July 9, 2007

Adrian P. Heymer, Senior Director
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1776 I Street, NW, Suite 400
Washington, DC 20006-3708

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING TOPICAL REPORT NO. NEI 07-03, GENERIC FSAR TEMPLATE GUIDANCE FOR RADIATION PROTECTION PROGRAM DESCRIPTION, REVISION 0 (PROJECT NO. 689; TAC MD5248)

Dear Mr. Heymer:

By letter dated April 12, 2007, the Nuclear Energy Institute (NEI) submitted for U.S. Nuclear Regulatory Commission (NRC) staff review its proposed Generic Final Safety Analysis Report (FSAR) Template Guidance for Radiation Protection Program Description, Revision 0. In a letter dated May 14, 2007, the NRC accepted NEI 07-03 for review. The staff has determined that additional information is necessary to complete its review. On May 25, 2007, an electronic copy of the enclosed request for additional information (RAI) was transmitted to Ralph Andersen of NEI. Although this RAI was provided electronically to you earlier than our scheduled date of May 30, 2007, we will not expect a response until 30 days following the scheduled date of issuance; therefore, please let me know if you will not be able to provide your written reply on or before June 29, 2007.

If you have any questions or comments regarding this matter, I may be reached at (301) 415-8488, JLS1@nrc.gov.

Sincerely,

/RA/

Joelle L. Starefos, Senior Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Project No. 689

Enclosure:
As stated

cc w/encl: See next page

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ADAMS ACCESSION NO.: ML071450414 NRR-088

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REQUEST FOR ADDITIONAL INFORMATION REGARDING

NUCLEAR ENERGY INSTITUTE (NEI) TOPICAL REPORT NEI 07-03, REVISION 0,

"GENERIC FSAR TEMPLATE GUIDANCE FOR RADIATION PROTECTION PROGRAM DESCRIPTION"

1. The "Operational Radiation Protection Program" sections of Draft Guide-1145 (Regulatory Guide (RG) 1.206) and the Standard Review Plan (SRP) (NUREG-0800) refer to several guidance documents that provide guidelines for an acceptable operational radiation protection program. In general, most of this guidance is explicitly called out in Nuclear Energy Institute (NEI) 07-03. However, the staff has noted the following omissions in NEI 07-03:

    - Regulatory Guide 8.25, "Air Sampling in the Workplace,"
    - NUREG/CR-0041, "Manual of Respiratory Protection Against Airborne Radioactive Materials,"
    - Memorandum from Larry W. Camper to David B. Matthews and Elmo E. Collins, "List of Decommissioning Lessons Learned in Support of the Development of Standard Review Plan for New Reactor Licensing," October 10, 2006 (Agencywide Document Access and Management System (ADAMS) Accession No. ML062620355).

    Please incorporate the above guidance documents into the appropriate section of NEI 07-03 or provide justification as to why these references should not be included in NEI 07-03.

2. The SRP references the following standards in Section 12.5, "Operational Radiation Protection Program":

    - ANSI/ANS 3.1-1993 R99, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants,"
    - ANSI/HPS N13.6, "Practice for Occupational Radiation Exposure Records Systems,"
    - ANSI/HPS N13.11-2001, "Personnel Dosimetry Performance-Criteria for Testing,"
    - ANSI/HPS N13.14-1994, "Internal Dosimetry Programs for Tritium Exposure-Minimum Requirements,"
    - ANSI/HPS N13.30-1996, "Performance Criteria for Radiobioassay,"

- ANSI/HPS N13.42-1997, “Internal Dosimetry for Mixed Fission Activation Product,”
- ANSI IEEE 309-1991, “Test Procedure for Geiger-Mueller Counters,”
- ANSI N42.20-2003, “Performance Criteria for Active Personnel Radiation Monitors,”
- ANSI N42.28-2002, “American National Standard for Calibration of Germanium Detectors for In Situ Gamma Ray Measurements,”
- ANSI N42.17A-1989, “Performance Specifications for Health Physics Instrumentation-Portable Instrumentation for Use in Normal Environmental Conditions,”
- ANSI N323A-1997, “American National Standard Radiation Protection Instrumentation Test and Calibration, Portable Survey Instruments.”

Please incorporate the above listed ANSI standards into NEI 07-03 as references, or provide justification as to why these standards have been omitted from NEI 07-03.

