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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(a)(6)  
10 CFR 50.91(b)(1)

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

Reference: 1. Letter TXX-20039 from Thomas P. McCool to the NRC "Exigent License Amendment Request (LAR) 20-002, Revision to Technical Specification (TS) 3.7.19, "Safety Chilled Water," dated June 24, 2020 (ML20176A281)  
2. A public teleconference held on July 7, 2020 identified the need for a supplement to clarify information found in LAR 20-002, Revision to TS 3.7.19, Safety Chilled Water (ML20190A067)

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Vistra Operations Company LLC (Vistra OpCo) hereby submits a supplement to the exigent license amendment request for the Comanche Peak Nuclear Power Plant (CPNPP) Unit 1 and Unit 2 Technical Specifications in connection to LAR 20-002, Revision to TS 3.7.19, Safety Chilled Water requested in Reference 1. Reference 2 clarifying information will be provided no later than July 23, 2020.

The Enclosure to this letter provides an executive summary and clarifying information for Sections 3.3, 3.5.2, 3.5.3, and 3.6. These sections replace those of the same number in the Enclosure to Reference 1.

Attachments 1 and 2 provide clarifying information. Attachment 4, Figure 1 is revised to represent the Unit 2 Safety Chilled Water System.

Attachment 1 contains a list of inspections, compensatory measures, and conditions. Attachment 2 contains a regulatory commitment associated with the requested change. Attachments 1, 2, and Attachment 4, Figure 1 of this correspondence replace those of the same number in Reference 1.

The CPNPP Station Operations Review Committee (SORC) has reviewed this supplement for LAR 20-002, Revision to TS 3.7.19, Safety Chilled Water. In accordance with 10 CFR 50.91(b)(1), a copy of the supplement for the proposed license amendment is being forwarded to the State of Texas.

Vistra OpCo has determined that this supplement does not change the No Significant Hazards Consideration provided in the Enclosure submitted by Reference 1.

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

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

Executed on July 16, 2020.

Sincerely,



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Thomas P. McCool

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

- Attachments:
1. List of Inspections, Compensatory Measures, and Conditions
  2. Regulatory Commitment No. 5900444
  3. [Not Used]
  4. Unit 2 Safety Chilled Water System - Figure 1

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

Executive Summary

The following items describe the supplemental changes to the original LAR submittal based on information discussed during a public teleconference on July 7, 2020 between the Licensee (Vistra Operations Company LLC (Vistra Op Co)) and the Nuclear Regulatory Commission.

1. Section 3.3 of the original Enclosure was revised to ensure the deterministic nature of the submittal is maintained and the risk insights are used to support the evaluation of "Equipment Response to Loss of Room Cooling." A description of the computer program utilized to determine room heatup rates is provided. Also included are the actions required by plant procedure ABN-503, "Safety Chilled Water System Malfunction" if Train 'A' Safety Chilled Water is lost while in the extended COMPLETION TIME of 7 days. Listed the pump rooms that will have alternate cooling staged during the extended COMPLETION TIME of 7 days.
2. Section 3.5.2 of the original Enclosure was revised to include that mitigative actions by operators to establish alternate room cooling are directed by plant procedure ABN-503, "Safety Chilled Water System Malfunction." Clarified that the risk insights from the risk analysis, with respect to equipment capability and risk mitigating actions, are strictly qualitative not quantitative.
3. Section 3.5.3 of the original Enclosure was revised to include the mitigative strategies employed during loss of heat removal events which are the dominant impact on the following risk scenarios;
  - 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 abandonmentLoss of heat removal capability events are mitigated by;  
The actions provided in the List of Inspections, Compensatory Measures, and Conditions in Attachment 1 and by plant procedures for loss of offsite power, reactor trip, control room evacuation, and loss of safety chilled water;
  - ABN-601, "Response to a 138/345 KV System Malfunction"
  - EOP-0.0B, "Reactor Trip or Safety Injection"
  - ABN-803, "Response to a Fire in the Control Room or Cable Spreading Room"
  - ABN-905B, "Loss of Control Room Habitability"
  - ABN-503, "Safety Chilled Water System Malfunction"

