7.19 REQUIRED ACTION B.2 (Be in MODE 5 within 36 hours).
  - Once the applicable severe weather warning is cancelled and plant system statuses are verified, TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and Safety Chiller 2-06 compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

- For example:
  - TS 3.7.19 proposed REQUIRED ACTION A.2 is entered and Safety Chiller 2-06 compressor replacement begins.
  - 73 hours after entering TS 3.7.19 proposed REQUIRED ACTION A.2 a Tornado Warning is issued for Somervell County, the county where Comanche Peak is located.
  - At that 73 hour point TS 3.7.19 proposed REQUIRED ACTION A.2 is exited and TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are entered.
  - One hour after exit from TS 3.7.19 proposed REQUIRED ACTION A.2 and entry into TS 3.7.19 REQUIRED ACTIONs B.1 and B.2, the Tornado Warning for Somervell County is cancelled and forecasts predict no further severe weather.
  - TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are exited and TS 3.7.19 proposed REQUIRED ACTION A.2 is re-entered and safety chiller compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

- Grid Instability
  - If the grid becomes unstable in accordance with ABN-601, “Response to a 138/345 KV System Malfunction” (Reference 6.24) after entry into TS 3.7.19 proposed REQUIRED ACTION A.2, and 72 hours have elapsed then exit TS 3.7.19 proposed REQUIRED ACTION A.2 and enter TS 3.7.19 REQUIRED ACTION B.1 (Be in MODE 3 within 6 hours) and TS 3.7.19 REQUIRED ACTION B.2 (Be in MODE 5 within 36 hours).
  - Once grid stability is restored and plant system statuses are verified, TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and Safety Chiller 2-06 compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

- For example:
  - TS 3.7.19 proposed REQUIRED ACTION A.2 is entered and Safety Chiller 2-06 compressor replacement begins.
  - 73 hours after entering TS 3.7.19 proposed REQUIRED ACTION A.2 the ERCOT grid becomes unstable due to degraded voltage or fluctuating frequency.
  - At that 73 hour point TS 3.7.19 proposed REQUIRED ACTION A.2 is exited and TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are entered.
  - One hour after exit from TS 3.7.19 proposed REQUIRED ACTION A.2 and entry into TS 3.7.19 REQUIRED ACTIONs B.1 and B.2, the ERCOT grid voltage and frequency are restored with no anticipated instabilities.
  - TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are exited and TS 3.7.19 proposed REQUIRED ACTION A.2 is re-entered and safety chiller compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

<u>Conditions when CPNPP would not enter the 7 day COMPLETION TIME</u>

- Severe weather is anticipated
- Grid instability or challenge anticipated
- Opposite train (Train A) SSC to be relied upon during the extended COMPLETION TIME becomes inoperable

<u>Conditions when CPNPP would exit the 7 day COMPLETION TIME</u>

- Prior to entry into TS 3.7.19 REQUIRED ACTION A.2, CPNPP will verify the following items and every 12 hours thereafter. If any of the following items are not met, and after 72 hours have elapsed CPNPP will exit TS 3.7.19 REQUIRED ACTION A.2 and enter TS 3.7.19 REQUIRED ACTIONS B.1 and B.2:
  a. Both offsite sources available as determined by performance of OPT-215-1, “Offsite Transmission Network Operability Data Sheet”

b. Affected 6.9kV bus steady state frequency is 59.5 – 60.5 Hz in accordance with ABN-602, “Response to a 6900/480V System Malfunction” (Reference 6.25)
c. The Turbine Driven Auxiliary Feedwater Pumps (TDAFWs) are OPERABLE per TS 3.7.5, “Auxiliary Feedwater (AFW) System”
d. The plant is not operating under an ACTION statement for an inoperable offsite AC power source or the opposite train (Train A) Emergency Diesel Generator

- Similar to the examples described in severe weather and grid instability above, if TS 3.7.19 REQUIRED ACTIONS B.1 and B.2 are entered due to an item (a, b, c, or d) above not being met and the items are subsequently met, then TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and Safety Chiller 2-06 compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

Attachment 2 to TXX-20039

Regulatory Commitment Number 5900444
Implemented during Unit 2 Safety Chilled Water
extended COMPLETION TIME

Regulatory Commitment Number 5900444
Implemented during Unit 2 Safety Chilled Water extended COMPLETION TIME

1. Access to both switchyards and relay houses will be controlled and posted, and all planned maintenance will be suspended for the duration of the extended CT. This risk reduction measure was selected based on the reliance on offsite power during the extended CT. The measure is selected to deter any potential transmission grid perturbations or trip issues to the 6.9 kV power supplies from either the 345kV or 138kV switchyard. Work in the switchyard is administratively controlled by the Operations Shift Manager (SM) who by plant procedure, STA-629 “Switchyard Control and Transmission Grid Interface,” (Reference 6.27) has sole authority to grant access to the switchyard. By SM authority, any testing or maintenance activities or access to either switchyard will not be permitted, with the exception of normal operator visual inspection rounds or response to abnormal or emergency conditions.

2. The following applies to Unit 2. The EDGs, APGs, TDAFWP, inservice startup transformers, CCWPs, and SSWPs will have ALL testing and maintenance activities suspended (except for those required to restore equipment from any ongoing maintenance activity) for the duration of the safety chilled water extended CT. Additionally, during the extended CT, signs will be placed on the doorways to the equipment, or in the case of the inservice startup transformers, boundary signs, and barrier tape, rope, or chains will be installed on Train A equipment in service or in standby; safety chiller and recirculation pump, CCW pump, CCP, SIP, RHR pump, Containment Spray pumps (two per train), and both trains of Spent Fuel Pool Cooling pumps, 6.9kV Safeguards electrical switchgear and UPS HVAC, noting the restriction of testing and maintenance. These risk reduction measures ensure continued availability of these components for the entire duration of the extended CT.

3. For Fire Safety Shutdown Analysis (FSSA) – Fire Areas of Concern will have additional restrictions on combustible storage during the extended CT. All “Hot Work” in the Fire Areas of Concern will be suspended. An hourly roving fire watch will be in effect to protect the Fire Areas of Concern as a Risk Management Action (RMA). The Fire Areas of Concern are the areas that credit the affected safety chiller for achieving FSS.

4. For Risk Mitigation

   Both Unit 1 and 2 Transient Combustible safe zones identified in the fire assessment, in the Main Control Room (MCR) and the Cable Spread Room (CSR) and the cable routing paths for the inservice startup transformers will have additional restrictions relating to combustible storage during the extended CT. Implementing this RMA will reduce the fire risks that were identified for the transient combustible scenarios in the fire analysis.

