



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

September 15, 2017

Mr. Fadi Diya
Senior Vice President and
Chief Nuclear Officer
Union Electric Company
P.O. Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT, UNIT 1 - ISSUANCE OF AMENDMENT RE:
REPLACEMENT OF METHODOLOGY IN TECHNICAL SPECIFICATION 5.6.5,
"CORE OPERATING LIMITS REPORT (COLR)" (CAC NO. MF8463)

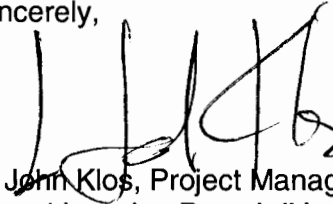
Dear Mr. Diya:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 217 to Renewed Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1. The amendment consists of changes to the technical specifications (TSs) in response to your application dated October 11, 2016, as supplemented by letters dated May 18, and June 2, 2017.

The amendment revises TS 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," to add three references, which contain methodologies used to determine core operating limits. These references include topical report WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," and WCAP-10965-P-A, Addendum 2-A, "Qualification of the New Pin Power Recovery Methodology." These references will replace the PHOENIX-P methodology, described in WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores."

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

Sincerely,

A handwritten signature in black ink, appearing to read "L. John Klos". The signature is stylized with a large initial "L" and a long horizontal stroke.

L. John Klos, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosures:

1. Amendment No. 217 to NPF-30
2. Safety Evaluation

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

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 217
Renewed License No. NPF-30

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Union Electric Company (UE, the licensee), dated October 11, 2016, as supplemented by letters dated May 18, and June 2, 2017, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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-30 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan*

The Technical Specifications contained in Appendix A, as revised through Amendment No. 217 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of its date of issuance, and shall be implemented within 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert J. Pascarelli, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-30 and
Technical Specifications

Date of Issuance: September 15, 2017

ATTACHMENT TO LICENSE AMENDMENT NO. 217

CALLAWAY PLANT, UNIT 1

RENEWED FACILITY OPERATING LICENSE NO. NPF-30

DOCKET NO. 50-483

Replace the following pages of the Renewed Facility Operating License No. NPF-30 and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

REMOVE

INSERT

-3-

-3-

Technical Specifications

REMOVE

INSERT

5.0-25

5.0-25

5.0-26

5.0-26

- (3) UE, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) UE, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source of special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (5) UE, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

UE is authorized to operate the facility at reactor core power levels not in excess of 3565 megawatts thermal (100% power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan*

The Technical Specifications contained in Appendix A, as revised through Amendment No. 217 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Environmental Qualification (Section 3.11, SSER #3)**

Deleted per Amendment No. 169.

* Amendments 133, 134, & 135 were effective as of April 30, 2000 however these amendments were implemented on April 1, 2000.

** The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

5.6 Reporting Requirements

4. WCAP-12610-P-A, "VANTAGE + FUEL ASSEMBLY REFERENCE CORE REPORT."
 5. WCAP-11397-P-A, "REVISED THERMAL DESIGN PROCEDURE."
 6. WCAP-14565-P-A, "VIPRE-01 MODELING AND QUALIFICATION FOR PRESSURIZED WATER REACTOR NON-LOCA THERMAL-HYDRAULIC SAFETY ANALYSIS."
 7. WCAP-10851-P-A, "IMPROVED FUEL PERFORMANCE MODELS FOR WESTINGHOUSE FUEL ROD DESIGN AND SAFETY EVALUATIONS."
 8. WCAP-15063-P-A, "WESTINGHOUSE IMPROVED PERFORMANCE ANALYSIS AND DESIGN MODEL (PAD 4.0)."
 9. WCAP-8745-P-A, "DESIGN BASES FOR THE THERMAL OVERPOWER DT AND THERMAL OVERTEMPERATURE DT TRIP FUNCTIONS."
 10. WCAP-10965-P-A, "ANC: A WESTINGHOUSE ADVANCED NODAL COMPUTER CODE."
 11. WCAP-10965-P-A Addendum 2-A, "Qualification of the New Pin Power Recovery Methodolgy."
 12. WCAP-13524-P-A, "APOLLO: A ONE DIMENSIONAL NEUTRON DIFFUSION THEORY PROGRAM."
 13. WCAP-14565-P-A Addendum 2-P-A, "Extended Application of ABB-NV Correlation and Modified ABB-NV Correlation WLOP for PWR Low Pressure Applications."
 14. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON."
 15. WCAP-16045-P-A Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology."
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

(continued)

5.6 Reporting Requirements

- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, hydrostatic testing and PORV lift setting as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:
 - 1. Specification 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and
 - 2. Specification 3.4.12, "Cold Overpressure Mitigation System (COMS)."
- b. The analytical methods used to determine the RCS pressure and temperature and COMS PORV limits shall be those previously reviewed and approved by the NRC, specifically those described in WCAP-14040-NP-A, "Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves".
- c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

5.6.7 Not used.

5.6.8 PAM Report

When a report is required by Condition B or F of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.9 Not used.

