

**ENCLOSURE 6 CONTAINS SECURITY-RELATED INFORMATION
WITHHOLD UNDER 10 CFR 2.390**

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

10 CFR 50.90

**SUSQUEHANNA STEAM ELECTRIC STATION
RESPONSE TO SECOND REQUEST FOR
ADDITIONAL INFORMATION REGARDING
PROPOSED LICENSE AMENDMENT REQUESTING
A TEMPORARY CHANGE TO THE TECHNICAL
SPECIFICATIONS TO ALLOW REPLACEMENT OF
EMERGENCY SERVICE WATER SYSTEM PIPING
PLA-7830**

**Docket No. 50-387
and 50-388**

- References:
- 1) Susquehanna letter to NRC, "Proposed Amendment to Licenses NPF-14 and NPF-22: Temporary Change to the Technical Specifications to Allow Replacement of Emergency Service Water System Piping (PLA-7751)," dated January 9, 2019 (ADAMS Accession No. ML19009A431)
 - 2) NRC email to Susquehanna, "Request for Additional Information Re: License Amendment Request to Replace Emergency Service Water Piping (EPID: L-2019-LLA-004)," dated May 7, 2019 (ADAMS Accession No. ML19128A023)
 - 3) Susquehanna letter to NRC, "Response to Request for Additional Information Regarding Proposed License Amendment Requesting a Temporary Change to the Technical Specifications to Allow Replacement of Emergency Service Water System Piping (PLA-7793)," dated June 3, 2019 (ADAMS Accession No. ML19154A125)
 - 4) NRC email to Susquehanna, "RAI for SSES Units 1 and 2 Re: LAR to Replace ESW Piping (EPID: L-2019-LLA-0004)," dated November 14, 2019 (ADAMS Accession No. ML19319B192)

Pursuant to 10 CFR 50.90, Susquehanna Nuclear, LLC (Susquehanna), submitted, in Reference 1, a request for an amendment to the Technical Specifications (TS) for Susquehanna Steam Electric Station (SSES), Units 1 and 2, Facility Operating License numbers NPF-14 and NPF-22. The proposed amendment would allow temporary changes to TS 3.7.1, “Residual Heat Removal Service Water (RHRSW) System and the Ultimate Heat Sink (UHS)” and TS 3.7.2, “Emergency Service Water (ESW) System,” to allow for replacement of ESW System piping. In Reference 2, the NRC provided a Request for Additional Information (RAI). The Susquehanna response to the NRC’s RAI was provided in Reference 3.

The NRC provided a subsequent RAI in Reference 4. Enclosure 1 to this letter provides Susquehanna’s response to the NRC’s subsequent RAI.

Based on Susquehanna’s response to the subsequent RAI in Enclosure 1, the list of compensatory measures in Section 3.3 of Enclosure 1 to Reference 1 has been revised. The revised list of compensatory measures is provided in Enclosure 2. Further, based on the change to the list of compensatory measures, the TS markups provided in Reference 2 have been revised. The revised TS markup pages are provided in Enclosure 3 and the revised clean TS pages are provided in Enclosure 4. The TS pages provided in Enclosures 3 and 4 of this letter supersede the TS pages provided in Enclosures 2 and 3 to Reference 3 in their entirety. Additionally, based on the change to the list of compensatory measures, the regulatory commitment made in Reference 1 has been revised. The revised commitment text is included in Enclosure 5. Enclosure 6 provides Updated Final Safety Analysis Report (FSAR) figures depicting the reactor building basement for each SSES unit and are annotated with the location of the ESW piping penetrations. The figures provided in Enclosure 6 are considered sensitive un-classified non-safeguards information and are requested to be withheld from public disclosure in accordance with 10 CFR 2.390(d)(1).

Susquehanna has reviewed the information supporting a finding of No Significant Hazards Consideration and the Environmental Consideration provided to the NRC in Reference 1 and determined the information provided herein does not impact the original conclusions in Reference 1.

This submittal contains no new regulatory commitments and a revision to the regulatory commitment made in Reference 1. The revised commitment text is included in Enclosure 5 to this letter.

Should you have any questions regarding this submittal, please contact Ms. Melisa Krick, Manager – Nuclear Regulatory Affairs, at (570) 542-1818.

