



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 25, 2021

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Dominion Nuclear
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 – ISSUANCE OF AMENDMENT
NO. 278 REGARDING REVISION TO BATTERY SURVEILLANCE
REQUIREMENTS (EPID L-2020-LLA-0094)

Dear Mr. Stoddard:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 278 to Renewed Facility Operating License No. NPF-49 for the Millstone Power Station, Unit No. 3 (Millstone 3), in response to your application dated April 30, 2020, as supplemented by letter dated September 30, 2020.

The amendment revises the Millstone 3 Technical Specification Surveillance Requirements 4.8.2.1.b.2 and 4.8.2.1.c.3 by adding a new acceptance criterion to verify the total battery connection resistance is within preestablished limits to ensure that the intended design functions are met.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's monthly *Federal Register* notice.

Sincerely,

/RA/

Richard V. Guzman, Senior Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures:

1. Amendment No. 278 to NPF-49
2. Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DOMINION ENERGY NUCLEAR CONNECTICUT, INC., ET AL

DOCKET NO. 50-423

MILLSTONE POWER STATION, UNIT NO. 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 278
Renewed License No. NPF-49

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Dominion Energy Nuclear Connecticut, Inc. (DENC, the licensee), dated April 30, 2020, as supplemented by letter dated September 30, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations, and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, revised through Amendment No. 278 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated into the license. DENC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License and Technical
Specifications

Date of Issuance: March 25, 2021

ATTACHMENT TO LICENSE AMENDMENT NO. 278

MILLSTONE POWER STATION, UNIT NO. 3

RENEWED FACILITY OPERATING LICENSE NO. NPF-49

DOCKET NO. 50-423

Replace the following page of the Renewed Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove

4

Insert

4

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Remove

3/4 8-12

Insert

3/4 8-12

3/4 8-12a

(2) Technical Specifications

The Technical Specifications contained in Appendix A, revised through Amendment No. 278 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated into the license. DENC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

- (3) DENC shall not take any action that would cause Dominion Energy, Inc. or its parent companies to void, cancel, or diminish DENC's Commitment to have sufficient funds available to fund an extended plant shutdown as represented in the application for approval of the transfer of the licenses for MPS Unit No. 3.
- (4) Immediately after the transfer of interests in MPS Unit No. 3 to DNC*, the amount in the decommissioning trust fund for MPS Unit No. 3 must, with respect to the interest in MPS Unit No. 3, that DNC* would then hold, be at a level no less than the formula amount under 10 CFR 50.75.
- (5) The decommissioning trust agreement for MPS Unit No. 3 at the time the transfer of the unit to DNC* is effected and thereafter is subject to the following:
- (a) The decommissioning trust agreement must be in a form acceptable to the NRC.
 - (b) With respect to the decommissioning trust fund, investments in the securities or other obligations of Dominion Energy, Inc. or its affiliates or subsidiaries, successors, or assigns are prohibited. Except for investments tied to market indexes or other non-nuclear-sector mutual funds, investments in any entity owning one or more nuclear power plants are prohibited.
 - (c) The decommissioning trust agreement for MPS Unit No. 3 must provide that no disbursements or payments from the trust, other than for ordinary administrative expenses, shall be made by the trustee until the trustee has first given the Director of the Office of Nuclear Reactor Regulation 30 days prior written notice of payment. The decommissioning trust agreement shall further contain a provision that no disbursements or payments from the trust shall be made if the trustee receives prior written notice of objection from the NRC.
 - (d) The decommissioning trust agreement must provide that the agreement cannot be amended in any material respect without 30 days prior written notification to the Director of the Office of Nuclear Reactor Regulation.

* On May 12, 2017, the name "Dominion Nuclear Connecticut, Inc." changed to "Dominion Energy Nuclear Connecticut, Inc."