4. Section 3.6 of the original Enclosure was revised to remove compensatory shutdown actions for Severe Thunderstorm and Tornado Warnings as these warnings are transitory in nature and normally do not last long enough to complete a plant shutdown.
5. The original Attachment 1, List of Inspections, Compensatory Measures, and Conditions was revised to remove compensatory shutdown actions for Severe Thunderstorm and Tornado Warnings as these warnings are transitory in nature and normally do not last long enough to complete a plant shutdown.
6. The original Attachment 2, Regulatory Commitment Number 5900444 Implemented during Unit 2 Safety Chilled Water extended COMPLETION TIME was revised to remove compensatory shutdown actions for Severe Thunderstorm and Tornado Warnings as these warnings are transitory in nature and normally do not last long enough to complete a plant shutdown.
7. The original Attachment 4, Figure 1, Safety Chilled Water System was revised to show the Unit 2 system. The original submittal provided a Unit 1 figure.



### 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 to determine the most limiting components.
- 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.

The following is a description of these evaluations. Using the room heatup rates as determined by computer program COMPARE-MOD1A and vendor supplied information, risk insights are provided supporting extending the safety chilled water train COMPLETION TIME from 72 hours to 7 days.

The following is a description of computer program COMPARE-MOD1A from the Nuclear Energy Agency (NEA) website;

"COMPARE-MOD1A performs transient analysis of the thermodynamic conditions in zero velocity or stagnant volumes connected by flowing junctions with provision for mass and energy addition. Volume thermodynamics and junction flows are for homogeneous mixtures of: steam, two-phase water to its triple point, any three perfect gases, or combinations of the above. Vent flow can be based on the Moody equation, compressible polytropic orifice flow, and an incompressible sub-element inertial relationship. Variable area doors and heat sinks can be modeled. Capabilities are incorporated to provide for accounting of loss coefficient detail, calculation of forces and moments, and plotting of results. The program was written to perform transient sub-compartment analysis of nuclear power plants, including those with ice condensers.

Volume thermodynamics and junction flows are determined independently in a quasi-static explicit manner. Mass and energy inflow or outflow accounting for each volume is done first for each time increment, assuming vent flows are constant. Thermodynamic equilibrium is assumed and state points determined. The resulting thermodynamic conditions are assumed constant and used to calculate the new vent flows between volumes for the next time interval."

The room heatup data has been determined using standard engineering analyses with computer program COMPARE-MOD1A to produce a Comanche Peak specific calculation ME-CA-0000-3169-01. The results from the calculations indicate that CCW Pumps, CCPs, MDAFW Pumps, RHR Pumps, Containment Spray Pumps (CTPs), and SIPs under all calculation input conditions there is ample time to take manual actions to provide alternate cooling prior to expected pump failure. This engineering calculation is not used for design basis equipment qualification; it was developed to provide more realistic assessments that might subsequently be used in the CPNPP PRA models. Although all components in the affected rooms were considered, the pumps are the most limiting components in each room.

Plant procedure ABN-503, "Safety Chilled Water System Malfunction," provides the following actions for a loss of both safety chilled water trains;

1. Verify at least one train of safety chilled water is expected to be restored within 1 hour. If not, then reduce power to < 50% in 1 hour and be in MODE 3 in the next 2 hours.
2. Monitor and verify area temperatures do not exceed - Abnormal Limits (131°F). If area temperatures for the affected pumps exceed - Abnormal Limits, then stop non-essential equipment on the affected train (during extended Completion Time the CCWP, CCP, and SFP Cooling Water Pump would be essential):
  - RHR Pump
  - Containment Spray Pumps
  - Motor-Driven AFW Pump
  - SI Pump
  - CCW Pump
  - CCP
  - SFP Cooling Water Pump

Assess alternating essential pumps to provide function and control pump room temperatures.

