September 5, 2008

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 - REQUEST FOR ADDITIONAL INFORMATION REGARDING AMENDMENT APPLICATION FOR REVISION TO DIESEL GENERATOR SURVEILLANCE TEST (TAC NO. MD9214)

Dear Sir or Madam:

On July 9, 2008, Entergy Nuclear Operations, Inc. (Entergy), submitted an application for a proposed amendment for Indian Point Nuclear Generating Unit No. 2 which would revise the test acceptance criteria for the endurance test for the emergency diesel generators, Technical Specification Surveillance Requirement 3.8.1.10.

The Nuclear Regulatory Commission staff is reviewing the submittal 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 September 3, 2008, the Entergy staff indicated that a response to the RAI would be provided within 14 days of the date of this letter, with the possible exception of information which may have to be requested from Westinghouse, which would be provided later.

Please contact me at (301) 415-2901 if you have any questions on this issue.

Sincerely,

/RA/

John P. Boska, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-247

Enclosure:
RAI

cc w/encl: See next page

September 5, 2008

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 - REQUEST FOR ADDITIONAL INFORMATION REGARDING AMENDMENT APPLICATION FOR REVISION TO DIESEL GENERATOR SURVEILLANCE TEST (TAC NO. MD9214)

Dear Sir or Madam:

On July 9, 2008, Entergy Nuclear Operations, Inc. (Entergy), submitted an application for a proposed amendment for Indian Point Nuclear Generating Unit No. 2 which would revise the test acceptance criteria for the endurance test for the emergency diesel generators, Technical Specification Surveillance Requirement 3.8.1.10.

The Nuclear Regulatory Commission staff is reviewing the submittal 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 September 3, 2008, the Entergy staff indicated that a response to the RAI would be provided within 14 days of the date of this letter, with the possible exception of information which may have to be requested from Westinghouse, which would be provided later.

Please contact me at (301) 415-2901 if you have any questions on this issue.

Sincerely,

/RA/

John P. Boska, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-247
Enclosure:
RAI
cc w/encl: See next page
DISTRIBUTION:

PUBLIC	RidsNrrDorlLpl1-1	RidsNrrPMJBoska	RidsOGCRp
LPL1-1 Reading File	RidsNrrLASLittle	RidsAcrsAcnw&mMailCenter	
RidsNrrDorlDpr	RidsRgn1MailCenter	Tech Staff	

ADAMS ACCESSION NUMBER: ML082480621 *See memo dated 8/28/08

OFFICE	LPL1-1/PM	LPL1-1/LA	EEEB/BC	LPL1-1/BC
NAME	JBoska	SLittle	GWilson*	MKowal
DATE	9/05/08	9/05/08	8/28/08	9/5/08

OFFICIAL RECORD COPY

Indian Point Nuclear Generating Unit No. 2

cc:

Senior Vice President
Entergy Nuclear Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Vice President Oversight
Entergy Nuclear Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Senior Manager, Nuclear Safety & Licensing
Entergy Nuclear Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Senior Vice President and COO
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Assistant General Counsel
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Manager, Licensing
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

Mr. Paul Tonko
President and CEO
New York State Energy, Research, and
Development Authority
17 Columbia Circle
Albany, NY 12203-6399

Mr. John P. Spath
New York State Energy, Research, and
Development Authority
17 Columbia Circle
Albany, NY 12203-6399

Mr. Paul Eddy
New York State Department
of Public Service
3 Empire State Plaza
Albany, NY 12223-1350

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Senior Resident Inspector=s Office
Indian Point 2 and 3
U. S. Nuclear Regulatory Commission
P.O. Box 59
Buchanan, NY 10511

Mr. Charles Donaldson, Esquire
Assistant Attorney General
New York Department of Law
120 Broadway
New York, NY 10271

Mr. Raymond L. Albanese
Four County Coordinator
200 Bradhurst Avenue
Unit 4 Westchester County
Hawthorne, NY 10532