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

Executed on:

12/09/19



K. Cimorelli

Enclosure:

1. Response to Request for Additional Information
2. Revised List of Compensatory Measures
3. Revised Markup Technical Specification Pages
4. Revised Clean Technical Specification Pages
5. Revised Commitment
6. Related FSAR Figures

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Enclosure 1 to PLA-7830

Response to Request for Additional Information

Response to Request for Additional Information

On January 9, 2019, Susquehanna Nuclear, LLC (Susquehanna), submitted a license amendment request (LAR) for the Susquehanna Steam Electric Station (SSES). Specifically, Susquehanna requested a temporary extension to select Completion Times in Technical Specification (TS) 3.7.1, “Residual Heat Removal Service Water (RHRSW) System and the Ultimate Heat Sink (UHS)” and TS 3.7.2, “Emergency Service Water (ESW) System,” to allow for replacement of ESW System piping. By email dated November 14, 2019, the NRC requested the following additional information. The response to this request for additional information (RAI) is provided below.

NRC RAI-1

In the January 9, 2019, LAR Enclosure 1, Section 3.3 “Compensatory Measures, [sic] lists ten compensatory measures Susquehanna will implement to mitigate risk during replacement of the ESW piping. Susquehanna lists an additional four actions they will take to mitigate the consequences on [sic] accident on Unit 2 when replacing transformer 1X210 during initial ESW pipe replacement evolution in 2020.

The licensee proposes to add a note in Technical Specification (TS) Limited [sic] Condition for Operation (LCO) 3.7.1, “Two RHRSW subsystems and the UHS [Ultimate Heat Sink] shall be OPERABLE” and LCO 3.7.2, “Two ESW subsystems shall be OPERABLE” for Unit 1 that states:

This Completion Time is only applicable during the Unit 2 ‘A’ and ‘B’ ESW piping replacement while the compensatory measures identified in Section 3.3 of Enclosure 1 to letter PLA-7751 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2027.

And in TS LCO 3.7.1 and LCO 3.7.2, for Unit 2, the proposed NOTE states:

This Completion Time is only applicable during the Unit 1 ‘A’ and ‘B’ ESW piping replacement while the compensatory measures identified in Section 3.3 of Enclosure 1 to letter PLA-7751 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2026.

- a. Please confirm that all fourteen compensatory measures will be taken during each time ESW pipes are replaced. If all fourteen compensatory measures are not going to be implemented

each time, please describe which compensatory measure will be implemented and under what conditions.

- b. Also please provide how all these compensatory measures can be taken every time, if the compensatory measures expire at different dates.

Susquehanna Response

Question 1-a

In Section 3.3 of Enclosure 1 to the initial application (hereafter referred to as “Section 3.3”), Susquehanna identified ten compensatory measures required to manage risk during the ESW piping replacement activity. Section 3.3 further describes four actions necessary to mitigate the consequences of an accident on Unit 2 when replacing 480 V Load Center Transformer 1X210. These mitigating actions were committed to during the application for, and subsequent approval of, Susquehanna Unit 2 Amendment 248 (ADAMS Accession No. ML17004A250).

Susquehanna intended to only perform the ten compensatory measures during the ESW piping replacement evolutions; the four mitigating actions were not believed to be necessary to support the ESW piping replacement. The four mitigating actions were referenced in Section 3.3 only because the initial ESW piping replacement evolution will occur concurrently with the replacement of Transformer 1X210 during the Spring 2020 refueling outage. The intention was to perform all 14 actions listed in Section 3.3 during the 2020 replacement evolution, and only the first ten actions listed for all subsequent ESW piping replacement evolutions.

Upon receipt of this RAI, Susquehanna reconsidered the need to perform the four mitigating actions during all ESW pipe replacement evolutions. It was determined that the first two mitigating actions – i.e., 1) Unit 1 in MODE 5 for at least 24 hours with the core and fuel pools connected through the reactor cavity; and 2) Spray pond temperature is maintained less than 82°F – should also be applied to all ESW piping replacement evolutions.

The remaining two mitigating actions – i.e., 3) Engineered Safeguard Service Water pumphouse doors or dampers aligned to provide adequate cooling; and 4) Designated personnel to open the spray array valves and close the bypass valve – are not applicable to the ESW piping replacement evolution. Those mitigating actions are required to address the loss of power to the ESW and RHRSW systems during the replacement of Transformer 1X210, but are not necessary to reduce the risk associated with the ESW piping replacement. The basis of acceptability for the extended Completion Times for the piping replacement is that the opposite division of ESW and RHRSW are capable of providing all necessary cooling to the online and outage units and also that the impacted division of ESW and RHRSW can be restored to a functional (not OPERABLE) status within the existing TS Completion Times thereby providing further cooling

to the non-outage unit loads. The last two mitigating actions are unnecessary to maintain the basis of acceptability for the extended Completion Times.

