

10 CFR 50.90

March 7, 2024

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
ATTN: Document Control DeskLimerick Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: Response to Requests for Additional Information (RAI 4, RAI 1.c Revision) for License Amendment Request to Revise the Licensing and Design Basis to Incorporate the Replacement of Existing Safety-Related Analog Control Systems with a Single Digital Plant Protection System (PPS)

- References:
1. Constellation Energy Generation, LLC (CEG) letter to the U.S. Nuclear Regulatory Commission (NRC), "License Amendment Request to Revise the Licensing and Design Basis to Incorporate the Replacement of Existing Safety-Related Analog Control Systems with a Single Digital Plant Protection System (PPS)," dated September 26, 2022 (NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML22269A5690).
 2. Constellation Energy Generation, LLC (CEG) letter to the U.S. Nuclear Regulatory Commission (NRC), "License Amendment Request to Revise the Licensing and Design Basis to Incorporate the Replacement of Existing Safety-Related Analog Control Systems with a Single Digital Plant Protection System (PPS)," dated September 12, 2023 (ADAMS Accession No. ML23255A095)
 3. Email from Michael Marshall, U.S. Nuclear Regulatory Commission to Francis Mascitelli, Constellation Energy Generation, LLC, "Limerick Generating Station, Units 1 and 2 – Request for Additional Information Regarding Limerick Digital Instrumentation and Controls License Amendment Request (EPID L-2022-LLA-0140), dated January 26, 2024, (ADAMS Accession No. ML24026A292)
 4. Constellation Energy Generation, LLC (CEG) letter to the U.S. Nuclear Regulatory Commission (NRC), Response to Requests for Additional Information (RAIs 1, 2, and 3) for License Amendment Request to Revise the Licensing and Design Basis to Incorporate the Replacement of Existing Safety-Related Analog Control Systems with a Single Digital Plant Protection System (PPS)," dated February 26, 2024 (ADAMS Accession No. ML24057A427)

In accordance with 10 CFR 50.90, Constellation Energy Generation, LLC (CEG) requested a License Amendment Request (LAR) to replace the Limerick Generating Station, Units 1 and 2 existing safety-related analog control systems with a single digital Plant Protection System (PPS) (Reference 1).

In Reference 2, CEG submitted a LAR supplement that replaced in its entirety the original license amendment request, dated September 26, 2022. CEG replaced the original submittal to address issues associated with proprietary/non-proprietary information.

In Reference 3, the NRC notified CEG that additional information is needed to complete its review of the Reference 2 submittal.

In Reference 4, CEG provided a response for RAIs 1, 2, and 3.

Attachment 1 to this letter provides the response to request for additional information for RAI 4.

In addition, Attachment 2 contains a revision to the response to RAI 1.c provided in Reference 4. An additional terminology difference was discovered subsequent to the Reference 4 submittal regarding the "Ovation Remote Node Controller (RNC)." The equivalent term in Limerick-specific documents is "Ovation Remote Node Interface (RNI)."

CEG has reviewed the information supporting a finding of no significant hazards consideration, and the environmental consideration, which was previously provided to the NRC in the Reference 2 letter. CEG has concluded that the information provided in this RAI response does not affect the bases for concluding that the proposed license amendments do not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92. In addition, CEG has concluded that the information in this RAI response letter does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendments.

This RAI response letter contains no regulatory commitments.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), CEG is notifying the Commonwealth of Pennsylvania of this supplemental letter by transmitting a copy of this letter to the designated State Official.

If you have any questions regarding this submittal, then please contact Frank Mascitelli at 267-533-5677 or Ashley Rickey at 267-533-1427.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 7th day of March 2024.

Limerick DMP LAR RAI 4 and RAI 1.c Revision Response
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Respectfully,



David P. Helker
Sr. Manager - Licensing
Constellation Energy Generation, LLC

Attachments: 1. Response to Requests for Additional Information (RAI 4, RAI 1.c Revision) for License Amendment Request to Revise the Licensing and Design Basis to Incorporate the Replacement of Existing Safety-Related Analog Control Systems with a Single Digital Plant Protection System (PPS)

2. Revision to RAI 1.c Response

cc: USNRC Region I, Regional Administrator w/ attachments
USNRC Project Manager, LGS "
USNRC Senior Resident Inspector, LGS "
Director, Bureau of Radiation Protection - Pennsylvania Department of Environmental Protection "

Attachment 1

License Amendment Request Supplement

**Limerick Generating Station, Units 1 and 2
Docket Nos. 50-352 and 50-353**

**Response to Requests for Additional Information (RAI 4, RAI 1.c Revision)
for License Amendment Request to Revise the Licensing and Design Basis to
Incorporate the Replacement of Existing Safety-Related Analog Control Systems
with a Single Digital Plant Protection System (PPS)**

