



GE Energy

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U.S. Nuclear Regulatory Commission  
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Subject: **Response to Portion of NRC Request for Additional Information  
Letter No. 65 – Diesel Generator Support Systems – RAI Numbers  
9.5-33, 9.5-36 through 9.5-38, 9.5-40 and 9.5-42**

Enclosure 1 contains GE's response to the subject NRC RAIs transmitted via the Reference 1 letter.

If you have any questions about the information provided here, please let me know.

Sincerely,

A handwritten signature in cursive script that reads "Kathy Sedney for".

David H. Hinds  
Manager, ESBWR

Reference:

1. MFN 06-353, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 65 Related to ESBWR Design Certification Application*, September 26, 2006

Enclosure:

1. MFN 06-469 – Response to Portion of NRC Request for Additional Information Letter No. 65 – Diesel Generator Support Systems – RAI Numbers 9.4-33, 9.5-36 through 9.5-38, 9.5-40 and 9.5-42

cc: AE Cabbage USNRC (with enclosures)  
GB Stramback GE/San Jose (with enclosures)  
eDRF 0061-4401

**Enclosure 1**

**MFN 06-469**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 65**

**Related to ESBWR Design Certification Application**

**Diesel Generator Support Systems**

**RAI Numbers 9.5-33, 9.5-36 through 9.5-38, 9.5-40, 9.5-42**

**Enclosure 1**

**MFN 06-469**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 65**

**Related to ESBWR Design Certification Application**

**Diesel Generator Support Systems**

**RAI Numbers 9.5-33, 9.5-36 through 9.5-38, 9.5-40, 9.5-42**

**NRC RAI 9.5-33:**

*Confirm each diesel generator will have a dedicated 7-day fuel oil tank.*

**GE Response:**

Each Diesel Generator will have a dedicated 7-day fuel oil tank.

As stated in Tier 2 DCD, Rev. 2, Subsection 9.5.4.1: “The fuel oil and transfer systems for the diesel generators design bases are as follows:

- Provide day tank of sufficient capacity to supply fuel oil to the DG for a minimum of 8 hours of operation at full load.
- Provide a long-term fuel oil storage capacity sufficient to support continuous operation at full load for a minimum of 7 days without refueling.”

Additionally, in Tier 2 DCD, Rev. 2 Subsection 9.5.4.2: “The DG fuel oil system for each of two engines consists of a yard storage tank, fuel oil day tank, fuel oil transfer pumps, suction strainer, duplex filter, instrumentation and controls, and the necessary interconnecting piping.”

**DCD Impact:**

No DCD changes will be made in response to this RAI.

**NRC RAI 9.5-36:**

*Clarify whether the underground piping for the fuel oil system is coated (per DCD Tier 2, Rev. 1, 9.5.4.2) or protected with a cathodic protection system (per DCD Tier 2, Rev. 1, 9.5.4.4)*

**GE Response:**

Corrosion protection for underground piping for the fuel oil system will be determined based on the piping material. If piping subject to corrosion, such as carbon steel piping, is utilized, underground portions will be coated.

In accordance with DCD Tier 2, Chapter 8A, which states: "The need for Cathodic Protection shall be determined by analyses." These requirements are the same as those called for in the National Association of Corrosion Engineers (NACE) Standards." Any underground diesel fuel oil piping determined to require cathodic protection, will be provided with cathodic protection.

**DCD Impact:**

No DCD changes will be made in response to this RAI.

**NRC RAI 9.5-37:**

*Clarify the requirement for diesel generator jacket cooling water system makeup and describe the provisions to support this requirement.*

**GE Response:**

The Diesel Generator jacket water cooling support system is provided with a jacket water makeup / head tank, specified by the engine manufacturer with a provision to add chemicals for proper water chemistry control. The makeup / head tank will meet the manufacturers design with makeup water supplied from the Makeup Water System. During diesel operation, make-up water may be necessary due to minor system leaks and vaporization.

**DCD Impact:**

No DCD changes will be made in response to this RAI.

**NRC RAI 9.5-38:**

*Describe what pump circulates the engine coolant in the normal standby mode.*

**GE Response:**

The diesel engine manufacturer has designed an ac motor driven circulation pump that circulates jacket water through the engine in the standby mode. A jacket water heater in the loop maintains the engine jacket water at the manufacturer's recommended temperature. When the diesel engine is in operation, the standby jacket water circulation pump shuts down and the engine driven jacket water pump provides flow through the engine and heat exchanger.

**DCD Impact:**

No DCD changes will be made in response to this RAI.

**NRC RAI 9.5-40:**

*Clarify the capability and capacity of the starting air tanks. How many seconds of starting air is required for each of the 5 automatic or manual starts? What controls the discharge time for each start attempt?*

**GE Response:**

The engine manufacturer specifies the capacity of the starting air tanks and the controls for a “failed start attempt”. This capacity is based upon the size of the engine and the number of start attempts recommended.

**DCD Impact:**

Revision 3 to DCD Tier 2, Subsection 9.5.6, will be revised to clarify the diesel generator starting air system capability and capacity.

**NRC RAI 9.5-42:**

*Clarify the statement that the COL applicant will specify the (diesel) lubrication system. Is this not a function of the diesel vendor?*

**GE Response:**

This statement was removed in Revision 2 to DCD, Subsection 9.5.7.6. GE will specify the diesel engine lubrication and other systems for the diesel generators. These systems will be finalized when a vendor is selected.

**DCD Impact:**

DCD Tier 2 Section 9.5.7, Revision 3 will specify the diesel engine lubrication system.