



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 3, 2013

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. 3 - REQUEST FOR
ADDITIONAL INFORMATION REGARDING EMERGENCY DIESEL
GENERATOR FUEL OIL SYSTEM (TAC NO. ME9264)

Dear Sir or Madam:

By letter dated August 14, 2012, Entergy Nuclear Operations, Inc., the licensee, submitted a license amendment request to revise the licensing basis for the emergency diesel generator fuel oil storage requirements.

The Component Performance and Testing Branch, the Technical Specifications Branch, and the Balance of Plant Branch of the Office of Nuclear Reactor Regulation have determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information. Based on our discussions, we understand that a response to this request will be provided within 30 days of the date of this letter.

Please contact me at (301) 415-1364 if you have any questions on this issue.

Sincerely,

A handwritten signature in black ink, reading "Douglas V. Pickett".

Douglas V. Pickett, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION
EMERGENCY DIESEL GENERATOR FUEL OIL STORAGE REQUIREMENTS
ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-286

Component Performance and Testing Branch

Reference:

Letter from John A. Ventosa of Entergy Nuclear Northeast, LLC to NRC, "License Amendment Request for Emergency Diesel Generator Fuel Oil System" dated August 14, 2012 (Accession No. ML12234A250).

RAI-EPTB-1

Final Safety Analysis Report (FSAR) Section 8.2.3 states that the fuel oil tanks in the Indian Point Unit 1 (IP1) Superheater Building and the Buchanan Substation are classified as seismic Class III. Describe any contingency plan that is in place to provide fuel oil to the site for EDG operation for an extended period of time following a seismic event.

RAI-EPTB-2

The fuel oil tanks in the IP1 Superheater building and the Buchanan Substation are not protected from tornados, floods, and other natural phenomena. Describe any contingency plan that is in place to provide fuel oil to the site for EDG operation for an extended period of time following a tornado, flood, or other natural phenomena.

RAI-EPTB-3

This license amendment request (LAR) states that "If the diesel generators (DGs) require fuel oil from the fuel oil reserve tanks(s), the fuel oil will be transported by truck to the DG fuel oil storage tanks. A truck with appropriate hose connections and capable of transporting oil is available either on-site or at the Buchanan Substation."

- a. Describe how the operators know where the truck is located. Where will the truck normally be located, and is the normal location in a building or outside?
- b. What is the maximum capacity of the truck, and are the hose connections unique to this truck, the reserve storage tanks, and the fuel oil storage tanks?

Enclosure

- c. Explain how the truck will be maintained to be capable of transporting fuel oil, who is responsible for this maintenance, and by whom and at what frequency is the capability to transport fuel oil verified.
- d. Explain how the truck pathway(s) and access to the tank connections will be verified to be clear of obstructions, and who will perform this verification.
- e. Where is the licensed truck driver located? Is a licensed truck driver available near the truck 24 hours a day?
- f. Describe how the fuel oil is transferred from the Buchanan Station tank to the truck and from the truck to the underground fuel oil storage tanks during plant operation and during or following a natural disaster (earthquake, flood, hurricane, tornado, major icing or snowstorm). Also describe how the fuel oil is transferred from the IP1 Superheater building tank to the underground fuel oil storage tanks during plant operation and during or following a natural disaster. If electrical power is required, explain how it is available during and after a natural disaster or a plant emergency condition. If the licensed driver is located off-site, explain how you can ensure that the driver can get to the site during or following a natural disaster.
- g. Describe any contingency plans for addressing a failure to transfer fuel oil from the Buchanan Station or IP1 Superheater building tanks to the underground fuel oil storage tanks.

RAI-EPTB-4

Section 3.0 of the reference states that, "Additional margin is provided by 115 gallons of fuel oil in the DG day tank but is not credited." What is the additional time that this fuel oil provides as a percentage of the seven-day fuel oil requirement? In Attachment 3 of the reference, it is stated in the second paragraph of the background section of B3.8.3 that "Additional margin is provided by 115 gallons of fuel oil in the DG day tank." Is this 115 gallons credited for additional margin in the DG day tank? If it is credited, please explain any discrepancy between the two statements noted above.

RAI-EPTB-5

The marked up Bases for the IP3 Technical Specification (TS) Surveillance Requirement (SR) 3.8.3.2 states that "The periodic tests of the fuel oil stored in the DG fuel oil storage tanks verify that the length of time or conditions of storage has not degraded the fuel in a manner that could impact DG OPERABILITY." Also, in the Bases under IP3 TS SR 3.8.3.2, it is stated, in part, that "The periodic tests of the fuel oil stored in the DG fuel oil storage tanks verify..." and "Each DG fuel oil storage tank must be considered and tested separately." There is no mention of the reserve storage tanks in these paragraphs. Should the reserve storage tanks be added to the SR and the Bases information in IP3 TS SR 3.8.3.2?

