

From: Bo Pham
To: "Donna Tyner" <dtynere@entergy.com>,"MICHAEL D STROUD"
<MSTROUD@entergy.com>
Date: 4/11/2008 12:17:44 PM
Subject: SAMA RAI letter
cc: "Kimberly Green" <KJG1@nrc.gov>,"Andrew Stuyvenberg"
<ALS3@nrc.gov>,<IPNonPublicHearingFile@nrc.gov>,"Robert Palla" <RLP3@nrc.gov>

Mike & Donna,

We sent the SAMA RAI letter out today. Attached is an advance soft copy.
Thanks.

Bo Pham
Sr. Project Manager
Division of License Renewal
U.S. Nuclear Regulatory Commission
301-415-8450
O-11C12
bmp@nrc.gov

Hearing Identifier: IndianPointUnits2and3NonPublic
Email Number: 472

Mail Envelope Properties (47FFA850.HQGWD001.OWGWPO04.200.2000006.1.1811CF.1)

Subject: SAMA RAI letter
Creation Date: 4/11/2008 12:17:44 PM
From: Bo Pham

Created By: BMP@nrc.gov

Recipients

"Kimberly Green" <KJG1@nrc.gov>
"Andrew Stuyvenberg" <ALS3@nrc.gov>
<IPNonPublicHearingFile@nrc.gov>
"Robert Palla" <RLP3@nrc.gov>
"Donna Tyner" <dytyner@entergy.com>
"MICHAEL D STROUD" <MSTROUD@entergy.com>

Post Office
OWGWPO04.HQGWD001

Route
nrc.gov

Files	Size	Date & Time
MESSAGE	237	4/11/2008 12:17:44 PM
TEXT.htm	587	4/11/2008 6:05:04 PM
SAMA RAI-ML0808801040.pdf	89692	4/11/2008 6:05:04 PM

Options

Priority: Standard
Reply Requested: No
Return Notification: None
None

Concealed Subject: No
Security: Standard

Mike & Donna,

We sent the SAMA RAI letter out today. Attached is an advance soft copy.
Thanks.

Bo Pham
Sr. Project Manager
Division of License Renewal
U.S. Nuclear Regulatory Commission
301-415-8450
O-11C12
bmp@nrc.gov

April 9, 2008

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE REVIEW OF
THE LICENSE RENEWAL APPLICATION FOR INDIAN POINT NUCLEAR
GENERATING UNIT NOS. 2 AND 3 (TAC NOS. MD5411 AND MD5412)

Dear Sir or Madam:

By letter to Entergy Nuclear Operation, Inc. (Entergy), dated December 7, 2007, the U.S. Nuclear Regulatory Commission (NRC or staff) requested that additional information regarding Severe Accident Mitigation Alternatives (SAMAs) be provided in order for the staff to complete its review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, license renewal application. By letter dated February 5, 2008, Entergy provided responses to the staff's requests for additional information (RAIs). Upon review of your responses, the staff has identified areas where additional information is needed in order to complete its review.

Enclosed is the staff's additional RAI regarding SAMAs. As discussed with Mr. Mike Stroud of your staff, we request that you provide your responses to these questions by May 23, 2008. If you have any questions, please contact me at (301) 415-8450 or at BMP@nrc.gov.

Sincerely,

/RA/

Bo M. Pham, Senior Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:
As stated

cc w/encl: See next page

April 9, 2008

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE REVIEW OF
THE LICENSE RENEWAL APPLICATION FOR INDIAN POINT NUCLEAR
GENERATING UNIT NOS. 2 AND 3 (TAC NOS. MD5411 AND MD5412)

Dear Sir or Madam:

By letter to Entergy Nuclear Operation, Inc. (Entergy), dated December 7, 2007, the U.S. Nuclear Regulatory Commission (NRC or staff) requested that additional information regarding Severe Accident Mitigation Alternatives (SAMAs) be provided in order for the staff to complete its review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, license renewal application. By letter dated February 5, 2008, Entergy provided responses to the staff's requests for additional information (RAIs). Upon review of your responses, the staff has identified areas where additional information is needed in order to complete its review.

Enclosed is the staff's additional RAI regarding SAMAs. As discussed with Mr. Mike Stroud of your staff, we request that you provide your responses to these questions by May 23, 2008. If you have any questions, please contact me at (301) 415-8450 or at BMP@nrc.gov.

