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August 20, 2020
GO2-20-114

10 CFR 50.90
10 CFR 50.91

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

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397
EXIGENT LICENSE AMENDMENT REQUEST FOR CHANGE TO TECHNICAL SPECIFICATION 3.8.7 DISTRIBUTION SYSTEMS - OPERATING**

Dear Sir or Madam:

Pursuant to 10 CFR 50.90 and 10 CFR 50.91(a)(6), Energy Northwest hereby requests a license amendment to revise the Columbia Generating Station Technical Specification (TS) 3.8.7 Distribution Systems – Operating. This amendment is requested to add a one-time extension of the Completion Time (CT) of TS Action 3.8.7.A specifically associated with Division 2 Alternating Current electrical power distribution inoperability.

This License Amendment Request is necessitated by a needed repair of a degraded condition (reduced voltage output) associated with a transformer that feeds Division 2 of the electrical distribution buses required by Limiting Condition for Operation 3.8.7. Repair work will involve removing the transformer from service and the initial repair estimates exceed the 8 hour allowed completion time of TS Condition 3.8.7.A. Currently the transformer is considered operable but downstream voltage supplied to a critical power panel is lower than expected and trending down. The required repairs are estimated to take 14 hours, exceeding the CT of TS Action 3.8.7.A for one subsystem (division) by 6 hours, thereby requiring a unit shutdown within 12 hours. The power panel (E-PP-8AE) in question feeds loads contained in Standby Gas Treatment System, Containment Instrument Air System, Reactor Building Heating Ventilation and Air Conditioning, and Primary and Secondary Containment Isolation Valves.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in Enclosure 1 of this submittal.

The markup for TS 3.8.7 is contained in Enclosure 2 of this submittal. The clean copy of TS 3.8.7 is contained in Enclosure 3 of this submittal.

This submittal contains a commitment to maintain the compensatory measures documented in Attachment 1 of Enclosure 1.

In accordance with 10 CFR 50.91, Energy Northwest is notifying the State of Washington of this amendment request by transmitting a copy of this letter and enclosures to the designated state official.

Energy Northwest requests that the proposed TS change be reviewed and approved by September 3, 2020. The proposed CT extension related to E-PP-8AE for TS 3.8.7.A will expire on Thursday October 1, 2020 at 0800 PST.

If there are any questions or if additional information is needed, please contact Ms. D.M. Wolfgramm, Regulatory Affairs Manager, at 509-377-4792.

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

Executed this 20 day of August, 2020.

Respectfully,

DocuSigned by:
Robert E. Schuetz
A0D08FB61898465...

R.E. Schuetz
Site Vice President

Enclosures: As stated

cc:
NRC RIV Regional Administrator
NRC NRR Project Manager
NRC Senior Resident Inspector/988C
NRC NRR Plant Licensing Branch Chief
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Evaluation of Proposed Technical Specification Change

1.0 SUMMARY DESCRIPTION

This evaluation supports a License Amendment Request (LAR) for Columbia Generating Station (Columbia) Technical Specification (TS) 3.8.7 Distribution Systems – Operating. This TS change will add a one-time extension of the Completion Time (CT) of TS Condition 3.8.7.A specifically associated with Division 2 Alternating Current (AC) electrical power distribution inoperability caused by inoperability of 120/240V power panel E-PP-8AE during repairs on its supply transformer E-TR-8A/1.

Implementation of this LAR will result in no physical modification to the plant. Multiple plant systems are impacted by the de-energization of E-PP-8AE, including, Standby Gas Treatment (SGT) System, Containment Instrument Air (CIA) System, Reactor Building Heating Ventilation and Air Conditioning (RB HVAC), and Primary and Secondary Containment Isolation Valves (PCIVs/SCIVs). Operational impacts of de-energizing the power panel will be managed as part of the work execution process. Additionally, risk mitigation measures will be employed during the maintenance evolution to maintain operational margin and to reduce the likelihood of complications. The proposed change has no adverse effect on the plant or plant safety.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

The primary impact of this change is on the onsite electrical distribution system. A basic system description follows.

<u>Onsite Class 1E AC Power</u>

The onsite Class 1E AC electrical power distribution system is divided by division into three independent AC electrical power distribution subsystems consisting of 4160, 480, 120/240, and 120/208 volt buses described in the table below. Each division is considered a “subsystem” of the Class 1E AC and Direct Current (DC) electrical power distribution system.

VOLTAGE	DIVISION 1	DIVISION 2	DIVISION 3
4160 V	SM-7	SM-8	SM-4
480 V	SL-71 and SL-73 Motor Control Centers 7A, 7AA, 7B, 7BA, 7BB, and 7F Power Panel PP-7AB	SL-81 and SL-83 Motor Control Centers 8A, 8AA, 8B, 8BA, 8B-B, and 8F Power Panel PP-8AB	3 Phase Engine and Generator Auxiliary Loads Power Panel Motor Control Center 4A
120/240 V	1 Phase Power Panels PP-7AA, PP-7AF, PP-7AE, and PP-7A	1 Phase Power Panels PP-8AA PP-8AF, PP-8AE, and PP-8A	1 Phase Power Panel PP-4A
120/208 V	3 Phase Power Panels PP-7AG and PP-7AAA	3 Phase Power Panels PP-8AG and PP-8AAA	

The required AC power distribution subsystems listed in the table above ensure the availability of AC electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated design basis accident (DBA). Maintaining the Division 1, 2, and 3 AC (and DC) electrical power distribution subsystems OPERABLE ensures that the redundancy incorporated into the design of Engineered Safety Features (ESF) is not defeated. Any two of the three divisions of the distribution system are capable of providing the necessary electrical power to the associated ESF components. Therefore, a single failure within any system or within the electrical power distribution subsystems does not prevent safe shutdown of the reactor.