RAI-EPTB-6

On Page 10 of 25 of Calculation IP-CALC-0058, Rev. 1, it is stated that "The method chosen for this IP3 fuel oil usage determination is the ANSI N195 Method 1." On Page 24 of 25 of Calculation IP-CALC-11-00058, Rev. 1, it is stated that "Therefore, it can be concluded that under the Regulatory Guide 1.137 requirement of EDG operation at rated capacity (1750 kW), with no conservative assumptions made as to ALCO test data uncertainty or fuel oil heat values, a fuel oil storage tank (FOST) would contain sufficient "usable" fuel to allow its associated EDG to run for 48 hours." ANSI N195-1976 states that if the fuel oil storage requirements are calculated by the conservative alternative (by assuming that the EDG operates at its rated capacity), the calculation shall include an explicit allowance for fuel consumption required by periodic testing. Explain why an explicit allowance for fuel consumption required by periodic testing is not included in your calculation.

Technical Specifications Branch

RAI-STSB-1

It appears that the TS language for the proposed 7-day fuel oil requirement is written such that it can be interpreted that the requirement is satisfied by having the minimum fuel oil volume contained only in the reserve storage tanks or solely in the Buchanan storage tank and none in the three underground fuel oil storage tanks. Please explain how the TS (not the Bases) insure that the minimum fuel oil volume cannot be contained in only the reserve storage tanks or solely in the Buchanan storage tank.

Balance of Plant Branch

Regulatory Requirement:

Section 8.1.1 of the Indian Point (IP) Unit 3 Final Safety Analysis Report Update (UFSAR) provides the principal Design Criterion for emergency power, which states:

An emergency power source shall be provided and designed with adequate independency, redundancy, capacity, and testability to permit the functioning of the engineered safety features and protection systems required to avoid undue risk to the health and safety of the public. This power source shall provide this capacity assuming a failure of a single component.

Section 8.2.3 of the IPS FSAR Update states:

The minimum required usable inventory for each of the three storage tanks is specified in the Technical Specifications. The safety design criteria are based on the need to provide adequate fuel to support forty-eight (48) hour operation of minimum safeguards equipment following a design basis accident.

This section of the FSAR also states that all components of the Emergency Diesel Generator (EDG) supply system are seismic Class I and protected from the effects of the design-basis

tornado. Reserve fuel oil necessary to assure continuous operation of minimum safeguards loads for a total of 168 hours is maintained in seismic Class III tanks onsite and at the Buchanan Station.

Issue:

In the License Amendment Request (LAR), the licensee states that previously these tanks [the three EDG fuel tanks] contained sufficient fuel for 48 hours of operation, but with the proposed change would support only 40 hours of operation. The licensee cites the TSTF-501 bases for a 7 day fuel supply as supporting the LAR, but does not provide a basis for the 40 hour fuel supply in the technical or regulatory analysis sections. IP-CALC-EG-00217, " EDG Storage Tank Level, includes the following statement: "fuel oil for 40 hours of EDG operation at 24 hour maximum profile would provide adequate fuel oil while allowing for required testing without requiring unreasonable frequency of EDG FOST refill." Also, Calculation IP-CALC-1 1-00058, "1P3 EDG Fuel Oil Consumption Licensing Basis Calculation," Rev 1, indicates that: (1) the maximum consumption of 0.83 SG fuel oil in one emergency diesel generator over 48 hours would be 6840 gallons, and (2) the usable inventory of fuel oil in a full EDG storage tank would be at least 6669 gallons.

As noted in the LAR, the provisions of TSTF-501 do not fully apply to IP Unit 3. The bases for Westinghouse ISTS 3.8.3, Condition A.1 in NUREG-1431 indicates that the volume between the 7 day and 6 day supply is intended to allow for fuel oil consumption resulting from full load operation following an inadvertent start or feed and bleed operations to correct degraded fuel oil conditions. The bases also include a statement that the 48 hour supply in the EDG storage tank is considered adequate to obtain the required replacement volume and completing analysis of fuel oil quality prior to fuel addition but justification for less than 48 hour supply capability is not provided.

Request:

1. Provide a safety-basis for the minimum required inventory of fuel oil in each EDG fuel oil storage tank.
2. Provide justification for any deviation from the volume necessary to support 48 hours operation of minimum safeguards equipment, given that additional volume is available and not credited in the licensing basis.

RAI1-2

Issue:

Section 8.2.3 of the IPS FSAR Update states:

The minimum required usable inventory for each of the three storage tanks is specified in the Technical Specifications. The safety design criteria are based on the need to provide adequate fuel to support forty-eight (48) hour operation of minimum safeguards equipment following a design basis accident.

Request:

1. Explain how ownership rights, operational control of equipment, and procedures would ensure that the transfer of fuel from the reserve tank(s) to the EDG storage tanks would be completed within the minimum supported period of operation under abnormal conditions.
2. Explain how the fuel oil testing program ensures acceptable fuel would be available for transfer from the reserve tanks to enable continuous operation of the EDGs for 7 days. TS 5.5.12 (a) require the verification of additional FO added to the DFO system meet acceptability requirements of relative density, kinematic viscosity, and appearance. Please provide procedures that ensure that verification of acceptability can be made in the reduced time period of 40 hours can be me

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