All hot work activities along the routing associated with power and control cabling for inservice startup transformers, in the MCR and the CSR will be suspended during the extended CT. This RMA reduces the risks associated with fires that could damage and thus disable the station transformer cabling.

An hourly roving fire watch will be in effect to protect areas

- credited by the fire assessment, specifically, the MCR and CSR (to minimize the exposure time for detection and suppression of potential fires) and
- areas containing power and control cabling of the inservice startup transformers (to minimize loss of offsite power).

5. Safety Chiller compressor replacement will not be scheduled if severe weather conditions are anticipated.

   If a Severe Thunderstorm Warning or Tornado Warning is issued in accordance with ABN-907, “Acts of Nature” (Reference 6.23) after entry into TS 3.7.19 proposed REQUIRED ACTION A.2, and 72 hours have elapsed then exit TS 3.7.19 proposed REQUIRED ACTION A.2 and enter TS 3.7.19 REQUIRED ACTION B.1 (Be in MODE 3 within 6 hours) and TS 3.7.19 REQUIRED ACTION B.2 (Be in MODE 5 within 36 hours).

   Once the applicable severe weather warning is cancelled and plant system statuses are verified, TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and Safety Chiller 2-06 compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

   For example:

   TS 3.7.19 proposed REQUIRED ACTION A.2 is entered and Safety Chiller 2-06 compressor replacement begins.

   73 hours after entering TS 3.7.19 proposed REQUIRED ACTION A.2 a Tornado Warning is issued for Somervell County, the county where Comanche Peak is located.

   At that 73 hour point TS 3.7.19 proposed REQUIRED ACTION A.2 is exited and TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are entered.

   One hour after exit from TS 3.7.19 proposed REQUIRED ACTION A.2 and entry into TS 3.7.19 REQUIRED ACTIONs B.1 and B.2, the Tornado Warning for Somervell County is cancelled and forecasts predict no further severe weather.

   TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are exited and TS 3.7.19 proposed REQUIRED ACTION A.2 is re-entered and safety chiller compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

6. Safety Chiller compressor replacement will not be scheduled if grid instability conditions are anticipated.

   If the grid becomes unstable in accordance with ABN-601, Response to a 138/345 KV System Malfunction" (Reference 6.24) after entry into TS 3.7.19 proposed REQUIRED ACTION A.2, and 72 hours have elapsed then exit TS 3.7.19 proposed REQUIRED ACTION A.2 and enter TS 3.7.19 REQUIRED ACTION B.1 (Be in MODE 3 within 6 hours) and TS 3.7.19 REQUIRED ACTION B.2 (Be in MODE 5 within 36 hours).

   Once grid stability is restored and plant system statuses are verified, TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and Safety Chiller 2-06 compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

   For example:

   TS 3.7.19 proposed REQUIRED ACTION A.2 is entered and Safety Chiller 2-06 compressor replacement begins.

   73 hours after entering TS 3.7.19 proposed REQUIRED ACTION A.2 the ERCOT grid becomes unstable due to degraded voltage or fluctuating frequency.

   At that 73 hour point TS 3.7.19 proposed REQUIRED ACTION A.2 is exited and TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are entered.

   One hour after exit from TS 3.7.19 proposed REQUIRED ACTION A.2 and entry into TS 3.7.19 REQUIRED ACTIONs B.1 and B.2, the ERCOT grid voltage and frequency are restored with no anticipated instabilities.

   TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 are exited and TS 3.7.19 proposed REQUIRED ACTION A.2 is re-entered and safety chiller compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

7. Prior to entry into TS 3.7.19 REQUIRED ACTION A.2, CPNPP will contact the Transmission Grid Controller (TGM) to ensure:

   - the local grid is stable and no anticipated challenges have been identified

   Prior to entry into TS 3.7.19 REQUIRED ACTION A.2, CPNPP will verify the following items and every 12 hours thereafter. If any of the following items are not met, and after 72 hours have elapsed CPNPP will exit TS 3.7.19 REQUIRED ACTIONS A.2 and enter TS 3.7.19 REQUIRED ACTIONS B.1 and B.2:

   a. Both offsite sources available as determined by performance of OPT-215-1, "Offsite Transmission Network Operability Data Sheet"

b. Affected 6.9kV bus steady state frequency is 59.5 – 60.5 Hz in accordance with ABN-602, Response to a 6900/480V System Malfunction (Reference 6.25)
c. The Turbine Driven Auxiliary Feedwater Pump (TDAFW) is OPERABLE per TS 3.7.5, “Auxiliary Feedwater (AFW) System”
d. The plant is not operating under an ACTION statement for an inoperable offsite AC power source or the opposite train (Train A) Emergency Diesel Generator

For example:
Similar to the example described in severe weather and grid instability above, if TS 3.7.19 REQUIRED ACTIONS B.1 and B.2 are entered due to an item (a, b, c, or d) above not being met and the items are subsequently met, then TS 3.7.19 REQUIRED ACTIONs B.1 and B.2 will be exited and TS 3.7.19 proposed REQUIRED ACTION A.2 will be re-entered and safety chiller compressor replacement will continue until completed or 7 days from initial entry into TS 3.7.19 proposed REQUIRED ACTION A.2.

Attachment 3 to TXX-20039

Technical Specifications

Technical Specification 3.7.19, Safety Chilled Water - Markup

Technical Specification 3.7.19, Safety Chilled Water - Retype

Technical Specifications Bases (For Information Only)

Technical Specification Bases 3.7.19, Safety Chilled Water - Markup

Technical Specification Bases 3.7.19, Safety Chilled Water - Retype

3.7 PLANT SYSTEMS

3.7.19 Safety Chilled Water

LCO 3.7.19 Two safety chilled water trains shall be OPERABLE

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One safety chilled water train inoperable.	A.1 Restore safety chilled water train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

INSERT A →

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.19.1	----------NOTE---------- Isolation of safety chilled water flow to individual components does not render the safety chilled water system inoperable. ---------- Verify each safety chilled water manual, power operated, and automatic valve servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.19.2	Verify each safety chilled water pump and chiller starts on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program.