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At the frequency specified in the Surveillance Frequency Control Program and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
- 1) The parameters in Table 4.8-2a meet the Category B limits,
 - 2) There is no visible corrosion at either terminals or connectors, or the connection resistance of each cell-to-cell and terminal connection is less than 150×10^{-6} ohm and total battery resistance is less than 3700×10^{-6} ohm, and
 - 3) The average electrolyte temperature of six connected cells is above 60°F.
- c. At the frequency specified in the Surveillance Frequency Control Program by verifying that:
- 1) The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2) The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,
 - 3) The resistance of each cell-to-cell and terminal connection is less than 150×10^{-6} ohm and total battery resistance is less than 3700×10^{-6} ohm, and
 - 4) Each battery charger will supply at least the amperage indicated in Table 4.8-2b at greater than or equal to 132 volts for at least 24 hours.
- d. At the frequency specified in the Surveillance Frequency Control Program, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test;
- e. At the frequency specified in the Surveillance Frequency Control Program, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1d.; and

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- f. At least once per 18 months, during shutdown, by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 278

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-49

DOMINION ENERGY NUCLEAR CONNECTICUT, INC., ET AL

MILLSTONE POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

1.0 INTRODUCTION

By letter dated April 30, 2020, as supplemented by letter dated September 30, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML20121A217 and ML20274A346, respectively), Dominion Energy Nuclear Connecticut, Inc. (the licensee), submitted a license amendment request (LAR) to revise the Technical Specifications (TSs) for Millstone Power Station, Unit No. 3 (Millstone 3).

The amendment, if approved, would revise the Millstone 3 TS Surveillance Requirements (SRs) 4.8.2.1.b.2 and 4.8.2.1.c.3 by adding a new acceptance criterion to verify the total battery connection resistance is within pre-established limits to ensure the intended design functions are met.

The supplemental letter dated September 30, 2020, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on June 16, 2020 (85 FR 36435).

2.0 REGULATORY EVALUATION

2.1 System Description

The Millstone 3 Updated Final Safety Analysis Report (UFSAR), Chapter 8, "Electric Power," describes the electrical power systems (ADAMS Accession No. ML20209A384). Section 8.3.2, "DC [Direct Current] Power Systems," describes the safety-related DC power system, which includes battery chargers and four Class 1E DC power sub-systems that provide a source of DC power for certain vital loads and control power. The DC power system is designed to have sufficient independence, redundancy, and testability to perform its design function, assuming a single failure. The four Class 1E batteries are lead-calcium type, with each battery consisting of 60 cells connected in series. The ampere-hour capacity of each 125-Volt (V) battery is suitable for supplying all connected safety related loads for a minimum of 2 hours without the use of the

battery chargers. At the end of the 2-hour period, the final battery voltage is 1.75V per cell minimum.

2.2 Applicable Regulatory Requirements and Guidance

The following requirements and guidance documents are applicable to the NRC staff's review of the LAR:

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criterion (GDC) 17, "General Design Criteria for Nuclear Power Plants," requires, in part, that nuclear power plants have onsite and offsite electric power systems to permit the functioning of structures, systems, and components that are important to safety. The onsite system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a single failure.

The regulation at 10 CFR 50, Appendix A, GDC 18, "Inspection and testing of electric power systems," requires that electric power systems that are important to safety must be designed to permit appropriate periodic inspection and testing.

The regulation at 10 CFR 50.36, "Technical specifications," section (c)(3), requires that TSs include SRs, which are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

Millstone 3 UFSAR Section 8.3.2, "DC Power Systems," states that the selection criteria for battery capacity and reliability and routine tests are performed in accordance with the requirements of Institute of Electrical and Electronics Engineers (IEEE) Standard 308, "Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations." The batteries are sized using the methods from IEEE Standard 485-1997, "IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications." Onsite performance tests are made in accordance with IEEE Standard 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations." In 2002, IEEE Standard 450 was revised to include a description and illustrations of testing techniques, adopted by the industry, to correctly measure battery intercell and interconnection resistances. The NRC staff used this revision of the standard, as a reference only, to request clarification from the licensee on the methods used at Millstone Power Station for measurement of battery resistances.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Proposed Changes

SRs 4.8.2.1.b and 4.8.2.1.c in the Millstone 3 TS are related to visual inspections and resistance measurements to detect localized battery connection degradation. Visual inspections to detect corrosion of the battery terminals and connections and measurement of the resistance of each battery inter-cell and terminal connection provide an indication of physical damage or abnormal deterioration that could potentially degrade battery performance if left uncorrected.