Power panel E-PP-8AE is one of the required 120/240V AC instrument buses required to be operable to support Division 2 AC subsystem operability. Transformer E-TR-8A/1 is the voltage-regulating transformer for E-PP-8AE, supplying power from the 120/240V critical bus E-PP-8A.

Power panel E-PP-8AE provides power to a range of plant equipment. Systems which are most impacted by de-energization of E-PP-8AE are the SGT System, CIA System, Automatic Depressurization System (ADS), RB HVAC, and PCIVs/SCIVs. While some of these systems have Limiting Conditions for Operation (LCOs), in accordance with LCO 3.0.6, the conditions and required actions are not required to be entered, unless SSCs are rendered inoperable while preparing to de-energize E-PP-8AE. Brief descriptions of these systems and impacts are provided below.

Standby Gas Treatment System

The SGT System is a TS system that ensures radioactive materials that leak from the primary containment into the secondary containment following a DBA are filtered and adsorbed prior to exhausting to the environment.

The SGT System consists of two fully redundant subsystems, each with its own set of ductwork, dampers, charcoal filter train, and controls. E-PP-8AE provides power to the SGT B standby electric strip heaters and some instrumentation. SGT B is capable of starting normally, both manually and automatically, and capable of fulfilling its safety function with the remaining heaters. The operating crew will still be able to determine that SGT B is operating correctly using Main Control Room (MCR) system flow and local differential pressure instrumentation.

Standby Liquid Control (SLC) System

The SLC System is a TS system. The SLC System is initiated to chemically shut down the reactor and prevent core re-criticality by injecting boron. The SLC System satisfies the requirements for an anticipated transient without scram (ATWS).

Boron injection may also help to limit the radiological dose following a severe accident. Boron transported to the suppression pool through a primary system break can limit the late release of iodine by buffering the suppression pool pH.

The SLC System consists of a storage tank, two positive displacement pumps, two squib valves, and associated piping and valves. Heaters are used in the tank and portions of the piping system are heat traced to ensure that the boron solution remains ready for injection if necessary. E-PP-8AE provides power to SLC piping heat tracing. No short-term impact is expected from the loss of heat trace.

Automatic Depressurization System

The ADS is a TS system, which is part of the Emergency Core Cooling System. The ADS serves to depressurize the reactor coolant system during a small break loss of coolant accident if the High Pressure Core Spray system fails or is unable to maintain required water level in the Reactor Pressure Vessel. Depressurization is accomplished through the use of seven main steam relief valves (MSRV). The pneumatic force to open the MSRVs is provided by a pressurized nitrogen system that includes accumulators to provide actuation capability in the event of loss of the continuous nitrogen supply.

Containment Instrument Air System

The CIA System is a support system to the ADS. It supplies continuous and backup nitrogen to the seven individual MSRV accumulators that are part of the ADS. Division

B of CIA provides nitrogen to four ADS MSRVs through an isolable header. During normal plant operation, nitrogen is supplied from the containment nitrogen system cryogenic storage vessel. Should the normal nitrogen supply become unavailable, the gas supply piping to the ADS function accumulators will automatically isolate from the normal source, and backup nitrogen will be provided by banks of high-pressure compressed nitrogen cylinders.

E-PP-8AE provides power to several valves and the nitrogen bottle programmer in the CIA system. These components are related to both the normal and backup supply of nitrogen to the Division B ADS MSRVs. When E-PP-8AE is de-energized the normal nitrogen supply will automatically isolate and all of the Division B nitrogen bottles will be placed in service simultaneously. The Division B ADS MSRVs continue to be able to perform their safety function.

Reactor Building Heating Ventilation and Air Conditioning System

The RB HVAC system supports Secondary Containment by maintaining a negative pressure differential with respect to atmosphere to minimize radioactive material releases. The system is basically a “push-pull” heating and ventilation system providing once-through air flow with no recirculation.

E-PP-8AE provides power to components in both the intake and exhaust pathways of the RB HVAC system. When E-PP-8AE is de-energized the RB HVAC system will isolate. SGT A will be placed in service to maintain Secondary Containment pressure negative.

Shutting down RB HVAC may cause the temperature in areas of the plant to rise. This may require securing systems prior to high temperature isolations occurring; e.g., Reactor Water Clean Up (RWCU).

Primary Containment Isolation Valves

E-PP-8AE provides power to the PCIVs in several systems. The vast majority of these PCIVs are normally closed. The normally closed PCIVs continue to fulfill their safety function when E-PP-8AE power is lost.

The exceptions are the suppression pool to reactor building vacuum relief isolation PCIVs. These valves fail open fulfilling their safety function to allow the suppression pool to reactor building vacuum relief valves to prevent excessive negative pressure in primary containment.

Secondary Containment Isolation Valves

The valves close on loss of power fulfilling their safety function. No impact.

Miscellaneous System Impacts

E-PP-8AE provides power to the following miscellaneous systems:

1. Heat trace wiring of standby liquid control and containment sample rack piping. No short-term impact is expected from the loss of heat trace.

2. Motor space heaters of the standby liquid control, containment recirculating air, standby gas treatment, and control rod drive systems. No short-term impact is expected from the loss of motor space heaters.