INSERT A

OR

A.2	----------NOTE---------- Required Action A.2 is applicable on a one time basis to replace Safety Chiller 2-06 (Train B) compressor during Unit 2 Cycle 19. If Train A safety chilled water becomes inoperable, immediately enter LCO 3.0.3. Regulatory Commitment 5900444 (Attachment 2 to TXX-20039) will be implemented during the 7 day COMPLETION TIME. ----------	
	Restore safety chilled water train to OPERABLE status.	7 days

3.7 PLANT SYSTEMS

3.7.19 Safety Chilled Water

LCO 3.7.19 Two safety chilled water trains shall be OPERABLE

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One safety chilled water train inoperable.	A.1 Restore safety chilled water train to OPERABLE status. OR A.2 ----------NOTE---------- Required Action A.2 is applicable on a one time basis to replace Safety Chiller 2-06 (Train B) compressor during Unit 2 Cycle 19. If Train A safety chilled water becomes inoperable, immediately enter LCO 3.0.3. Regulatory Commitment 5900444 (Attachment 2 to TXX-20036) will be implemented during the 7 day COMPLETION TIME. ---------- Restore safety chilled water train to OPERABLE status.	72 hours 7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.19.1	----------NOTE---------- Isolation of safety chilled water flow to individual components does not render the safety chilled water system inoperable. ----------	
	Verify each safety chilled water manual, power operated, and automatic valve servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.19.2	Verify each safety chilled water pump and chiller starts on an actual or simulated actuation signal.	In accordance with the Surveillance Frequency Control Program.

B 3.7 PLANT SYSTEMS

B 3.7.19 Safety Chilled Water System

BASES

BACKGROUND

The Safety Chilled Water System provides essential chilled water to the emergency fan coil units (EFCUs) during normal and accident conditions. EFCUs are provided in motor-driven ESF pump rooms (i.e., Centrifugal Charging Pump rooms, Safety Injection Pump rooms, Residual Heat Removal (RHR) Pump rooms, Containment Spray Pump rooms, and the motor-driven Auxiliary Feedwater (AFW) Pump rooms), in the Spent Fuel Pool Cooling Pump rooms, in the Component Cooling Water (CCW) Pump rooms, in the UPS Rooms, and in the Class 1E electrical switchgear rooms. The system is designed to provide chilled water to maintain the ambient air temperature within the design limits of the essential equipment served by the system.

The safety related equipment and respective EFCUs are of the same safety train as the associated chilled water train. Thus, a power failure or other single failure to one cooling system train will not prevent the cooling of redundant equipment in the other train.

The Safety Chilled Water System for each unit consists of two separate and completely redundant safety trains. Each train consists of one packaged centrifugal chiller, one centrifugal chilled water recirculation pump, interconnecting piping, valves, controls and instrumentation. There are no automatic valves in the system. Additionally, the two trains share a common chilled water surge (expansion) tank, partitioned in the middle into two separate compartments to provide complete separation of the two trains, that function to ensure sufficient net positive suction head is available.

In addition to manual start capability, automatic start of the Safety Chill Water System is provided on a Safety Injection (SI) signal or a station blackout.

The Safety Chilled Water System is seismic Category I and remains operational during and after a safe shutdown earthquake. The associated instrumentation is described in greater detail in FSAR Sections, 7.3 and 9.4, References 1 and 2 respectively.

APPLICABLE SAFETY ANALYSES

The design basis of the Safety Chilled Water System is to support EFCUs that maintain air temperatures as required in selected rooms containing safety-related equipment during normal operation and during and after a design basis accident (with or without a loss of offsite power) or a blackout (loss of offsite power, LOOP).

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The Safety Chilled Water System is designed to perform its function in response to an SI signal with a single failure of any active component, assuming the loss of offsite power. One train of the Safety Chilled Water System provides 100% of the required cooling for the associated train of EFCUs.

The Safety Chilled Water System satisfies criterion 4 of 10CFR50.36(c)(2)(ii).

LCO

Two Safety Chilled Water System trains are required OPERABLE to provide the required redundancy to ensure that the system functions to remove heat from the EFCUs during and after an accident assuming the worst case single failure occurs coincident with the loss of offsite power.

A Safety Chilled Water System train is considered OPERABLE when the associated chiller, chilled water pump, surge tank, piping, valves, and instrumentation required to perform the safety-related function are OPERABLE.

The isolation of Safety Chilled Water from the EFCUs may render those units inoperable but does not affect the OPERABILITY of the Safety Chilled Water System.

APPLICABILITY

In MODES 1, 2, 3, and 4 the Safety Chilled Water System is a normally operating system, which must be prepared to provide a safety-related cooling function consistent with the OPERABILITY requirements of the essential equipment it supports.

In MODE 5 or 6, the OPERABILITY requirements of the Safety Chilled Water System are determined by the systems it supports.

ACTIONS

A. 1

If one Safety Chilled Water System train is inoperable, action must be taken to restore the train to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE Safety Chilled Water System train is adequate to perform the heat removal function for its associated essential equipment.

However, the overall reliability is reduced because a single failure in the

(continued)

BASES

ACTIONS

A. 1 (continued)

OPERABLE Safety Chilled Water System train could result in loss of the Safety Chilled Water System function. The 72 hour Completion Time is based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time.

INSERT B →

B.1 and B.2

If the Safety Chilled Water System train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.19.1

This SR is modified by a Note indicating that the isolation of safety chilled water flow to individual components may render these components inoperable but does not affect the OPERABILITY of safety chilled water system.

Verifying the correct alignment for manual valves servicing safety-related equipment provides assurance that the proper flow paths exist for Safety Chilled Water System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to being locked, sealed, or secured. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.19.2

This SR verifies proper operation of the Safety Chilled Water System fans and pumps on an actual or simulated Safety Injection actuation signal. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 7.3.
2. FSAR, Section 9.4.

INSERT B

A.2

The COMPLETION TIME for restoring the inoperable safety chilled water train to OPERABLE status can be extended to 7 days, on a one time basis for Safety Chiller 2-06 (Train B) compressor replacement during Unit 2 Cycle 19. This one time change regains reliability margin for Unit 2, Train B safety chilled water. The 7 day completion time for action A.2 is based on a deterministic evaluation supplemented with risk insights.

B 3.7 PLANT SYSTEMS

B 3.7.19 Safety Chilled Water System

BASES

BACKGROUND

The Safety Chilled Water System provides essential chilled water to the emergency fan coil units (EFCUs) during normal and accident conditions. EFCUs are provided in motor-driven ESF pump rooms (i.e., Centrifugal Charging Pump rooms, Safety Injection Pump rooms, Residual Heat Removal (RHR) Pump rooms, Containment Spray Pump rooms, and the motor-driven Auxiliary Feedwater (AFW) Pump rooms), in the Spent Fuel Pool Cooling Pump rooms, in the Component Cooling Water (CCW) Pump rooms, in the UPS Rooms, and in the Class 1E electrical switchgear rooms. The system is designed to provide chilled water to maintain the ambient air temperature within the design limits of the essential equipment served by the system.