By letter dated September 26, 2022 (Agencywide Documents Access and Management System Accession No. ML22269A569; non-public), as supplemented by letters dated August 12, 2022 (ML22224A149), November 29, 2022 (ML22333A817), February 8, 2023 (ML23039A141), February 15, 2023 (ML23046A266), March 30, 2023 (ML23089A324), April 5, 2023 (ML23095A223), June 26, 2023 (ML23177A224), July 31, 2023 (ML23212B236), September 12, 2023 (ML23255A095), October 30, 2023 (ML23303A223), and November 21, 2023 (ML23325A206), Constellation Energy Generation, LLC (CEG) submitted a License Amendment Request to revise the Licensing and Design Basis to incorporate the replacement of existing Safety-Related Analog Control Systems with a single Digital Plant Protection System (PPS).

The supplement dated September 12, 2023 replaces in its entirety the original license amendment request dated September 26, 2022. The Licensee replaced the original submittal, because it had mistakenly included proprietary information in the non-proprietary parts of the request. The original submittal was made non-public by the U.S. Nuclear Regulatory Commission (NRC) staff, because of the mistaken inclusion of proprietary information by the Licensee. With the exceptions noted by the Licensee in the letter dated September 12, 2023, the content of the replacement and the original are the same.

The NRC staff has reviewed the information provided in the license amendment request and has determined that additional information is needed to complete its review. This request for additional information was discussed with CEG on January 19 and 26, 2024, and it was agreed that a response would be provided within 30 days of the date of the NRC's January 26, 2024 email for requests for additional information (RAIs) 1, 2, and 3 and within 45 days of the date of the email for RAI 4.

Below is the Constellation Energy Generation (CEG) response to address NRC staff RAI 4.

RAI 4

In the letters dated September 26, 2022, February 8, 2023, March 30, 2023, April 5, 2023, June 26, 2023, and September 12, 2023, Constellation included documents concerning human factors engineering (e.g., human factors plan, results summary reports) that contain both export-controlled and proprietary information. In its letters, Constellation requested that information in these documents be withheld from public disclosure per Section 2.390, "Public inspections, exemptions, requests for withholding," of 10 CFR. Section 2.390(b)(1)(i)(A) of 10 CFR states, in part, the first and successive pages containing information sought to be withheld must be readily visible mark at the top or other suitable marking with language substantially similar to "confidential information submitted under 10 CFR 2.390," "withhold from public disclosure under 10 CFR 2.390," or "proprietary," to indicate the information contains information to be withheld. The marking of "Official Use Only" used in the human factors engineering documents do not indicate that the document contains export-control or proprietary information that Constellation is requesting to be withheld. Section 2.390(b)(1)(i)(B) of 10 CFR states, in part, that on each page containing information sought to be withheld from public disclosure, the basis for proposing the information be withheld specified adjacent (i.e., portion markings) to the information. The documents lack portion markings indicating the basis for withholding the

information from public release. Constellation did not provide portion markings to distinguishing between the export-controlled and proprietary information. The human factors engineering documents lack the markings required by 10 CFR 2.390(b)(i). Additionally, proper identification of different types of information is necessary to ensure proper handling and storage of each type of information.

For each of the human factors engineering documents that contain both export-controlled and proprietary information, identify the export-controlled information.

CEG Response:

The following three DOE INL documents are identified as having both proprietary and export-controlled information (ECI):

- INL/RPT-22-68995, "Human Factors Engineering Combined Functional Requirements Analysis, Function Allocation, and Task Analysis for the Limerick Control Room Upgrade: Results Summary Report," July 2022 (proprietary) submitted as Attachment 8.2 of CEG proprietary submittal ML23255A096 on September 12, 2023.
- INL/RPT-23-71063, Revision 0, "Limerick Safety-Related Instrumentation and Controls Upgrade, Human Factors Engineering Conceptual Verification Report," dated February 2023 (proprietary) submitted as Attachment 1 of CEG proprietary submittal ML23095A224 on April 5, 2023.
- INL/RPT-23-710903, Revision 0, "Limerick Safety-Related Instrumentation and Controls Upgrade, Human Factors Engineering Preliminary Validation Verification Report," dated March 2023 (proprietary) submitted as Attachment 1 of CEG proprietary submittal ML23177A225 on June 26, 2023.

