

10 CFR 50.90

NMP1L3477

August 12, 2022

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

Nine Mile Point Nuclear Station, Unit 1
Renewed Facility Operating License No. DPR-63
NRC Docket No. 50-220

Subject: License Amendment Request – Application to Partially Adopt Technical Specification Task Force (TSTF) Traveler TSTF-568, Revision 2, "Revise Applicability of BWR/4 TS 3.6.2.5 and TS 3.6.3.2," to Revise Technical Specification 3.3.1 for Primary Containment Oxygen Concentration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Constellation Energy Generation, LLC (CEG) requests approval of proposed changes to the Technical Specifications (TS) of the Nine Mile Point Nuclear Station, Unit 1 (NMP1).

The proposed change modifies NMP1 TS 3.3.1, Oxygen Concentration, to adopt the inerting/de-inerting requirements of Technical Specification Task Force (TSTF) Traveler TSTF-568, Revision 2, which require inerting the primary containment to less than 4 percent by volume oxygen concentration within 72 hours while in the power operating condition. The TSTF change for Drywell-to-Suppression Chamber Differential Pressure is not applicable to NMP1; therefore, the changes are not part of this submittal.

Attachment 1 provides an evaluation supporting the proposed TS change. Attachment 2 contains the marked-up TS pages for the proposed changes. The TS Bases pages are provided for information only, and do not require NRC approval.

CEG requests approval of these changes by August 16, 2023. This license amendment will be implemented within 60 days of approval.

The proposed change has been reviewed by the NMP Plant Operations Review Committee in accordance with the requirements of the CEG Quality Assurance Program.

There are no regulatory commitments contained within this letter.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), CEG is notifying the State New York of this application for license amendment by transmitting a copy of this letter and its attachments to a designated State Official.

Should you have any questions concerning this letter, please contact Ron Reynolds at (610) 765-5247.

I declare under penalty of perjury that the foregoing is true and correct. This statement was executed on the 12th day of August 2022.

Respectfully,



David T. Gudger
Senior Manager - Licensing
Constellation Energy Generation, LLC

Attachments: 1. Evaluation of Proposed Change
2. Markup of Proposed Technical Specifications Pages
3. Revised Technical Specifications Bases Page

cc: NRC Regional Administrator, Region I
NRC Senior Resident Inspector, NMP
NRC Project Manager, NMP
A. L. Peterson, NYSERDA

ATTACHMENT 1

EVALUATION OF PROPOSED CHANGE

License Amendment Request

Nine Mile Point Nuclear Station, Unit 1

Docket No. 50-220

SUBJECT: Application to Partially Adopt Technical Specification Task Force (TSTF) Traveler TSFT-568, Revision 2, "Revise Applicability of BWR/4 TS 3.6.2.5 and TS 3.6.3.2," to Revise Technical Specification 3.3.1 for Primary Containment Oxygen Concentration

1.0 DESCRIPTION

2.0 ASSESSMENT

2.1 Applicability of Safety Evaluation

2.2 Optional Changes and Variations

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Analysis

3.2 Conclusion

4.0 ENVIRONMENTAL CONSIDERATION

1.0 DESCRIPTION

Constellation Energy Generation, LLC (CEG) requests adoption of TSTF-568, "Revise the Applicability of BWR TS 3.6.2.5 and TS 3.6.3.2." TSTF-568 revises the Applicability and Actions of Technical Specification (TS) 3.6.3.2, "Primary Containment Oxygen Concentration," and presents the requirements in a manner more consistent with the Standard Technical Specifications (STS) format and content.

2.0 ASSESSMENT

2.1 Applicability of Safety Evaluation

CEG has reviewed the Safety Evaluation for TSTF-568 provided to the TSTF in a letter dated December 17, 2019. This review also included a review of the NRC's evaluation, as well as the information provided in TSTF-568. CEG has concluded that the justifications presented in TSTF-568 and the safety evaluation prepared by the NRC with respect to Primary Containment Oxygen Concentration are applicable NMP1 and justify the requested amendments for the incorporation of the changes to the NMP1 TS. TS 3.6.2.5, "Drywell-to-Suppression Chamber Differential Pressure," is not applicable to NMP1; therefore, adoption of this change is not requested in this submittal.

