WOLF CREEK
NUCLEAR OPERATING CORPORATION

John P. Broschak
Vice President Engineering

September 23, 2013

ET 13-0028

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

Subject: Docket No. 50-482: Application to Revise Technical Specifications (TS) to Replace a Methodology to TS 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)"

Gentlemen:

Pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests an amendment to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS). The proposed amendment revises WCGS Technical Specification (TS) 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," to replace WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," with WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," and WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," to determine core operating limits.

Attachments I through IV provide the Description and Assessment, Proposed TS Changes, Revised TS pages, and Proposed COLR Changes, respectively, in support of this amendment request. Attachment IV is provided for information only.

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92, "Issuance of amendment." Pursuant to 10 CFR 50.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible or otherwise not requiring environmental review," Section (b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

A001
NRR

The Plant Safety Review Committee reviewed this amendment application. In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," a copy of this amendment application, with attachments, is being provided to the designated Kansas State official.

WCNOC requests approval of the proposed amendment by December 15, 2014, to support core fuel reload activities for Cycle 21 operation (Spring 2015). It is anticipated that the license amendment, as approved, will be effective upon issuance and will be implemented prior to core reload during Refueling Outage 20. Refueling Outage 20 is currently scheduled to begin in early January 2015.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4085, or Mr. Michael Westman at (620) 364-4009.

Sincerely,

John P. Broschak

JPB/rlt

Attachment: I Evaluation
II Proposed Technical Specification Changes (Markup)
III Revised Technical Specification Pages
IV Proposed COLR Changes (for information only)

cc: T. A. Conley (KDHE), w/a
C. F. Lyon (NRC), w/a
N. F. O'Keefe (NRC), w/a
S. A. Reynolds (NRC), w/a
Senior Resident Inspector (NRC), w/a

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

John P. Broschak, of lawful age, being first duly sworn upon oath says that he is Vice President Engineering of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By John P. Broschak
John P. Broschak
Vice President Engineering

SUBSCRIBED and sworn to before me this 23rd day of September, 2013.

Gayle Shepheard
Notary Public

GAYLE SHEPHEARD
Notary Public - State of Kansas
My Appt. Expires 7/24/2015

Expiration Date 7/24/2015

EVALUATION

EVALUATION

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests an amendment to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS). The proposed amendment revises WCGS Technical Specification (TS) 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," to replace WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," (Reference 1) with WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," (Reference 2) and WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," (Reference 3) to determine core operating limits. The proposed TS change will allow the methodology of WCAP-16045-P-A and WCAP-16045-P-A, Addendum 1-A, to be utilized for determining the refueling boron concentration for Limiting Condition for Operation (LCO) 3.9.1, "Boron Concentration."

2.0 DETAILED DESCRIPTION

Specification 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," Section b. lists the analytical methods used to determine the core operating limits.

The proposed change would delete the following WCNOC related analytical methods listed in Section b. of Specification 5.6.5:

8. WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores."

The proposed change would add the following analytical methods to those listed in Section b. of Specification 5.6.5:

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."

Due to the changes described above, the list of analytical methods in Specification 5.6.5 will be renumbered as applicable.

The proposed amendment will allow the methodology of WCAP-16045-P-A and WCAP-16045-P-A, Addendum 1-A, to be utilized for determining the refueling boron concentration for LCO 3.9.1, "Boron Concentration." The proposed changes are acceptable since they assure the core operating limits have been calculated in accordance with a Nuclear Regulatory Commission (NRC) approved methodology. Use of this methodology will improve plant safety through more accurate core design capabilities.

The addition of the analytical methods by topical report number and title is consistent with Amendment No. 144, (Reference 4). Amendment No. 144 adopted TSTF-363, "Revise Topical Report References in ITS 5.6.5, COLR," and the NRC concluded in the safety evaluation that the proposed change to only list the NRC approved methodology by topical report number and title is acceptable. Additionally, in a letter from the NRC to the TSTF (Reference 5) the NRC indicated that the NRC staff does not intend to backfit licensees that have these travelers (TSTF-363, TSTF-408 or TSTF-419) already in their TSs.

3.0 TECHNICAL EVALUATION

LCO 3.9.1 states:

> Boron concentrations of all filled portions of the Reactor Coolant System and the refueling canal, that have direct access to the reactor vessel, shall be maintained within the limit specified in the COLR.

