

Entergy Nuclear Northeast

Indian Point Energy Center 450 Broadway, GSB P.O. Box 249 Buchanan, NY 10511-0249

**Robert Walpole** Licensing Manager Tel 914 734 6710

January 20, 2009

Re: Indian Point Unit 2 and 3 Docket Nos. 50-247 and 50-286

NL-09-003

U.S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, DC 20555-0001

SUBJECT: Supplemental Response to Request For Additional Information on Request For Relief To Extend The Unit 2 and 3 Inservice Inspection Interval For The Reactor Vessel Weld Examination (TAC Nos. MD9196 andMD9197)

Reference: 1. Entergy Letter dated December 23, 2008, NL-08-177, Response to Request For Additional Information on Request For Relief To Extend The Unit 2 and 3 Inservice Inspection Interval For The Reactor Vessel Weld Examination (TAC Nos. MD9196 and MD9197)

> 2. NRC Letter dated November 20, 2008, Request for Additional Information Regarding Relief Request for Vessel Weld Inspection Extension (TAC NOS. MD9196 and MD9197)

Dear Sir or Madam:

Entergy Nuclear Operations, Inc. (Entergy) hereby submits a supplement, attachment 1, to the response in Reference 1 that addressed an NRC request for additional information (Reference 2). This supplement was discussed with the NRC Staff on January 7, 2009 as well as the Staff expectation that a risk based evaluation clearly describe the effect of external events. During this discussion Entergy indicated that Reference 1 limited the Relief Request to the end of the current License and understands that an additional Relief Request would be required if the License is renewed.

There are no new commitments being made in this submittal.

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If you have any questions or require additional information, please contact me at (914) 734-6710.

Sincerely,

In RW

Robert Walpole Licensing Manager Indian Point Energy Center

Attachment: 1. Supplemental Response to Request for Additional Information Regarding The Request For Relief To Extend The Inservice Inspection Interval For The Reactor Vessel Weld Examination

CC:

Mr. John P. Boska, Senior Project Manager, NRC NRR DORL Mr. Samuel J. Collins, Regional Administrator, NRC Region I NRC Resident Inspector's Office Indian Point Mr. Paul Eddy, New York State Department of Public Service Mr. Robert Callender, Vice President NYSERDA

## ATTACHMENT 1 TO NL-09-003

## SUPPLEMENTAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING THE REQUEST FOR RELIEF TO EXTEND THE INSERVICE INSPECTION INTERVAL FOR THE REACTOR VESSEL WELD EXAMINATION

ENTERGY NUCLEAR OPERATIONS, INC. INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3 DOCKET NOS. 50-247 AND 50-286

## Supplemental Response to Request For Additional Information Regarding The Request For Relief To Extend The Inservice Inspection Interval For The Reactor Vessel Weld Examination (TAC Nos. MD9196 and MD9197)

Entergy submitted a response to the NRC request for additional information dated November 20, 2008 in letter NL-08-177 dated December 23, 2008. A January 6, 2009 telecon, with the NRC identified that the change-in-risk estimate provided in the response to RAI Question 1 (with supporting information in the responses to RAI Questions 2 through 4) did not discuss the contribution to through wall cracking frequency (TWCF) from external events. Only the contribution to TWCF from pressurized thermal shock (PTS) internal events was considered. This supplemental response is being provided to address the contribution to TWCF from PTS external events as a supplement to RAI Question 1 submitted in NL-08-177.

As part of the development of the technical basis for the proposed alternate PTS rule, 10 CFR 50.61a, the NRC sponsored a study to develop an "Estimate of External Events Contribution to Pressurized Thermal Shock (PTS) Risk" (Reference 1). This study recognized that the development of a "best-estimate" assessment of the contribution of external events to the risk of PTS would require considerable resource investments. It was decided that the approach to estimating the TWCF for PTS due to external events would follow a more generic bounding type of approach. Therefore, it was stated that the TWCF values for external events derived by this study should be taken as conservative values that are intended to bound the worst situation that may arise at virtually any plant and may be extremely conservative for many plants. The overall conclusion of the external events study as stated in NUREG-1806 (Reference 2) was that there is considerable assurance that the external events' contribution to overall TWCF as a result of PTS is at least no greater than the best estimate contribution from internal events. Furthermore, given the conservative probabilities assumed in the external events analyses, with the additional assumptions of no (or limited) credit for any operator actions for the external events scenarios, it is more likely that the external event contribution to overall TWCF is realistically much less than the internal event contribution to TWCF.

Since plant specific external event frequencies are not available for PTS scenarios for Indian Point Unit 2 or 3, it is conservatively assumed, based on the conclusions of the NRC external events study discussed above, that the contribution of external events to TWCF for the Indian Point Units is equal to the contribution from internal events. Based on this conservative assumption, the mean failure frequencies provided in Table 1 of the response to RAI Question 1 were doubled and the change-in-risk estimate was re-evaluated. To be consistent with the approach in the WCAP, and the response to RAI Question 1, an upper and lower bound were calculated and the change-in-risk estimate was determined by taking the difference between the upper and lower bounds. The results of the change-in-risk estimate, considering external events, are included in Table A. As shown in Table A, the bounding difference in risk estimated for Indian Point Unit 3, considering both internal and external events, is 2.66E-08 events per year, which is about a factor of 4 below the criteria in Regulatory Guide 1.174 for an acceptably small change in large early release frequency.

Table A – Indian Point Unit 3 Change-in Risk Estimate – Considering Both Internal and External Events	
10-Year ISI Only – Internal Events (Mean Value / Standard Error)	8.42E-08 / 4.78E- 09
10-Year ISI Only – Internal & External Events (2x I.E. Mean Value)	1.68E-07
Upper Bound Value	1.78E-07
ISI Every 10 Years – Internal Events (Mean Value / Standard Error)	7.91E-08 / 3.40E- 09
ISI Every 10 Years – Internal & External Events (2x I.E. Mean Value)	1.58E-07
Lower Bound Value	1.51E-07
Bounding Difference in Risk	2.66E-08
Results are in "Through-Wall Cracking Events Per Year"	

## References:

1. NRC Letter Report, "Estimate of External Events Contribution to Pressurized Thermal Shock (PTS) Risk," October 1, 2004 (ADAMS Accession No. ML042880476).

2. NUREG-1806, "Technical Basis for Revision of the Pressurized Thermal Shock (PTS) Screening Limit in the PTS Rule (10 CFR 50.61): Summary Report," August 2007 (ADAMS Accession Nos. ML072830076 and ML072830081).