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 217 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By application dated October 11, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16286A553), as supplemented by letters dated May 18, and June 2, 2017 (ADAMS Accession Nos. ML17138A213 and ML17153A277, respectively), Union Electric Company, dba Ameren Missouri (the licensee) requested changes to Renewed Facility Operating License No. NPF-30 for the Callaway Plant, Unit 1 (Callaway). The licensee is proposing to revise Section b of Technical Specification (TS) 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," to add three NRC-approved references, which contain methodologies used to determine core operating limits. These references include the following Westinghouse Electric Company LLC (Westinghouse) topical reports:

- WCAP-16045-P-A, Revision 0, "Qualification of the Two-Dimensional Transport Code PARAGON," dated August 2004,
- WCAP-16045-P-A, Addendum 1-A, Revision 0, "Qualification of the NEXUS Nuclear Data Methodology," dated August 2007, and
- WCAP-10965-P-A, Addendum 2-A, Revision 0, "Qualification of the New Pin Power Recovery Methodology," dated September 2010.

These references will replace the PHOENIX-P methodology, described in WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," dated June 1988.

Non-proprietary versions of WCAP-16045-P-A and WCAP-16045-P-A, Addendum 1-A, designated as WCAP-16045-NP-A and WCAP-16045-NP-A, Addendum 1, are publicly available in ADAMS under Accession Nos. ML042250322 and ML053460157, respectively. Topical reports WCAP-10965-P-A, Addendum 2-A and WCAP-11596-P-A are not publicly available (proprietary information).

The supplemental letters dated May 18 and June 2, 2017, 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) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on January 3, 2017 (82 FR 162).

2.0 REGULATORY EVALUATION

The guidance in NRC Generic Letter (GL) 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," dated October 4, 1988 (ADAMS Accession No. ML031200485), indicates that it is acceptable for licensees to control reactor physics parameter limits by specifying an NRC-approved calculation methodology. The GL states that such reactor physics parameter limits may be removed from the TS and placed in a cycle-specific COLR. By letter dated November 1, 1990, the NRC issued Amendment No. 58¹ for Callaway, which relocated the cycle-specific core parameters from the TSs and placed them in the COLR (ADAMS Accession No. ML021680115).

The COLR is defined in the TSs and the reporting requirements in the TSs require that a COLR be submitted to the NRC each operating cycle, or each time the COLR is revised. GL 88-16 also recommends that licensees include, in their TSs, a list of references for the NRC-approved methodologies, which are used to generate the cycle-specific parameter operating limits. The Callaway TS includes a list of references for the NRC-approved calculation methodologies used to generate the cycle-specific operating limits in TS 5.6.5, Section b, and the TS changes requested by the licensee in this license amendment request (LAR) are changes to this reference list.

The specified topical reports comprise nuclear data methodologies. The NRC safety evaluations that provide generic approval for use of WCAP-16045-P-A; WCAP-16045-P-A, Addendum 1-A; and WCAP-10965-P-A, Addendum 2-A, cite Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.34, "Contents of applications; technical information," as their regulatory basis. Nuclear analysis forms an integral part of the safety analysis required to be provided by licensees and applicants, and these safety analyses are used to establish the limiting safety system settings (LSSS) and limiting conditions for operation (LCOs) contained in the TS. Therefore, 10 CFR 50.36, "Technical specifications," also applies because without an accurate nuclear analysis, it cannot be established that the LCOs and LSSS provide for the safe operation of the facility.