TS Section 5.6.5b. specifies that the analytical methods used to determine the core operating limits shall be previously reviewed and approved by NRC. WCAP-11596-P-A, ""Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," is the methodology for determining the minimum boron concentration value for LCO 3.9.1.

PHOENIX-P is the neutron transport code traditionally used to provide cross section data as input to the Advanced Nodal Code (ANC) code. The PARAGON computer code is a standalone neutron transport code based on collision probability techniques, and it is approved for use as a standalone lattice physics code and as cross section generation tool for core simulators, such as ANC, for uranium-fuel pressurized water reactors (PWRs). ANC is a core simulator code system, which performs calculations based on nuclear data supplied by a code such as PARAGON or PHOENIX-P. The PARAGON nuclear data methodology was developed as a direct replacement to PHOENIX-P.

WCAP-16045-P-A confirms the qualifications of the PARAGON code both as a standalone transport code and as a substitute for the PHOENIX-P code, the code currently used in the WCGS design, as a nuclear data source for nodal codes. As part of the qualification process, WCAP-16045-P-A includes a comparison of PARAGON predicted values to measured data from several plants. Benchmarking has shown that results from the PARAGON/ANC code package are essentially the same as those obtained from the current PHOENIX-P/ANC system. WCAP-16045-P-A concludes that the application of PARAGON nuclear data methodology does not result in any undesirable changes in predicted fuel performance or safety analysis results. The NRC Safety Evaluation (Reference 6) for the PARAGON nuclear data methodology states, in part:

> ... the staff considers the new PARAGON code to be well qualified as a stand-alone code replacement for the PHOENIX-P lattice code, wherever the PHOENIX-P code is used in NRC-approved methodologies.

WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," is an improvement to the PARAGON computer code. The NEXUS methodology is a re-parameterization of the PARAGON nuclear data output and a new reconstruction approach

within the ANC core simulator code to simplify the use of this code system for design use. NEXUS has been implemented in the PARAGON/ANC code system for design use. Specifically, the NEXUS methodology has been implemented in the parameterization of PARAGON cross sections for input to ANC and also in ANC to reconstruct those cross sections at specific nodal conditions. Since the NEXUS methodology provides a linkage between PARAGON and ANC, establishing a new code system, while still using PARAGON, both WCAP-16045-P-A and WCAP-16045-P-A, Addendum 1-A are being added to Specification 5.6.5b.

WCAP-16045-P-A, Addendum 1-A, verifies the accuracy of NEXUS for cross section representation. As part of this topical report, different assembly types were calculated using NEXUS, which include the following: both Westinghouse and Combustion Engineering assembly types; UO_2 fuel; and integral fuel burnable absorber (IFBA); wet annular burnable absorber (WABA); and Gd_2O_3 burnable absorbers. The k-infinity results from these calculations were compared directly to PARAGON k-infinity results at corresponding conditions. The comparisons demonstrated that the NEXUS cross sections are accurate over the range of temperatures, boron concentrations, and power levels expected to be encountered in PWR core calculations. The NRC Safety Evaluation (Reference 7) for the NEXUS nuclear data methodology states, in part:

> The NRC staff has reviewed the TR [Topical Report] submitted by Westinghouse and determined that the NEXUS/ANC code system is adequate to replace the PARAGON/ANC code system wherever the latter is used in NRC-approved methodologies. The NRC staff, furthermore, has determined that NEXUS/ANC is qualified as a stand-alone code system so long as its use is limited by the provisions listed in Section 4.0 of this safety evaluation.

The provisions listed in Section 4.0 state that NEXUS/ANC shall be limited to uranium-fueled PWR applications (that is, not mixed-oxide fuel). TS Specification 4.2.1, "Fuel Assemblies," specifies that the reactor shall contain 193 fuel assemblies and each assembly shall consist of a matrix of Zircalloy or ZIRLO clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. A separate licensing action would be required in order to use mixed-oxide fuel. As such, NEXUS/ANC is acceptable for use at WCGS.

