



Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249
Tel 914 734 6700

Fred Dacimo
Site Vice President
Administration

March 22, 2007

Re: Indian Point Unit 2
Docket 50-247

NL-07-038

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

**SUBJECT: Proposed Changes to Indian Point 2 Technical Specifications
Regarding Diesel Generator Endurance Test Surveillance**

Dear Sir:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (Entergy) hereby requests an amendment to the Technical Specifications for Indian Point Nuclear Generating Unit 2 (IP2). The proposed change will revise the test acceptance criteria specified in SR 3.8.1.10 for the Diesel Generator endurance test surveillance. Changes in the load ranges and power factors specified for the test are proposed for consistency with the associated safety analyses.

Entergy has evaluated the proposed change in accordance with 10 CFR 50.91 (a)(1) using the criteria of 10 CFR 50.92 (c) and Entergy has determined that this proposed change involves no significant hazards considerations, as described in Attachment One. The proposed changes to the Technical Specifications are shown in Attachment Two. A copy of this application and the associated attachments are being submitted to the designated New York State official.

Entergy requests approval of the proposed amendment by November 2007. There are no new commitments being made in this submittal. If you have any questions or require additional information, please contact Mr. Patric W. Conroy, IPEC Licensing Manager at (914) 734-6668.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 3/22/2007

Sincerely,

Fred R. Dacimo
Site Vice President
Indian Point Energy Center

A001

Attachments:

- One: Analysis of Proposed Technical Specification Changes Regarding Diesel Generator Endurance Test Surveillance
- Two: Markup of Technical Specification Page for Proposed Changes Regarding Diesel Generator Endurance Test Surveillance

cc: Mr. John P. Boska, Senior Project Manager, NRC NRR DORL
Mr. Samuel J. Collins, Regional Administrator, NRC Region 1
NRC Resident Inspector, IP2
Mr. Peter R. Smith, President, NYSERDA
Mr. Paul Eddy, New York State Dept. of Public Service

ATTACHMENT ONE TO NL-07-038

**ANALYSIS OF PROPOSED TECHNICAL SPECIFICATION CHANGES
REGARDING
DIESEL GENERATOR ENDURANCE TEST SURVEILLANCE**

**ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
DOCKET NO. 50-247**

1.0 DESCRIPTION

Entergy Nuclear Operations, Inc (Entergy) is requesting an amendment to Operating License DPR-26, Docket No. 50-247 for Indian Point Nuclear Generating Unit No. 2 (IP2). The proposed change will revise the test acceptance criteria specified in SR 3.8.1.10 for the Diesel Generator endurance run surveillance. Changes in the load ranges and power factors specified for the test are proposed for consistency with the associated safety analyses. The proposed changes are the result of corrective actions taken by Entergy to address NRC inspection results reported in Reference 1.

The specific proposed changes are listed in the following section.

2.0 PROPOSED CHANGES

The surveillance test acceptance criteria in Diesel Generator Surveillance SR 3.8.1.10 will be revised as follows:

A. The required **load ranges** will be changed as follows:

FROM:

- a. For ≥ 2 hours loaded ≥ 1837 kW and ≤ 1925 kW and
- b. For the remaining hours of the test loaded ≥ 1575 kW and ≤ 1750 kW.

TO:

- a. For ≥ 15 minutes and ≤ 30 minutes loaded ≥ 2270 kW and ≤ 2300 kW, and
- b. For ≥ 105 minutes and ≤ 2 hours loaded ≥ 2050 kW and ≤ 2100 kW, and
- c. For the remaining hours of the test loaded ≥ 1700 kW and ≤ 1750 kW.

B. The **power factor** limits will be changed as follows:

FROM:

≤ 0.85 (applicable for all three DGs)

TO:

≤ 0.88 (applicable to DGs 21 and 23)
 ≤ 0.87 (applicable to DG 22)

The Technical Specification markup page for these changes is provided in Attachment Two. The Technical Specification Bases changes needed to reflect these proposed new test values are not significant and therefore are not included in this submittal.