If continued equipment operation is necessary (essential) then,

- Initiate local equipment monitoring
- Supply temporary room cooling by;
  - Opening doors
  - Installing portable fans
  - Turning off lights

Loss of both safety chilled water trains probability due to extending the single train inoperable COMPLETION TIME from 72 hours (3 days) to 7 days is small. Based on the loss of both safety chilled water trains as a possibility CPNPP will stage alternate cooling equipment (blowers and ducting) outside of the following rooms;

- CCW Pump 2-01 room
- CCP 2-01 room
- MDAFWP 2-01 room
- SIP 2-01 room
- Containment Spray Pumps 2-01 and 2-03 room (both pumps are in the same room and a blower for each pump motor will be staged)
- RHR Pump 2-01 room

The SFP Cooling Water Pump and Heat Exchanger room coolers will be aligned to Unit 1.



### 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. See Section 3.3 of this enclosure.

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 supplying alternate pump room cooling through operator actions directed by ABN-503, "Safety Chilled Water System Malfunction."

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 (Chapter 15.0) 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 Section 3.3 heat up analysis determined that components will be able to continue to function and time would be available to take risk mitigating actions; thus, the impact from reliance on operator action during the proposed COMPLETION TIME is limited to implementing ABN-503. 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. [These scenarios are mitigated by the actions provided in the List of Inspections, Compensatory Measures, and Conditions in Attachment 1 and by plant procedures for loss of offsite power, reactor trip, control room evacuation, and loss of safety chilled water;](#)

- [ABN-601, "Response to a 138/345 KV System Malfunction"](#)
- [EOP-0.0B, "Reactor Trip or Safety Injection"](#)
- [ABN-803, "Response to a Fire in the Control Room or Cable Spreading Room"](#)
- [ABN-905B, "Loss of Control Room Habitability"](#)
- [ABN-503, "Safety Chilled Water System Malfunction"](#)

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
- [Alignment of the CCW crosstie configuration between trains or units maybe used when directed by ABN-502, Component Cooling Water System Malfunctions and with Shift Manager approval](#)
- 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
- Stage alternate cooling equipment outside the affected pump rooms as described in Section 3.3

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](#).

No credit is taken for the use of FLEX equipment in this analysis. FLEX equipment may be used in accordance with the FLEX procedures if an Extended Loss of AC Power (ELAP) is declared or as directed by the Shift Manager.

### 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.

#### Posting of Protected Equipment

- 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 XST1 (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
  - o Shiftly Surveillance
    - OPT-102A-7, Revision 30, "Local Shiftly Surveillances"
    - OPT-102B-7, Revision 20, "Local Shiftly Surveillances"
  - o 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
  - o Roving fire watch, twice shiftly in the Fire Areas of Concern
  - o Suspend ongoing "Hot Work" and prohibit start of any new "Hot Work" in the Fire Areas of Concern



- o 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**)
  - o 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
  - o 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.
  - o 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
  - o 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.
  - o 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.
  - o 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

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

- 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

Once the risks from the above conditions are no longer challenging plant operation the one-time extended COMPLETION TIME may be entered.

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
- 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.



## **List of Inspections, Compensatory Measures, and Conditions**

### Summary of Current Routine Inspections

- Operations Inspections
  - o Shiftly Surveillance
    - OPT-102A-7, Revision 30, "Local Shiftly Surveillances"
    - OPT-102B-7, Revision 20, "Local Shiftly Surveillances"
  - o 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
  - o Hourly roving fire watch in the Fire Areas of Concern
  - o Suspend ongoing "Hot Work" and prohibit start of any new "Hot Work" in the Fire Areas of Concern
  - o 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)
  - o 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
  - o 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.
  - o The following applies to Unit 1 and Unit 2. The EDGs, APGs, TDAFWPs, inservice startup transformers, CCWPs, and SSOWPs will have ALL testing and maintenance activities suspended
  - o 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.
  - o 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.

- o 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
- Grid Instability
  - o 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).
  - o 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:
  - o TS 3.7.19 proposed REQUIRED ACTION A.2 is entered and Safety Chiller 2-06 compressor replacement begins.
  - o 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.
  - o 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.
  - o 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.
  - 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 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.

Conditions when CPNPP would not enter the 7 day COMPLETION TIME

- 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

Conditions when CPNPP would exit the 7 day 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, "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 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.



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 started if severe weather conditions are anticipated.
  6. Safety Chiller compressor replacement will not be started 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 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.

## Unit 2 Safety Chilled Water System Figure 1