WCAP-16045-P-A, Addendum 1-A, brings about a change to the cross section representation used in the overall nuclear design method. The use of WCAP-16045-P-A, Addendum 1-A, for WCGS does not affect the inputs or method(s) for ensuring core subcriticality, both short and long-term post-Loss of Coolant Accident (LOCA), thereby precluding the potential for return to power following a large break LOCA. Since neither the post-LOCA boron source concentration nor heat generation are impacted by the use of Addendum 1-A, the current emergency operating procedure timing for boric acid precipitation and the action time for switching to simultaneous injection will continue to remain valid. Core design specific parameters that are verified each cycle to be conservative with respect to the LOCA inputs and refueling boron concentration, will continue to be calculated using NRC approved methods.

Later versions of the Westinghouse ANC code require cross section data, which is generated using the PARAGON neutron transport code. The NEXUS/ANC system is a version of the PARAGON/ANC system in that all nuclear data is based on PARAGON and only the methods of representing this data in ANC have been changed from the version of PARAGON/ANC

described in WCAP-16045-P-A. Therefore, NEXUS methodology will be used as a replacement to the PHOENIX-P methodology when WCNOC moves to a later version of ANC to support the core reload design for Cycle 21 operation (Spring 2015).

The other methodologies used to determine operating limits referenced in the COLR remain applicable with the use of PARAGON and NEXUS. Future changes to the values of the operating limits are controlled by the 10 CFR 50.59 process, may only be developed using NRC approved methodologies, and must remain consistent with all applicable plant safety analysis limits addressed in the Updated Safety Analysis Report (USAR). The consequences of the design basis accidents will continue to be calculated using NRC accepted methodologies. Assumptions used in the safety analysis are not changed by the use of PARAGON and NEXUS. Safety analysis acceptance criteria are not being altered by the use of PARAGON and NEXUS.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include Technical Specifications (TSs) as part of the operating license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The U.S. Nuclear Regulatory Commission's (NRC's) requirements related to the content of the TSs are contained in Section 50.36 of the Title 10 of the *Code of Federal Regulations* (10 CFR 50.36(c)) which requires that the TSs include items in the following specific categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls. This license amendment request proposes to replace a one topical report methodology reference with two new methodology references to the CORE OPERATING LIMITS REPORT (COLR) list of NRC-approved methodologies in the Administrative Controls section of the TSs. These methodologies will be used to determine a core operating limit that assures the plant is operated in a safe manner. Therefore, the proposed change meets the requirements of 10 CFR 50.36(c)(5).

The guidance in NRC Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications (Generic Letter 88-16)," indicates that it is acceptable to control reactor physics parameter limits by specifying the calculation methodology. The generic letter indicates that such parameter limits may be removed from TS and placed in a cycle-specific COLR. The COLR is defined in Section 1.1 of the TS and the reporting requirements in Specification 5.6.5 require that a COLR be submitted to the NRC each operating cycle, or each time the COLR is revised. The generic letter also recommended that the TS include a list of references for NRC approved methodologies that are used to generate the cycle-specific core operating limits. Specification 5.6.5b. identifies the analytical methods used to determine the core operating limits at WCGS. The guidance in the generic letter continues to be met since the proposed change will continue to specify the NRC approved methodologies used to determine the core operating limits.

4.2 Precedent

On July 17, 2013, the NRC issued Amendment No. 191 to Renewed Facility Operating License No. NPF-2 and Amendment No. 187 to Renewed Facility Operating License No. NPF-8 (Reference 8) for the Joseph M. Farley Nuclear Plant, Units 1 and 2, respectively. This amendment adds a reference to WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," and WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," to TS Specification 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)." Since WCGS is a single unit facility, the WCGS TS change is to replace the existing PHOENIX-P methodology with the PARAGON and NEXUS methodology. There is no unavoidable transition period when the current and proposed methodologies are both required for a single unit facility.

4.3 No Significant Hazards Consideration Determination

Pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests an amendment to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS). The proposed amendment revises WCGS Technical Specification (TS) 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," to replace WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," with WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," and WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," to determine core operating limits. The proposed TS change will allow the methodology of WCAP-16045-P-A and WCAP-16045-P-A, Addendum 1-A, to be utilized for determining the refueling boron concentration for Limiting Condition for Operation (LCO) 3.9.1, "Boron Concentration."

