January 13, 2005

Mr. Michael R. Kansler, President
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 - REQUEST FOR ADDITIONAL INFORMATION REGARDING AMENDMENT APPLICATION FOR ALTERNATE SOURCE TERM (TAC NO. MC3351)

Dear Mr. Kansler:

On June 2, 2004, Entergy Nuclear Operations, Inc. (Entergy), submitted an application for a proposed amendment to the Technical Specifications (TSs) for Indian Point Nuclear Generating Unit No. 3 to fully adopt the alternate source term (AST) methodology for design-basis accident dose consequence evaluations in accordance with Section 50.67 of Part 50 of Title 10 of the *Code of Federal Regulations*. Specifically, the amendment would revise the TS definition regarding dose equivalent iodine and TS Section 5.5.10, "Ventilation Filter Testing Program." The AST methodology for the fuel-handling accident was previously approved in Amendment No. 215, dated March 17, 2003. In letters dated December 15 and 22, 2004, and January 5, 2005, Entergy provided supplemental information regarding the application.

The Nuclear Regulatory Commission (NRC) staff is reviewing the information provided and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information (RAI). During a telephone call on January 10, 2004, the Entergy staff indicated that a response to the RAI would be provided within 30 days.

Please contact me at (301) 415-1457 if you have any questions on this issue.

Sincerely,

/RA/

Patrick D. Milano, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosure: RAI

cc w/encl: See next page

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Indian Point Nuclear Generating Unit No. 3

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REQUEST FOR ADDITIONAL INFORMATION

REGARDING FULL-SCOPE ADOPTION OF ALTERNATE SOURCE TERM

ENTERGY NUCLEAR OPERATIONS, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NO. 50-286

In a letter dated June 2, 2004 (ADAMS Accession No. ML041600619), Entergy Nuclear Operations (Entergy) submitted an application for a proposed amendment to the Technical Specifications (TSs) for Indian Point Nuclear Generating Unit No. 3 to fully adopt the alternate source term (AST) methodology for design-basis accident dose consequence evaluations in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.67. On December 15 and 22, 2004 (ML043630313 and ML050030060) and January 5, 2005, Entergy provided additional information regarding the application.

The Nuclear Regulatory Commission (NRC) staff has the following questions regarding the information provided in Attachment III, "Licensing Report for the Radiological Consequences of Accidents Using Alternate Source Term Methodology for the Indian Point 3 Nuclear Power Plant," to the June 2 application:

1. Provide the justification for using the containment vent χ/Q values to model the following release pathways:

    a. Emergency core cooling system (ECCS) leakage in the auxiliary building for the large-break loss-of-coolant accident (LOCA) radiological analysis.

    b. Fuel storage building ventilation system releases for the fuel-handling accident (FHA) radiological analysis.

    c. Failed volume control tank leakage for the volume control tank rupture radiological analysis.

2. Provide the justification for using the auxiliary boiler feed building (ABFB) fans χ/Q values to model the following release pathways:

    a. Steam generator releases for the small-break LOCA and main steam line break (MSLB) radiological analyses.

    b. Condenser, atmospheric dump valve (ADV), and/or main steam safety valve (MSSV) releases for the steam generator tube rupture (SGTR), rod ejection, and locked rotor radiological analyses.

3. Provide the justification for using the ABFB side χ/Q values to model ADV and/or MSSV leakage for the MSLB radiological analysis.

Enclosure

4. Section 11.1.4 states that the FHA radiological analysis supports refueling operation with the equipment hatch and personnel air lock remaining open because no filtration or containment isolation was modeled. However, the containment vent χ/Q values used to model the FHA radiological analysis may not bound χ/Q values resulting from either an equipment hatch or personnel air lock release.

The NRC staff has the following questions regarding Attachment I, "ABS Consulting Report R-1109298-01, Analysis of Control Room χ/Q Values for Releases at the Indian Point Generating Station Unit Number 3 Using the ARCON96 Computer Code," to the January 5 letter:

5. Describe in more detail the assumptions used to model the initial plume dimensions for each of the release pathways. In particular, explain the derivation of the containment surface, containment vent, and ABFB initial σ_z plume dimensions. Are the containment vent and ABFB fans oriented so flow is in a horizontal direction?

6. Explain how the source and receptor grid locations listed in Table 1 were used to generate the ARCON96 geometric input data listed in Table 2. For example:

   a. According to the grid coordinates presented in Table 1, the ABFB appears to be located south of the control room (CR) intake since its north coordinate (5742.6 ft) is less than the CR intake north coordinate (5783.8 ft). However, Table 2 shows than the direction from the CR intake to the ABFB is towards the north (15E–16E).

   b. According to the grid coordinates presented in Table 1, the distance between the ABFB should be 91 feet (28 meters):

$$\sqrt{(5742.6 - 5783.8)^2 + (1395.1 - 1476.0)^2} = 90.8\ ft = 28\ m$$

   However, Table 2 shows that the distance between the ABFB and the CR intake is 65 meters.

7. Confirm that the area source χ/Q values presented in Table 5 represent the limiting source/receptor pairs and scenarios for each accident. The following list provides examples of other conditions that might result in higher χ/Q values.

   a. Releases from other possible locations such as penetrations, open doors, other vents or openings, outdoor dump valves, etc.

   b. A change in release characteristics or location due to single failure or loss of offsite power (LOOP).

   c. Intake at locations other than the control room air intake (e.g., due to unfiltered inleakage, or a need to use a technical support center).

8. Page 7 states that the release from the ABFB fans was assumed to be at the center of the fan group based upon a weighted average of flow. Will all fans run at their design flow rate under all conditions (e.g., single failure, LOOP) during an accident? If not, what is the impact on the assumption regarding the release location?