2.2 Optional Changes and Variations

CEG is proposing the following generic variations from the TS changes described in TSTF-582 or the applicable parts of the NRC staff's safety evaluation. The wording and format in the NMP1 TS vary slightly from the NRC Improved Standard Technical Specifications (NUREG-1433) shown in TSTF-582, Revision 0, and the applicable parts of the NRC's safety evaluation. These differences are administrative and do not affect the applicability of TSTF-582 to the NMP1 TS.

NMP1 uses different numbering and titles than the improved Standard Technical Specifications (STS) in several instances. These differences are administrative and do not affect the applicability of TSTF-582 to the NMP1 TS. The model application provided in TSTF-568 includes an attachment for typed, camera-ready (revised) TS pages reflecting the proposed changes. NMP1 is not including such an attachment due to the number of TS pages included in this submittal that have the potential to be affected by other unrelated license amendment requests and the straightforward nature of the proposed changes. Providing only mark-ups of the proposed TS changes satisfies the requirements of 10 CFR 50.90. This is an administrative deviation from TSTF-568 with no impact on the NRC's model safety evaluation published on August 13, 2020. As a result of this deviation, the contents and numbering of the attachments for this amendment request differ from the attachments specified in the model application in TSTF-568.

The proposed change to TS 3.6.2.5, "Drywell-to-suppression Chamber Differential Pressure," in TSTF-568 is not applicable to NMP1 and is not included.

The following lists the Reactor Operating Conditions for the NMP1 Technical Specifications (TS) and correlates them to the Standard TS (STS).

The NMP1 Reactor Operating Conditions are different than the STS. The STS terminology of MODES is not used in the NMP1 TS. The table below correlates STS Mode to NMP1 Reactor Operating Condition.

Table 1

STS MODE	NMP1 TS Reactor Operating Condition
1 - Power Operation	Power Operating Condition
2 - Startup	
3 - Hot Shutdown ($>200^{\circ}\text{F}$)	Shutdown Condition – Hot ($>212^{\circ}\text{F}$)
4 - Cold Shutdown ($\leq 200^{\circ}\text{F}$)	Shutdown Condition – Cold ($\leq 212^{\circ}\text{F}$)
5 - Refueling	Refueling Condition
No Mode	Major Maintenance Condition (defueled)

Table 2 lists all the changes identified in TSTF-582 and provides a crosswalk between NMP1 Custom TS and STS for these changes, including variations. The crosswalk for the TS Bases changes is provided in this table for information only:

Table 2

TSTF-568 Section	TSTF-568 TS/Bases Page	NMP1 TS	NMP1 TS Section	NMP1 TS Page	Justification
TS 3.6.2.5	TS 3.6.2.5-1	N/A	N/A	N/A	Variation - The proposed change to TS 3.6.2.5, "Drywell-to-suppression Chamber Differential Pressure," in TSTF-568 is not applicable to NMP1 and is not included.
TS 3.6.3.2, Applicability	TS 3.6.3.2-1	TS 3.3.1	TS 3.3.1a	124	Variation – TS 3.3.1a identifies the applicability for NMP1 as "while in the power operating condition." The comparison of NMP Operating Conditions to STS MODES is tabulated in Table 1 above. No further change is required.