3.0 TECHNICAL EVALUATION

3.1 Proposed TS Changes

The licensee originally proposed in its LAR dated October 11, 2016, that it would preserve both the current PHOENIX-P/ANC nuclear design methodology and the new PARAGON-NEXUS/ANC code system as references listed in Section b of TS 5.6.5. By leaving both the current and proposed methodologies in the Callaway TS, the proposed TS change leaves open the possibility that either methodology could be used to calculate the core operating limits addressed in the COLR, which effectively create a new, ambiguous methodology. The NRC staff issued a request for additional information (RAI) by e-mail dated April 25, 2017 (ADAMS Accession No. ML17115A062) and requested the licensee to identify a single, unambiguous method to determine how the core operating limits will be calculated. By

¹ By letter dated December 7, 1990, the NRC issued a correction to Amendment No. 58, which revised the TS pages to correct errors (ADAMS Accession No. ML021680084)

letter dated May 18, 2017, the licensee responded to the RAI and provided a supplement to the LAR on June 2, 2017. The supplement included new marked-up and retyped TS pages that removed the topical report WCAP-11596-P-A (PHOENIX-P/ANC methodology) from the list of references in TS 5.6.5, specifying a single unambiguous methodology, which is the PARAGON-NEXUS/ANC code system.

Current TS 5.6.5, Section b states, in part:

11. WCAP-11596-P-A, "QUALIFICATION OF THE PHOENIX-P/ANC NUCLEAR DESIGN SYSTEM FOR PRESSURIZED WATER REACTOR CORES."

Revised TS 5.6.5, Section b would state, in part:

11. WCAP-10965-P-A Addendum 2-A, "Qualification of the New Pin Power Recovery Methodology."
- ...
14. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON."
15. WCAP-16045-P-A Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology."

3.2 Methodology Description

The PARAGON code, as described in WCAP-16045-P-A, is a neutron transport code, intended to replace the PHOENIX-P (WCAP-11596-P-A) code for use in providing cross section data to the Westinghouse proprietary Advanced Nodal Code (ANC), which is a core simulator code. The ANC methodology is described in WCAP-10965-P-A, "ANC: A WESTINGHOUSE ADVANCED NODAL CODE" (not publicly available). The NEXUS methodology, described in WCAP-16045-P-A, Addendum 1-A, is an improvement to the PARAGON/ANC code system that changes the method of communicating the nuclear data output from PARAGON to ANC. Rather than using boron letdown curves, NEXUS accounts for variations in the neutron spectrum by parameterizing the PARAGON cross section output and reconstructing it within ANC. The NEXUS methodology provides a link between PARAGON and ANC without replacing either, and therefore, still requires the use of both other codes.

WCAP-16045-P-A and addendum are NRC-approved, and the NRC staff has previously determined that they have been validated and verified for a wide range of operating conditions. In Addendum 1-A of WCAP-16045-P-A, the verification was expanded to include the comparison of NEXUS results for critical boron concentration to those obtained using the previous PARAGON methodology, showing agreement between NEXUS predictions and available data.

WCAP-10965-P-A, Addendum 2-A, details an improved methodology for reconstructing individual pin power distributions in ANC. This methodology addresses shortcomings of the previous methodology, allowing the effects of control rod insertion on pin power to be tracked. Specific details regarding the technique used can be found in the proprietary version of the approved topical report.

Each of the methodologies that the licensee proposed to be added to Callaway TS 5.6.5 are NRC-approved, as documented in the safety evaluations for WCAP-16045-P-A, WCAP-16045-P-A, Addendum 1-A, and WCAP-10965-P-A, Addendum 2-A (ADAMS Accession Nos. ML040780402, ML070320398, and ML102350046, respectively). In addition, the methodologies have been validated and verified for a wide range of operating conditions.

3.3 Applicability of Methodology to Callaway

The NRC staff reviewed the Final Safety Analysis Report (FSAR) for Callaway to verify that the fuel in use is covered by the verification and validation database for PARAGON, NEXUS, and ANC, as amended. The Callaway FSAR, Chapter 4, "Reactor," indicates that the unit may use any combination of 17x17 Westinghouse Standard, Optimized, VANTAGE 5, VANTAGE+, and Performance+ fuel designs, including integral fuel burnable absorbers, intermediate flow mixer grids, Westinghouse integral nozzle top nozzles, standardized debris filter bottom nozzles, extended burnup capability (within licensed limits), and axial blankets.

Chapter 4.0, "Conditions and Limitations," in the safety evaluations for WCAP-16045-P-A and WCAP-16045-P-A, Addendum 1-A list the conditions and limitations for site-specific use of the PARAGON and NEXUS codes. A single limitation imposed by the safety evaluations for both PARAGON and NEXUS precludes their use for mixed oxide (MOX) cores. Callaway TS 4.2.1, "Fuel Assemblies," specifies the initial composition of the fuel assemblies to be "natural or slightly enriched uranium dioxide as fuel material." The MOX limitation is therefore inherently satisfied for Callaway.