Susquehanna has revised the list of compensatory measures required to be implemented during the ESW piping replacement evolution. The revised list of compensatory measures is included as Enclosure 2 to this submittal. It should be noted that previous compensatory measure number 4 was combined with previous mitigating action number 1 for a total of 11 compensatory measures in Enclosure 2. The four mitigating actions described during the application process for Unit 2 Amendment 248 (ML17004A250) remain unchanged.

Additionally, Susquehanna has revised the wording of the footnotes modifying Condition B of TS 3.7.1 and Conditions B and C to TS 3.7.2. Specifically, the wording for all such footnotes has been revised to state, "This Completion Time is only applicable during the Unit [1/2, as appropriate] 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, [2026/2027, as appropriate]."

The revised TS markup pages are provided in Enclosure 3 and the revised clean TS pages are provided in Enclosure 4. The TS pages provided in Enclosures 3 and 4 of this letter supersede the TS pages provided in Enclosures 2 and 3 to the Susquehanna letter dated June 3, 2019 (ADAMS Accession No. ML19154A125), in their entirety.

Question 1-b

As discussed in Susquehanna's response to Question 1-a, the first 12 actions identified in Section 3.3 will be implemented for all ESW piping replacement evolutions. The revised list of compensatory measures is included as Enclosure 2 to this letter. The final two mitigating actions identified in Section 3.3 will only be implemented during the replacement of Transformer 1X210 during the 2020 refueling outage. Mitigating actions 3 and 4 will no longer be performed upon declaring Transformer 1X210 OPERABLE in the 2020 refueling outage and will not be applicable to all remaining ESW pipe replacement work.

NRC RAI-2

The January 09, 2019, LAR Enclosure 1, page 29 response states:

The non-impacted division is capable of serving 100 percent of the heat loads for both the online and outage units during an accident. As such, there is no impact on consequence mitigation for any transient or accident.

The licensing basis includes consideration of a single failure. While the staff recognizes that the LCO is not met while in the proposed condition and action completion time, the ability to withstand single component failures is part of the safety assessment.

To provide risk insights associated with the proposed maintenance, qualitatively address the reliability of both the ESW and RHRSW subsystems by addressing the effects of credible single failures or explain how a single ESW and RHRSW pump could provide adequate flow to mitigate the loss of offsite power event in the operating unit while maintaining the other unit in cold shutdown or in the refueling modes while in one of the extended completion times (with ESW piping breached).

Susquehanna Response

As described in Susquehanna's response to Question 1-a, the work to replace the ESW piping will be restricted to only being performed when the outage unit has been in MODE 5 for at least 24 hours. This eliminates the risk associated with encountering a Loss of Offsite Power (LOOP) on the operating unit during the ESW piping replacement with the outage unit in MODE 4. Further, a single ESW and RHRSW pump can provide adequate flow to mitigate a LOOP on the operating unit with the ESW piping breached. Due to their different design functions, a separate explanation will be provided for each pump.

To support previous analyses, a computer model of the complete ESW and RHRSW piping network was previously developed. This model was then benchmarked against measured ESW flow rates to all ESW users when both ESW and RHRSW were in service to demonstrate accuracy of the model. An analysis was then performed to determine the ESW flow rates to all ESW users assuming a single ESW pump with degraded pump performance was in operation. The analysis assumes conservative system backpressure due to RHRSW and spray pond spray array operation. These calculated ESW flow rates were then evaluated to determine if the design basis heat load from each ESW user could be removed. The results of the evaluation determined that a single ESW pump can remove the design basis heat load from all safety related ESW users (e.g., diesel generators (DGs), Residual Heat Removal (RHR) pump motor oil coolers, room coolers). Although some realistic assumptions were made (e.g., actual heat exchanger tube plugging conditions vs. design tube plugging), there is still margin within these evaluations since summer design temperatures were used as opposed to adjusting for spring outage conditions. Based on the above, a single ESW pump will be able to support the removal of the design heat load from all ESW users and all safety related equipment supported by ESW will be able to perform as designed.

The RHRSW system is designed to provide cooling water to the RHR system heat exchangers required for normal reactor shutdown cooling and for safe shutdown following a design basis accident or transient. The RHRSW system is operated whenever the RHR heat exchangers are needed to provide reactor/containment cooling. The RHRSW system circulates water through

