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For Signature of:
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Routing:
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Description:
Informal Vermont Yankee Seismic and Hydrology Questions

Assigned To:
DORL

Contact:
HANEY, CATHERINE

Special Instructions:

Agency of Natural Resources
Department of Environmental Conservation

MEMORANDUM

Date: November 8, 2006
Subject: Entergy-Vermont Yankee – Seismic Questions

The purpose of this memorandum is to set forth a brief outline of ANR questions regarding seismic issues and the Entergy Vermont Yankee Nuclear Power Plant.

VY received a license to operate in 1972 and is designed for operation to conform to Atomic Energy Commission requirements of April 1968. The maximum ground accelerations at the site are specified as a 0.14g (14% of the acceleration of gravity) Safe Shutdown Earthquake (SSE) and a 0.07g (7% of the acceleration of gravity) Operating Basis Earthquake (OBE).

- What return interval, spectra, and accelerations were employed to predict shaking at the site?

- How were these calculations used to determine accelerations as a percent of gravity for an Operating Basis Earthquake (OBE) and the Safe Shutdown Earthquake (SSE)? Please show the calculations for both the OBE and SSE determinations. From the above calculations how were the OBE and SSE established for the design basis? Please be specific about the NRC criteria used to establish these design basis parameters.

- In the late 1990's, the core shroud repair design utilized a USNRC Regulatory Guide 1.60 rev.1 (1973) response spectrum input for the repair seismic analysis. How does the overall 1973 guidance compare with the late 1960's design basis criteria? If there is a difference, please be specific about the difference? If there is a difference are the 1973 criteria going to be applied to the design basis analysis for re-licensing?

- On June 28, 1991, NRC issued Generic Letter 88-20, Supplement 4, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities, 10 CFR 50.54(f), and NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities. A Seismic Margins Assessment (SMA) was conducted at Vermont Yankee subsequent to these NRC releases also in conjunction with document EPRI NP-6041 guidance. ANR understands that the guidance employed a 0.30g review level earthquake for the plant examination. How does this 0.30g review level compare to the 0.14g SSE level? If this is a higher standard is it going to be employed in the design basis review for re-licensing?

- What is the proper standard of design basis protection for extending the license of a nuclear power plant?

- Has NRC evaluated whether the age and current physical condition of the facility make it any more susceptible to External Events, including Design Basis External Events, such as, Earthquake and Flood?

Agency of Natural Resources
Department of Environmental Conservation

MEMORANDUM

Date: November 8, 2006
Subject: Entergy-Vermont Yankee – Flood Questions

The purpose of this memorandum is to set forth a brief outline of ANR questions regarding flood issues and the Entergy Vermont Yankee Nuclear Power Plant.

- The Design Basis for External Events (DB) relating to floods is a Probable Maximum Flood (PMF) of 480,100 cfs. How was this PMF calculated? What assumptions were made to calculate the PMF for this plant? What NRC standards and/or methodologies were used to arrive at this PMF?

- Does the DB analysis for External Events consider the impacts of inundation related to changes in the river channel including sedimentation, debris deposition and catastrophic erosion potential? If not, why not?

- What is the proper standard of design basis protection for extending the license of a nuclear power plant?

- Has NRC evaluated whether the age and current physical condition of the facility make it any more susceptible to External Events, including Design Basis External Events, such as, Flood and Earthquake?