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Patric Conroy  
Licensing Manager  
Indian Point Energy Center

March 29, 2006

Re: Indian Point Unit 2  
Docket 50-247  
NL-06-039

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

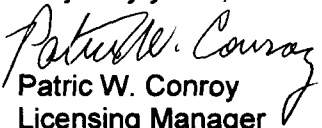
**SUBJECT: Reply to Request for Additional Information Regarding Indian Point 2  
Steam Generator Examination Program for 2R17 (TAC MD0213)**

- REFERENCES:
1. NRC letter to Entergy; "Request for Additional Information Regarding Proposed Steam Generator Examination Program", dated March 16, 2006
  2. Entergy letter NL-06-008 to NRC; "Proposed Steam Generator Examination Program – 2006 Refueling Outage (2R17)", dated February 13, 2006.

Dear Sir or Madam:

Entergy Nuclear Operations, Inc (Entergy) is providing a response to the NRC request for additional information (Reference 1) regarding the planned examination (Reference 2) of Indian Point 2 steam generators during the upcoming refueling outage, 2R17. The requested information is provided in Attachment 1.

There are no new commitments identified in this submittal. If you have any questions or require additional information, please contact Mr. Patric W. Conroy, IPEC Licensing Manager at (914) 734-6668.

Very truly yours,  
  
Patric W. Conroy  
Licensing Manager  
Indian Point Energy Center

cc: next page

Accol

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 2  
Mr. Peter R. Smith, NYSERDA  
Mr. Paul Eddy, NYS Department of Public Service

**ATTACHMENT 1 TO NL-06-039**

**ADDITIONAL INFORMATION REGARDING  
INDIAN POINT 2 STEAM GENERATOR EXAMINATION PROGRAM  
FOR 2006 REFUELING OUTAGE (2R17)**

**ENTERGY NUCLEAR OPERATIONS, INC  
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2  
DOCKET 50-247**

The following addresses questions from NRC letter dated March 16, 2006:

**Question 1:**

A couple of plants with thermally treated Alloy 600 steam generator tubes have identified crack-like indications in the portion of the tube within the tubesheet region (refer to Information Notice 2005-09, "Indications in Thermally Treated Alloy 600 Steam Generator Tubes and Tube-to-Tubesheet Welds). These crack-like indications occurred prior to observing cracking at any other location (e.g., expansion transition, U-bend). Please discuss your basis for not performing any rotating probe inspections near the tube-to-tubesheet weld, tack expansion, or overexpansions (bulges or tubesheet anomalies).

**Energy Response:**

Energy plans to inspect a 20% sample of hot leg bulges  $\geq 15$  volts, overexpansions  $\geq 1.5$  mils and dents  $\geq 18$  volts within the full depth of the tubesheet in all four steam generators with a rotating probe.

Energy has determined that it is not necessary to inspect either the tack expansion or the area near the tube-to-tubesheet weld with a rotating probe because those areas are not considered susceptible to cracking at this point in the service life of the replacement steam generators. The Indian Point 2 replacement steam generators will have operated for approximately 5 effective full power years (EFPY) with a hot leg temperature of 593 F or less at the time of the planned inspection in April 2006. The cracks found at Catawba Unit 2 were found in the first inspection of those areas after 14.7 EFPY with a hot leg temperature of 615 F. Subsequent to the Catawba inspection, Point Beach Unit 1 inspected a 20% sample of these areas in one steam generator and did not find any crack-like indications. The Point Beach Unit 1 steam generators had operated for 17.7 EFPY with a hot leg temperature of 598 F. The Point Beach Unit 1 steam generator experience is more relevant to Indian Point 2 because they are the same model steam generator and both used the urethane tack expansion process that is less stressful than the hard-roll expansion used for the Catawba Unit 2 steam generators.

**Question 2:**

The NRC staff notes that as part of your proposed Steam Generator Examination Program for your 2006 refueling outage (2R17), no plans were identified to inspect dings or dents with a rotating probe. Depending on their size, dings and dents may not be readily inspected with a bobbin probe. In addition, circumferential cracking that could occur at dents and dings will generally not be detectable with a bobbin probe. Dings and dents can increase the stress levels in the tube making them an area more susceptible to cracking than other portions of the tube. As a result, please provide your basis for not inspecting dings or dents with a rotating probe.

**Entergy Response:**

Entergy plans to inspect dents or dings in the hot leg straight sections in all four steam generators, with a rotating probe as follows:

- 100% of dents or dings  $\geq 5$  volts identified during the prior examination (2R15, November 2002);
- a 20% sample of dents or dings  $\geq 2$  and  $< 5$  volts identified in 2R15; and
- new dents or dings  $\geq 2$  volts identified in 2R17.