the tube side of the RHR heat exchangers, and supports long term cooling of the reactor or containment by exchanging heat with the reactor coolant or suppression pool water, and discharging to the external heat sink. The RHRSW system consists of two independent 100 percent capacity supply pumps per unit. The two pumps on each unit are powered from a separate emergency bus connected to the DGs. Each RHRSW pump is associated with a specific unit but can supply cooling water to either the Unit 1 or 2 associated division heat exchanger. For example, the Unit 1 'A' RHRSW pump can supply the Unit 1 or Unit 2 or reduced flow to both Unit 1 and 2 'A' RHR heat exchanger but cannot supply flow to either the Unit 1 or 2 'B' RHR heat exchanger. All design basis analyses (DBA) (e.g., DBA Loss of Coolant Accident (LOCA) coincident with a LOOP) assume that only one RHR heat exchanger with a single RHRSW pump is in operation. There is substantial heat removal margin associated with RHR heat exchangers since the actual measured fouling factors, RHRSW temperature and actual tube plugging are less than design. Additionally, the two RHRSW pumps in the impacted division of RHRSW will be recovered within 30 hours to support long term decay heat removal. The design of SSES is such that only one RHR heat exchanger on the operating unit is required to provide the necessary cooling to reach and maintain safe shutdown. The ability to provide RHRSW to a heat exchanger from its corresponding RHRSW pump in either unit ensures the ability to perform the necessary cooling even while considering a worst-case single failure of any RHRSW pump.

NRC RAI-3

In the January 9, 2019, LAR Enclosure 1, page 23, compensatory measure 8 states:

A sump pump will be staged at the work area to prevent flooding into the reactor building in the event of torrential rain during the pipe replacement activities.

Please describe the configuration of the external flood boundary during the maintenance activity (e.g., the building penetration seal remains intact and the boundary becomes the ESW system piping inside the reactor building) and how the proposed risk management activity enhances the protection against reactor building flooding (e.g., the sump pump provides defense-in-depth by ensuring water does not flow into the ESW system piping through the breach in the system or that rain water runoff entering the building will be limited such that other required components or systems would not be adversely affected).

Susquehanna Response

The 'A' and 'B' ESW piping penetrates the Unit 1 and 2 reactor building wall below grade at the basement elevation which contains a sump room and Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) equipment rooms. During the ESW pipe replacement, the ESW supply and return piping of one ESW division on the outage unit will be replaced. Additionally, the penetration through the reactor building wall will also be repaired.

During the timeframe when the ESW piping is removed from the penetration or repair on the penetration is occurring, water could potentially enter the outage unit reactor building. As a first line of defense, an external sump pump will be available to remove any water accumulation from the excavated area due to rainfall or snow melt. Second, entrance to all rooms on the basement elevation are through water tight doors which would prevent water propagation to adjacent rooms in the event of a flood. All rooms on the basement contain a seismically qualified room flooding alarm which alarms in the control room. This will allow Operations personnel to respond to high water level in any room and initiate prudent mitigative measures in a timely manner. The reactor building basement also contains a sump pump that can be aligned to any basement room to remove flood water. Finally, the Unit 1 and 2 reactor buildings are separated by a concrete wall which prevents water propagation from the outage unit to the operating unit. The drawings included in Enclosure 6 provide an architectural view of the basement elevation for SSES and are annotated to display the locations of the ESW pipe penetrations into the reactor buildings.

In addition to the physical flood prevention features described above, the local geography near SSES limits the risk of any external flooding from occurring. The only significant external body of water near the station is the Susquehanna River. SSES is located on a hill well above the flood plain of the Susquehanna River. Therefore, there are no significant external bodies of water that would cause significant flooding beyond the capability of a normal sump pump system.

Based on the above discussion, there are adequate protection features and risk management actions to prevent the propagation of any postulated flood water from impacting required safety related equipment on the operating or shutdown unit.

Enclosure 2 to PLA-7830

Revised List of Compensatory Measures

During the evolution to replace the Emergency Service Water (ESW) piping, Susquehanna will implement the following compensatory measures to manage risk:

1. The opposite division ESW and Residual Heat Removal Service Water (RHRSW) systems will be OPERABLE and available prior to breaching the pipe on the affected division.
2. Procedures will be established to provide direction for restoring the affected ESW and RHRSW divisions to a functional status. The procedures will require designating individuals to perform the restoration tasks and that the required materials be pre-staged at the work site.
3. FLEX strategies will be available for implementation as additional defense in depth contingency on both units.
4. The outage unit will be in MODE 5 for at least 24 hours with the core and fuel pools connected through the reactor cavity. The Unit 1 and 2 spent fuel pools will remain cross-tied through the cask storage pit.
5. Training will be provided to Operations personnel on this Technical Specification (TS) change and the associated evolution to replace the ESW piping.
6. The Outage Control Center will be manned while performing the activities authorized by this amendment.
7. A temporary missile barrier will be available for use while the buried ESW piping is exposed.
8. A sump pump will be staged at the work area to prevent flooding into the reactor building in the event of torrential rain during the pipe replacement activities.
9. Susquehanna will not enter the window of common shutdown cooling until the ESW piping is at least watertight.
10. Equipment will be protected and discretionary maintenance controlled in accordance with procedure NDAP-QA-0340, "Protected Equipment Program." Susquehanna will evaluate the ESW piping replacement and protect equipment in accordance with the program at the time of the evolution. Currently, the list of protected equipment would include:
 - a. The four required Diesel Generators (DGs)
 - b. Opposite division ESW pumps and spray pond valves and associated power supplies