3. (12.5) NEI 07-03 does not reference 10 CFR 20, Subpart B entitled “Radiation Protection Programs.” In order to include this reference, consider adding the following phrase preceding the second paragraph in 12.5 (prior to the words “The purpose of”), “In accordance with 10 CFR 20, Subpart B,”

4. (12.5) In the description of Milestone 2 (“Prior to receiving reactor fuel under this license”), reference is made to providing radiation monitoring in accordance with 10 CFR 50.68. Compliance with 10 CFR 50.68 requires the establishment and implementation of plant procedures relating to criticality accident requirements in addition to the use of radiation monitoring equipment. Modify item 2 under the milestone section of 12.5 to add the words, “plant procedures on criticality accident requirements will be established, implemented, and maintained and” prior to the words “radiation monitoring.”

5. (12.5) In the section describing the four different milestones, no specific mention is made of when the position of radiation protection manager (RPM) should be filled. It can be inferred from the text that this position should be filled prior to initial loading of fuel in the reactor (milestone 3). The description of milestone 3 should be modified to specifically state that the RPM position will be filled during this milestone stage.

6. (12.5.1) In the list of management commitments listed, the establishment of an as low as is reasonably achievable (ALARA) Committee is listed as an option (item 8). The establishment of an ALARA Committee (or similarly named committee with similar functions) is an important part of an effective radiation protection program and should not be listed as an optional management commitment. Please reflect this committee as part of the main list of management commitments.

7. (12.5.2.1) The same comment (see #6 above) applies to listing the establishment of an ALARA Committee as an optional responsibility of the Plant Manager. RG 8.8 states that the RPM should have direct recourse to responsible management and making the ALARA Committee one of the responsibilities of the Plant Manager would be one way to establish such a link between the RPM and Plant Manager.

8. (12.5.2.3) The same comment (see #6 above) applies to participating as a member of the plant ALARA Committee as an optional responsibility of the Radiation Protection Manager. RG 8.8 states that the RPM should have direct recourse to responsible management and making the ALARA Committee one of the responsibilities of the RPM would be one way to establish such a link between the RPM and Plant Manager.

9. (12.5) For all Regulatory Guides referenced in NEI 07-03, please specifiy the revision number.

10. (12.5.3.2) In the list of “Personnel Monitoring Instrumentation and Equipment” there is no mention of remote and local reading alarm dosimeters (which may be coupled with direct or electronic surveillance equipment) for monitoring workers in high-dose/high-dose-rate environments. Please include “remote and local reading alarm dosimeters (which may be coupled with direct or electronic surveillance equipment, as necessary)” in the list as an example of Personnel Monitoring Instrumentation or provide justification as to why these dosimeters should not be listed.

11. (12.5.3.2) The nominal range shown for the neutron survey instruments listed under "Portable Monitoring Instrumentation and Equipment" is 0 - 5 rem/hr. Compared to the nominal ranges given for the other portable instrumentation, the upper range of 5 rem/hr seems low. Please justify why this is an appropriate nominal range for a neutron survey instrument.

12. (12.5.4.4) The third paragraph in this section makes reference to 10 CFR 20.1903. Should this reference be 10 CFR 20.1602, which describes the additional administrative controls for restricting access to Very High Radiation Areas?

13. (12.5.4.7) The first paragraph in this section states that the requirements of 10 CFR 20.1301 will be met. Please indicate in the text that the requirements of 10 CFR 20.1302 will also be met, as they relate to controlling the maximum dose rate in unrestricted areas.

14. (12.5.4.7) The first paragraph states that the requirements of 10 CFR 20.1201 will be complied with. However, no mention is made of 10 CFR 20.1202, 20.1203 or 20.1204. Please reflect the commitment to meet the requirements of 20.1201, 20.1202, 20.1203, and 20.1204, as they relate to demonstrating compliance with internal and external dose limits, in this section.

15. (12.5.4.8) In the sixth paragraph of this section, please change the following sentence “Practical measures are implemented to prevent the spread of contamination, including, for example:” to “Practical measures are implemented to prevent the spread of contamination, including:”

16. (12.5.4.10) In the list of regulations for this section no mention is made of 10 CFR 20.2201, "Reports of theft or loss of licensed material." Please indicate if procedures will be in compliance with this regulation by adding 20.2201 to the existing list.

Editorial Changes
Consider the following editorial changes as shown in **Bold**:

E1. (12.5) In the paragraph describing the purpose of the radiation protection program, please correct as follows: "...as low as **is** reasonably achievable (ALARA)."

E2. (12.5) In the paragraph describing Milestone 3, please change the first sentence to read, "Prior to initial loading of fuel in the reactor, the **radiation protection** program."

