



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

September 13, 2010

Mr. Mark E. Reddemann
Chief Executive Officer
Energy Northwest
P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - NONACCEPTANCE OF REQUEST TO
CHANGE TECHNICAL SPECIFICATIONS IN SUPPORT OF
PRNM/ARTS/MELLLA IMPLEMENTATION (TAC NO. ME3981)

Dear Mr. Reddemann:

By letter dated May 11, 2010, Energy Northwest (EN, the licensee) submitted a license amendment request for Columbia Generating Station. The proposed amendment would allow modifications of the Neutron Monitoring System by installation of the General Electric Hitachi (GEH) Nuclear Monitoring Analysis and Control (NUMAC) Power Range Neutron Monitor (PRNM) system and to provide an expanded operating domain resulting from the implementation of Average Power Range Monitor/Rod Block Monitor/Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA).

The purpose of this letter is to provide the results of the U.S. Nuclear Regulatory Commission (NRC) staff's acceptance review of this amendment request. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the plant.

Consistent with Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), an amendment to the license (including the technical specifications) must fully describe the changes requested, and following as far as applicable, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations.

The NRC staff has reviewed your application and concluded that it did not provide technical information in sufficient detail to enable the NRC staff to complete its detailed review and make an independent assessment regarding the acceptability of the proposed amendment in terms of

Enclosure 1 to this letter contains
Proprietary Information. Upon
separation from Enclosure 1, this letter
and Enclosure 2 are decontrolled.

M. Reddemann

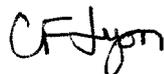
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regulatory requirements and the protection of public health and safety and the environment. This information needed was conveyed to you by electronic mail on July 6, 2010, and telephone conference followed by letter dated July 13, 2010, and was discussed in a public meeting on July 22, 2010.

By letter dated July 30, 2010, you provided a supplement to this submittal. The NRC staff has found the supplement unresponsive to the cited information needs, as discussed in the enclosures. Therefore, the NRC staff finds the request for approval of the proposed action unacceptable for NRC review pursuant to 10 CFR 2.101. NRC staff activities on the review have ceased and the associated Technical Assignment Control (TAC) number has been closed.

If you have any questions regarding this matter, I may be reached at (301) 415-2296 or via e-mail at fred.lyon@nrc.gov.

Sincerely,



Carl F. Lyon, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:

1. Acceptance review (proprietary version)
2. Acceptance review (non-proprietary version)

cc w/Encl 2: Distribution via Listserv



UNITED STATES
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ACCEPTANCE REVIEW BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO LICENSE AMENDMENT REQUEST

PRNM/ARTS/MELLLA

FACILITY OPERATING LICENSE NO. NPF-21

ENERGY NORTHWEST

COLUMBIA GENERATING STATION

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated May 11, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML101390369), Energy Northwest (EN, the licensee) submitted a license amendment request for Columbia Generating Station (CGS). The proposed amendment would allow modifications of the Neutron Monitoring System by installation of the General Electric Hitachi (GEH) Nuclear Monitoring Analysis and Control (NUMAC) Power Range Neutron Monitor (PRNM) system and to provide an expanded operating domain resulting from the implementation of Average Power Range Monitor/Rod Block Monitor/Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA).

Consistent with Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), an amendment to the license (including the technical specifications) must fully describe the changes requested in the form prescribed, and following as far as practical, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section requires information to describe the facility, present the design bases and the limits on its operation, and present a safety analysis of the structures, systems, and components and of the facility as a whole. The information required includes a description and analysis of the structures, systems, and components of the facility, with emphasis upon performance requirements, the bases for the established performance requirements to include the technical justification, and the evaluations that demonstrate that the safety functions will be accomplished. The description shall be sufficient to permit understanding of the system designs and their relationship to safety evaluations.

Section 50.34(h)(3) of 10 CFR identifies NUREG-0800, "Standard Review Plan [SRP] for Review of Safety Analysis Reports for Nuclear Power Plants: LWR [light-water reactor] Edition," as the established criteria that the U.S. Nuclear Regulatory Commission (NRC) staff uses to

evaluate whether an applicant/licensee meets the Commission's regulations. While the SRP is neither a substitute for the regulations nor a compliance requirement, this section states that applicants should identify differences from the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP criteria provide an acceptable method of complying with the Commission's regulations. Branch Technical Position (BTP) 7-14, "Guidance on Software Reviews for Digital Computer-Based Instrumentation and Control [I&C] Systems," provides guidelines for evaluating software life-cycle processes for digital computer-based I&C systems.