- c. Opposite division RHRSW pumps and valves and associated power supplies
 - d. Opposite division 4.16 kV buses
 - e. Opposite division 250 V and 125 V batteries
 - f. Opposite division Direct Expansion (DX) unit
 - g. Opposite division Control Structure Chiller
11. Spray Pond temperature will be maintained less than 82°F.

Enclosure 3 to PLA-7830

Revised Markup Technical Specification Pages

Revised Technical Specifications Pages

Unit 1 TS Pages

3.7-2, 3.7-4, and 3.7-5

Unit 2 TS Pages

3.7-1, 3.7-2, 3.7-3, 3.7-3a, 3.7-3b, 3.7-3c, 3.7-3d, 3.7-3e, and 3.7-4

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One Unit 1 RHRSW subsystem inoperable.</p>	<p>B.1 Restore the Unit 1 RHRSW subsystem to OPERABLE status.</p>	<p>14 days during the replacement of the Unit 2 ESW piping⁽¹⁾</p> <p><u>OR</u></p> <p>72 hours from discovery of the associated Unit 2 RHRSW subsystem inoperable</p> <p><u>AND</u></p> <p>7 days</p>
<p>C. Both Unit 1 RHRSW subsystems inoperable.</p>	<p>C.1 Restore one Unit 1 RHRSW subsystem to OPERABLE status.</p>	<p>8 hours from discovery of one Unit 2 RHRSW subsystem not capable of supporting associated Unit 1 RHRSW subsystem</p> <p><u>AND</u></p> <p>72 hours</p>
<p>D. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>UHS inoperable.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

[\(1\)This Completion Time is only applicable during the Unit 2 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2027.](#)

3.7 PLANT SYSTEMS

3.7.2 Emergency Service Water (ESW) System

LCO 3.7.2 Two ESW subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources," for DGs made inoperable by ESW.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW pump in each subsystem inoperable.	A.1 Restore both ESW pumps to OPERABLE status.	7 days
B. One or two ESW subsystems not capable of supplying ESW flow to at least three required DGs.	B.1 Restore ESW flow to the required DGs to ensure that each ESW subsystem is supplying at least three DGs.	14 days during the replacement of the Unit 2 ESW piping⁽¹⁾ <u>OR</u> 7 days
C. One ESW subsystem inoperable for reasons other than Condition B.	C.1 Restore the ESW subsystem to OPERABLE status.	14 days during the replacement of the Unit 2 ESW piping⁽¹⁾ <u>OR</u> 7 days

[\(1\)This Completion Time is only applicable during the Unit 2 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2027.](#)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A, B or C not met.</p> <p><u>OR</u></p> <p>Both ESW subsystems inoperable for reasons other than Conditions A and B.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.2.1 -----NOTE----- Isolation of flow to individual components does not render ESW System inoperable. -----</p> <p>Verify each ESW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.2.2 Verify each ESW subsystem actuates on an actual or simulated initiation signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.7 PLANT SYSTEMS

3.7.1 Residual Heat Removal Service Water (RHRSW) System and the Ultimate Heat Sink (UHS)

LCO 3.7.1 Two RHRSW subsystems and the UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Enter applicable Conditions and Required Actions of LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System-Hot Shutdown," for RHR shutdown cooling made inoperable by RHRSW System.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Separate Condition entry is allowed for each valve. -----</p> <p>One valve in Table 3.7.1-1 inoperable.</p> <p><u>OR</u></p> <p>One valve in Table 3.7.1-2 inoperable.</p> <p><u>OR</u></p> <p>One valve in Table 3.7.1-3 inoperable.</p>	<p>A.1 Declare the associated RHRSW subsystems inoperable.</p> <p><u>AND</u></p> <p>A.2 Establish an open flow path to the UHS.</p> <p><u>AND</u></p> <p>A.3 Restore the inoperable valve(s) to OPERABLE status.</p>	<p>Immediately</p> <p>8 hours</p> <p>8 hours from the discovery of an inoperable RHRSW subsystem in the opposite loop from the inoperable valve(s)</p> <p><u>AND</u></p> <p>72 hours</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>OR</u></p> <p>Any combination of valves in Table 3.7.1-1, Table 3.7.1-2, or Table 3.7.1-3 in the same return loop inoperable.</p>		<p><u>OR</u></p> <p>7 days during the replacement of 480 V ESS Load Center Transformers 1X210 and 1X220 in Unit 1⁽¹⁾</p>
<p>B. One Unit 2 RHRSW subsystem inoperable.</p>	<p>B.1 Restore the Unit 2 RHRSW subsystem to OPERABLE status.</p>	<p>7 days during the replacement of 480 V ESS Load Center Transformers 1X210 and 1X220 in Unit 1⁽¹⁾</p> <p><u>OR</u></p> <p>14 days during the replacement of the Unit 1 ESW piping⁽²⁾</p> <p><u>OR</u></p> <p>72 hours from discovery of the associated Unit 1 RHRSW subsystem inoperable</p> <p><u>AND</u></p> <p>7 days</p>

