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Nuclear Power Plant
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NewYorkPower Authority

Robert J. Barrett
Site Executive Officer

February 2, 2000
IPN-00-006

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

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Transmittal of Revised Technical Specification Bases Regarding Service Ratings for Emergency Diesel Generators

Dear Sir:

This letter transmits a revision to the Indian Point 3 Technical Specification Bases page 4.6-3 regarding capacity ratings for the emergency diesel generators (EDG). This change does not involve an unreviewed safety question based on the Authority's evaluation using the criteria of 10CFR50.59.

The change adds an explanation of the four distinct capacity ratings that are applicable to the three EDGs governed by Technical Specification 4.6.A. Including this information in the Technical Specification Bases provides a convenient reference for personnel making operability decisions for various EDG testing or operating scenarios.

The revised pages are provided in Attachment I. Attachment II is a markup of the existing Bases for information only. This revision to the Bases of the current Technical Specifications will also be reflected in the proposed Improved Technical Specifications as shown in Attachment III.

The Authority is making no new commitments in this letter. If you have any questions, please contact Mr. Ken Peters.

Very truly yours,

Robert J. Barrett
Site Executive Officer
Indian Point 3 Nuclear Power Plant

cc: next page

A001

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

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ATTACHMENT I TO IPN-00-006

REVISION TO TECHNICAL SPECIFICATION BASES PAGE

REGARDING EMERGENCY DIESEL GENERATOR CAPACITY RATINGS

AFFECTED PAGES

Remove old page 4.6-3

Insert new pages 4.6-3 and 4.6-4

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

The testing frequency specified will be often enough to identify and correct any mechanical or electrical deficiency before it can result in a system failure. The fuel supply is continuously monitored. An abnormal condition in these systems would be signaled without having to place the diesel generators themselves on test.

Each of the three emergency diesel generators (EDG) consists of an Alco engine coupled to a Westinghouse generator. Any two EDGs can power the minimum safeguards loads. Surveillance testing in accordance with Specification 4.6.A.2 consists of operating each EDG in the range of 1900kW to 1950kW for at least 105 minutes. The EDGs have four capacity ratings as defined below that can be used to assess EDG operability.

Continuous:	Electrical power output capability that can be maintained 24 hours /day, with no time constraint.
2000-hour:	Electrical power output capability that can be maintained in one continuous run of 2000 hours or in multiple shorter duration runs totaling 2000 hours.
2-hour:	Electrical power output capability that can be maintained for up to 2 hours in any 24-hour period.
1/2 - hour:	Electrical power output capability that can be maintained for up to 30 minutes in any 24-hour period.

The electrical output capabilities (EDG load) applicable to these four ratings are as follows:

RATING	EDG LOAD	TIME CONSTRAINT
Continuous	≤ 1750 kW	None
2000-hour	≤ 1950 kW	≤ 2000 hours / calendar year
2-hour	≤ 1950 kW ≤ 1750 kW	≤ 2 hours in a contiguous 24-hour period; **AND** for the remaining 22 hours. [See NOTE A]
1/2-hour	≤ 2000 kW ≤ 1750 kW	≤ 30 minutes in a contiguous 24-hour period; **AND** for the remaining 23.5 hours. [See NOTE A]

NOTE A: The loading cycle permitted for the '2-hour' and the '1/2-hour' rating is operation at the overload condition (e.g. > 1750 kW) for the specified time followed by operation at the 'continuous' (e.g. ≤ 1750kW) rating for the remaining time in the 24-hour period. This loading cycle may be repeated each day, as long as back-to-back operation in the overload condition does not occur. The 2000-hour cumulative time constraint also applies to repetitive operation at the overload conditions allowed by the 2-hour and the 1/2-hour ratings.

Operation in excess of 2000 kW, regardless of the duration, is an unanalyzed condition. In such cases, the EDG is assumed to be inoperable and the vendor should be consulted to determine if accelerated or supplemental inspection and/or maintenance is necessary. The EDG can be returned to an operable status following completion of vendor-required inspection and/or maintenance.

Station batteries will deteriorate with time, but precipitous failure is extremely unlikely. The surveillance specified is that which has been demonstrated over the years to provide an indication of a cell becoming unserviceable long before it fails. The periodic equalizing charge will ensure that the ampere-hour capability of the batteries is maintained.

The service and performance discharge test of each battery, together with the visual inspection of the plates, will assure the continued integrity of the batteries. The batteries are of the type that can be visually inspected, and this method of assuring the continued integrity of the battery is proven standard power plant practice.