The current SRs 4.8.2.1.b and 4.8.2.1.c state:

- 4.8.2.1 Each 125-volt battery bank and charger shall be demonstrated OPERABLE:
- b. At the frequency specified in the Surveillance Frequency Control Program and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 - 1) The parameters in Table 4.8-2a meet the Category B limits,
 - 2) There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and
 - 3) The average electrolyte temperature of six connected cells is above 60°F.
 - c. At the frequency specified in the Surveillance Frequency Control Program by verifying that:
 - 1) The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2) The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,
 - 3) The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm, and
 - 4) Each battery charger will supply at least the amperage indicated in Table 4.8-2b at greater than or equal to 132 volts for at least 24 hours.

The licensee stated that a review of Millstone 3 battery voltage verification calculations based on operating experience at Quad Cities Nuclear Power Station, Units 1 and 2, identified an issue concerning potentially non-conservative surveillance values for battery connection resistance in TS (see related NRC inspection report at ADAMS Accession No. ML063330597). The licensee determined that the inter-cell connection resistance value of 150×10^{-6} ohm (micro-ohm) in SRs 4.8.2.1.b.2 and 4.8.2.1.c.3 for the Millstone 3 safety-related batteries is nonconservative if all or most of the connections are at that value because the acceptable total battery resistance value would be exceeded.

In accordance with NRC Administrative Letter 98-10,¹ the licensee is proposing a revision to these SRs to add a new acceptance criterion for total battery connection resistance.

¹ The NRC staff notes that in its LAR, the licensee references Administrative Letter 98-10 (AL 98-10), "Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety," dated December 29, 1998 (ADAMS Accession No. ML031110108). AL-98-10 was withdrawn in the issuance of Regulatory Guide 1.239 (85 FR 78879).

3.2 NRC Staff Evaluation

The licensee submitted this LAR to propose changes to correct the non-conservative TS SRs. The proposed changes add a new requirement to the TS SRs to verify total battery connection resistances of the 125 VDC safety-related batteries are within pre-established limits. This new requirement will be included within the SRs 4.8.2.1.b.2 and 4.8.2.1.c.3 and will be performed at the current frequencies of the SRs. The current requirement for individual battery inter-cell and terminal connections resistance, less than 150×10^{-6} ohm, will remain in the SRs. Specifically, the licensee proposed to revise SR 4.8.2.1.b.2 as follows (proposed revision shown in bold text):

- 2) There is no visible corrosion at either terminals or connectors, or the connection resistance of **each cell-to-cell and terminal connection** is less than 150×10^{-6} ohm **and total battery resistance is less than 3700×10^{-6} ohm**, and

The licensee proposed to revise SR 4.8.2.1.c.3 as follows:

- 3) The resistance of each cell-to-cell and terminal connection is **less than 150×10^{-6} ohm and total battery resistance is less than 3700×10^{-6} ohm**, and

For the safety-related batteries at Millstone 3, the LAR, Section 3.1.2, "Class 1E Batteries," states:

Each of the four 125 VDC Class 1E batteries is a 60-cell lead-calcium battery designed for continuous duty, manufactured by GNB. Batteries 301A-1 and 301B-1 are model number NCN-27. Batteries 301A-2 and 301B-2 are model number NCN-11. The ampere-hour capacity of each battery is suitable for supplying all connected safety related loads for a minimum of 2 hours without the use of the battery chargers. At the end of the 2-hour period, the final battery voltage is a minimum of 1.75 VDC per cell.

Each cell of each 125 VDC battery is connected in series using connection plates from the positive to the negative terminal posts of adjacent cells. The manufacturer's data sheets² indicate that each NCN-27 cell has four terminal posts (two positive and two negative) and each NCN-11 cell has two terminal posts (one positive and one negative). The inter-cell and terminal connectors between the cells contribute to the total battery connection resistance. The overall connection resistance, the internal resistance of the battery system and the resistance of the connecting cables are used to calculate the voltage drop at the load terminals. During normal operation of the battery, corrosion can occur on the battery posts, which can also increase the inter-cell and terminal connection resistance and further reduce battery terminal voltage. If the battery is not properly maintained, this condition could eventually reduce the affected battery's terminal voltage to a point where the minimum required voltages at the load may not be adequate.

² http://www.ieeco.net/GNB_Battery_Data_Sheets.html.