3.0 BACKGROUND

3.1 Load Range

IP2 Improved Technical Specification (ITS) surveillance SR 3.8.1.10 is a test of the emergency diesel generators, similar to Standard Technical Specification (STS, Reference 2) surveillance SR 3.8.1.14. This surveillance requires that each DG be started and loaded for a specified period of time at specified loading conditions, which include kilowatt (kW) output and power factor. Prior to conversion to ITS, the IP2 Custom Technical Specifications (CTS) contained a requirement for diesel testing (Specification 4.6.A.2) which stated:

“At each Refueling Interval (R###), each diesel shall be manually started, synchronized and loaded up to its continuous (nameplate) and short term ratings.”

The CTS Bases stated:

“Each diesel is rated for operation for 0.5 hours of operation out of any 24 hours at 2300 kW plus 2.0 hours of operation out of any 24 hours at 2100 kW with the remaining 21.5 hours of operation out of any twenty four hours at 1750 kW.”

This CTS testing requirement was established in IP2 License Amendment 153 (Reference 3) which reflected the installation of a plant modification designed to provide for an increase in the DG short-term rating.

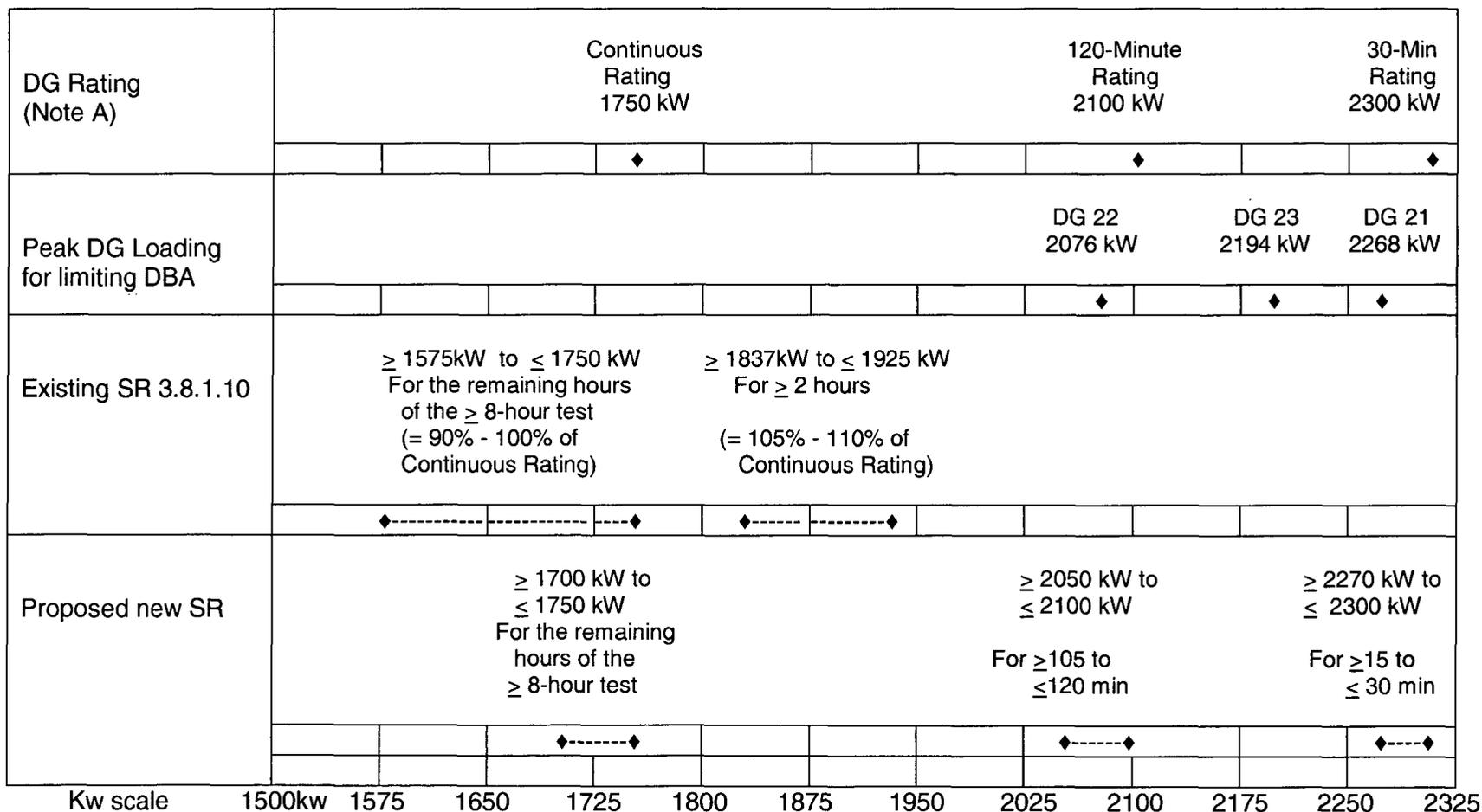
During the conversion to ITS for IP2 (Reference 4), the CTS requirement was expanded to specify test acceptance criteria in the technical specification surveillance; acceptance criteria for test duration and power factor were added. In addition, the loading requirement for this test was modified to specify two test intervals; one at a load range that corresponds to 90% - 100% of the DG continuous rating and the other at a load range that corresponds to 105% - 110% of the DG continuous rating.