Mayor, Village of Buchanan
236 Tate Avenue
Buchanan, NY 10511

Mr. Jim Riccio
Greenpeace
702 H Street, NW
Suite 300
Washington, DC 20001

Mr. Phillip Musegaas
Riverkeeper, Inc.
828 South Broadway
Tarrytown, NY 10591

Indian Point Nuclear Generating Unit No. 2

cc:

Mr. Mark Jacobs
IPSEC
46 Highland Drive
Garrison, NY 10524

Mr. Sherwood Martinelli
FUSE USA
via email

REQUEST FOR ADDITIONAL INFORMATION

REGARDING AMENDMENT APPLICATION FOR REVISION TO

DIESEL GENERATOR SURVEILLANCE TEST

ENTERGY NUCLEAR OPERATIONS, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

By letter dated July 9, 2008, Agencywide Documents Access and Management System Accession No. ML081980160, Entergy Nuclear Operations, Inc. (Entergy or the licensee) requested an amendment to the Technical Specifications (TS), Appendix A of Facility Operating License No. DPR-26 for Indian Point Nuclear Generating Unit No. 2. The proposed change would revise the test acceptance criteria specified in TS Surveillance Requirement (SR) 3.8.1.10 for the diesel generator endurance test surveillance. The licensee has proposed revising the load ranges and power factors specified for the endurance test for consistency with the associated plant safety analyses. The Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has the following questions:

1. Section 5.1.5, "Miscellaneous Losses," of WCAP-12655, Revision 2, "Emergency Diesel Generator Loading Study for Indian Point Unit 2," indicates that frequency fluctuations impact up to 0.5% (60 hertz (Hz) +/- 0.3 Hz), which add 1.5% (or 35 kilowatts (kW) at the 2300 kW rating. Indian Point, Unit 2, TS SRs 3.8.1.2, 3.8.1.12, and 3.8.1.13 allows frequency variations up to +/-2% and voltage variation between 428 and 500 volts. Explain (1) the discrepancy between the TS allowable frequency variation and the assumed frequency impact in WCAP-12655, Revision 2, and (2) the ability of the diesel generator to adequately perform its design function while loaded under the worst-case frequency scenario (i.e., frequency variation of +2%). Also provide assurance that the diesel generator can perform its design function while loaded during the worst-case voltage scenario (i.e., 428 volts minimum or 500 volts maximum), as identified in TS SRs 3.8.1.2, 3.8.1.12, and 3.8.1.13.

2. In the licensee's response to Question 1a provided in its July 9, 2008, license amendment request, the licensee provided details on the diesel generator and switchgear capabilities. The NRC staff found that the switchgear ampere rating associated with the output breaker of the diesel generator does not envelop the diesel generator load profile for the large-break loss-of-coolant accident (LOCA) as specified in WCAP-12655, Revision 2, dated June 2002. Specifically, the executive summary of the switchgear analysis noted that the switchgear was analyzed to determine the worst-case loading scenario of 1750 kW continuous followed by operation at 2300 kW for ½ hour followed by 2100 kW for 2 hours. However, the actual load profile for a large-break LOCA is 2100 kW for approximately ½ hour followed by 2300 kW for a short period of time followed by 1750 kW continuous. It is the NRC staff's expectation that the diesel generator endurance run test load profile must envelop the design basis assumptions (i.e., the worst case load profile) for the nuclear power plant.

Enclosure

Furthermore, the licensee has proposed adding new Note A in TS Bases Section 3.8.1, "AC Sources – Operating," that specifically states that operation at the overload ratings is allowed only for ≤ 2300 kW (1/2 hour) followed by ≤ 2100 kW (2 hours), not vice versa. Based on the diesel generator loading study for Indian Point Unit 2 (WCAP-12655, Revision 2), the peak load (approximately 2300 kW) can occur any time during the LOCA scenario depending upon the size of break (approximately 40 minutes in case of a large-break LOCA and approximately 120 minutes in case of a small-break LOCA). The diesel generator and the associated switchgear must be capable of supplying the peak load at any time (i.e., loading order should not be a factor) during either LOCA scenario.

Given the limitation on the switchgear rating, provide the technical basis to ensure that the diesel generator and the switchgear associated with the output breaker of the diesel generator will perform their design function during the postulated LOCA scenarios.