The safety related equipment and respective EFCUs are of the same safety train as the associated chilled water train. Thus, a power failure or other single failure to one cooling system train will not prevent the cooling of redundant equipment in the other train.

The Safety Chilled Water System for each unit consists of two separate and completely redundant safety trains. Each train consists of one packaged centrifugal chiller, one centrifugal chilled water recirculation pump, interconnecting piping, valves, controls and instrumentation. There are no automatic valves in the system. Additionally, the two trains share a common chilled water surge (expansion) tank, partitioned in the middle into two separate compartments to provide complete separation of the two trains, that function to ensure sufficient net positive suction head is available.

In addition to manual start capability, automatic start of the Safety Chill Water System is provided on a Safety Injection (SI) signal or a station blackout.

The Safety Chilled Water System is seismic Category I and remains operational during and after a safe shutdown earthquake. The associated instrumentation is described in greater detail in FSAR Sections, 7.3 and 9.4, References 1 and 2 respectively.

APPLICABLE SAFETY ANALYSES

The design basis of the Safety Chilled Water System is to support EFCUs that maintain air temperatures as required in selected rooms containing safety-related equipment during normal operation and during and after a design basis accident (with or without a loss of offsite power) or a blackout (loss of offsite power, LOOP).

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The Safety Chilled Water System is designed to perform its function in response to an SI signal with a single failure of any active component, assuming the loss of offsite power. One train of the Safety Chilled Water System provides 100% of the required cooling for the associated train of EFCUs.

The Safety Chilled Water System satisfies criterion 4 of 10CFR50.36(c)(2)(ii).

LCO

Two Safety Chilled Water System trains are required OPERABLE to provide the required redundancy to ensure that the system functions to remove heat from the EFCUs during and after an accident assuming the worst case single failure occurs coincident with the loss of offsite power.

A Safety Chilled Water System train is considered OPERABLE when the associated chiller, chilled water pump, surge tank, piping, valves, and instrumentation required to perform the safety-related function are OPERABLE.

The isolation of Safety Chilled Water from the EFCUs may render those units inoperable but does not affect the OPERABILITY of the Safety Chilled Water System.

APPLICABILITY

In MODES 1, 2, 3, and 4 the Safety Chilled Water System is a normally operating system, which must be prepared to provide a safety-related cooling function consistent with the OPERABILITY requirements of the essential equipment it supports.

In MODE 5 or 6, the OPERABILITY requirements of the Safety Chilled Water System are determined by the systems it supports.

ACTIONS

A. 1

If one Safety Chilled Water System train is inoperable, action must be taken to restore the train to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE Safety Chilled Water System train is adequate to perform the heat removal function for its associated essential equipment.

However, the overall reliability is reduced because a single failure in the

(continued)

BASES

ACTIONS

A. 1 (continued)

OPERABLE Safety Chilled Water System train could result in loss of the Safety Chilled Water System function. The 72 hour Completion Time is based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time.

A.2

The COMPLETION TIME for restoring the inoperable safety chilled water train to OPERABLE status can be extended to 7 days, on a one time basis for Safety Chiller 2-06 (Train B) compressor replacement during Unit 2 Cycle 19. This one time change regains reliability margin for Unit 2, Train B safety chilled water. The 7 day completion time for action A.2 is based on a deterministic evaluation supplemented with risk insights.

B.1 and B.2

If the Safety Chilled Water System train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.19.1

This SR is modified by a Note indicating that the isolation of safety chilled water flow to individual components may render these components inoperable but does not affect the OPERABILITY of safety chilled water system.

Verifying the correct alignment for manual valves servicing safety-related equipment provides assurance that the proper flow paths exist for Safety Chilled Water System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to being locked, sealed, or secured. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES (continued)

SR 3.7.19.2

This SR verifies proper operation of the Safety Chilled Water System fans and pumps on an actual or simulated Safety Injection actuation signal. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

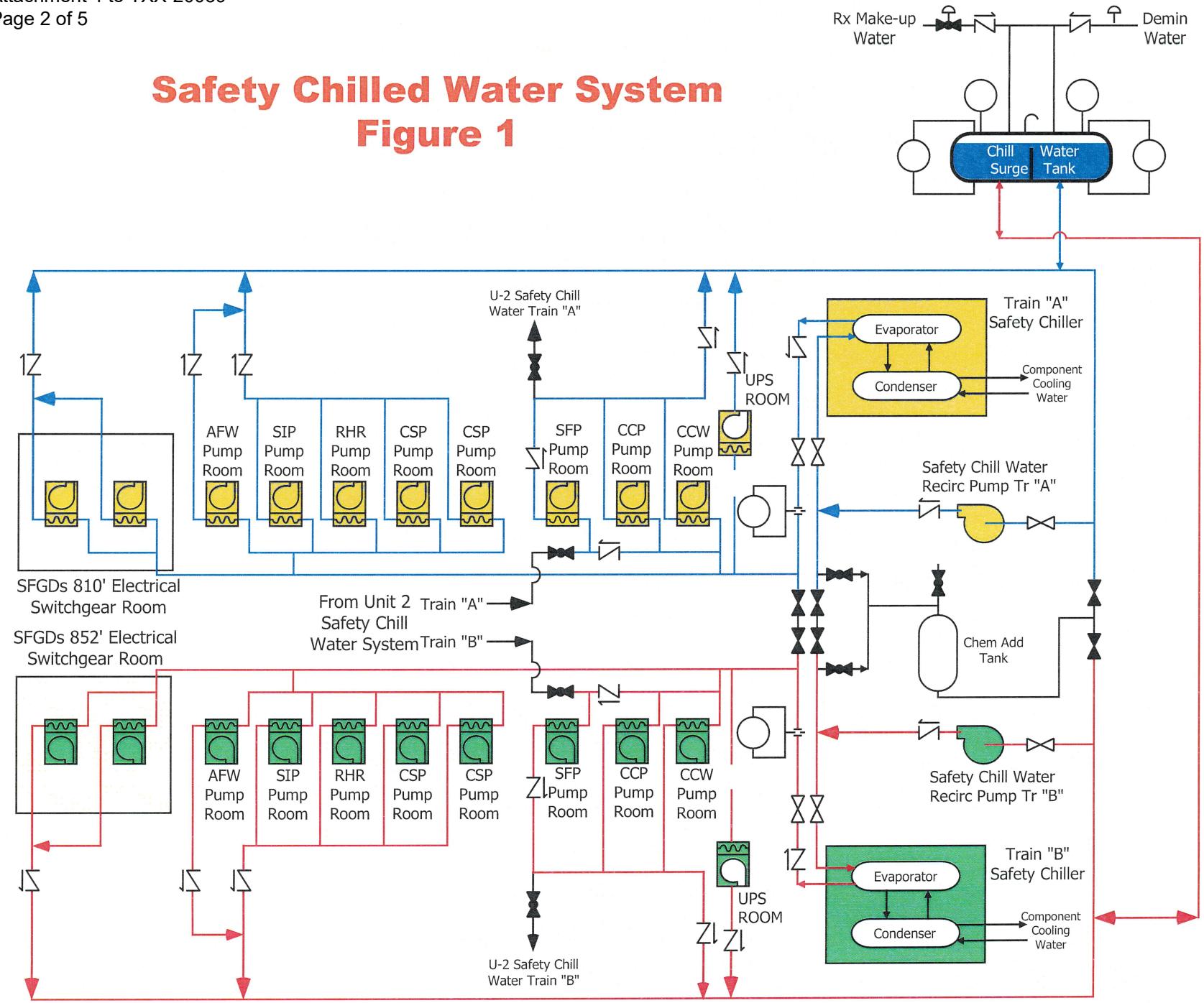
1. FSAR, Section 7.3.
2. FSAR, Section 9.4.

