Jonathan Rowley - January 8, 2008 NRC-VY/Entergy meeting summary

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Date: 01/15/2008 4:22 PM
Subject: January 8, 2008 NRC-VY/Entergy meeting summary

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LICENSEE: Entergy Nuclear Operations, Inc.

FACILITY: Vermont Yankee Nuclear Power Station

SUBJECT: SUMMARY OF MEETING HELD ON JANUARY 8, 2008, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION STAFF AND ENTERGY NUCLEAR OPERATIONS, INC. REPRESENTATIVES TO DISCUSS THE RESPONSE TO A REQUEST FOR ADDITIONAL INFORMATION PERTAINING TO THE VERMONT YANKEE NUCLEAR POWER STATION LICENSE RENEWAL APPLICATION

On January 8, 2008, the Nuclear Regulatory Commission staff (the staff) met with members of Entergy Nuclear Operations, Inc. (the applicant) in a public meeting to discuss the response to a request for additional information (RAI) made by the staff pertaining to the Vermont Yankee Nuclear Power Station (VYNPS) license renewal application. The applicant had an opportunity to comment on this summary.

A list of attendees is provided in Enclosure 1. The meeting agenda is provided in Enclosure 2. Comments made by the public during the meeting are provided in Enclosure 3. A copy of the slides presented by the applicant is provided as Enclosure 4. A summary of the discussion follows:

Background

In a letter dated November 27, 2007, the staff issued RAI 4.3.3-2 to the applicant. The purpose of the request was to gather additional information on the calculations used at VYNPS to reanalyze their time-limited aging analysis (TLAA) that addresses environmentally-assisted fatigue. In a letter dated December 11, 2007, the applicant provided its response to RAI 4.3.3-2 to the staff. The staff reviewed the response and expressed concerns with the methodology described in the submittal and statements made that shear stresses are negligible during a conference call with the applicant on December 18, 2007. During the call, the applicant indicated that some terminology misunderstanding may exist between the staff and Entergy. The applicant requested a face-to-face meeting to ensure the understanding pertaining to this highly technical issue was properly and effectively communicated.

Discussion

During the meeting, the applicant made a slide presentation of the reactor pressure vessel nozzle environmental fatigue analyses for license renewal at VYNPS. The applicant attempted to clarify the terminology used in the response to RAI 4.3.3-2 and explain the methodology used. The applicant also attempted to demonstrate that the shear stresses in the nozzles were negligible.

The applicant explained that nozzle corner, blend radius, and inner radius are interchangeable terms for locations with geometrical discontinuities; locations where

stresses are a maximum. The applicant explained that their methodology incorporates the use of axisymmetric modeling rather than a 3-Dimensional (3-D) or 2-Dimensional (2-D) modeling. They explained that axisymmetric modeling is virtually 3-D except that rather than being modeled as piping joined to a cylinder, it is modeled as piping joined to a sphere with a multiplier to account for stress effects. With the aid of colored graphs, the applicant demonstrated specific nozzles where stresses are negligible. The applicant also discussed the various conservatisms used in their analysis.

Conclusion

The applicant did not demonstrate that the shear stresses were negligible for all nozzles. As such additional confirmatory work will be performed by the applicant and submitted to the staff for review and acceptance.

The applicant indicated that it will take the following actions: 1) Perform benchmarking calculations on the feedwater nozzle, which is the most limiting component, using the axisymmetric model; 2) attempt to prove that the Vermont Yankee specific benchmarking calculations bound the results for the other nozzles still in question; 3) calculate fatigue usage factors (CUFs) using NRC approved ASME Section III NB-3200 methods; and 4) compare the resulting CUFs to the previous environmental assisted fatigue calculations in an attempt to verify the previous calculations are adequate.

Jonathan G. Rowley, Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures:
1. Attendance List
2. Agenda
3. Public Comments
4. Presentation slides

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Jonathan G. Rowley, Project Manager
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Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-271

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3. Public Comments
4. Presentation slides

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MEETING BETWEEN THE NRC STAFF AND ENTERGY NUCLEAR OPERATIONS, INC.
VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION

6003 EXECUTIVE BOULEVARD
ROOM EBB1B15
ROCKVILLE, MARYLAND

MEETING ATTENDANCE LIST
JANUARY 8, 2008

PARTICIPANTS	AFFILIATIONS
Jonathan Rowley	U.S. Nuclear Regulatory Commission (NRC)
Samson Lee	NRC
John Fair	NRC
Kenneth Chang	NRC
PT Kuo	NRC
Rani Franovich	NRC
Robert Sun	NRC
Qi Gan	NRC
Kaihwa Hsu	NRC
Ricardo Rodriguez	NRC
Mary Baty	NRC
Perry Buckberg	NRC
Evelyn Gettys	NRC
Yeon-Ki Chung	NRC
Peter Wen	NRC
On Yee	NRC
Gary Hammer	NRC
David Mannai	Entergy Nuclear Operations, Inc. (Entergy)
John McCann	Entergy
Jay Thayer	Entergy
Matias Travieso-Diaz	Entergy
Michael Metell	Entergy
Garry Young	Entergy
Norm Rademacher	Entergy
Alan Cox	Entergy