The pages listed in below documents have been identified as containing ECI:

INL/RPT-22-68995

Page 40-41 HFE Graded Checklist - Assessment and Discussion
Page 43-45 Table 4, Table 5 UFSAR & D3 Credited tasks
Page 57 Paragraph 5.2.3
Page 58 Paragraph 5.2.5.iii
Page 59-60 Paragraph 8 PPS VDUs
Page 70-104 Appendix A Scenario 1-9 Functional Requirements and Function Allocation Detailed Results
Page 105-156 Appendix B Scenario 1-9 Task Analysis Detailed Results
Page 157-181 Appendix C Detailed Task Screening Results
Page 195-212 Appendix D Conceptual Displays

INL/RPT-23-71063

Page 27 Removed Time Available and Perform Table 3 at 4.3.2.1

Page 27 Removed time from Note 1 and 2 below Table 3 at 4.3.2.1
Page 28 Removed times from Table 4 at 4.3.2.2
Page 39 Removed times from Table 5 at 5.3.1
Page 39 Removed times from Table 5 Notes 1 and 2
Page 40,41 Removed times from Table 6 at 5.3.2
Page 47-58 Appendix A HSI Design Review Guide (Style Guide)
Page 60-129 Appendix B Displays
Page 132-302 Appendix C Simulator Exercise Guide
Page 304 Scenario 1 Performance Timeline
Page 306 Scenario 2 Performance Timeline
Page 309 Scenario 5 Performance Timeline
Page 311 Scenario 6 Performance timeline
Page 312 Scenario 7 performance timeline
Page 314 Scenario 9 Performance Timeline
Page 316-331 Appendix E Comments on Displays & Procedures
Page 334-335 Appendix F - Plant Protection System Navigation Click Structure

INL/RPT-23-710903

Page 14,15 Removed time available and to perform in Table 1 at 4.3.2.1
Page 16 Removed time available and time to perform in Table 2 at 4.3.2.2
Page 29-31 Removed time details for implement and criterion Table 3 at 5.3.1. &
Note 1; 5.3.2 Table 4
Page 34 Removed Sr. Mgr Observations 5.3.3.1.2
Page 36 Removed Sr. Mgr Observations 5.3.3.2.2
Page 41 Removed Sr. Mgr Observations 5.3.3.5.2
Page 43 Removed Sr. Mgr Observations 5.3.3.6.2
Page 47 Removed Sr. Mgr Observations 5.3.3.9.2
Page 47,48 Table 5 at 5.5 Removed details of Procedures and problems identified during
PV
Page 53-154 Appendix B, HSI Displays
Page 156-320 Appendix C, Removed Simulator Exercise Guide
Page 321,322 Appendix D, Scenario 1 Removed timeline for PV team performance
Page 322 Scenario 1 Removed Summary Results
Page 325 Scenario 2 Removed Summary Results
Page 328 Scenario 3 Removed Summary Results
Page 330 Scenario 4 Removed Summary Results
Page 331 Scenario 5, Removed Performance Timeline
Page 332 Scenario 5, Removed Summary Results
Page 333 Scenario 6 Performance Timeline
Page 334 Scenario 6 Removed Summary Results
Page 335 Scenario 7 Removed Performance Timeline
Page 336 Scenario 7 Removed Summary Results
Page 337 Scenario 8 Removed Summary Results
Page 339 Scenario 9 Removed Summary Results
Page 342-358 Appendix E Comments to Displays & Procedures developed for CV & PV

Attachment 2

License Amendment Request Supplement

**Limerick Generating Station, Units 1 and 2
Docket Nos. 50-352 and 50-353**

Revision to RAI 1.c Response

Revision to RAI 1.c Response

An additional terminology difference was discovered subsequent to the Reference 4 submittal for the RAI 1.c response regarding the "Ovation Remote Node Controller (RNC)." The equivalent term in Limerick-specific documents is "Ovation Remote Node Interface (RNI)." The following four documents previously provided in the RAI 1.c CEG response are revised to include the above terminology difference as indicated by the revision bar:

6105-60019, "CIM-SRNC Software Hazard Analysis Report," Rev. 4:

- The Safety System is the PPS. The Control System is the DCS. The Computer independent control system is the DPS.
- Ovation Remote Node Controller (RNC) is now Ovation Remote Node Interface (RNI).

6105-10004, "SRNC FPGA Software Requirements Specification," Rev. 13:

- Ovation RNC is now Ovation RNI.

6105-20004, "CIM FPGA Software Requirements Specification," Rev. 17:

- The Safety System is the PPS. The Non-safety System is the DCS. The Computer independent control system is the DPS.
- Ovation RNC is now Ovation RNI.

6105-20014, "CIM FPGA Software Design Description," Rev. 5

- The Safety System is the PPS. The Non-safety System is the DCS. The Computer independent control system is the DPS.
- Ovation RNC is now Ovation RNI.