⁽¹⁾Upon completion of the replacement of the 480 V ESS Load Center Transformers 1X210 and 1X220 in Unit 1, this temporary extension is no longer applicable and will expire on June 15, 2020.

⁽²⁾[This Completion Time is only applicable during the Unit 1 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2026.](#)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Unit 2 RHRSW subsystems inoperable.	C.1 Restore one Unit 2 RHRSW subsystem to OPERABLE status.	8 hours from discovery of one Unit 1 RHRSW subsystem not capable of supporting associated Unit 2 RHRSW subsystem <u>AND</u> 72 hours
D. Required Action and associated Completion Time not met. <u>OR</u> UHS inoperable.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.1.1 Verify the water level is greater than or equal to 678 feet 1 inch above Mean Sea Level.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.7.1.2 Verify the average water temperature of the UHS is:</p> <p>a. -----NOTE----- Only applicable with both units in MODE 1 or 2, or with either unit in MODE 3 for less than twelve (12) hours. ----- ≤ 85°F; or</p> <p>b. -----NOTE----- Only applicable when either unit has been in MODE 3 for at least twelve (12) hours but not more than twenty-four (24) hours. ----- ≤ 87°F; or</p> <p>c. -----NOTE----- Only applicable when either unit has been in MODE 3 for at least twenty-four (24) hours. ----- ≤ 88°F.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.1.3 Verify each RHRWS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.1.4 Verify that valves HV-01222A and B (the spray array bypass valves) close upon receipt of a closing signal and open upon receipt of an opening signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.1.5 Verify that valves HV-01224A1 and B1 (the large spray array valves) close upon receipt of a closing signal and open upon receipt of an opening signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.7.1.6 Verify that valves HV-01224A2 and B2 (the small spray array valves) close upon receipt of a closing signal and open upon receipt of an opening signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.7 Verify that valves 012287A and 012287B (the spray array bypass manual valves) are capable of being opened and closed.	In accordance with the Surveillance Frequency Control Program

TABLE 3.7.1-1

Ultimate Heat Sink Spray Array Valves

VALVE NUMBER	VALVE DESCRIPTION
HV-01224A1	Loop A large spray array valve
HV-01224B1	Loop B large spray array valve
HV-01224A2	Loop A small spray array valve
HV-01224B2	Loop B small spray array valve

TABLE 3.7.1-2

Ultimate Heat Sink Spray Array Bypass Valves

VALVE NUMBER	VALVE DESCRIPTION
HV-01222A	Loop A spray array bypass valve
HV-01222B	Loop B spray array bypass valve

TABLE 3.7.1-3

Ultimate Heat Sink Spray Array Bypass Manual Valves

VALVE NUMBER	VALVE DESCRIPTION
012287A	Loop A spray array bypass manual valve
012287B	Loop B spray array bypass manual valve

3.7 PLANT SYSTEMS

3.7.2 Emergency Service Water (ESW) System

LCO 3.7.2 Two ESW subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources," for DGs made inoperable by ESW.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW pump in each subsystem inoperable.	A.1 Restore both ESW pumps to OPERABLE status.	7 days
B. One or two ESW subsystems not capable of supplying ESW flow to at least three required DGs.	B.1 Restore ESW flow to the required DGs to ensure that each ESW subsystem is supplying at least three DGs.	14 days during the replacement of the Unit 1 ESW piping⁽¹⁾ OR 7 days
C. One ESW subsystem inoperable for reasons other than Condition B.	C.1 Restore the ESW subsystem to OPERABLE status.	14 days during the replacement of the Unit 1 ESW piping⁽¹⁾ OR 7 days

[\(1\)This Completion Time is only applicable during the Unit 1 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2026.](#)

