

From: "Becker, Laurence" <Laurence.Becker@state.vt.us>
To: "James Shea" <JJS@nrc.gov>
Date: 11/07/2006 3:31:06 PM
Subject: Seismic and Flood Questions from ANR

To: James Shea - Please see attached two separate memos that contain questions concerning Seismic and Flood issues at Vermont Yankee.

Thank you for following up and your attention to these matters.
Looking forward to your reply.

Sincerely,
Larry Becker

Please note new e-mail - laurence.becker@state.vt.us
Laurence R. Becker
Vermont State Geologist and Director
Vermont Geological Survey/Division of Geology and Mineral Resources
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-----Original Message-----

From: James Shea [mailto:JJS@nrc.gov]
Sent: Monday, October 23, 2006 4:18 PM
To: Becker, Laurence
Cc: David Pelton; Hosung Ahn; Richard Laufer; Raymond Powell; Richard Emch; Rebecca Karas; Tracy Walker
Subject: Your questions concerning VY Seismic design and flooding

Laurence R. Becker, State Geologist & Director
Division of Geology & Mineral Resources,
VT Geological Survey and Radioactive Waste Management Program
State of Vermont.

Larry,

As we discussed today on the phone please send me your questions concerning the VY Seismic and Flooding Design and we will get answers back to you as soon as we can. Thanks!

James Shea, PM
NRR/DORL/LPL1-1
U.S. Nuclear Regulatory Commission
Mail Stop #: O-8C2
Phone #: 301-415-1388
E-Mail jjs@nrc.gov

CC: "David Pelton" <DLP1@nrc.gov>, "Hosung Ahn" <HXA1@nrc.gov>, "Richard Laufer" <RJL@nrc.gov>, "Raymond Powell" <RJP@nrc.gov>, "Richard Emch" <RLE@nrc.gov>, "Rebecca Karas" <RLK@nrc.gov>, "Tracy Walker" <TEW@nrc.gov>, "Gjessing, Catherine" <Catherine.Gjessing@state.vt.us>, "Cahoon, Barry" <Barry.Cahoon@state.vt.us>

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Subject: Seismic and Flood Questions from ANR
Creation Date 11/07/2006 3:30:31 PM
From: "Becker, Laurence" <Laurence.Becker@state.vt.us>

Created By: Laurence.Becker@state.vt.us

Recipients

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TWGWPO02.HQGWDO01
JJS (James Shea)

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Files	Size	Date & Time
MESSAGE	1397	11/07/2006 3:30:31 PM
NRC Questions (4) Flood.doc	24576	
NRC Questions Seismic.doc	28672	
Mime.822	77023	

Options

Expiration Date:	None
Priority:	Standard
ReplyRequested:	No
Return Notification:	None

Concealed Subject:	No
Security:	Standard

Junk Mail Handling Evaluation Results

Message is eligible for Junk Mail handling
This message was not classified as Junk Mail

Junk Mail settings when this message was delivered

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Junk Mail handling disabled by Administrator
Junk List is not enabled
Junk Mail using personal address books is not enabled
Block List is not enabled

**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?

**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?