During NRC inspection activities described in Reference 1, questions were raised regarding the adequacy of the load ranges specified in ITS SR 3.8.1.10 to demonstrate the capability of the DGs to operate at the peak loading conditions identified in plant safety analyses for the limiting design basis accident (DBA). As a result Entergy acknowledged the need to submit a license amendment request to establish new load ranges that would bound the peak accident loads. Entergy is proposing to establish load ranges based on the diesel ratings previously described in amendment 153, and Entergy has verified that the proposed new load ranges bound the peak accident loads. The values for the peak accident loads are included on Table One, which provides a comparison of the various DG loading values discussed in this section.

3.2 Power Factor

While investigating the above changes regarding DG kW loading, Entergy also determined that a change to the power factor test value is also appropriate. At IP2, the emergency diesel generator and associated electrical distribution system is a 480 volt system. Surveillance testing cannot be performed using the 480 V loads that would be powered under an accident scenario; rather the loading of the DG must be accomplished by picking up load from the offsite grid. This involves step-up transformers from 480 V to 6.9 kV and then additional step-up to either 13.8 kV or 138 kV,

**TABLE ONE
COMPARISON OF VARIOUS DIESEL GENERATOR LOADING VALUES**



Note A: These rating are based on limitations imposed on the engine portion of the DG which are more limiting than the rating of the generator portion of the DG, which is rated for continuous operation at 2875 KVa.

depending on which feeder circuits are available between the station and the grid. This testing configuration can make it difficult to establish a low power factor test configuration and maintain other electrical parameters within operational limits of the DG. As part of the review of the electrical loading study to address the kW limit issue, Entergy has determined that there is margin between the existing technical specification power factor test requirement and the analysis power factor for the limiting load scenarios. Therefore, the proposed change will eliminate unnecessary conservatism from the test and provide greater ability to perform the test without crediting the technical specification note regarding limitations on power factor caused by grid conditions.

4.0 **TECHNICAL ANALYSIS**

4.1 **Load Range**

The peak DG loading conditions reported in this LAR are based on the current version of the Indian Point 2 Emergency Diesel Generator Loading Study. The methodology consists of an evaluation of emergency safeguards equipment powered from the 480 Vac emergency safeguards bus under hypothetical accident scenarios which also involve loss of normal offsite power. The evaluation accounts for the time-dependent electrical power requirements of various safeguards components as the accident scenario progresses.

The evaluation concludes that the limiting loading condition occurs for the LBLOCA scenario during the time period when plant operators are implementing the recirculation switch sequencing activity that completes the transition from injection flow (refueling water storage tank via the safety injection pumps) to recirculation flow (recirculation sump via recirculation pumps). This activity occurs at approximately 40 minutes after the initiation of the accident sequence. In addition, the evaluation accounts for the single-failure of one of the DGs. The duration of the peak loading condition is limited to a few minutes, associated with the elapsed time between operator actuation of one switch (switch 4) that starts the required recirculation pump and operator actuation of another switch (switch 7) that secures the running safety injection pump. The resulting peak loading for each DG is as follows:

DG	Peak Load
21	2268 kW, with loss of DG 23
22	2076 kW, with loss of DG 23
23	2194 kW, with loss of DG 21

The peak loading conditions are bounded by the DG short-term (30-minute) rating limit of 2300 kW. The proposed new SR acceptance criterion of ≥ 2270 kW to ≤ 2300 kW for ≥ 15 to ≤ 30 minutes also bounds these peak loading conditions, without exceeding the DG 30-minute rating limit.