3. Condensate storage and transfer pump minimum flow valve. This valve opens on loss of power. No impact.

4. Post-accident monitoring containment level switches. There is no impact to the containment flooding strategy.

5. Reactor Closed Cooling valves and instrumentation. No impact.

6. Fuel Pool Cooling (FPC) demineralizer isolation valve instrumentation. The demineralizer will not isolate automatically on low Spent Fuel Pool (SFP) level. The FPC pumps will stop on low skimmer surge tank level if a system leak develops preventing the system from impacting SFP level.

7. Residual Heat Removal conductivity monitor. No impact.

2.2 Current Technical Specifications Requirements

LCO 3.8.7 Distribution Systems – Operating

This LCO requires Division 1, 2 and 3 AC electrical power distribution subsystems to be operable whenever Columbia is in MODE 1, 2 or 3. With one subsystem (Division) inoperable, TS Condition 3.8.7.A currently requires restoration of the subsystem within 8 hours. If the required action of TS Condition 3.8.7.A cannot be met, the plant must be in MODE 3 within an additional 12 hours in accordance with TS Condition 3.8.7.C.

The second Completion Time of 16 hours from discovery of failure to meet the LCO 3.8.7a or b for Required Action A.1 establishes a limit on the maximum time allowed for any combination of required distribution subsystems (AC or DC) to be inoperable during any single contiguous occurrence of failing to meet the LCO.

On May 12, 2020, Columbia was granted a one-time extension to TS 3.8.7.A and 3.8.7.B (ML20125A080). This request added a one-time extension for TS Required Actions 3.8.4.G.1, 3.8.7.A.1, and 3 8.7.B.1 CTs, specifically associated with Division 2, 4160 volts (V) AC and 125 V DC electrical power distribution inoperability.

The LAR was a necessary contingency to support a potential emergent repair of a degraded cooling system supporting Division 2 electrical distribution subsystems. Repair work if required would involve replacing a starter coil or bucket, which houses a control power transformer subject to a known 10 CFR Part 21 “Reporting of Defects and Noncompliance,” issue. Failure of the starter coil would render essential cooling inoperable with a 2-hour action statement to restore the Division 2, 125 V DC distribution system to operable. The LAR was also submitted due to unforeseen circumstances associated with the ongoing COVID-19 pandemic and the resulting impact on Columbia. The NOTE allows a one-time CT extension of 16 hours for replacement of WMA-42-8F1E or its failed starter coil. The planned repair and replacement of the WMA-42-8F1E is scheduled for Columbia’s next refueling outage in the spring of 2021. The NOTE expires on June 30, 2021.

The request before the NRC has no interrelatedness to the potential failure of the WMA-42-8F1E or its starter coil.

2.3 Reason for the Proposed the Change

A reduced voltage trend was identified in the Corrective Action Program (CAP) on August 6, 2020, on the supply transformer (E-TR-8A/1) to one of the required AC electrical distribution panels (E-PP-8AE). Power panel E-PP-8AE provides power to a range of plant equipment. Power panel E-PP-8AE voltage is monitored weekly through surveillance test procedures. Plant operating experience with these particular transformers suggests a degrading electrolytic capacitor may be causing the voltage anomaly.

The phase voltages for E-PP-8AE have been found to be approaching administrative minimum voltage (A-G 115V and B-G 114V) and the 114V minimum allowable voltage for both phases, during several recent measurements. The degrading voltage to the power panel is indicative of failure of the transformer to regulate its output voltage as expected. It is noted, by successfully meeting their surveillance requirements, electrical power panel E-PP-8AE and its supplying transformer E-TR-8A/1, remain operable and are capable of continuing to perform their intended FSAR-credited and TS-credited safety functions. Therefore, operation in the current configuration does not pose undue risk to the health and safety of the public or the environment. It is further noted, there is reasonable assurance that E-PP-8AE and E-TR-8A/1, continue to remain operable in the near-term because they are capable of meeting a more conservative and stringent frequency of monitoring, as evidenced by the self-imposed Adverse Condition Monitoring Plan (ACMP).

On August 7, 2020, Operations prepared and approved an ACMP to expedite monitoring and planning of repair or replacement of the transformer. Current response to the issue is being driven by the ACMP and is further supported by a Decision Making Matrix approved by the Plant General Manager. Per the ACMP, voltage monitoring was initially increased to once daily. When voltage readings fell below 115.5, shiftly

monitoring was instituted per the ACMP. Because it is unpredictable to when E-TR-8A/1 will fail to a point where the output voltage to E-PP-8AE is at or below the administrative minimum voltage values (A-G 115V and B-G 114V) or the 114V minimum allowable voltage for both phases, indefinite operation in this configuration increases the window of vulnerability, hence the exigent nature of this LAR. In order to prevent failure, which could cause a fire in the Division 2 Reactor Protection System room, an engineering evaluation has recommended replacement of E-TR-8A/1 at the earliest opportunity. Energy Northwest wishes to eliminate the potential window of vulnerability by submitting this exigent LAR for the Commissions' review and approval.

The transformer replacement and post-maintenance testing is scheduled to take approximately 14 hours, exceeding the CT of TS Condition 3.8.7.A by 6 hours, thereby requiring a unit shutdown in accordance with TS Condition 3.8.7.C within 12 hours.

Energy Northwest is taking action to minimize the overall time this power panel will be out of service and inoperable. This includes ensuring that the replacement parts will be staged for the required work and that Maintenance crews will have conducted dry runs.