WCNOC 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," Part 50.92(c) as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The analytical methodologies, which this license amendment proposes for determination of core operating limits, are improvements over the current methodologies in use at WCGS. The NRC staff reviewed and approved these methodologies and concluded that these analytical methods are acceptable as a replacement for the current analytical method. Thus core operating limits determined using the proposed analytical methods continue to assure that the reactor operates safely and, thus, the proposed changes do not involve an increase in the probability of an accident.

   Operation of the reactor with core operating limits determined by use of the proposed analytical methods does not increase the reactor power level, does not increase the core fission product inventory, and does not change any transport assumptions. Therefore the

proposed methodology and TS changes do not involve a significant increase in the consequences of an accident.

Therefore, it is concluded that this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change provides revised analytical methods for determining core operating limits, and does not change any system functions or maintenance activities. The change does not involve physical alteration of the plant, that is, no new or different type of equipment will be installed. The change does not alter assumptions made in the safety analyses but ensure that the core will operate within safe limits. This change does not create new failure modes or mechanisms that are not identifiable during testing, and no new accident precursors are generated.

Therefore, it is concluded that this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No

The margin of safety is established through equipment design, operating parameters, and the setpoints at which automatic actions are initiated. The proposed changes do not physically alter safety-related systems, nor does it affect the way in which safety related systems perform their functions. The setpoints at which protective actions are initiated are not altered by the proposed changes. Therefore, sufficient equipment remains available to actuate upon demand for the purpose of mitigating an analyzed event. The proposed analytical methodology is an improvement that allows more accurate modeling of core performance. The NRC has reviewed and approved this methodology for use in lieu of the current methodology; thus, the margin of safety is not reduced due to this change.

Therefore, it is concluded that the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, WCNOC 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.

4.4 Conclusion

Based on the considerations discussed above, 1) there is a 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.

5.0 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 a significant increase in the amounts of any effluents 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.

6.0 REFERENCES

1. WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," June 1988.

2. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," August 2004. ADAMS Accession for WCAP-16045-NP-A: ML042250322.

3. WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," August 2007. ADAMS Accession for WCAP 16045-NP-A, Addendum 1-A: ML053460157.

4. NRC letter from J. Donohew to O.L. Maynard, "Wolf Creek Generating Station – Issuance of Ammendment Re: Relocation of Cycle Specific Parameters to the CORE OPERATING LIMITS REPORT (TAC No. MB1638)," March 28, 2003. ADAMS Accession No. ML02018190.

5. NRC letter from J. R. Jolicoeur to TSTF, "Implementation Of Travelers TSTF-363, Revision 0, "Revise Topical Report References ITS 5.6.5, COLR [CORE OPERATING LIMITS REPORT]," TSTF-408, Revision 1, "Relocation of LTOP [LOW TEMPERATURE OVERPRESSURE PROTECTION] Enable Temperature and PORV [POWER-OPERATED RELIEF VALVE] Lift Setting to the PTLR [PRESSURE-TEMPERATURE LIMITS REPORT], AND TSTF-419, Revision 0, "Revise PTLR Definition and References in ISTS [IMPROVED STANDARD TECHNICAL SPECIFICATION] 5.6.6, RCS [REACTOR COOLANT SYSTEM] PTLR," August 4, 2011. ADAMS Accession No. ML110660285.

6. NRC letter from H. N. Berkow to J. A. Gresham, "Final Safety Evaluation for Westinghouse Topical Report WCAP-16045-P, Revision 0, "Qualification of the Two-Dimensional Transport Code PARAGON" (TAC NO. MB8040)," March 18, 2004. ADAMS Accession No. ML040780402.

7. NRC letter from H. K. Nieh to J. A. Gresham, "Final Safety Evaluation for Westinghouse Electric Company (Westinghouse) Topical Report (TR) WCAP-16045-P-A, Addendum 1, "Qualification of the NEXUS Nuclear Data Methodology" (TAC NO. MC9606)," February 23, 2007. ADAMS Accession No. ML070320398.

8. NRC letter from E. Brown to C. R. Pierce, "Joseph M. Farley Nuclear Plant, Units 1 and 2, Issuance of Amendments Regarding Changes to Nuclear Methodology References (TAC NOS. ME9244 and ME9245)(NL-12-1226)," July 17, 2013. ADAMS Accession No. ML13149A354.