In addition to peak loading conditions, the load study evaluation considers the time dependent electrical power demands with respect to the other DG rating values. The evaluation concludes that the 2-hour rating and continuous rating limits for the DG bound the electrical requirements of the hypothetical accident scenarios and the proposed new SR acceptance criteria provide assurance that the DGs can perform at these rated limits.

4.2 Power Factor

The existing ITS SR acceptance criterion for power factor (≤ 0.85) was determined based on engineering judgment. Prior to ITS (CTS), a test acceptance criterion for power factor was not specified. During tests conducted since ITS implementation, it was determined that procedure limits set for certain DG operating parameters (e.g., generator field amps and output voltage) served as a constraint in some cases to consistently achieve the new power factor acceptance criterion. Therefore Entergy performed further engineering evaluations regarding power factor and procedure limits on DG operating parameters.

The evaluation accounted for peak loading conditions from the DG loading study discussed in Section 4.1 and information from motor data sheets for the safeguards equipment motors rated at ≥ 50 kW. Affected motors include those associated with the Service Water Pumps, Safety Injection Pumps, Residual Heat Removal Pumps, Recirculation Pumps, Auxiliary Feedwater Pumps, and Containment Recirculation Fans. Loads smaller than 50 kW were not considered due to the negligible impact on the overall power factor. The evaluation concluded that the existing technical specification power factor test requirement is overly conservative with respect to the DG loading requirements under hypothetical accident scenarios. Therefore the proposed new values of ≤ 0.87 (for DG 22) and ≤ 0.88 (for DGs 21 and 23) are more appropriate test acceptance criteria.

Entergy has determined that these power factor values are achievable under the test conditions applicable for this surveillance, based on a review of past test results and recent implementation of procedure changes regarding generator operating limits to be used for this test.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

Entergy Nuclear Operations, Inc. (Entergy) has evaluated the safety significance of the proposed change to the Indian Point 2 Technical Specification that revises EDG load testing and power factor requirements. This proposed change has been evaluated according to the criteria of 10 CFR 50.92, "Issuance of Amendment". Entergy has determined that the subject change does not involve a Significant Hazards Consideration as discussed below:

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

No. The proposed change revises the acceptance criteria to be applied to an existing surveillance test of the facility emergency diesel generators (DGs). Performing a surveillance test is not an accident initiator and does not increase the probability of an accident occurring. The proposed new acceptance criteria will assure that the DGs are capable of carrying the peak electrical loading assumed in the various existing safety analyses which take credit for the operation of the DGs. Establishing acceptance criteria that bound existing analyses validates the related assumption used in those analyses regarding the capability of equipment to mitigate accident conditions. Therefore the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

No. The proposed change revises the test acceptance criteria for a specific performance test conducted on the existing DGs. The proposed change does not involve installation of new equipment or modification of existing equipment, so no new equipment failure modes are introduced. The proposed revision to the DG surveillance test acceptance criteria also is not a change to the way that the equipment or facility is operated and no new accident initiators are created. Therefore the proposed 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?

No. The conduct of performance tests on safety-related plant equipment is a means of assuring that the equipment is capable of maintaining the margin of safety established in the safety analyses for the facility. The proposed change in the DG technical specification surveillance test acceptance criteria is consistent with values assumed in existing safety analyses and is consistent with the design rating of the DGs. Therefore the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment to the Indian Point 2 Technical Specifications 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.

5.2 Applicable Regulatory Requirements / Criteria

General Design Criterion (GDC) 17; “Electric Power Systems” requires that onsite electric power systems have sufficient independence, capacity, capability, redundancy, and testability to ensure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents, assuming a single failure.