Sincerely,

/RA/

Bo M. Pham, Senior Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:
As stated

cc w/encl: See next page

DISTRIBUTION: See next page
ADAMS Accession No.: **ML080880104**

OFFICE	LA:DLR	PM:DLR:RPB2	OGC	BC:DLR:RPB2
NAME	IKing	BPham	BMizuno	RFranovich (BPham for)
DATE	4/1/08	4/2/08	3/24/08	4/9/08

OFFICIAL RECORD COPY

Letter to Entergy from B. Pham, dated April 9, 2008

DISTRIBUTION:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE REVIEW OF
THE LICENSE RENEWAL APPLICATION FOR INDIAN POINT NUCLEAR
GENERATING UNIT NOS. 2 AND 3 (TAC NOS. MD5411 AND MD5412)

HARD COPY:

DLR RF

E-MAIL:

PUBLIC

RidsNrrDir

RidsNrrDirRpb1

RidsNrrDirRpb2

RidsNrrDirRer1

RidsNrrDirRer2

RidsNrrDirRerb

RidsNrrDirRpob

RidsNrrDciCvib

RidsNrrDciCpnb

RidsNrrDraAfpb

RidsNrrDraAplb

RidsNrrDeEmcb

RidsNrrDeEeeb

RidsNrrDssSrxb

RidsNrrDssSbpb

RidsNrrDssScvb

RidsOgcMailCenter

RFranovich

BPham

KGreen

JCaverly

RAuluck

KChang

MKowal

JBoska

STurk, OGC

LSubin, OGC

BMizuno, OGC

SBurnell, OPA

DMcIntyre, OPA

TMensah, OEDO

EDacus, OCA

GMeyer, RI

MMcLaughlin, RI

NMcNamara, RI

DScrenci, RI OPA

NSheehan, RI OPA

PCataldo, RI

CHott, RI

DJackson, RI

BWelling, RI

RConte, RI

ECobey, RI

MCox, RI

**Request for Additional Information (RAI)
Regarding the Analysis of Severe Accident Mitigation Alternatives (SAMAs)
for Indian Point Nuclear Generating Unit Nos. 2 and 3 (IP2 and IP3)**

1. The response to RAI 1d addresses why the total loss of service water (SW) is low for both units but does not discuss the reason for Unit 2 having a loss of SW contribution that is nearly an order of magnitude lower than Unit 3. Explain the plant or model features that cause this difference.
2. Explain why the IP3 analysis cases for “DC Power/AFW System Changes,” “AC Power Cross-Tie with IP2,” and “Backup DC Power Supply,” result in no reduction in population dose or offsite economic cost risk (OECR) for the SAMAs considered therein, where some portion of the affected sequences may result in an offsite release.
3. In environmental report Tables E.2-3 and E.4-3, the benefit value for Sensitivity Case 3 (Loss of Tourism and Business) is same as for the Baseline Case for a large number of analysis cases. Confirm whether Sensitivity Case 3 values were actually calculated (i.e., the Baseline Case values were used) when the reduction in population dose and OECR were below some threshold value. If so, the revised benefit values provided in response to RAI 4e (i.e., columns 2 and 3 of the tables) may understate the benefits for the affected SAMAs. The affected SAMAs include: IP2 SAMAs 4-6, 18, 25-27, 29-32, 34-39, 41-43, 48-50, 56, 59, 63, 64, 67, 68, and IP3 SAMAs 2, 24-26, 28, 29, 32, 33, 35-37, 40, 42, 47, 48, 51, 56, 58, and revised SAMA 30. Update the tables provided in response to RAI 4e, if necessary, to assure that the benefit estimates for the aforementioned SAMAs fully account for the impacts of loss of tourism and business.
4. The response to RAI 2b indicates that steam generator tube ruptures (SGTRs) induced by high primary side pressures following core damage are addressed in the IP2 probabilistic risk assessment model using the information from the NUREG-1150 In-Vessel Expert Panel. The modeling approach does not appear to be explicitly provided. The response associated with IP3 does not appear to address this issue. Describe the current IP2 and IP3 modeling approach for thermally-induced SGTR events including the conditional probabilities and the associated conditions used to assess the likelihood of a thermally-induced SGTR (TI-SGTR), and the conditional probabilities for a stuck open main steam safety valve during a TI-SGTR event. Provide the bases for these values.
5. Provide an assessment of the impact on the identification and screening of SGTR-related SAMAs if the conditional probabilities of TI-SGTR (discussed in item 4 above) are increased to values comparable to those reported in NUREG-1570. Provide a further evaluation and discussion of any additional SGTR-related SAMAs that could become potentially cost-beneficial under these assumptions (including the SAMAs addressed by the analysis cases identified in item 2 above) and Entergy’s planned follow-up actions regarding these SAMAs.
6. The SAMA analysis for Beaver Valley Power Station identified as potentially cost-beneficial the purchase or manufacture of a “gagging device” that could be used to close a stuck-open steam generator safety valve on the ruptured steam generator prior to core damage in SGTR events. Provide an evaluation of the viability of this SAMA for IP2 and IP3, including the estimated costs and benefits under the assumptions of items 5 and 8.