3. Table 6.1-2c of the Indian Point Unit 2 diesel generator loading study indicates that Charging Pump 23 will start 118 minutes into a small-break LOCA. Describe how you have analyzed the capability of the diesel generator and switchgear to handle starting of the large motor load, which can draw starting current close to six times full load current, 118 minutes into a small-break LOCA event when the diesel generator is pre-loaded close to its 2-hour rating and the switchgear is also pre-loaded close to its full continuous ampere rating.

4. Table 6.1-2c of the Indian Point Unit 2 diesel generator loading study indicates that the maximum expected kW for Charging Pump 23 is 150 kW. However, Table 6.1-2c indicates that Charging Pump 23 would add 213 kW 118 minutes into a small-break LOCA event. Explain the discrepancy between these two values.

5. In Attachment 4, Enclosure 1, of its July 9, 2008, license amendment request, the licensee indicated that the switchgear associated with the output breaker of the diesel generator was modified by changing the bus transition from aluminum to copper and the switchgear ventilation scheme. Describe the impact of the design changes on the qualification of the entire switchgear associated with the output breaker of the diesel generator.

6. The diesel generator loading study appears to only consider kW losses. Since kilovolt ampere reactive (kVAR) losses will increase the current that the switchgear has to handle, describe how kVAR losses were considered when analyzing the diesel generator loading.

7. As a result of our review of the diesel generator loading study, it does not appear that all automatic loads have been considered (e.g., Table 3.4-2 of the diesel generator loading study identifies the following automatic loads under Motor Control Center 27A: Plant vent sample station compressor and Fuel Storage Building Exhaust Fan, that do not appear on the diesel generator load tables for either the large-break LOCA or the small-break LOCA). Explain why these automatic loads are not included on the diesel generator loading tables.

8. Describe how the manual action assumptions credited in the diesel generator loading study were evaluated, e.g., manual loading of the charging pump within the first minute of a large-break LOCA, and shedding of loads (especially, the motor-driven auxiliary feedwater pump at 30 minutes) following the onset of a large-break LOCA. Also, describe the cues and procedures that would direct the control room operator to reduce diesel generator loading during a large-break LOCA. Additionally, provide a copy of the involved procedures.

9. With regard to General Electric (GE) Report DER-1691, dated October 13, 1989, (Attachment 4, Enclosure 4 to NL-08-101), confirm that all changes required for the long-term solution (listed in Section V(B)) were implemented.

10. Report DER-1691 states that if all of the changes required for the long-term solution are implemented, the engine output will be:

    1750 kW continuous
    1950 kW 6000 hrs/yr
    2150 kW 3000 hrs/yr
    2205 kW 1000 hrs/yr

    Westinghouse Engineering Report WMC-EER-90-005, dated September 19, 1990, (Attachment 4, Enclosure 5 to NL-08-01) states that in 1984 Westinghouse did an engineering study that concluded that the diesel generators were capable of delivering 2250 kW continuously. The conclusion of the report (WMC-EER-90-005) is that the diesel generators are capable of delivering 2300 kW continuously.

    Describe any further modifications that were implemented in order to have the diesel generator continuous rating increase from 1750 kW to 2250 kW in 1984 and from 1750 kW in 1989 to 2300 kW in 1990.

11. Calculation IP-CALC-06-00281, “Ventilation System for the EDG Building”, is part of Calculation EGE-00016-00 (Attachment 4, Enclosure 6 to NL-08-101). In Section 6.7.2 of Calculation IP-CALC-06-00281, it is stated that the total diesel generator building air flow is the sum of the air flow from the operating fans added to the air flow required for combustion. If the engine air inlet is piped to the outside, as required by GE Report DER-1691, then explain why the combustion air flow is added to the sum of the air flow from the operating fans to determine the room temperature rise.

    If the engine air inlet is not piped to the outside, then the air drawn into the building for combustion does not travel from one side of the building to the other and exit the building through the exhaust fans. Explain why the combustion air should be added to the air flow from the operating fans to determine the room temperature rise.