In the LAR, Section 3.2.1, "Battery Resistance Evaluation," the licensee states that Calculation ETE-MP-2019-1083, "MP3 Non-Conservative Battery Intercell Resistance Evaluation," was completed to identify the maximum allowable connection resistance value to ensure the duty profiles of the batteries are maintained as designed. The licensee found that the maximum allowable connection resistance value is 3,894 micro-ohm. The LAR also states:

Resistance sources in the battery setup include plate-to-post connections, inter-cell connections, and cabling connections...The larger battery model, NCN-27, was used to determine the bounding resistance value due to having more posts and connections. Using the typical 60-cell configuration, including inter-tier and inter-rack cables, a combined resistance value was determined. To ensure additional margin, a safety factor of 1.25 was applied to the total 60-cell resistance value to allow for variation of the inter-cell, inter-tier, and inter-rack connections.

The LAR, Section 3.2.1, states that Millstone 3 surveillance procedure C SP 760, "Battery Discharge Test," monitors only the plate-to-post and inter-cell connections. The NRC staff noted that in addition to plate-to-post and inter-cell connections, there are other connections, such as external cable lug to cell post and inter tier or inter rack cable lug to cell post. These connections may also be subjected to resistance changes due to acid related corrosion, loose connection fittings, improper mating surfaces, or material degradation. The NRC staff reviewed the LAR, and, in its request for additional information (RAI) by e-mail communication dated August 31, 2020 (ADAMS Accession No. ML20244A290), requested clarification on the types of connections that were used to calculate the maximum allowable resistance for the connections that can degrade during normal operation. The NRC staff also requested further details on the battery loading profiles and capability of the voltage-sensitive loads that would be required to function following a 2-hour battery discharge time with a final voltage of 1.75V per cell in accordance with the licensing basis.

In the licensee's supplemental letter dated September 30, 2020, in response to RAI-1, the licensee provided further details on the inter-cell connection resistance measurement methods and voltage requirements for battery loads. The licensee confirmed that the NCN-27 batteries have a total of four battery posts and NCN-11 batteries have a total of two posts. The response further stated that the NCN-27 batteries produce a higher total inter-cell resistance due to the additional battery post-to-post connections. The licensee provided a breakdown of the parameters used to calculate the maximum allowed battery cell interconnection impedance of 4,764 micro-ohms.

Specifically, the evaluation included maximum allowed impedances from plate-to-post at 590 micro-ohms, inter-cell at 3,304 micro-ohms, inter-tier cabling at 170 micro-ohms and inter-rack cabling at 700 micro-ohms. Since the surveillance procedure does not include the inter-tier and inter-rack cabling measurements, the TS proposed maximum impedance for post-to-post and plate-to-post has been reduced to 3,894 micro-ohms.

The licensee's response to NRC staff's RAI-1 also stated that a review of the resistance measurement tools and resistance measurement techniques at Millstone 3 concluded that the methods are in conformance with the IEEE Standard 450-2002 guidance. The NRC staff notes

that the current licensing basis of Millstone 3 is not being revised to include the 2002 version of the IEEE Standard 450. Specifically, in its response to RAI-1, the licensee stated:

The current licensing basis for MPS3 is committed to following the requirements of IEEE Standard 450-1975 and IEEE Standard 450-1980 from 1975 and Institute of Electrical and Electronics Engineers (IEEE) Standard 450, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations" from 1975 (IEEE Standard 450-1975) and 1980 (IEEE Standard 450-1980) rather than the 2002 version (IEEE Standard 450-2002 version. However, a review of vendor technical manuals, plant procedures, and measurement techniques was performed and compared to the guidance in IEEE 450- 2002 regarding the control of battery intercell connection types and associated acceptance criteria. Additionally, MPS3 documentation regarding battery assembly, resistance measurement tools, and resistance measurement techniques were reviewed against the acceptance criteria and were found to be in conformance with the IEEE Standard 450-2002 guidance.

Based on the clarification provided in response to RAI-1, the NRC staff concludes that the battery impedance measurement techniques used at Millstone 3 are in conformance with industry standards, and therefore, acceptable.

UFSAR Section 8.3.2.1.2.2, "Class 1E Batteries," describes the battery sizing criterion for Millstone 3 and states:

The ampere hour capacity of each 125V battery is suitable for supplying all connected safety related loads, as listed in Table 8.3-4 for a minimum of 2 hours without the use of the battery chargers. The characteristics of each load, the length of time each load is required, and the basis used to establish the power required for each safety related load, are utilized to establish the combined load demand to be connected to each DC supply during the "worst" operating conditions. At the end of the 2-hour period, the final battery voltage is 1.75 per cell minimum.