Enclosure 4 to PLA-7830

Revised Clean Technical Specification Pages

Revised Technical Specifications Pages

Unit 1 TS Pages

3.7-2, 3.7-4, and 3.7-5

Unit 2 TS Pages

3.7-1, 3.7-2, 3.7-3, 3.7-3a, 3.7-3b, 3.7-3c, 3.7-3d, 3.7-3e, and 3.7-4

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One Unit 1 RHRSW subsystem inoperable.</p>	<p>B.1 Restore the Unit 1 RHRSW subsystem to OPERABLE status.</p>	<p>14 days during the replacement of the Unit 2 ESW piping⁽¹⁾</p> <p><u>OR</u></p> <p>72 hours from discovery of the associated Unit 2 RHRSW subsystem inoperable</p> <p><u>AND</u></p> <p>7 days</p>
<p>C. Both Unit 1 RHRSW subsystems inoperable.</p>	<p>C.1 Restore one Unit 1 RHRSW subsystem to OPERABLE status.</p>	<p>8 hours from discovery of one Unit 2 RHRSW subsystem not capable of supporting associated Unit 1 RHRSW subsystem</p> <p><u>AND</u></p> <p>72 hours</p>
<p>D. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>UHS inoperable.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

⁽¹⁾This Completion Time is only applicable during the Unit 2 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2027.

3.7 PLANT SYSTEMS

3.7.2 Emergency Service Water (ESW) System

LCO 3.7.2 Two ESW subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources," for DGs made inoperable by ESW.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW pump in each subsystem inoperable.	A.1 Restore both ESW pumps to OPERABLE status.	7 days
B. One or two ESW subsystems not capable of supplying ESW flow to at least three required DGs.	B.1 Restore ESW flow to the required DGs to ensure that each ESW subsystem is supplying at least three DGs.	14 days during the replacement of the Unit 2 ESW piping ⁽¹⁾ <u>OR</u> 7 days
C. One ESW subsystem inoperable for reasons other than Condition B.	C.1 Restore the ESW subsystem to OPERABLE status.	14 days during the replacement of the Unit 2 ESW piping ⁽¹⁾ <u>OR</u> 7 days

⁽¹⁾This Completion Time is only applicable during the Unit 2 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2027.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A, B or C not met.</p> <p><u>OR</u></p> <p>Both ESW subsystems inoperable for reasons other than Conditions A and B.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.2.1 -----NOTE----- Isolation of flow to individual components does not render ESW System inoperable. -----</p> <p>Verify each ESW subsystem manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.2.2 Verify each ESW subsystem actuates on an actual or simulated initiation signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

3.7 PLANT SYSTEMS

3.7.1 Residual Heat Removal Service Water (RHRSW) System and the Ultimate Heat Sink (UHS)

LCO 3.7.1 Two RHRSW subsystems and the UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Enter applicable Conditions and Required Actions of LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System-Hot Shutdown," for RHR shutdown cooling made inoperable by RHRSW System.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Separate Condition entry is allowed for each valve. -----</p> <p>One valve in Table 3.7.1-1 inoperable.</p> <p><u>OR</u></p> <p>One valve in Table 3.7.1-2 inoperable.</p> <p><u>OR</u></p> <p>One valve in Table 3.7.1-3 inoperable.</p>	<p>A.1 Declare the associated RHRSW subsystems inoperable.</p> <p><u>AND</u></p> <p>A.2 Establish an open flow path to the UHS.</p> <p><u>AND</u></p> <p>A.3 Restore the inoperable valve(s) to OPERABLE status.</p>	<p>Immediately</p> <p>8 hours</p> <p>8 hours from the discovery of an inoperable RHRSW subsystem in the opposite loop from the inoperable valve(s)</p> <p><u>AND</u></p> <p>72 hours</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>OR</u></p> <p>Any combination of valves in Table 3.7.1-1, Table 3.7.1-2, or Table 3.7.1-3 in the same return loop inoperable.</p>		<p><u>OR</u></p> <p>7 days during the replacement of 480 V ESS Load Center Transformers 1X210 and 1X220 in Unit 1⁽¹⁾</p>
<p>B. One Unit 2 RHRSW subsystem inoperable.</p>	<p>B.1 Restore the Unit 2 RHRSW subsystem to OPERABLE status.</p>	<p>7 days during the replacement of 480 V ESS Load Center Transformers 1X210 and 1X220 in Unit 1⁽¹⁾</p> <p><u>OR</u></p> <p>14 days during the replacement of the Unit 1 ESW piping⁽²⁾</p> <p><u>OR</u></p> <p>72 hours from discovery of the associated Unit 1 RHRSW subsystem inoperable</p> <p><u>AND</u></p> <p>7 days</p>

⁽¹⁾Upon completion of the replacement of the 480 V ESS Load Center Transformers 1X210 and 1X220 in Unit 1, this temporary extension is no longer applicable and will expire on June 15, 2020.