TSTF-568 Section	TSTF-568 TS/Bases Page	NMP1 TS	NMP1 TS Section	NMP1 TS Page	Justification
TS 3.6.3.2.A.1	TS 3.6.3.2-1	TS 3.3.1	TS 3.3.1b	125	<p>Variation – TSTF Completion Time for Required Action 3.6.3.2.A.1 changes from 24 hours to 72 hours. NMP1 had previously changed the Completion Time for transitory conditions during startup, shutdown, and maintenance activities for a total of 72-hours when the containment is not inerted. NMP1 TS 3.3.1b will be revised to more closely follow the TSTF wording as follows:</p> <p>Variation – TSTF Required Action 3.6.3.2.A.1 adds a Note that states, "LCO 3.0.4.c is applicable." NMP1 TS do not have LCO 3.0.4. Therefore, no change is required.</p> <p>"If the containment oxygen concentration is greater than or equal to the four percent by volume limit while in the power operating condition then restore oxygen concentration to within limit within 72 hours."</p>
TS 3.6.3.2.B.1	TS 3.6.3.2-1	TS 3.3.1	TS 3.3.1c	125	<p>Variation – TSTF Required Action states to be in Mode 3 with a Completion Time of 12 hours. NMP1 TS 3.2.1c states to exit the power operating condition within 12 hours. The comparison of NMP Operating Conditions to STS MODES is tabulated in Table 1 above. No further change is required.</p>
B 3.6.2.5	B 3.6.2.5-1 and B 3.6.2.5-2	N/A	N/A	N/A	<p>Variation - The proposed change to TS 3.6.2.5, "Drywell-to-Suppression Chamber Differential Pressure," in TSTF-568 is not applicable to NMP1 and is not included.</p>

TSTF-568 Section	TSTF-568 TS/Bases Page	NMP1 TS	NMP1 TS Section	NMP1 TS Page	Justification
B 3.6.3.2	B 3.6.3.2-1	Applicability, first paragraph, first sentence. Second sentence	Bases for 3.3.1 and 4.3.1, Oxygen Concentration, fifth paragraph	126	Variation – The wording in NMP1 TS refers to transitory conditions during startup, shutdown, and maintenance activities for a total of 72-hours when the containment is not inerted. This differs from the TSTF. The deletion of the fifth paragraph from page 126 meets the intent of the TSTF. Variation - The second sentence change is captured in TS Bases page 126, fourth paragraph. The comparison of NMP Operating Conditions to STS MODES is tabulated in Table 1 above. No further change required.
B 3.6.3.2	B 3.6.3.2-1 and B 3.6.3.2-2, Applicability, second paragraph	Bases for 3.3.1 and 4.3.1, Oxygen Concentration,	Second paragraph	126	TSTF-568 – Change is in accordance with TSTF.

TSTF-568 Section	TSTF-568 TS/Bases Page	NMP1 TS	NMP1 TS Section	NMP1 TS Page	Justification
B 3.6.3.2	B 3.6.3.2-3, Action B.1	Bases for 3.3.1 and 4.3.1, Oxygen Concentration,	Sixth paragraph	126	<p>Variation – NMP1 TS 3.3.1c currently allows for 12 hours to exit the Power Operating Condition. The following revision to NMP1 Bases for 3.3.1c adds the words from the STS for Action B.1:</p> <p>Specification 3.3.1c allows for 12 hours to exit the power operating condition. If oxygen concentration cannot be restored to within limits within the required Completion Time, the plant must be brought to a reactor operating condition in which the LCO does not apply. To achieve this status, the plant must be placed in Shutdown Condition - Hot within 12 hours. The 12-hour Completion Time is reasonable, based on operating experience, to reduce reactor power from the Power Operating Condition in an orderly manner and without challenging plant systems.</p> <p>This change is a variation from the TSTF in formatting only and meets the intent of the TSTF.</p>

3.0 REGULATORY EVALUATION

3.1 No Significant Hazards Consideration

Constellation Energy Generation, LLC (CEG) requests adoption of TSTF-568, "Revise the Applicability of BWR TS 3.6.2.5 and TS 3.6.3.2." TSTF-568 revises the Applicability and Actions of Technical Specification (TS) 3.6.3.2, "Primary Containment Oxygen Concentration," and presents the requirements in a manner more consistent with the Standard Technical Specifications (STS) format and content.