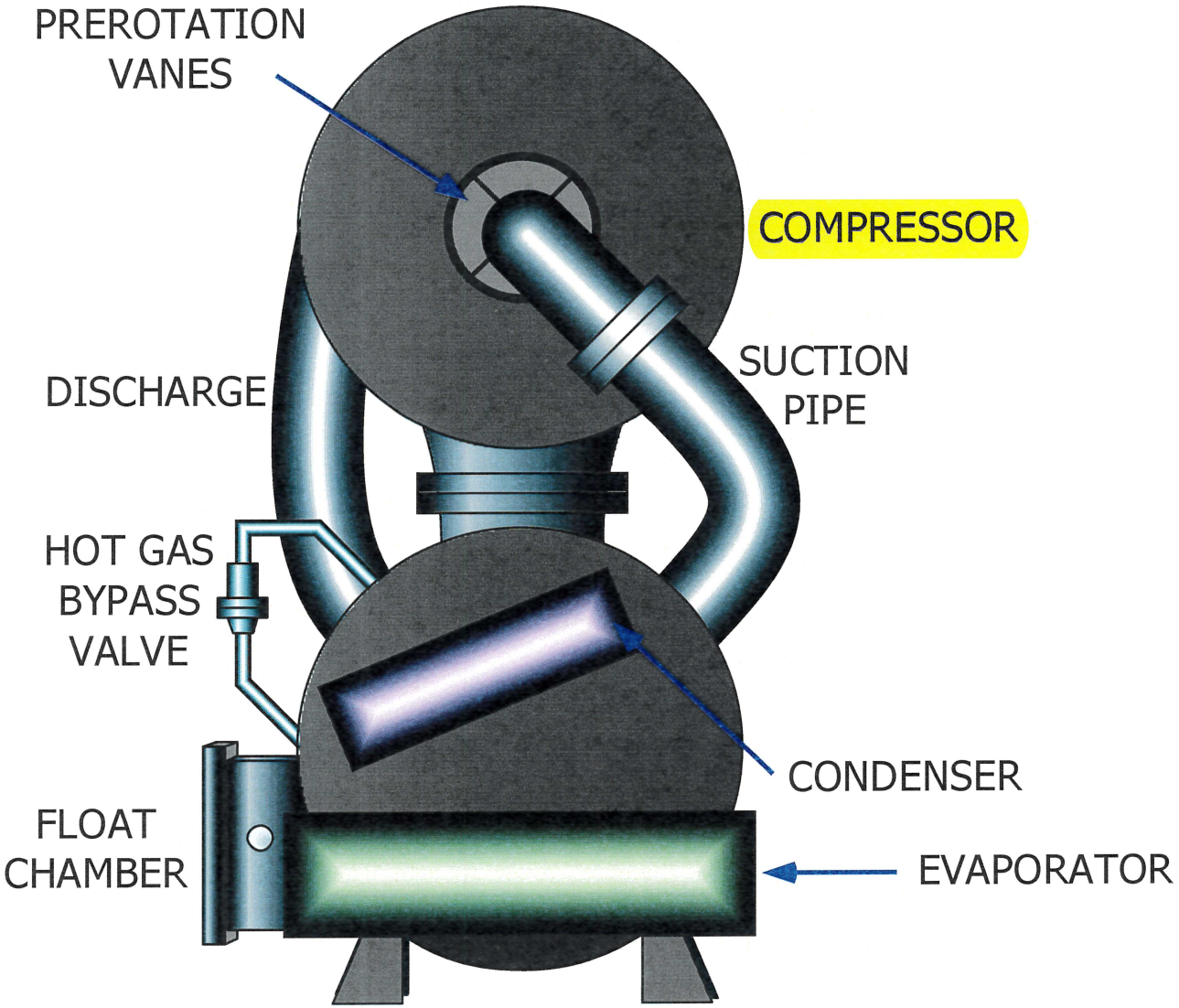
Attachment 4 to TXX-20039

Supporting Figures
(For Information Only)