The battery service test demonstrates the capability of the battery to meet the system design requirements. The Indian Point Unit 3 design duty cycle loads are determined by a LOCA concurrent with a loss of AC power.

The performance discharge test is a test of the constant current capacity of a battery, normally done in the as found condition after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

The modified battery performance discharge test is a composite test which addresses both the service test and performance discharge test requirements. It shall consist of a one minute peak load equivalent to that of the service test and a constant discharge current for the remainder of the test which envelopes the next highest load value of the service test. The purpose of the modified performance discharge test is to compare the capacity of the battery against the manufacturer's specified capacity and thereby determine when the battery is approaching the end of its life, as well as to demonstrate capability to meet system design requirements. Every other 24 month operating cycle, the modified performance discharge test may be performed in lieu of the battery service test required by Technical Specification 4.6.B.3.

The station batteries are required for plant operation, and performing the station battery service and performance discharge (or modified performance discharge) test require the reactor to be shutdown.

Reference
FSAR, Section 8.2

ATTACHMENT II TO IPN-00-006

MARKUP FOR REVISION TO TECHNICAL SPECIFICATION BASES PAGE

REGARDING EMERGENCY DIESEL GENERATOR CAPACITY RATINGS

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

The testing frequency specified will be often enough to identify and correct any mechanical or electrical deficiency before it can result in a system failure. The fuel supply is continuously monitored. An abnormal condition in these systems would be signaled without having to place the diesel generators themselves on test.

Each diesel generator has a continuous rating of 1750 kw and a 2 hour rating of 1950 kw. Two diesels can power the minimum safeguards loads. To ensure that each diesel can operate at its 2 hour rating (as required by specification 4.6.A.2.), each diesel will be loaded to 1900-1950 kw and run for at least 105 minutes.

INSERT A →

Station batteries will deteriorate with time, but precipitous failure is extremely unlikely. The surveillance specified is that which has been demonstrated over the years to provide an indication of a cell becoming unserviceable long before it fails. The periodic equalizing charge will ensure that the ampere-hour capability of the batteries is maintained.

The service and performance discharge test of each battery, together with the visual inspection of the plates, will assure the continued integrity of the batteries. The batteries are of the type that can be visually inspected, and this method of assuring the continued integrity of the battery is proven standard power plant practice.

The battery service test demonstrates the capability of the battery to meet the system design requirements. The Indian Point Unit 3 design duty cycle loads are determined by a LOCA concurrent with a loss of AC power.

The performance discharge test is a test of the constant current capacity of a battery, normally done in the as found condition after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

The modified battery performance discharge test is a composite test which addresses both the service test and performance discharge test requirements. It shall consist of a one minute peak load equivalent to that of the service test and a constant discharge current for the remainder of the test which envelopes the next highest load value of the service test. The purpose of the modified performance discharge test is to compare the capacity of the battery against the manufacturer's specified capacity and thereby determine when the battery is approaching the end of its life, as well as to demonstrate capability to meet system design requirements. Every other 24 month operating cycle, the modified performance discharge test may be performed in lieu of the battery service test required by Technical Specification 4.6.B.3.

The station batteries are required for plant operation, and performing the station battery service and performance discharge (or modified performance discharge) test require the reactor to be shutdown.

Reference
FSAR, Section 8.2

INSERT 'A' FOR TECH SPEC BASES PAGE 4.6-3

Each of the three emergency diesel generators (EDG) consists of an Alco engine coupled to a Westinghouse generator. Any two EDGs can power the minimum safeguards loads. Surveillance testing in accordance with Specification 4.6.A.2 consists of operating each EDG in the range of 1900kW to 1950kW for at least 105 minutes. The EDGs have four capacity ratings as defined below that can be used to assess EDG operability.

- Continuous: Electrical power output capability that can be maintained 24 hours /day, with no time constraint.
- 2000-hour: Electrical power output capability that can be maintained in one continuous run of 2000 hours or in multiple shorter duration runs totaling 2000 hours.
- 2-hour: Electrical power output capability that can be maintained for up to 2 hours in any 24-hour period.
- 1/2 - hour: Electrical power output capability that can be maintained for up to 30 minutes in any 24-hour period.