PARTICIPANTS	AFFILIATIONS
James Fitzpatrick	Entergy
Scott Goodwin	Entergy
John Dreyfuss	Entergy
Joe Hopenfeld	New England Coalition (NEC)
David Lochbaum	Union of concerned Scientist
THE FOLLOWING PARTICAPATED	**VIA TELEPHONE BRIDGELINE**
Sarah Hoffman	Vermont Department of Public Service
John Sipos	New York Office of the Attorney General
Paul Eddy	New York Office of the Attorney General
Joan Leary Matthews	New York Office of the Attorney General
Blaise Constantakes	New York Office of the Attorney General
Rudolf Hausler	New York Office of the Attorney General
Raymond Shadis	NEC
Claire Chang	NEC
Ulrich Witte	NEC
Ed Anthes	Nuclear Free Vermont
Rich Schaller	Strategic Teaming and Resource Sharing
Chalmer Myer	Southern Nuclear Operating Company
Bob Audette	The Brattleboro Reformer
Susan Smallheer	The Rutland Herald
Sally Shaw	
Fred Mogolesko	Entergy

MEETING BETWEEN THE NRC STAFF AND ENTERGY NUCLEAR OPERATIONS, INC.
VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION

6003 EXECUTIVE BOULEVARD
ROOM EBB1B15
ROCKVILLE, MARYLAND

AGENDA
JANUARY 8, 2008

I.	Introduction and opening remarks	10 minutes
II.	Discussion of Response to Request for Additional Information (Response to RAI 4.3.3-2)	80 minutes
III.	Public Comments	30 minutes
IV.	Adjourn	

Enclosure 2

MEETING BETWEEN THE NRC STAFF AND ENTERGY NUCLEAR OPERATIONS, INC.
VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
ROCKVILLE, MARYLAND
ROOM EBB1B15

MEETING MINUTES
JANUARY 8, 2008

Background

In a letter dated November 27, 2007, the staff issued RAI 4.3.3-2 to the applicant. The purpose of the request was to gather additional information on the calculations used at VYNPS to reanalyze their time-limited aging analysis (TLAA) that address environmentally-assisted fatigue. In a letter dated December 11, 2007, the applicant provided its response to RAI 4.3.3-2 to the staff. The staff reviewed the response and had concerns about the methodology described in the submittal and statements made that shear stresses are negligible. The staff raised its concern in a conference call with the applicant on December 18, 2007. During the call, the applicant indicated that there was a terminology misunderstanding between the sides. The applicant requested a face-to-face meeting to ensure communications pertaining to this highly technical issue were effective.

Discussion

During the meeting, the applicant presented a slide presentation regarding the reactor pressure vessel nozzle environmental fatigue analyses for license renewal at VYNPS. The applicant attempted to clarify the terminology used in the response to RAI 4.3.3-2 and explain the methodology used. The applicant also attempted to demonstrate that the shear stresses in the nozzles are negligible.

The applicant explained that nozzle corner, blend radius, and inner radius are interchangeable terms for locations with geometrical discontinuities; locations were stresses are a maximum. The applicant explained that their methodology incorporates the use of axisymmetric modeling rather than a 3-Dimensional (3-D) or 2-Dimensional (2-D) modeling. They explained that axisymmetric modeling is virtually 3-D except that rather than being modeled as piping joined to a cylinder, it is modeled as piping joined to a sphere with a multiplier to account for stress effects. With the aid of colored graphs, the applicant demonstrated specific nozzles where stresses are negligible.

Conclusion

The applicant did not demonstrate that the shear stresses where negligible for all nozzles so additional confirmatory work will be done and submitted to the staff for review and acceptance.

The applicant has to perform benchmarking calculations on the feedwater nozzle, which is the most limiting component, using the axisymmetric model. The applicant will attempt to prove that the Vermont Yankee specific benchmarking calculations bound the results for the other nozzles

Enclosure 3

still in question. The applicant will calculate fatigue usage factors (CUFs) using NRC approved ASME Section III NB-3200 methods. The resulting CUFs are to be compared to the previous environmental assisted fatigue calculations in an attempt to verify the previous calculations are adequate.