⁽²⁾This Completion Time is only applicable during the Unit 1 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2026.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both Unit 2 RHRSW subsystems inoperable.	C.1 Restore one Unit 2 RHRSW subsystem to OPERABLE status.	8 hours from discovery of one Unit 1 RHRSW subsystem not capable of supporting associated Unit 2 RHRSW subsystem <u>AND</u> 72 hours
D. Required Action and associated Completion Time not met. <u>OR</u> UHS inoperable.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.1.1 Verify the water level is greater than or equal to 678 feet 1 inch above Mean Sea Level.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.7.1.2 Verify the average water temperature of the UHS is:</p> <p>a. -----NOTE----- Only applicable with both units in MODE 1 or 2, or with either unit in MODE 3 for less than twelve (12) hours. ----- ≤ 85°F; or</p> <p>b. -----NOTE----- Only applicable when either unit has been in MODE 3 for at least twelve (12) hours but not more than twenty-four (24) hours. ----- ≤ 87°F; or</p> <p>c. -----NOTE----- Only applicable when either unit has been in MODE 3 for at least twenty-four (24) hours. ----- ≤ 88°F.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.1.3 Verify each RHRWS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position or can be aligned to the correct position.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.1.4 Verify that valves HV-01222A and B (the spray array bypass valves) close upon receipt of a closing signal and open upon receipt of an opening signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.7.1.5 Verify that valves HV-01224A1 and B1 (the large spray array valves) close upon receipt of a closing signal and open upon receipt of an opening signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.7.1.6 Verify that valves HV-01224A2 and B2 (the small spray array valves) close upon receipt of a closing signal and open upon receipt of an opening signal.	In accordance with the Surveillance Frequency Control Program
SR 3.7.1.7 Verify that valves 012287A and 012287B (the spray array bypass manual valves) are capable of being opened and closed.	In accordance with the Surveillance Frequency Control Program

TABLE 3.7.1-1
Ultimate Heat Sink Spray Array Valves

VALVE NUMBER	VALVE DESCRIPTION
HV-01224A1	Loop A large spray array valve
HV-01224B1	Loop B large spray array valve
HV-01224A2	Loop A small spray array valve
HV-01224B2	Loop B small spray array valve

TABLE 3.7.1-2

Ultimate Heat Sink Spray Array Bypass Valves

VALVE NUMBER	VALVE DESCRIPTION
HV-01222A	Loop A spray array bypass valve
HV-01222B	Loop B spray array bypass valve

TABLE 3.7.1-3

Ultimate Heat Sink Spray Array Bypass Manual Valves

VALVE NUMBER	VALVE DESCRIPTION
012287A	Loop A spray array bypass manual valve
012287B	Loop B spray array bypass manual valve

3.7 PLANT SYSTEMS

3.7.2 Emergency Service Water (ESW) System

LCO 3.7.2 Two ESW subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources," for DGs made inoperable by ESW.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW pump in each subsystem inoperable.	A.1 Restore both ESW pumps to OPERABLE status.	7 days
B. One or two ESW subsystems not capable of supplying ESW flow to at least three required DGs.	B.1 Restore ESW flow to the required DGs to ensure that each ESW subsystem is supplying at least three DGs.	14 days during the replacement of the Unit 1 ESW piping ⁽¹⁾ <u>OR</u> 7 days
C. One ESW subsystem inoperable for reasons other than Condition B.	C.1 Restore the ESW subsystem to OPERABLE status.	14 days during the replacement of the Unit 1 ESW piping ⁽¹⁾ <u>OR</u> 7 days

⁽¹⁾This Completion Time is only applicable during the Unit 1 'A' and 'B' ESW piping replacement while the compensatory measures identified in Enclosure 2 to letter PLA-7830 are in place. Upon completion of pipe replacement activities, this temporary extension is no longer applicable and will expire on June 25, 2026.

Enclosure 5 to PLA-7830

Revised Commitment

Regulatory Commitments Contained in this Correspondence

The following table identifies actions committed to in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. This commitment is a revision to commitment 7751-1, as identified in Susquehanna's letter dated January 9, 2019 (ADAMS Accession No. ML19009A431). The commitment identified herein as 7830-1 supersedes commitment 7751-1 in its entirety.

#	Regulatory Commitment	Due Date
7830-1	Susquehanna commits to implement the compensatory measures identified in Enclosure 2 to PLA-7830 during the Emergency Service Water (ESW) System piping replacement.	During performance of the ESW System piping replacement.