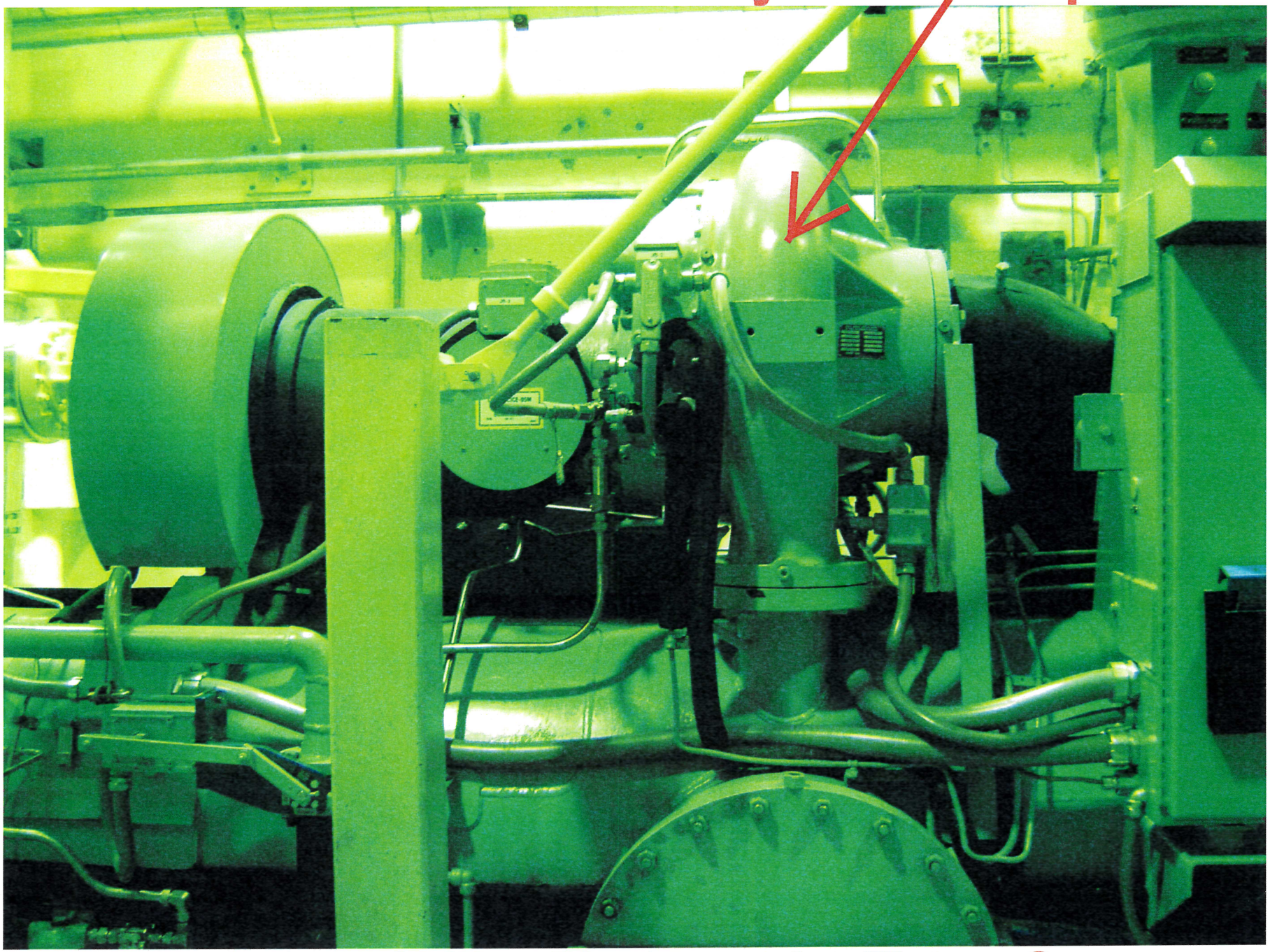
Figure 1	**Safety Chilled Water System**
Figure 2	**Safety Chiller Cross Section**
Figure 3	**Safety Chiller Photograph**
Figure 4	**Safety Chiller Photograph**

Safety Chilled Water System
Figure 1

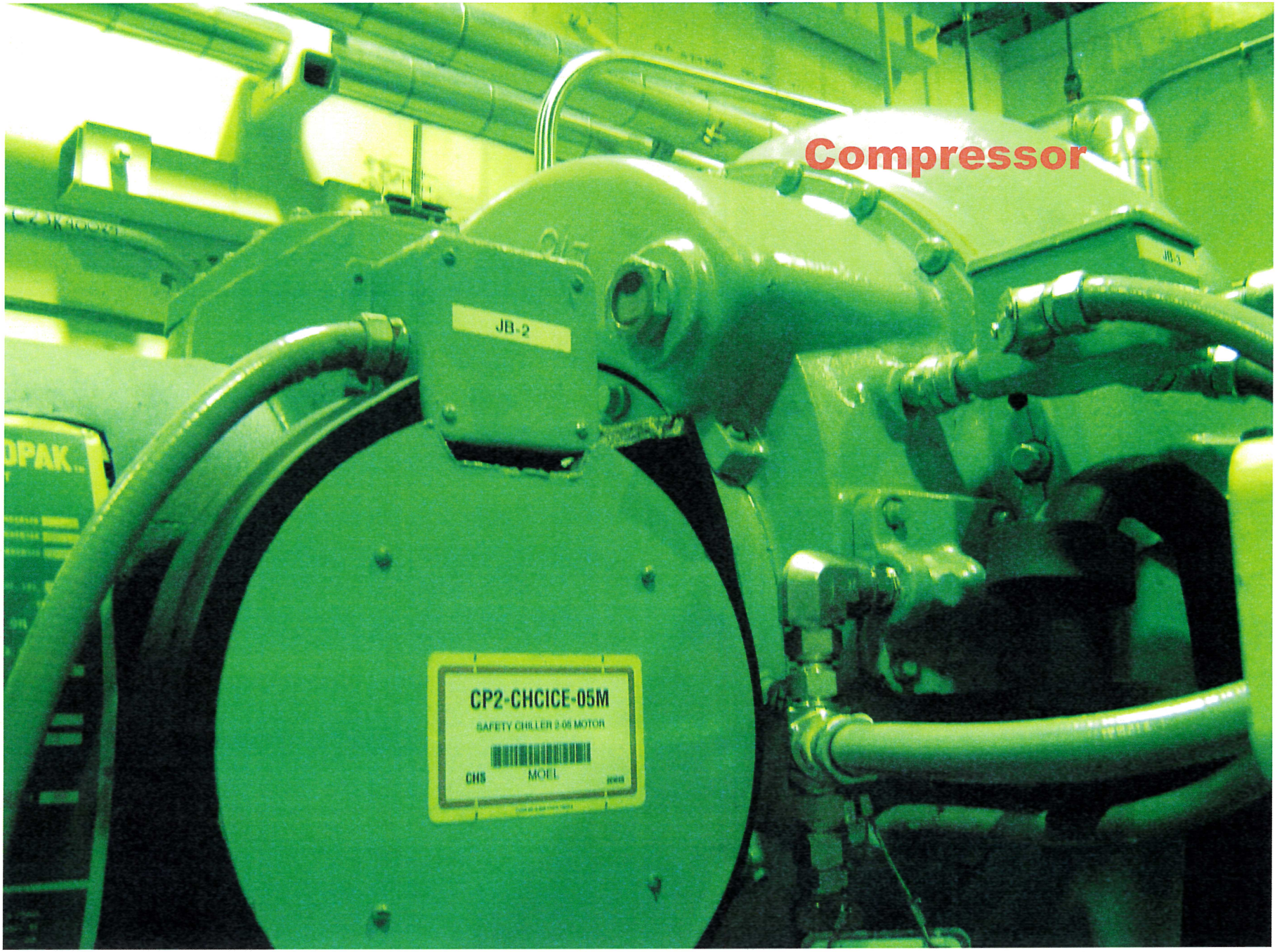




SAFETY CHILLER CROSS SECTION - Figure 2



Safety Chiller Photograph - Figure 3



Safety Chiller Photograph - Figure 4

Attachment 5 to TXX-20039

Baseline Average Annual CDF/LERF

Baseline Average Annual CDF/LERF[1]