In its application, the licensee stated that, "The proposed changes for the installation of the PRNM System are consistent with the NRC-approved GEH Licensing Topical Report (LTR) NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," Volumes 1 and 2, including Supplement 1...." The cover letter forwarding the Safety Analysis Report for NEDC-32410P-A states, "Should the NRC criteria or regulations change so as to invalidate the conclusions concerning acceptability of the report, GE Nuclear Energy (GE) or the applicants referencing the topical report will be expected to revise or resubmit their respective documentation, or submit justification for the continued effective applicability of the topical report without revision of their respective documentation."

The NRC staff requested that EN provide supplemental information to determine the acceptability of the licensee's application. This information needed was conveyed to the licensee by electronic mail on July 6, 2010 (ADAMS Accession No. ML101870643), and telephone conference followed by letter dated July 13, 2010 (ADAMS Accession No. ML101830271), and was discussed in a public meeting on July 22, 2010 (ADAMS Accession No. ML102040200).

By letter dated July 30, 2010 (ADAMS Accession No. ML102360359), EN responded to the NRC request for supplemental information. The NRC staff has reviewed the information provided and has deemed that the supplemental information provided is not responsive to the requested information as cited by the following examples.

2.0 BTP CRITERIA

In the NRC staff's request for supplemental information (RSI) dated July 13, 2010, RSI No. 1 requested the following:

Please identify the changes to the GEH NUMAC PRNM system platform from those defined and approved on September 5, 1995 within GE Nuclear Energy (GE) Licensing Topical Report (LTR), "Clean Measurement Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," NEDC-32410P-A, dated October 1995 (ADAMS Legacy Accession No. 9605290009). For example, the identified changes should include those to hardware, programmable devices, software, applicable development processes, and the like, that will be reflected within the CGS PRNM System upgrade. When considering the software development processes for the platform, the response should address changes (from that previously approved for the GE LTR NEDC-32410P-A) to the applicable documentation that is identified under Section B.2 of the SRP (SRP or

NUREG-0800), Branch Technical Position 7-14, "Guidance on Software Reviews for Digital Computer-Based Instrumentation and Control Systems," Revision 5, March 2007 (ADAMS Accession No. ML070670183), and the secure development and operational environment.

2.1 BTP 7-14, Item B.2.1

BTP 7-14, Section B.2, "Information to be Reviewed," Item B.2.1, "Software Life Cycle Process Planning," states that, "The information to be reviewed may be contained in the following documents." In its response to RSI No. 1 in Attachment 2 of its July 30, 2010, letter, the licensee restated the criteria of Item B.2.1, in Table 1-7, "Correlation of PRNM Design Process to BTP 7-14," as follows:

Software Life Cycle Process Planning BTP 7-14 Section B.2.1

- Software Management Plan (SMP)
- Software Development Plan (SDP)
- Software Quality Assurance Plan (SQAP)
- Software Integration Plan (SIntP)
- Software Installation Plan (SInstP)
- Software Maintenance Plan (SMaintP)
- Software Training Plan (STrngP)
- Software Operations Plan (SOP)
- Software Safety Plan (SSP)
- Software Verification and Validation Plan (SVVP)
- Software Configuration Management Plan (SCMP)
- Software Test Plan (STP)

The licensee provided the following response to the information request:

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The NRC staff assessment is as follows:

The latest NUMAC documents SCMP 23A5161, SMP 23A5162, and SVVP 23A5163 available to the NRC staff were provided in March 1991. These documents contain the NUMAC Software Configuration Management Plan, NUMAC Software Management Plan, and NUMAC Software

Verification and Validation (V&V) Plan, respectively. Since the licensee did not provide a date or revision number for the NUMAC documents, it is unclear whether the documents have been updated since 1991. A 1997 revision of the GE Nuclear Quality Assurance Program, as documented in NEDO-11209-04A, is available to the NRC staff; however, since the licensee did not provide a revision number or date for the GE Nuclear Quality Assurance Program, it is unclear whether it has been updated since 1997. The staff notes that BTP 7-14, Item B.2.1 references the *Software* Quality Assurance Program, not the Quality Assurance Program, which is typically a higher level, more general document. The GE Nuclear Quality Assurance Program does not provide sufficient detailed information regarding software for the NRC staff to conduct an adequate review. The remaining documents, Engineering Operating Procedures and Common Procedures, are GEH documents that were referenced by the licensee, but were not provided in support of the license amendment request or in the supplemental information. The NRC staff reviewed the available documents and concludes that they do not contain sufficient information to address the requirements of BTP 7-14, Item B.2.1. Thus, the staff finds the response inadequate, incomplete, and not responsive to the requested information.