CEG 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 change revises the Applicability and Actions of TS 3.3.1, "Oxygen Concentration," and presents the requirements in a manner more consistent with the Standard Technical Specifications (STS) format and content. Primary Containment Oxygen Concentration is not an initiator to any accident previously evaluated. As a result, the probability of any accident previously evaluated is not affected by the proposed change.

Primary Containment Oxygen Concentration is an assumption in the mitigation of some accidents previously evaluated. The Applicability of TS 3.3.1 is changed from oxygen concentration greater than or equal to four percent by volume while in the power operating condition and for transitory conditions during startup, shutdown, and maintenance activities, restore the oxygen concentration to within limit within 72 hours to if the containment oxygen concentration is greater than or equal to the four percent by volume limit while in the power operating condition then restore oxygen concentration to within limit within 72 hours. The consequences of an accident during the proposed change are no different than the consequences of the same event during the existing Completion Times.

Therefore, the proposed change does not involve a 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 evaluated?

Response: No.

The proposed change revises the Applicability and Actions of TS 3.3.1, "Oxygen Concentration," and presents the requirements in a manner more consistent with the STS format and Content. The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed). No credible new failure mechanisms malfunctions, or accident initiators that would have been considered a design

basis accident in the UFSAR are credited because the Nuclear Regulatory Commission has determined that hydrogen generation is not risk significant for design basis accidents.

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

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

Response: No.

The proposed change revises the Applicability and Actions of TS 3.3.1, "Oxygen Concentration," and presents the requirements in a manner more consistent with the STS format and Content. No safety limits are affected. No Limiting Conditions for Operation or Surveillance limits are affected. The Primary Containment Oxygen Concentration Technical Specification requirements assure sufficient safety margins are maintained, and that the design, operation, surveillance methods, and acceptance criteria specified in applicable codes and standards (or alternatives approved for use by the NRC) will continue to be met as described in the plant's licensing basis. The proposed change does not adversely affect existing plant safety margins, or the reliability of the equipment assumed to operate in the safety analysis. As such, there are no changes being made to safety analysis assumptions, safety limits, or limiting safety system settings that would adversely affect plant safety.

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

Based on the above, CEG concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

3.2 Conclusion

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

4.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 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.

ATTACHMENT 2

MARKUP OF PROPOSED TECHNICAL SPECIFICATIONS PAGES

EVALUATION OF PROPOSED CHANGES

License Amendment Request

Nine Mile Point Nuclear Station, Unit 1

Docket No. 50-220

REVISED TECHNICAL SPECIFICATIONS PAGES

124 (provided for completeness)

125

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
<p data-bbox="212 217 730 248">3.3.1 <u>OXYGEN CONCENTRATION</u></p> <p data-bbox="333 287 499 319"><u>Applicability:</u></p> <p data-bbox="333 357 987 459">Applies to the limit on oxygen concentration within the primary containment system in the power operating condition.</p> <p data-bbox="333 497 468 529"><u>Objective:</u></p> <p data-bbox="333 568 1016 702">To assure that in the event of a loss-of-coolant accident any hydrogen generation will not result in a combustible mixture within the primary containment system.</p> <p data-bbox="333 740 512 772"><u>Specification:</u></p> <p data-bbox="333 810 1016 976">a. The primary containment atmosphere shall be reduced to less than four percent by volume oxygen concentration with nitrogen gas while in the power operating condition, except as specified in "b" below.</p>	<p data-bbox="1144 217 1662 248">4.3.1 <u>OXYGEN CONCENTRATION</u></p> <p data-bbox="1265 287 1431 319"><u>Applicability:</u></p> <p data-bbox="1265 357 1935 427">Applies to the periodic testing requirement for the primary containment system oxygen concentration.</p> <p data-bbox="1265 497 1400 529"><u>Objective:</u></p> <p data-bbox="1265 568 1948 632">To assure that the oxygen concentration within the primary containment system is within required limits.</p> <p data-bbox="1265 734 1444 766"><u>Specification:</u></p> <p data-bbox="1265 804 1890 900">In accordance with the Surveillance Frequency Control Program, oxygen concentration shall be determined.</p>