Hazards	Unit 2 CDF (per reactor year)	Unit 2 LERF (per reactor year)
Internal Events	1.11E-06	1.06E-07
Internal Flooding	1.39E-07	5.92E-09
Internal Fire	5.35E-05	7.58E-06
Total	**5.47E-05[2]**	**7.69E-06[3]**

Table Notes:

1. The contribution of High Winds to baseline CDF / LERF values was not included as risk is very small compared to other events based on plant design and low likelihood of occurrence of a significant wind event due to the time of year, the time frame of the extended CT and the review of the long range forecast prior to work start.
2. Total CDF meets the RG 1.174 acceptance criteria of < 1E-4 per year
3. Total LERF meets the RG 1.174 acceptance criteria of < 1E-5 per year

Table References:

1. NRC Regulatory Guide 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” Revision 3, January 2018
2. R&R-PN-022, Level 1 Internal Events Quantification, Revision 5
3. R&R-PN-035, Level 2 Internal Events Quantification, Revision 5
4. R&R-PN-021, Internal Flood Analysis, Revision 5
5. CN-RAM-038, Fire PRA Quantification, Revision 3
6. Engineering Evaluation 314, Safety Chilled Water – One-Time CT Extension”

A6.1 Technical Adequacy of the PRA

The CPNPP PRA model is sufficiently robust and suitable for use in risk informed processes such as for regulatory decision making. The peer reviews that have been conducted and the resolution of findings from those reviews demonstrate that the internal events, internal flooding and fire models of the PRA have been performed in a technically correct manner. The assumptions and approximations used in development of the PRA have also been reviewed and are appropriate for their application.

CPNPP employs a multi-faceted approach to establishing and maintaining the technical adequacy and plant fidelity of the PRA models for Comanche Peak. This approach includes both a proceduralized PRA maintenance process and the use of self-

assessments, independent reviews and independent peer reviews. Results from peer reviews are documented and addressed; F&O (Facts and Observations) resolutions have been incorporated to establish technical adequacy of the CPNPP PRA model to address the risk impact of the proposed license amendment. No changes to the PRA were required for use in the TS change evaluation. Finding level Facts and Observations (F&Os) not met at Category II have been closed by CPNPP with PRA documents and independent review where applicable. Three Supporting Requirements (SRs) (LE-C11, IFEV-A6 and IFSN-A6) met at Capability Category I had no associated finding level F&O and review determined these did not impact risk results relative to the subject application.

PRA Acceptability

Internal Events and Internal Flooding Hazards

This one-time Technical Specification change evaluation includes results from the CPNPP peer reviewed, plant specific baseline PRA model to quantify Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) due to internal events, including internal flooding, at power. The CPNPP model maintenance process ensures that the PRA model used in this application reflects the as-built, as operated plant for each of the two units.

Following a model upgrade and self-assessment, the Comanche Peak PRA was subject to a PWROG full scope peer review in March 2011 in accordance with the 2009 version of the PRA Standard (Reference 6.17). Among the 308 applicable Supporting Requirements (SRs), 94% of SRs met Capability Category II or higher. Finding and Suggestion F&Os, including those associated with Capability Category I or not met SRs, were fully addressed and documented. Subsequent independent reviews confirmed resolutions and closure were adequate with only one suggestion level F&O remaining open. Reference 6.30 presented the safety evaluation for Comanche Peak's TSTF 425 surveillance Frequency Control Program and provided a confirmatory review of the March 2011 peer review F&O resolutions relative to that application. No PRA upgrades as defined in the PRA standard have been made to the internal events model since the conduct of the peer review.

In 2018, an independent assessment was performed to review actions taken by CPNPP to close out the open internal events F&Os. The assessment followed the process documented in Appendix X to NEI 05-04. All finding level internal events F&O dispositions and identified suggestion F&Os were determined to have been adequately addressed and are now considered CLOSED and no longer relevant to the PRA model. The current PRA model, CPNPP MOR 5, has met all Supporting Requirements judged to have significance to this LAR at Capability Category II or better.

The baseline CDF and LERF for the internal events and internal flooding model are provided in the table above.

Fire Hazards

This one-time Technical Specification change evaluation includes results from the 2019 Revision 1 CPNPP peer reviewed, plant specific PRA model to quantify Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) due to fire hazards, at power. The Fire PRA model is consistent with NUREG/CR 6850 (Reference 6.15) methodology with no exceptions. The peer review indicated data, methodologies and fire

risk models were appropriate with no unapproved methods (UAMs). Since the peer review, the Comanche Peak fire PRA has been revised to incorporate updated industry information and applicable FAQs. The current Comanche Peak Fire PRA model has been developed, documented and reviewed with reference to RG 1.200, Revision 2, Capability Category II standards (Reference 6.14).

Following a model revision, an independent assessment was performed in 2018 to review actions taken by CPNPP to close out the open fire F&Os. The assessment followed the process documented in Appendix X to NEI 05-04. All finding level fire F&O dispositions were determined to have been adequately addressed and are now considered CLOSED and no longer relevant to the PRA model.

The baseline CDF and LERF for the internal fire are provided the table above.

Seismic Hazards

For seismic events, CPNPP is considered to be in an area of low seismicity. The potential effects from seismic events for the one-time Technical Specification change were considered with reference to the seismic PRA margin analysis was created in support of the Individual Plant Evaluation of External Events (IPEEE). As a reduced scope plant, the IPEEE Seismic analysis used a margin approach that assumed a LOOP and Very Small Break LOCA in a seismic event. Since the safety chilled water system and its supports are in Category I seismic structures, they are assumed to not be damaged (total failure) in the seismic event. The change in risk associated with a train of safety chilled water being OOS for the extended CT is equivalent to the change in risk seen from the internal events model for random failures. In addition, the frequency of a seismic occurrence over the 7 day extended CT is considered small and when considering that a train of safety related equipment would remain available, the overall change in risk due to the extended CT can be considered small. Updated seismic hazard information was reviewed in Engineering Evaluation 314 (Reference 6.18) and determined the IPEEE conclusion, that there are no plant-specific vulnerabilities to seismic events at CPNPP, is still appropriate and bounds the expected current day seismic risk impacts for CPNPP.