E3. (12.5.1) Please change item number 7 of this section so that it reads as follows: "Establish a direct reporting chain of the Radiation Protection Manager to the Plant Manager that is **at the same reporting level as, but** independent of, the reporting chains for Operations and Maintenance."

E4. (12.5.2.3) Please modify item number 3 in this section as follows: "Provide radiation protection input to facility design**, including plant modifications**, and work planning;"

E5. (12.5.2.4) Please change the first sentence of the second paragraph as follows: "The qualifications and experience of RPTs are consistent with the guidance **contained in** Regulatory Guide 1.8."

E6. (12.5.2.4) Please modify the third paragraph in this section as follows: "...trained and qualified staff in Radiation Protection **(as described in section 12.5.2.5)** other than RPTs..."

E7. (12.5.3.1) In the section titled "Storage and Issue Area for Contaminated Tools and Equipment" please change the last sentence in that paragraph to: "Clean and contaminated tools and equipment **are** segregated to avoid cross-contamination."

E8. (12.5.3.1) In the section titled "Facility for Dosimetry Processing and Bioassay" please change the first sentence to: "A facility or facilities are provided to support processing of dosimetry and **performance** of bioassay..."

E9. (12.5.3.1) In the section titled: "Laundry Facility" please make the following change to the second sentence: "...applicable limits in 10 CFR Parts 20 and 50 and as low as **is** reasonably achievable..."

E10. (12.5.4.2) In the section titled: "Refueling" please change the last sentence to the following: "...the normal radiation level on the refueling bridge **during these operations** is expected to be less than 5 mrem/h."

E11. (12.5.4.2) In the section titled: "Inservice Inspection" please change the first sentence in the following way: "...previous radiation and contamination surveys, **and/or** previous RWPs appropriate to the particular job to be performed."

E12. (12.5.4.2) In the section titled “Radwaste Handling” please modify the last sentence in the paragraph in the following way: “The radwaste system is described in **FSAR C**hapter 11.”

E13. (12.5.4.2) Please reword the first two sentences of the section titled “Normal Operation” in the following way: “The plant was designed so that significant radiation sources are minimized, shielded, and/or **located** in cubicles. **Instrument readouts for** instrumentation required for normal operation**, for the most part, can be** read remotely **from** the control room or **from** other low radiation areas.”

E14. (12.5.4.2) The last sentence of the first paragraph under the section titled “Routine Maintenance” should be changed as follows: “This serves to minimize the time spent in the radiation area **and thereby minimize personnel dose**.”

E15. (12.5.4.2) The first sentence of the second paragraph of the “Routine Maintenance” section should be modified to “In addition, the **preventive** maintenance procedure...” The word “usual” should be deleted.

E16. (12.5.4.2) The second sentence of the second paragraph of the “Routine Maintenance” section should be modified to “...shielding is specified**,** if appropriate, and additional specific instructions...”

E17. (12.5.4.2) The first sentence of the third paragraph of the “Routine Maintenance” section should be modified as follows: “Extension tools are used when practical **to minimize dose when personnel are working on radioactive components/equipment**.”

E18. (12.5.4.2) The second to last sentence of the third paragraph of the “Routine Maintenance” section should be changed as follows: “...accomplished as safely and quickly as possible, and what the acceptance criteria **for completing the job** are.”

E19. (12.5.4.4) The second sentence of the third paragraph should be modified as follows: “...restricting access to each Very High Radiation Area as required by 10 CFR 20.**1602.**”

E20. (12.5.4.7) Please change the second paragraph of this section as follows:

> “To the extent practical, procedures and engineered controls based on sound radiation protection principles are used to keep occupational doses and doses to members of the public as low as **is** reasonably achievable (ALARA). A description of facility design features and engineered controls intended to maintain occupational exposures **ALARA** is included in **FSAR** Sections 12.3-12.4. A description of systems and facility design features intended to maintain public exposures ALARA is included in **FSAR** Chapter 11.”

E21. (12.5.4.7) Please change the second sentence in the paragraph marked by the number 3 in the following way: “The briefing**s** are intended to assure that personnel understand...”

E22. (12.5.4.8) Please change the fourth and fifth bullets in this section in the following way: “Containments, caches and enclosures are used during maintenance, repairs, and testing**,** when practical**,** to contain spills and releases;” and “Engineering controls**,** such as portable ventilation or filtration units to reduce concentrations of radioactivity in air or fluids, are used where practical;”

E23. (12.5.4.8) Please change the seventh bullet in this section to read as follows: “...necessitate disposal as radioactive waste **is** minimized;”

cc:

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