The electrical output capabilities (EDG load) applicable to these four ratings are as follows:

RATING	EDG LOAD	TIME CONSTRAINT
• Continuous	≤ 1750 kW	None
• 2000-hour	≤ 1950 kW	≤ 2000 hours of accumulated run time
• 2-hour	≤ 1950 kW ≤ 1750 kW	≤ 2 hours in a contiguous 24-hour period; **AND** for the remaining 22 hours. [See Note A]
• 1/2-hour	≤ 2000 kW ≤ 1750 kW	≤ 30 minutes in a contiguous 24-hour period; **AND** for the remaining 23.5 hours. [See Note A]

NOTE A: The loading cycle permitted for the 2-hour and the 1/2-hour rating is operation at the overload condition (e.g. > 1750 kW) for the specified time followed by operation at the continuous (e.g. ≤ 1750 kW) rating for the remaining time in the 24-hour period. This loading cycle may be repeated each day, as long as back-to-back operation in the overload condition does not occur. The 2000-hour cumulative time constraint also applies to repetitive operation at the overload conditions allowed by the 2-hour and 1/2-hour ratings,

Operation in excess of 2000 kW, regardless of the duration, is an unanalyzed condition. In such cases, the EDG is assumed to be inoperable and the vendor should be consulted to determine if accelerated or supplemental inspection and maintenance is necessary. The EDG can be returned to an operable status following completion of vendor-required inspection and/or maintenance.

ATTACHMENT III TO IPN-00-006

MARKUP FOR REVISION TO

PROPOSED IMPROVED TECHNICAL SPECIFICATION BASES PAGE

REGARDING EMERGENCY DIESEL GENERATOR CAPACITY RATINGS

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

BASES

BACKGROUND (Continued)

the process. Within 1 minute after the initiating signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service.

Ratings for DGs 31, 32 and 33 are consistent with the requirements of Regulatory Guide 1.9 (Ref. 3). The 3 DGs each consist of an Alco model 16-251-E engine coupled to a Westinghouse 2188 kVA, 0.8 power factor, 900 rpm, 3 phase, 60 cycle, 480 volt generator. Each DG has a 2 hr rating of 1950 kW and a continuous rating of 1750 kW. The ESF loads that are powered from the 480 V ESF buses are listed in Reference 2.

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APPLICABLE SAFETY ANALYSES

The initial conditions of DBA and transient analyses in the FSAR, Chapter 6 (Ref. 4) and Chapter 14 (Ref. 5), assume ESF systems are OPERABLE. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System (RCS), and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

The OPERABILITY of the AC electrical power sources is consistent with the initial assumptions of the Accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least 2 of the 3 safeguards power trains energized from either onsite or offsite AC sources during Accident conditions in the event of:

a. An assumed loss of all offsite power or all onsite AC power; and

b. A worst case single failure.

The AC sources satisfy Criterion 3 of 10 CFR 50.36.

INSERT FOR PROPOSED ITS BASES PAGE B 3.8.1-4

Each of the three emergency diesel generators (EDG) consists of an Alco engine coupled to a Westinghouse generator. Any two EDGs can power the minimum safeguards loads. The EDGs have four capacity ratings as defined below that can be used to assess EDG operability.

- Continuous: Electrical power output capability that can be maintained 24 hours /day, with no time constraint.
- 2000-hour: Electrical power output capability that can be maintained in one continuous run of 2000 hours or in multiple shorter duration runs totaling 2000 hours.
- 2-hour: Electrical power output capability that can be maintained for up to 2 hours in any 24-hour period.
- 1/2 - hour: Electrical power output capability that can be maintained for up to 30 minutes in any 24-hour period.

The electrical output capabilities (EDG load) applicable to these four ratings are as follows:

RATING	EDG LOAD	TIME CONSTRAINT
• Continuous	≤ 1750 kW	None
• 2000-hour	≤ 1950 kW	≤ 2000 hours of accumulated run time
• 2-hour	≤ 1950 kW ≤ 1750 kW	≤ 2 hours in a contiguous 24-hour period; **AND** for the remaining 22 hours. [See Note A]
• 1/2-hour	≤ 2000 kW ≤ 1750 kW	≤ 30 minutes in a contiguous 24-hour period; **AND** for the remaining 23.5 hours. [See Note A]

NOTE A: The loading cycle permitted for the 2-hour and the 1/2-hour rating is operation at the overload condition (e.g. > 1750 kW) for the specified time followed by operation at the continuous (e.g. ≤ 1750 kW) rating for the remaining time in the 24-hour period. This loading cycle may be repeated each day, as long as back-to-back operation in the overload condition does not occur. The 2000-hour cumulative time constraint also applies to repetitive operation at the overload conditions allowed by the 2-hour and 1/2-hour ratings,

Operation in excess of 2000 kW, regardless of the duration, is an unanalyzed condition. In such cases, the EDG is assumed to be inoperable and the vendor should be consulted to determine if accelerated or supplemental inspection and maintenance is necessary. The EDG can be returned to an operable status following completion of vendor-required inspection and/or maintenance.