The NRC staff notes that battery voltage decreases as the battery discharges (as will the voltage at the loads). The amount by which the battery voltage decreases depends on the internal battery resistance, external resistances up to the terminals of specific loads, and the load placed on the battery. In RAI-2, the NRC staff requested information on assumptions, design basis and margins considered for total circuit resistance calculations when evaluating NCN-11 and NCN-27 battery load profiles for postulated operational conditions such as Loss of AC [alternating current] Power (LOP) or Station Blackout (SBO) events. The NRC staff also requested information on adequacy of terminal voltage of 1.75V per cell for equipment required to operate at the end of a 2-hour LOP event. In response to RAI-2, the licensee stated:

The assumptions and conservatisms contained within the DC System analysis calculation are consistent with IEEE Standard 485, "IEEE Recommended Practice for Sizing Large Lead Storage Batteries for Generating Stations and Substations" from 1978, including circuit resistance effects from battery internals, connections, and cabling.

The licensee provided details on conservative assumptions related to the evaluation of circuit impedance when evaluating contributions from battery connections and associated cabling. For voltage drop calculations, the licensee provided a summary of battery load time step scenario cases for each of the safety-related battery systems. For the NCN-27 batteries, the licensee stated that a load of 440 amperes, in time step 13 imposes the largest duty cycle and for the NCN-11 batteries, a load current of 275 amperes, in time step 4 imposes the largest duty cycle. The licensee further stated that:

The Composite battery load step scenario envelopes both the worst-case peak amperage draw in each load step and has the longest required duty cycle. This bounds the Loss of Alternating Current Power (LOP) and SBO loading profiles and accounts for design basis equipment loading. The Composite battery load step scenario was utilized when evaluating the acceptability of the new bounding intercell connection impedance.

The licensee confirmed that a minimum cell voltage of 1.75V per cell or 105V for each battery system is adequate for operation of safety related loads during the postulated 2-hour LOP event.

Based on the information provided by the licensee, the NRC staff concludes that the Millstone 3 methodology and assumptions for calculating safety-related battery system voltage profile during postulated LOP and SBO events include battery internal resistance, battery post connection resistances, interconnecting conductor impedances and other applicable connection/conductor impedances. The NRC staff finds that the licensee's responses to the RAIs are acceptable, and the staff concludes that the methodology used to calculate the maximum allowable battery cell connection resistance provides reasonable assurance that the capability of the station batteries to support design basis events in accordance with the licensing basis of Millstone 3 is maintained.

In summary, the NRC staff finds that verifying the total battery connection resistance ensures that the safety-related batteries will be able to maintain required minimum terminal voltages in order to perform their design safety functions. In addition, the connection resistance values proposed in the LAR include sufficient margins to allow the batteries to remain operable. Based on the above, the NRC staff finds that the proposed TS changes satisfy the intent of 10 CFR 50.36(c)(3) because they improve upon current testing requirements to assure the necessary quality of the 125 VDC batteries is maintained.

3.3 NRC Staff Conclusion

The NRC staff reviewed the licensee's proposed changes to the TS SRs 4.8.2.1.b.2 and 4.8.2.1.c.3. The proposed changes would modify SRs 4.8.2.1.b.2 and 4.8.2.1.c.3 by adding new acceptance criteria for total battery connection resistance to ensure that Millstone 3's safety-related batteries can perform their specified safety function.

Based on the above technical evaluation, the NRC staff concludes that the proposed TS changes associated with battery connection resistance requirements provide reasonable assurance of the continued availability of the required battery power to support safe shut down of the reactor and maintain safe conditions following an anticipated operational occurrence or a postulated design basis accident. Furthermore, the NRC staff concludes that the proposed TS changes are in conformance with 10 CFR 50.36(c) and the licensee continues to meet the intent

of GDCs 17 and 18. Therefore, the NRC staff finds the proposed changes in the LAR to be acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Connecticut State official was notified on February 12, 2021, of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 or changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on this finding (June 16, 2020; 85 FR 36435). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that 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.

Principal Contributors: A. Foli
G. Matharu
K. West

Date: March 25, 2021

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 – ISSUANCE OF AMENDMENT NO. 278 REGARDING REVISION TO BATTERY SURVEILLANCE REQUIREMENTS (EPID L-2020-LLA-0094) DATED MARCH 25, 2021

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