Exigent Circumstances

Consistent with the requirements of 10 CFR 50.91(a)(6), Energy Northwest believes an exigent circumstance exists based on the following:

- The station has acted to address an unforeseen degraded condition on a transformer that feeds one of the required Class 1E AC electrical panels.

  On August 6, 2020, through monitoring and trending of the low output voltage condition on E-TR-8A/1, a degrading condition was identified and a recommendation was made to replace the transformer at the next opportunity since further degradation may occur.

  Through work scope planning it was determined that the replacement activity and restoration of operability of the affected required panel would take up to 6 hours longer than the allowed completion time of 8 hours (i.e., up to 14 hours).

- Internal operating experience associated with a failure of this type of transformer in 2007 has shown that lightly loaded transformers of this type are susceptible to accelerated degradation.

- The transformer is contained in Columbia's Preventive Maintenance Optimization Living Program. Based on the engineering input for these transformers, preventive maintenance is performed every 10 years and the scope is clean, inspect, and replace capacitors. The capacitors in this transformer were replaced in 2015. The degraded condition has been entered into Columbia's CAP for evaluation.

- Extending the allowed completion time to 16 hours would allow for corrective maintenance and subsequent retest and would prevent the station from an unnecessary plant shutdown without a corresponding health and safety benefit.

  The technical analysis through the use of deterministic and risk insights supports the conclusion that the resulting risk is acceptable and consistent with the NRC safety goals.

- The proposed amendment involves a no significant hazards consideration.

2.4 Description of the Proposed the Change

The proposed change would revise both CT for TS 3.8.7.A by adding an additional note to the completion time for restoring Division 1 and 2 AC electrical power distribution subsystems to OPERABLE status to allow a one-time, 16-hour completion time. This note will state:

> ----------NOTES----------
> 1. Until October 1, 2020, a Completion Time of 16 hours is applicable for replacement of E-TR-8A/1.
>
> 2. Until June 30, 2021, a Completion Time of 16 hours is applicable for replacement of WMA-42-8F1E or its failed starter coil.

The markup to TS 3.8.7.A is provided in Enclosure 2 of this letter.

3.0 TECHNICAL EVALUATION

3.1 Deterministic Evaluation

The exigent LAR is considered a one-time exigent request based on a deterministic evaluation that is further supported with risk insights. The basis for asking for an exigent change relates to the need to replace the power transformer (E-TR-8A/1) that provides power to 120/240V AC power panel E-PP-8AE. Power panel E-PP-8AE is a required electrical distribution panel to satisfy Division 2 AC subsystem operability. The time to replace the transformer exceeds the allowed completion times described in TS 3.8.7 Condition A.

The following deterministic evaluation for this one-time exigent LAR was considered:

Standby Gas Treatment System

- E-PP-8AE provides power to the SGT B standby electric strip heaters and some instrumentation. Loss of power to the SGT B instrumentation falsely results in some MCR annunciator actuation; e.g., differential pressure across the carbon filter. The operating crew will still be able to determine that SGT B is operating correctly using MCR system flow and local differential pressure instrumentation. SGT B is capable of starting normally, both manually and automatically, and capable of fulfilling its safety function with the remaining heaters.

Automatic Depressurization System

- The operating crew will be able to operate all MSRVs normally. The Division B ADS MSRVs will be able to perform their safety function.

Containment Instrument Air System

- The normal nitrogen supply will automatically isolate and all of the Division B backup nitrogen bottles will be placed in service simultaneously. The operating crew will be able to operate all MSRVs normally. The Division B ADS MSRVs will be able to perform their safety function. Following repairs to E-TR-8A/1 the operating crew will ensure that the Division B CIA nitrogen bottles have the required pressure.

Standby Liquid Control System

- No short-term impact is expected from the loss of heat trace.

Reactor Building Heating Ventilation and Air Conditioning System

- SGT A will be placed in service to maintain Secondary Containment pressure negative. SGT A will be operable while it is in service.

- Shutting down RB HVAC may cause the temperature in areas of the plant to rise. This may require securing systems prior to high temperature isolations occurring; e.g., RWCU. Following repairs to E-TR-8A/1 the operating crew will restore those systems to service.

Primary Containment Isolation Valves

- The vast majority of these PCIVs are normally closed. The normally closed PCIVs will still fulfill their safety function when E-PP-8AE power is lost.

- The exceptions are the suppression pool to reactor building vacuum relief isolation PCIVs. These valves fail open fulfilling their safety function to allow the

suppression pool to reactor building vacuum relief valves to prevent excessive negative pressure in primary containment. Following repairs to E-TR-8A/1 the operating crew will ensure these valves close.

Secondary Containment Isolation Valves

- The valves close on loss of power fulfilling their safety function. No operational impact beyond isolating RB HVAC.

Miscellaneous System Impacts

- There is no operational impacts for the duration of the proposed TS change duration.

3.2 Conclusion

The deterministic evaluation, which includes an assessment of defense-in-depth, supports the requested extended outage time for TS 3.8.7.A. It supports that operation in this manner continues to provide reasonable assurance that the health and safety of the public will not be endangered. The activities related to the extended outage time for TS 3.8.7.A will be conducted in compliance with the Commission's regulations. Also, the requested amendment will not be inimical to the common defense and security or the health and safety of the public.

3.2 Probalistic Risk Assessment (PRA) Evaluation

3.2.1 Technical Adequacy

The Columbia PRA model of record is adequate to evaluate the allowed outage time extension. The Columbia PRA modeling is highly detailed, including a wide variety of initiating events, modeled systems, operator actions, and common cause. The Columbia PRA uses the "large fault tree/small event tree" approach to identify and quantify individual accident sequences.