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
<p>b. If the containment oxygen concentration is greater than or equal to the four percent by volume limit while in the power operating condition and for transitory conditions during startup, shutdown and maintenance activities, restore the oxygen concentration to within the limit within 72 hours.</p> <p>c. If Specifications "a" or "b" above are not met, exit the power operating condition within 12 hours.</p>	<p>then restore oxygen concentration to within limit within 72 hours.</p>

ATTACHMENT 3

REVISED TECHNICAL SPECIFICATIONS BASES PAGES

EVALUATION OF PROPOSED CHANGES

License Amendment Request

Nine Mile Point Nuclear Station, Unit 1

Docket No. 50-220

REVISED TECHNICAL SPECIFICATIONS BASES PAGE

BASES FOR 3.3.1 AND 4.3.1 OXYGEN CONCENTRATION

The four percent by volume oxygen concentration eliminates the possibility of hydrogen combustion following a loss-of-coolant accident (Section VII-G.2.0 and Appendix E-II.5.2)*. The only way that significant quantities of hydrogen could be generated by metal-water reaction would be if the core spray system failed to sufficiently cool the core. As discussed in Section VII-A.2.0*, each core spray system will deliver, as a minimum, core spray sparger flow as shown on Figure VII-2*. In addition to hydrogen generated by metal-water reaction, significant quantities can be generated by radiolysis. (Technical Supplement to Petition for Conversion from Provisional Operating License to Full Term Operating License).

~~Inerting the primary containment is an operational problem because it prevents containment access without an appropriate breathing apparatus. Therefore, the primary containment is inerted as late as possible in the plant startup and deinerted as soon as possible in the plant shutdown. The probability of an event that generates hydrogen occurring within the 72-hour period for these infrequently performed evolutions, is low enough that these "windows," when the primary containment is not inerted, are also justified. This is a reasonable amount of time to allow plant personnel to perform activities that do not require shutdown conditions, including inerting or deinerting.~~

Delete

All nuclear reactors must be designed to withstand events that generate hydrogen either due to the zirconium metal water reaction in the core or due to radiolysis. The primary method to control hydrogen is to inert the primary containment. With the primary containment inert, that is, oxygen concentration less than 4.0 percent by volume, a combustible mixture cannot be present in the primary containment for any hydrogen concentration. An event that rapidly generates hydrogen from zirconium metal water reaction will result in excessive hydrogen in primary containment, but oxygen concentration will remain less than 4.0 percent by volume and no combustion can occur.

Specification 3.3.1a requires that the primary containment must be inert when the reactor is in the power operating condition, since this is the condition with the highest probability of an event that could produce hydrogen.

~~Specification 3.3.1b allows a 72-hour period when the containment is not inerted to accommodate transitory conditions during startup, shutdown, and maintenance activities. The 72-hour period is a reasonable amount of time and is based on 24 hours to de-inert containment prior to shutdowns or in preparation for maintenance, 24 hours to perform work inside containment and 24 hours to re-inert. These time frames are based on industry operating experience and are considered reasonable.~~

~~Specification 3.3.1c allows for 12 hours to exit the power operating condition, which is in alignment with the Standard Technical Specification (NUREG-1433) convention to change modes to the shutdown condition-hot.~~

The primary containment is normally slightly pressurized during periods of reactor operation. Nitrogen used for inerting could leak out of the containment but air could not leak in to increase the oxygen concentration. Once the containment is filled with nitrogen to the required concentration, no monitoring of oxygen concentration is necessary. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

to restore oxygen concentration to less than four percent while in the power operating condition.

If oxygen concentration cannot be restored to within limits within the required Completion Time, the plant must be brought to a reactor operating condition in which the LCO does not apply. To achieve this status, the plant must be placed in Shutdown Condition - Hot within 12 hours. The 12 hour Completion Time is reasonable, based on operating experience, to reduce reactor power from the Power Operating Condition in an orderly manner and without challenging plant systems.