Other External Hazards

A qualitative review was documented in Engineering Evaluation 314 (Reference 6.18) to evaluate other external events for risk impact associated with the requested extension to the safety chilled water CT. These assessments considered high winds, external floods, external fire, and other transportation and nearby facility accidents with reference to the analyses done in support of the IPEEE.

Scenarios with potential impact from high wind and tornado events were reviewed; results indicate that the bounding case of core damage risk from a tornado strike at CPNPP is quite small. The dominant sequences do not involve tornado-induced failures of plant structures or equipment. This is explained by the fact that nearly all risk significant equipment is well protected within Seismic Category I structures which are designed to withstand tornadoes up to the design basis tornado. Given the relatively low likelihood of a tornado occurring over the time frame of the extended CT and the availability of a train of equipment (including the restrictions identified in Attachment 1 of this submittal), the change in tornado risk as discussed above is considered to be small. The IPEEE

concluded that the significant contribution from this hazard was due to the lower range of high wind events. Those event frequencies and IPEEE identified impacts were applied in a previous application specific quantitative assessment that estimated baseline risk impact due to high winds at two orders of magnitude below the baseline CDF due to internal events and internal flooding. Individual qualitative assessments from the documented evaluation of other external hazards show changes in risk are small and do not impact the overall conclusions of the quantitative risk assessment for internal events, internal flooding and fire.

A6.2 PRA Uncertainty Evaluations

The review of generic and plant specific sources of uncertainty for the baseline models is documented in Reference 6.31. The sensitivity studies were adequate to address uncertainty associated with this application. Parametric uncertainties were examined using standard statistical error propagation techniques and CDF and LERF deviations from the point estimates remained within an acceptance criterion of 10 percent. For uncertainty related to completeness, the proposed changes do not introduce any application-specific sources of uncertainty, and those for the baseline model have been minimized through the use of consensus modeling. The calculations include internal events, internal flood and fire, at power. The proposed configuration is only applicable at-power and other hazard groups (seismic, external events) are unchanged from the Individual Plant Examinations.

Attachment 6 to TXX-20039

ICCDP and ICLERP for one time Technical Specification Change

ICCDP and ICLERP for One-Time Technical Specification Change

CP2-CHCICE-06 Results[1]

Hazards	Delta CDF (per reactor year)	ICCDP	Delta LERF (per reactor year)	ICLERP
Internal Events	5.76E-08	5.76E-08	4.14E-09	4.14E-09
Internal Flood	5.13E-08	5.13E-08	2.12E-09	2.12E-09
Internal Fire	1.53E-06	1.53E-06	7.36E-08	7.36E-08
Total	**1.64E-06**	**1.64E-06[2]**	**7.99E-08**	**7.99E-08[3]**

Table Notes:

1. Results are based on assumed equipment unavailability set to the average test and maintenance
2. Total ICCDP meets the RG 1.177 acceptance criteria of < 1E-5 per year with the benefit of effective compensatory measures implemented to reduce the sources of increased risk (not credited in the quantitative risk evaluation)
3. Total ICLERP meets the RG 1.177 acceptance criteria of < 1E-6 per year with the benefit of effective compensatory measures implemented to reduce the sources of increased risk (not credited in the quantitative risk evaluation.

Table References:

1. Regulatory Guide 1.177, An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications, Revision 1, dated May 2011
2. Engineering Evaluation 314, “Safety Chilled Water – One-Time CT Extension”

Attachment 7 to TXX-20039

CPNPP Post-Work Test Guide Excerpt

Refrigeration Unit Testing

ATTACHMENT A
PAGE 16 OF 22

GENERAL TESTING GUIDELINES

WORK	TESTING ATTRIBUTE	RESPONSIBLE TEST ORGANIZATION (RTO)
REFRIGERATION UNITS disassemble/repair/rework* • air conditioning components 1) 2) 3) 4) 7) 8) 9) 10) 11) 12) 13) 14) • chiller components 1) 2) 3) 4) 8) 9) 10) 11) 12) 13) • de-terminate compressor 5) 6) * See applicable test requirements for MOTORS, CONTROL CIRCUITS, WIRE/CABLE, FANS, CONTROLLERS, VALVES, HEATERS, COMPRESSORS	Inspection check: 1) fluid levels 2) refrigerant leak check 3) oil temperature 4) condenser coolant flow 5) phase rotation Performance test: 6) compressor & fan rotation direction 7) bearing temperatures 8) running current 9) load control 10) refrigerant parameters 11) air/chilled water parameters 12) superheat adjustment 13) charge verification 14) vibration for equipment in Attachment B-VIB	 1) MAINT-E 2) MAINT-E 3) MAINT-E 4) MAINT-E/ZST 5) MAINT-E 6) MAINT-E 7) MAINT-E/ZST/OPS 8) MAINT-E 9) MAINT-E 10) MAINT-E/OPS 11) MAINT-E/OPS 12) MAINT-E 13) MAINT-E/ZST 14) ZST
SOURCES, RADIOACTIVE • maintenance or repair on any sealed startup source or fission detector 1)	1) Source Testing (Reference ODCM 4.7.15.2c)	1) RP
STEAM GENERATORS • secondary side modification or repair/rework to internals 1) • tubing/tubesheet/tube supports repair/rework 2)	Inspection check: 1) Visual Inspection (FOSAR) of the SG secondary side periphery (annulus), tube lane and T-slot, in accordance with the requirements of Generic Letter 85-02. 2) contact ISI Coordinator in ENGINEERING PROGRAMS	1) ENG/QC 2) ENG
STRAINERS/FILTERS disassemble/clean/rework/repair • elements 1) 2) 4) • dual unit shifting components 3) • gaskets 1) 2) 4) repair/rework • housing (external) 4) 5)	Inspection check: 1) bolt torque 2) proper gasketing 3) element shifting * * Only necessary when shift mechanism part of maintenance Operational test: 4) leakage check 5) leakage test, ASME - enter "Leak test/VT-2 per STA-725" on PTR	 1) MAINT-M 2) MAINT-M 3) MAINT-M 4) ME 5) ZST/QC (VT-2)
SUPPORTS, EQUIPMENT* disassembly/repair/rework 1) metal removal or welding • integral attachments to the pressure boundary 2) 3) *See also HANGERS, PIPE	1) Visual inspection of support for equipment listed in Attachment B-PSI as E1, E2, or E3. 2) Surface examination of weld and 1/2" of base metal on both sides of weld for supports of equipment listed in Attachment B-PSI as E1 or E2. 3) Visual inspection of weld and 1/2" of base metal on both sides of weld for supports of equipment listed in Attachment B-PSI as E3.	ALL) QC