The Columbia full power internal events (FPIE) PRA Rev. 8.0.1 meets Capability Category II of Addendum A of the ASME ANS Standard, ASME/ANS RA-Sa-2009, as clarified by Regulatory Guide (RG) 1.200, Rev. 2. In 2009, the Columbia PRA Rev. 7.0 received a full scope peer review. Since Rev 7.0, there have been many updates to the PRA model to incorporate plant design changes, data updates, findings and observations (F&O) dispositions, and self-assessments. The Columbia PRA underwent an F&O closure review in 2018. All findings from the 2009 peer review were closed. The Columbia PRA underwent a focused scope peer review. All findings from the focused scope peer review were closed.

The Columbia fire PRA Rev. 8.0 is being upgraded to meet the ASME standard requirements, however, it has not yet been peer reviewed. It is judged to be of sufficient quality to provide risk insights for this application. The fire PRA utilizes the current FPIE PRA model of record which represents the as built, as operated plant.

The Columbia seismic PRA Rev. 8.2 meets Capability Category II of Addendum A of the ASME ANS Standard, ASME/ANS RA-Sa-2009, as clarified by RG 1.200, Rev.2. The Columbia seismic PRA Rev. 8.0 received a full scope peer review. The model was updated to incorporate F&O dispositions. The model underwent an F&O closure review. All findings were closed. The model underwent a focused scope peer review. All findings from the focused scope peer review were closed and reviewed.

Based on these considerations, the Columbia PRA is technically adequate to address PRA applications that require Capability Category II. Columbia maintains a PRA configuration control program to ensure that the current PRA model remains technically adequate and reflects the as-built, as-operated plant.

3.2.2 Regulatory Guidance

RG 1.177 specifies an approach and acceptance guidelines for the evaluation of plant licensing basis changes. RG 1.177 identifies a three-tiered approach for the evaluation of the risk associated with a proposed TS change:

- Tier 1 addresses risk metric requirements for one-time TS CT changes of ICCDP less than 1.00E-6 and ICLERP less than 1.00E-7.
- Tier 2 identifies and evaluates any potential risk significant plant equipment outage configurations associated with the proposed plant change.
- Tier 3 provides for the establishment of a configuration risk management program.

3.2.3 Risk Evaluation

The average maintenance PRA model was used to calculate ICCDP and ICLERP. The ICCDP and ICELRP are computed using the definitions in RG 1.177. The formulas are as follows:

$$ICCDP_{YOOS} = (CDF_{YOOS} - CDF_{BASELINE}) * \Delta T$$

Where:

$ICCDP_{YOOS}$ is the ICCDP with E-PP-8AE unavailable,
CDF_{YOOS} is the CDF computed with E-PP-8AE unavailable,
$CDF_{BASELINE}$ is the baseline, average-maintenance case CDF, and
ΔT is the extension of the CT converted to units consistent with the CDF frequency units (24 hours * 1 year / 365 days = 2.74E-3 year).

Similarly, ICLERP is computed as follows:

$$ICLERP_{YOOS} = (LERF_{YOOS} - LERF_{BASELINE}) * 2.74E\text{-}3 \text{ year}$$

Where:

$ICLERP_{YOOS}$ is the ICLERP with E-PP-8AE unavailable,
$LERF_{YOOS}$ is the LERF computed with E-PP-8AE unavailable, and
$LERF_{BASELINE}$ is the LERF baseline, average-maintenance case LERF.

The ICCDP and ICELERP results for 24 hours are:

CDF	Baseline	PP-8AE	Delta	ICCDP	Criteria
Internal	2.35E-6	2.35E-06	0.00	0.00	
Fire	5.01E-5	5.01E-05	0.00	0.00	
Seismic	1.73E-5	1.73E-05	0.00	0.00	
Total	6.98E-5	6.98E-05	0.00	0.00	1.00E-06
LERF	Baseline	PP-8AE	Delta	ICLERP	
Internal	1.60E-7	1.60E-7	0.00	0.00	
Fire	3.60E-6	3.60E-6	0.00	0.00	
Seismic	5.16E-6	5.16E-6	0.00	0.00	
Total	8.92E-6	8.92E-6	0.00	0.00	1.00E-07

There is no impact to the risk metrics. The ICCDP and ICLERP are less than the acceptance criteria.

3.2.4 Risk-Significant Configurations

E-PP-8AE provides power to valves in the CEP, CIA, and ROA systems. De-energizing this panel will impact containment venting, MSRVs, and reactor building ventilation.

E-PP-8AE will close CEP-V-2A and CEP-V-4A. This will render containment venting unavailable, however, manual containment venting and the hardened containment vent will both remain available. The E-PP-8AE containment venting cutsets are below the truncation limit and do not impact the risk.

E-PP-8AE will close CIA-V-39B. This will isolate the non-safety related air supply for 4 ADS MSRVs (Train B). The safety related air supply will remain available. The other 3 ADS MSRVs (Train A) will remain fully available. The PRA assumes that 3 ADS MSRVs are required for most scenarios, except ATWS. CIA is not credited in the seismic PRA. The E-PP-8AE ADS cutsets are below the truncation limit and do not impact the risk.

E-PP-8AE will close ROA-V-2. Reactor building ventilation will be unavailable, however, the PRA assumes that an FA signal will be present and isolate reactor building

ventilation for most scenarios. The E-PP-8AE reactor building ventilation cutsets are below the truncation limit and do not impact the risk.