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARKUP)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

4. WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control - F_Q Surveillance Technical Specification."

5. WCNOC Topical Report NSAG-007, "Reload Safety Evaluation Methodology for the Wolf Creek Generating Station."

6. NRC Safety Evaluation Report dated March 30, 1993, for the "Revision to Technical Specification for Cycle 7."

7. WCAP-10266-P-A, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code."

~~8. WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores."~~

~~9.~~ WCAP 10965-P-A, "ANC: A Westinghouse Advanced Nodal Computer Code."

~~10.~~ WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report."

~~11.~~ WCAP-8745-P-A, "Design Bases for the Thermal Power ΔT and Thermal Overtemperature ΔT Trip Functions."

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.

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

8. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON."
9. WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology."

(continued)

REVISED TECHNICAL SPECIFICATION PAGES

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

4. WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control - F_Q Surveillance Technical Specification."

5. WCNOC Topical Report NSAG-007, "Reload Safety Evaluation Methodology for the Wolf Creek Generating Station."

6. NRC Safety Evaluation Report dated March 30, 1993, for the "Revision to Technical Specification for Cycle 7."

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9. WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology."

10. WCAP 10965-P-A, "ANC: A Westinghouse Advanced Nodal Computer Code."

11. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report."

12. WCAP-8745-P-A, "Design Bases for the Thermal Power ΔT and Thermal Overtemperature ΔT Trip Functions."

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

(continued)

PROPOSED COLR CHANGES (for information only)

7. WCAP-10266-P-A, Revision 2, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code," March 1987.

NRC letter dated November 13, 1986, "Acceptance for Referencing of Licensing Topical Report WCAP-10266 "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code.""

WCAP-10266-P-A, Addendum 1, Revision 2, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code Addendum 1: Power Shape Sensitivity Studies," December 1987.

NRC letter dated September 15, 1987, "Acceptance for Referencing of Addendum 1 to WCAP-10266, BASH Power Shape Sensitivity Studies."

WCAP-10266-P-A, Addendum 2, Revision 2, "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code Addendum 2: BASH Methodology Improvements and Reliability Enhancements," May 1988

NRC letter dated January 20, 1988, "Acceptance for Referencing Topical Report Addendum 2 to WCAP-10266, Revision 2, "BASH Methodology Improvements and Reliability Enhancements."

~~8. WCAP-11596-P-A, "Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores," June 1988.~~

INSERT A

~~NRC Safety Evaluation Report dated May 17, 1988, "Acceptance for Referencing of Westinghouse Topical Report WCAP-11596 - Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores."~~

~~9.~~ WCAP 10965-P-A, "ANC: A Westinghouse Advanced Nodal Computer Code," September 1988.

10.

NRC letter dated June 23, 1986, "Acceptance for Referencing of Topical Report WCAP 10965-P and WCAP 10966-NP."

~~10.~~ WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," April 1995.

11.

NRC Safety Evaluation Reports dated July 1, 1991, "Acceptance for Referencing of Topical Report WCAP-12610, 'VANTAGE+ Fuel Assembly Reference Core Report' (TAC NO. 77258)."

NRC Safety Evaluation Report dated September 15, 1994, "Acceptance for Referencing of Topical Report WCAP-12610, Appendix B, Addendum 1, 'Extended Burnup Fuel Design Methodology and ZIRLO Fuel Performance Models' (TAC NO. M86416)."

~~11.~~ WCAP-8745-P-A, "Design Bases for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Function." September 1986.

12.

NRC Safety Evaluation Report dated April 17, 1986, "Acceptance for Referencing of Licensing Topical Report WCAP-8745(P)/8746(NP), 'Design Bases for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Functions.'"

INSERT A

8. WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," August 2004.

   NRC Safety Evaluation dated March 18, 2004, "Final Safety Evaluation for Westinghouse Topical Report WCAP-16045-P, Revision 0, "Qualification of the Two-Dimensional Transport Code PARAGON."

9. WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," August 2007.

   NRC Safety Evaluation dated February 23, 2007, "Final Safety Evaluation for Westinghouse Electric Company (Westinghouse) Topical Report (TR) WCAP-16045-P-A, Addendum 1, "Qualification of the NEXUS Nuclear Data Methodology" (TAC NO. MC9606)."