GDC 18; “Inspection and Testing of Electric Power Systems” requires that electric power systems important to safety be designed to permit appropriate periodic inspection and testing to assess the continuity of the systems and the condition of their components.

IP2 Final Safety Analysis Report (FSAR) section 8.1 describes how the requirements of GDC 17 and 18 are met at IP2. Also, Technical Specification section 3.8.1 contains testing requirements for the DGs.

Regulatory Guide 1.9, Revision 3 describes methods for meeting the above requirements based on NRC staff endorsement of IEEE Standard 387-1984, with exceptions as stated in the Regulatory Guide. Regulatory Position 2.2 describes various DG tests, including test 2.2.9 for the Endurance and Margin Test. The loading requirements for this test are

specified as a percentage of the continuous rating of the DGs, and these load ranges (105% - 110% of continuous rating and 90% - 100% of continuous rating) are specified in the existing technical specification surveillance requirement (SR) 3.8.1.10.

IP2 License Amendment 153 established the current continuous and short-term ratings of the DGs. The Technical Specification in effect at that time (4.6.A.2) stated that at each refueling outage, each DG shall be manually started, synchronized and loaded up to its continuous and short term ratings. This testing requirement was implemented in plant surveillance procedures.

In the conversion to Improved Technical Specifications (Reference 4) Entergy adopted test ranges based on Regulatory Guide 1.9. However, these ranges do not bound the peak DBA loading. Therefore, Entergy is proposing to revise the test load ranges specified for SR 3.8.1.10 based on the continuous and short term ratings defined in License Amendment 153. Testing at these ranges will assure that applicable criteria are met.

5.3 Environmental Considerations

The proposed changes to the IP2 and IP3 Technical Specifications do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent 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 PRECEDENCE

IP2 License Amendment 153 established requirements for testing the DGs at the continuous and short term ratings.

7.0 REFERENCES

1. NRC Inspection Report 05000247 / 2006-003, dated August 11, 2006. (NCV 2006-003-05 and -08)
2. Standard Technical Specifications for Westinghouse plants, NUREG 1431.
3. NRC letter to Consolidated Edison Company; "Issuance of Amendment 153 for Indian Point Nuclear Generating Unit 2," dated May 9, 1991.
4. NRC letter to Entergy; regarding issuance of Amendment 238 for Indian Point Nuclear Generating Unit 2, dated November 21, 2003.

ATTACHMENT TWO TO NL-07-038

**MARKUP OF TECHNICAL SPECIFICATION PAGE FOR PROPOSED CHANGES
REGARDING
DIESEL GENERATOR ENDURANCE TEST SURVEILLANCE**

Affected Page: 3.8.1-8 Amendment 238

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.10 -----</p> <p style="text-align: center;">- NOTES -</p> <ol style="list-style-type: none"> 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This SR shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 3. If performed with DG synchronized with offsite power, it shall be performed at a power factor of ≤ 0.88 for DG 21, ≤ 0.87 for DG 22, and ≤ 0.88 for DG 23 ≤ 0.85. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. <p>-----</p> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">INSERT A</div> <p>Verify each DG operating at a power factor as stated in Note 3 ≤ 0.85 operates for ≥ 8 hours:</p> <ol style="list-style-type: none"> a. For ≥ 2 hours loaded ≥ 1837 kW and ≤ 1925 kW and b. For the remaining hours of the test loaded ≥ 1575 kW and ≤ 1750 kW. 	<p>24 months</p>
<p>SR 3.8.1.11 -----</p> <p style="text-align: center;">- NOTE -</p> <p>Load sequence timers associated with equipment that has automatic initiation capability disabled are not required to be OPERABLE.</p> <p>-----</p> <p>Verify each load sequence timer relay functions within the required design interval.</p>	<p>24 months</p>

INSERT A, for SR 3.8.1.10

- a. For ≥ 15 minutes and ≤ 30 minutes loaded
 ≥ 2270 kW and ≤ 2300 kW, and
- b. For ≥ 105 minutes and ≤ 2 hours loaded
 ≥ 2050 kW and ≤ 2100 kW, and
- c. For the remaining hours of the test loaded
 ≥ 1700 kW and ≤ 1750 kW.