3.2.5 Configuration Risk Management Program

Columbia has a configuration risk management program. Plant risk is assessed and management in accordance with Plant Procedure Manual 1.5.14, Risk Assessment and Management for Maintenance/Surveillance Activities. Paragon is the software tool used to implement the program.

3.2.6 Recommendations

Based on the risk significant configurations, the following risk management actions will be implemented as prudent measures during the allowed outage time extension for E-PP-8AE:

- The following equipment will be protected:
  - E-PP-7AE
  - Hardened containment vent
  - Safety and non-safety related CIA Train A
  - Safety related CIA Train B.

- Pre-job briefs will increase operator awareness of the following operator actions:
  - CIA nitrogen bottle replacement
  - Hardened containment venting
  - Manual containment venting.

- It will be verified that severe weather conditions are not forecasted.

3.2.7 Conclusions

The following conclusions were reached as a result of this evaluation:

- All quantitative results for ICCDP and ICLERP for the allowed outage time extension are less than the guidance thresholds.
- Prudent risk management actions are proposed. The actions have not been quantified in the PRA model but are judged to further reduce the risk for this plant configuration.
- The PRA models are adequate to support this evaluation and the resulting risk is acceptable and consistent with the NRC safety goals.

3.3 Impact on Submittals under Review by NRC

The NRC is presently reviewing Energy Northwest's LAR to adopt TSTF-564 "Safety Limit MCPR." The request in this LAR has no impact on the LAR to adopt TSTF-564.

The NRC is also reviewing Energy Northwest's LAR to adopt TSTF-566 "Revise Actions for Inoperable RHR Shutdown Cooling Subsystems." The request in this LAR has no impact on the LAR to adopt TSTF-566.

4.0 REGULATORY EVALUATION

The proposed TS amendment:

- Does not result in any change in the qualifications of any component; and
- Does not result in the reclassification of any component's status in the areas of shared, safety-related, independent, redundant, and physically or electrically separated.

4.1 Applicable Regulations

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TS as part of the license. These TS are derived from the plant safety analyses. In Section 50.36, "Technical specifications," of 10 CFR, the NRC established its regulatory requirements related to the content of TS.

Pursuant to 10 CFR 50.36, TS are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) surveillance requirements; (4) design features; and (5) administrative controls. The rule does not specify the particular requirements to be included in a plant's TS. The regulation in 10 CFR 50.36(c)(2) states that LCOs are the lowest functional capability or performance level of equipment required for safe operation of the facility and when LCOs are not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TS until the LCO can be met.

The proposed change will be less restrictive than the current requirements contained in LCO 3.8.7 Condition A, but nonetheless still affords adequate assurance of safety when judged against current regulatory standards described in this section and section 4.2.

Applicable 10 CFR 50 Appendix A General Design Criteria (GDC)

Relevant GDCs are discussed below:

GDC Criterion 17—Electric power systems

> *An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.*
>
> *The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.*
>
> *Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits (not necessarily on separate rights of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A switchyard common to both circuits is acceptable. Each of these circuits shall be designed to be available in sufficient time following a loss of all onsite alternating current power supplies and the other offsite electric power circuit, to assure that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits shall be designed to be available within a few seconds following a loss-of-coolant accident to assure that core cooling, containment integrity, and other vital safety functions are maintained.*
>
> *Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies*.

Columbia's compliance with GDC 17 is described in section 3.1.2.2.8 of Columbia's Final Safety Analysis Report (FSAR), as updated. Neither the extension of the allowed completion time nor the scope of the repair work planned for the Division 2 AC electrical power transformer will alter Columbia's compliance with this GDC. Following completion of repairs, the necessary Class 1E AC electrical power subsystems will be restored to service meeting all existing electrical power system requirements.

GDC Criterion 27—Combined Reactivity Control Systems Capability

> *The reactivity control systems shall be designed to have a combined capability, in conjunction with poison addition by the emergency core cooling system, of reliably controlling reactivity changes to assure that under postulated accident conditions and with appropriate margin for stuck rods, the capability to cool the core is maintained (GDC 27).*

Columbia's compliance with GDC 27 is described in section 3.1.2.3.8 of Columbia's FSAR, as updated. Neither the extension of the allowed completion time nor the scope of the repair work planned for the Division 2 AC electrical power transformer will alter Columbia's compliance with this GDC. Following completion of repairs, the necessary Class 1E AC electrical power subsystems and SLC functions will be restored meeting all GDC requirements.

GDC Criterion 35 - Emergency Core Cooling

> *A system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented, and (2) clad metal-water reaction is limited to negligible amounts.*
>
> *Suitable redundancy in components and features, and suitable interconnections, leak detection, isolation, and containment 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 (GDC 35).*

Columbia's compliance with GDC 35 is described in section 3.1.2.4.6 of Columbia's FSAR, as updated. Neither the extension of the allowed completion time nor the scope of the repair work planned for the Division 2 AC electrical power transformer will alter Columbia's compliance with this GDC. Following completion of repairs, the necessary Class 1E AC electrical power subsystems and ADS functions will be restored meeting all GDC requirements.

GDC Criterion 56 - Primary Containment Isolation

> *Each line that connects directly to the containment atmosphere and penetrates primary reactor containment shall be provided with containment isolation valves as follows, unless it can be demonstrated that the containment isolation provisions for a specific class of lines, such as instrument lines, are acceptable on some other defined basis:*

(1) One locked closed isolation valve inside and one locked closed isolation valve outside containment; or

(2) One automatic isolation valve inside and one locked closed isolation valve outside containment; or

(3) One locked closed isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment; or

(4) One automatic isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment.