A limitation is also specified in the Chapter 4.0, "Limitations and Conditions," in the safety evaluation for WCAP-10965-P-A, Addendum 2-A for site-specific use of the NEXUS/ANC pin power reconstruction methodology. The limitation specifies that the new pin power recovery methodology must be used in conjunction with the PARAGON/NEXUS code system on which it relies. Since the licensee requested the use of all three methodologies in this LAR, this limitation is also inherently satisfied.

Based on this review, the NRC staff determined that all of the design features of the fuel in use at Callaway are adequately represented in the qualification of the PARAGON/NEXUS system and the NEXUS/ANC pin power reconstruction methodology. The NRC staff has therefore determined that the NRC-approved methodologies described in WCAP-16045-P-A, WCAP-16045-P-A, Addendum 1-A, and WCAP-10965-P-A, Addendum 2-A are applicable to Callaway.

In this LAR, the licensee has proposed to use NRC-approved methodologies, which is consistent with the guidance in GL 88-16 that states that licensees may use NRC-approved methods to determine core operating limits. Furthermore, the applicability of the generic qualification helps to establish that nuclear design analyses performed for Callaway using the methods described will be reasonably accurate, consistent with the 10 CFR 50.34 requirements for safety analyses. Accuracy of the nuclear analysis also helps ensure the adequacy of the TS LCOs and LSSS to provide for the safe operation of the facility, consistent with the requirements of 10 CFR 50.36.

3.4 Additional Review Topics

The addendum to WCAP-16045-P-A changes the way boron letdown curves are calculated and provide input into the overall nuclear design method. Because of this, in previous reviews of

PARAGON-NEXUS/ANC applications, the NRC staff has found it necessary to verify that no changes were made to the analysis methods for post loss-of-coolant accident (LOCA) subcriticality and boric acid precipitation behavior. By email dated April 25, 2017, the NRC staff requested additional information from the licensee to verify that no changes were made to the analysis methods for post-LOCA subcriticality and boric acid precipitation behavior. By letter dated May 18, 2017, the licensee verified that the use of WCAP-16045-P-A, Addendum 1-A, does not affect the inputs or methods for ensuring post-LOCA core subcriticality. Additionally, the licensee's response confirmed that the boric acid precipitation behavior remains unaffected since neither the boron source concentration nor the heat generation are impacted by the use of WCAP-16045-P-A, Addendum 1-A.

The NRC staff determined that the response was acceptable because it confirmed that the implementation of PARAGON-NEXUS/ANC at Callaway would not affect the calculation of post-LOCA boron requirements or emergency procedures to mitigate post-LOCA boric acid precipitation. Therefore, the NRC staff concluded that the existing post-LOCA analyses for subcriticality and long-term cooling remain applicable.

3.5 Technical Conclusion

The NRC staff has determined that the proposed TS changes required to replace the PHOENIX-P code system with the PARAGON/NEXUS code system, as supplemented, are acceptable for Callaway. This determination is based on the following considerations: (1) that PARAGON and NEXUS are NRC-approved methods, which have been determined to be applicable to Callaway and (2) that the Callaway post-LOCA subcriticality and boric acid precipitation analyses will be unaffected by the proposed changes. Additionally, the NRC staff has determined that the adoption of the NEXUS/ANC pin power reconstruction methodology is acceptable for Callaway when used in conjunction with the PARAGON/NEXUS code system. Therefore, the NRC staff concluded that the proposed TS revision is consistent with the guidance provided in GL 88-16, and that the generic qualification and robust validation of the PARAGON-NEXUS/ANC system satisfy the requirements of 10 CFR 50.34 and 10 CFR 50.36.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Missouri State official was notified of the proposed issuance of the amendment on August 24, 2017. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 such finding published in the *Federal Register* on January 3, 2017 (82 FR 162). 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 Contributor: D. Beacon, NRR

Date: September 15, 2017

SUBJECT: CALLAWAY PLANT, UNIT 1 - ISSUANCE OF AMENDMENT RE:
 REPLACEMENT OF METHODOLOGY IN TECHNICAL SPECIFICATION 5.6.5,
 "CORE OPERATING LIMITS REPORT (COLR)" (CAC NO. MF8463) DATED
 SEPTEMBER 15, 2017

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***by memo dated**

****by email**

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DATE	9/8/17	9/13/17	9/15/17	

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