2.2 BTP 7-14, Item B.2.2

BTP 7-14, Section B.2, "Information to be Reviewed," Item B.2.2, "Software Life Cycle Process Implementation," states that, "The information to be reviewed may be contained in the following." In its response to RSI No. 1 in Attachment 2 of its July 30, 2010, letter, the licensee restated the criteria of Item B.2.2, in Table 1-7, "Correlation of PRNM Design Process to BTP 7-14," as follows:

Software Life Cycle Process Implementation BTP 7-14 Section B.2.2

Requirements:

- Safety analysis
- V&V [verification and validation] analysis and test reports
- Configuration management reports
- Testing activities

The NRC staff notes that BTP 7-14, Item B.2.2 also states that one or more sets of these reports should be available for each of the following activity groups:

- Requirements
- Design
- Implementation
- Integration
- Validation
- Installation
- Operations and maintenance

The licensee provided the following response to the information request:

[

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The NRC staff assessment is as follows:

NRC staff concludes that the licensee failed to provide specific documentation to respond to the information requested in BTP 7-14, Item B.2.2. The response provided by the licensee is so generic in nature that the software life cycle process implementation cannot be verified by the NRC staff. It is also unclear to the staff whether the licensee's response is based on the current regulations or on a superseded version of regulations. Thus, the staff finds the licensee's response is inadequate, incomplete, and not responsive to the requested information.

3.0 REGULATORY GUIDE (RG) CRITERIA

RGs 1.168, 1.169, 1.170, 1.171, 1.172, and 1.173 provide the guidance for high-quality software development per BTP 7-14 and the NRC staff is required to determine the extent of compliance and/or deviations to these RGs.

In Attachment 2 of the licensee's response dated July 30, 2010, the licensee stated that:

[

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[

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The NRC staff assessment is as follows:

The NRC staff is aware that when the original topical report and its supplement were approved in 1995 and 1997, respectively, NEDC-32410P-A met the regulations and guidance that were in place. However, the staff requested information demonstrating that NEDC-32410P-A addresses the current regulations and guidance. In order to determine the extent of compliance to the current SRP guidance, the licensee must clearly state the extent and bases of compliance with the regulatory guides or alternatively provide an equivalent to the current SRP guidance.

The licensee has simply stated that its design is consistent with some, but not all, of the regulatory guides referenced in the current SRP. The licensee's statements are conclusions without any analysis as to how NEDC-32410P-A complies with these RGs. Based on the licensee's lack of response concerning certain RGs and lack of detail regarding how NEDC-32410P-A is consistent with these RGs, the NRC staff finds the licensee's response inadequate, incomplete, and unresponsive to the requested information.

4.0 CONCLUSION

For RSI No. 1, the NRC staff concludes that the licensee has supplied incomplete and insufficient information to allow the staff to make a reasonable assurance determination regarding the adequacy of the PRNM system. As such, the NRC staff concludes that the licensee has not provided sufficient information for the staff to find the application acceptable for review. Therefore, the NRC staff does not accept the application for review, in accordance with LIC-109, "Acceptance Review Procedures" Section 5.0 (Reference 3).

5.0 REFERENCES

1. Lyon, Carl F., U.S. Nuclear Regulatory Commission, letter to J.V. Parrish, Energy Northwest, "Columbia Generating Station - Acceptance Review for License Amendment Request to Change Technical Specifications in Support of PRNM/ARTS/MELLLA Implementation (TAC No. ME3981)," dated July 13, 2010, ADAMS Accession No. ML101830271.
2. Oxenford, W.S., Energy Northwest, letter to U.S. Nuclear Regulatory Commission, "Columbia Generating Station, Docket No. 50-397 Response to Request for Supplemental Information for Completion of Acceptance Review for PRNM/ARTS/MELLLA System Upgrade," dated July 30, 2010, ADAMS Accession No. ML102360357.

3. Wiggins, James T., U.S. Nuclear Regulatory Commission, "Acceptance Review Procedures," Office of Nuclear Reactor Regulation Office Instruction LIC-109, dated July 16, 2009, ADAMS Accession No. ML091810088.

Principal Contributor: G. Singh, NRR/DE/EICB

Date: September 13, 2010

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M. Reddeman

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Sincerely,

/RA/

Carl F. Lyon, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:

1. Acceptance review (proprietary version)
2. Acceptance review (non-proprietary version)

cc w/Encl 2: Distribution via Listserv

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ADAMS Accession Nos. Letter/Encl 2 ML102420659, Encl 1 (Proprietary) ML102500565

*email dated **statement to ELeeds, et al. *** NLO with comments

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