Isolation valves outside containment shall be located as close to the containment as practical and upon loss of actuating power, automatic isolation valves shall be designed to take the position that provides greater safety (GDC 56).

Columbia's compliance with GDC 56 is described in section 3.1.2.5.7 of Columbia's FSAR, as updated. Neither the extension of the allowed completion time nor the scope of the repair work planned for the Division 2 AC electrical power transformer will alter Columbia's compliance with this GDC. Following completion of repairs, the necessary Class 1E AC electrical power subsystems and PCIVs functions will be restored meeting all GDC requirements.

GDC Criterion 61 - Fuel Storage and Handling and Radioactivity Control

The fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions. These systems shall be designed (1) with a capability to permit appropriate periodic inspection and testing of components important to safety, (2) with suitable shielding for radiation protection, (3) with appropriate containment, confinement, and filtering systems, (4) with residual heat removal capability having reliability and testability that reflects the importance to safety of decay heat and other RHR, and (5) to prevent significant reduction in fuel storage coolant inventory under accident conditions (GDC 61).

Columbia's compliance with GDC 61 is described in section 3.1.2.6.2 of Columbia's FSAR, as updated. Neither the extension of the allowed completion time nor the scope of the repair work planned for the Division 2 AC electrical power transformer will alter Columbia's compliance with this GDC. Following completion of repairs, the necessary Class 1E AC electrical power subsystems functions will be restored meeting all GDC requirements.

4.2 Applicable Regulatory Guidance

The regulatory guidance that the NRC staff used in its review of the risk information submitted in support of the LAR consisted of the following:

- RG 1.174, "An Approach for Using Probabilistic Risk Assessment [PRA] in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 3, January 2018, describes an acceptable method for licensees and the NRC to use for assessing the nature and impact of proposed changes to the licensing basis by considering engineering issues and applying risk insights. This regulatory guide also provides risk-acceptance guidelines for evaluating the results of such evaluations.

- RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decision making: Technical Specifications," Revision 1, May 2011, describes methods acceptable to the NRC for assessing the nature and impact of proposed permanent TS changes, including allowed outage times, by considering engineering issues and applying risk insights. This regulatory guide also provides risk acceptance guidelines for evaluating the results of such assessments.

The technical evaluation provided in this LAR follows the method described in RG 1.177 for assessing the nature and impact of the proposed TS change completion time by considering engineering issues and applying risk insights. The principles of risk-informed regulation described in this regulatory guide are discussed in Section 3.2 of this LAR.

5.0 PRECEDENT

In April 2020, Energy Northwest requested an Exigent Amendment to Extend TS 3.8.7 completion time related to the replacement of WMA-42-8F1E or its failed starter coil (ADAMS Accession No. ML20107G972). The Amendment was issued by NRC on May 12, 2020 (ADAMS Accession No. ML20125A080).

In August 2019, Energy Northwest requested an Exigent Amendment to Extend TS 3.8.7 completion time (ADAMS Accession No. ML19227A370). The Amendment was issued by the NRC on August 26, 2019 (ADAMS Accession No. ML19234A016).

In January 2016, Susquehanna Nuclear, LLC, requested an Amendment to Extend TS 3.8.7 completion time for Unit 2 (ADAMS Accession No. ML 16029A031). The NRC granted the change in January 2017 (ADAMS Accession No. ML 17004A250).

While Susquehanna's was not an exigent request, the impacted LCO contained in its LAR is the same as Columbia's, with the exception that Energy Northwest is requesting for a completion time of 16 hours instead of 7 days.

6.0 SIGNIFICANT HAZARDS CONSIDERATION

Energy Northwest 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) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed amendment does not increase the probability of an accident because the onsite Class 1E alternating current (AC) electrical power distribution cannot initiate an accident. The onsite Class 1E AC electrical power distribution system ensures the availability of AC electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated design basis accident.

   The proposed one time16-hour Completion Time (CT) extension does not alter the conditions, operating configurations, or minimum amount of operating equipment assumed in the safety analysis for accident mitigation. De-energizing power panel E-PP-8AE does not affect Division 1 equipment that would be relied upon during any accident response.

   No changes are proposed in the manner in which the electrical power distribution provides plant protection or which create new modes of plant operation. In addition, the deterministic assessment and the probabilistic risk assessment (PRA) evaluation concluded that there is no increased risk contribution for the increased CT. The proposed change in CT does not affect the probability of any event initiators. There will be no degradation in the performance of, or an increase in the number of challenges imposed on, safety related equipment assumed to function during an accident situation. There will be no change to normal plant operating parameters or accident mitigation performance.

   Therefore, there is no significant increase in the probability or consequences of an accident previously evaluated.

2) Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously analyzed?

   Response: No.

   The proposed amendment will not create the possibility of a new or different kind of accident because inoperability of Division 2 AC electrical power distribution is not an accident precursor. There are no hardware changes nor are there any changes

in the method by which any plant system performs a safety function. This request does not affect the normal method of plant operation. The proposed amendment does not introduce new equipment, or new way of operation of the system, which could create a new or different kind of accident. No new external threats, release pathways, or equipment failure modes are created. No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced as a result of this request.

Therefore, the implementation of the proposed amendment will not create a possibility for an accident of a new or different type than those previously evaluated.