ENCLOSURE

7. The response to RAI 4e states that Sensitivity Case 3 with uncertainty results in two additional SAMAs (009 and 053) for IP2 and one additional SAMA (053) for IP3. Discuss Entergy's planned follow-up actions regarding these additional SAMAs.
8. The response to RAI 5l shows a \$236,000 contingency cost as part of the cost breakdown. However, Section 4.21.5.4, "Final Screening and Cost/Benefit Evaluation (Phase II)" of the environmental report states that "the cost estimates for implementing the SAMAs did not include the cost of replacement power during extended outages required to implement the modifications, nor did they include contingency cost associated with unforeseen implementation obstacles." Explain this apparent discrepancy. Identify any other cost estimates in the SAMA analyses that include contingency costs. Provide the impact on the SAMA evaluation if all contingent costs are included.

Indian Point Nuclear Generating
Unit Nos. 2 and 3

cc:

Senior Vice President
Entergy Nuclear Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Vice President Oversight
Entergy Nuclear Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Senior Manager, Nuclear Safety &
Licensing
Entergy Nuclear Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Senior Vice President and COO
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Assistant General Counsel
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Manager, Licensing
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

Mr. Paul D. Tonko
President and CEO
New York State Energy Research and
Development Authority
17 Columbia Circle
Albany, NY 12203-6399

Mr. John P. Spath
New York State Energy, Research and
Development Authority
17 Columbia Circle
Albany, NY 12203-6399

Mr. Paul Eddy
New York State Department
of Public Service
3 Empire State Plaza
Albany, NY 12223-1350

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Senior Resident Inspector's Office
Indian Point 2
U.S. Nuclear Regulatory Commission
P.O. Box 59
Buchanan, NY 10511

Senior Resident Inspector's Office
Indian Point 3
U.S. Nuclear Regulatory Commission
P.O. Box 59
Buchanan, NY 10511

Mr. Charles Donaldson, Esquire
Assistant Attorney General
New York Department of Law
120 Broadway
New York, NY 10271

Mr. Raymond L. Albanese
Four County Coordinator
200 Bradhurst Avenue
Unit 4 Westchester County
Hawthorne, NY 10532

Mayor, Village of Buchanan
236 Tate Avenue
Buchanan, NY 10511

Mr. William DiProfio
PWR SRC Consultant
48 Bear Hill Road
Newton, NH 03858

Indian Point Nuclear Generating
Unit Nos. 2 and 3

cc:

Mr. Garry Randolph
PWR SRC Consultant
1750 Ben Franklin Drive, 7E
Sarasota, FL 34236

Mr. William T. Russell
PWR SRC Consultant
400 Plantation Lane
Stevensville, MD 21666-3232

Mr. Jim Riccio
Greenpeace
702 H Street, NW
Suite 300
Washington, DC 20001

Mr. Phillip Musegaas
Riverkeeper, Inc.
828 South Broadway
Tarrytown, NY 10591

Mr. Mark Jacobs
IPSEC
46 Highland Drive
Garrison, NY 10524

Mr. R. M. Waters
Technical Specialist Licensing
450 Broadway
P.O. Box 0249
Buchanan, NY 10511-0249

Mr. Sherwood Martinelli
351 Dyckman
Peekskill, NY 10566

Ms. Susan Shapiro, Esq.
21 Perlman Drive
Spring Valley, NY 10977

John Sipos
Assistant Attorney General
New York State Department of Law
Environmental Protection Bureau
The Capitol
Albany, NY 12224

Robert Snook
Assistant Attorney General
Office of the Attorney General
State of Connecticut
55 Elm Street
P.O. Box 120
Hartford, CT 06141-0120

Ms. Kathryn M. Sutton, Esq.
Morgan, Lewis & Bockius, LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

Mr. Paul M. Bessette, Esq.
Morgan, Lewis & Bockius, LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

Mr. Martin J. O'Neill, Esq.
Morgan, Lewis & Bockius, LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

The Honorable Nita Lowey
222 Mamaroneck Avenue, Suite 310
White Plains, NY 10605

Joan Leary Matthews
Senior Counsel for Special Projects
Office of General Counsel
NYS Department of Environmental
Conservation
625 Broadway
Albany, NY 12233-550