3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

Columbia's AC and DC electrical power distribution subsystems are designed with sufficient redundancy such that a one division may be removed from service for maintenance or testing and the remaining subsystems are capable of providing electrical loads to satisfy the FSAR requirements for accident mitigation or plant shutdown. The deterministic evaluation supports that no addition risk is presumed from the CT extension. The probabilistic safety assessment evaluation concluded that the risk contribution of the CT extension is within allowable limits. There will be no change to the manner in which safety limits or limiting safety system settings are determined nor will there be any change to those plant systems necessary to assure the accomplishment of protection functions. For these reasons, the proposed amendment does not involve a significant reduction in a margin of safety.

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

Based on the above, Energy Northwest concludes that the proposed amendment does not involve a 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.

7.0 CONCLUSIONS

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 applicable regulations as identified herein, 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.

8.0 ENVIRONMENTAL CONSIDERATION

Energy Northwest has determined that the proposed amendment would change requirements with respect to installation or use of a facility component located within Columbia's restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. Energy Northwest has evaluated the proposed change and has determined that the change does not involve, (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion in accordance with 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

List of Regulatory Commitments

The following table identifies the regulatory commitments in this document. Any other statements in this submittal regarding intended or planned actions, are provided for information purposes, and are not considered to be regulatory commitments.

COMMITMENT	TYPE SCHEDULED		COMPLETION DATE
	one-time	continuing compliance	
Operator action set out in Section 3.1 of this request will be implemented prior to, during and upon completion of the period of the 16-hour completion time.	X		Completion of the repair work but no later than 0800 PST on October 1, 2020.
Compensatory measures outlined in Section 3.2.6 of this request will be implemented prior to and during the period of the 16-hour completion time.	X		Completion of the repair work but no later than 0800 PST on October 1, 2020.

Enclosure 2

Proposed Columbia Technical Specification Changes (Mark-Up)

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Distribution Systems - Operating

LCO 3.8.7 The following AC and DC electrical power distribution subsystems shall be OPERABLE:

a. Division 1 and Division 2 AC electrical power distribution subsystems;

b. Division 1 and Division 2 125 V DC electrical power distribution subsystems;

c. Division 1 250 V DC electrical power distribution subsystem; and

d. Division 3 AC and DC electrical power distribution subsystems.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Division 1 or 2 AC electrical power distribution subsystem inoperable.	A.1 Restore Division 1 and 2 AC electrical power distribution subsystems to OPERABLE status.	----------NOTES---------- 1. Until October 1, 2020, a Completion Time of 16 hours is applicable for replacement of E-TR-8A/1. 2. Until June 30, 2021, a Completion Time of 16 hours is applicable for replacement of WMA-42-8F1E or its failed starter coil. ---------- 8 hours AND 16 hours from discovery of failure to meet LCO 3.8.7.a or b

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Division 1 or 2 125 V DC electrical power distribution subsystem inoperable.	B.1 Restore Division 1 and 2 125 V DC electrical power distribution subsystems to OPERABLE status.	----------NOTE---------- Until June 30, 2021, a Completion Time of 16 hours is applicable for replacement of WMA-42-8F1E or its failed starter coil. ---------- 2 hours AND 16 hours from discovery of failure to meet LCO 3.8.7.a or b
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. _____ Be in MODE 3.	 12 hours
D. Division 1 250 V DC electrical power distribution subsystem inoperable.	D.1 Declare associated supported feature(s) inoperable.	Immediately
E. One or more Division 3 AC or DC electrical power distribution subsystems inoperable.	E.1 Declare High Pressure Core Spray System inoperable.	Immediately
F. Two or more divisions with inoperable electrical power distribution subsystems that result in a loss of function.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and indicated power availability to required AC and DC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

Enclosure 3

Proposed Columbia Technical Specification Changes (Re-Typed)

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Distribution Systems - Operating

LCO 3.8.7 The following AC and DC electrical power distribution subsystems shall be OPERABLE:

a. Division 1 and Division 2 AC electrical power distribution subsystems;

b. Division 1 and Division 2 125 V DC electrical power distribution subsystems;

c. Division 1 250 V DC electrical power distribution subsystem; and

d. Division 3 AC and DC electrical power distribution subsystems.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Division 1 or 2 AC electrical power distribution subsystem inoperable.	A.1 Restore Division 1 and 2 AC electrical power distribution subsystems to OPERABLE status.	----------NOTES--------- 1. Until October 1, 2020, a Completion Time of 16 hours is applicable for replacement of E-TR-8A/1. 2. Until June 30, 2021, a Completion Time of 16 hours is applicable for replacement of WMA-42-8F1E or its failed starter coil. ---------- 8 hours AND 16 hours from discovery of failure to meet LCO 3.8.7.a or b

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Division 1 or 2 125 V DC electrical power distribution subsystem inoperable.	B.1 Restore Division 1 and 2 125 V DC electrical power distribution subsystems to OPERABLE status.	----------NOTE---------- Until June 30, 2021, a Completion Time of 16 hours is applicable for replacement of WMA-42-8F1E or its failed starter coil. ---------- 2 hours AND 16 hours from discovery of failure to meet LCO 3.8.7.a or b
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 3. _____ Be in MODE 3.	 12 hours
D. Division 1 250 V DC electrical power distribution subsystem inoperable.	D.1 Declare associated supported feature(s) inoperable.	Immediately
E. One or more Division 3 AC or DC electrical power distribution subsystems inoperable.	E.1 Declare High Pressure Core Spray System inoperable.	Immediately
F. Two or more divisions with inoperable electrical power distribution subsystems that result in a loss of function.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct breaker alignments and indicated power availability to required AC and DC electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program